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# ONLY CONNECT

By Kevin Werbach<sup>†</sup>

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*Only connect! That was the whole of her sermon.  
Only connect the prose and the passion, and both will be exalted,  
And human love will be seen at its height.  
Live in fragments no longer.  
Only connect . . . .*

—E.M. Forster, *Howards End*<sup>1</sup>

## I. INTRODUCTION

Communications networks such as the internet and the telephone system are governed by two kinds of legal rules.<sup>2</sup> *Interconnection* rules define how and when networks must exchange traffic with each other. *Non-discrimination* rules prevent networks from favoring some customers' traffic over others. Both restrict network owners from leveraging their control over physical infrastructure to disadvantage others, and the two approaches are sometimes used in parallel. However, they have unique strengths and weaknesses.

Although regulators have imposed each type of requirement on multiple occasions, neither they nor scholars have expressly framed the choice in this manner. Yet today, anyone seeking to understand key communications and internet policy challenges, as well as potential solutions, should appreciate the distinction between interconnection and non-discrimination rules. By failing to emphasize interconnection, advocates on both sides of

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1. E.M. FORSTER, *HOWARDS END* 214 (Alfred A. Knopf, Inc. 1946) (1921).

2. The Article addresses the economic regulation of networks. Networks may also be regulated for social policy reasons, such as restricting the availability of certain content to children. Under the "layered" regulatory model, such content or application-specific issues are best distinguished from platform questions about network architecture and competition. See generally Kevin Werbach, *A Layered Model for Internet Policy*, 1 J. TELECOMM. & HIGH-TECH L. 37 (2002) (advocating a layered policy approach to networks).

current debates push towards unworkable outcomes, while ignoring significant threats to innovation and investment.

The two rule categories have a long pedigree.<sup>3</sup> Non-discrimination rules of “common carriage” dominated communications law for most of the twentieth century. This made sense, because there was a single regulated monopoly network, AT&T, which delivered a fixed set of voice-based services. Interconnection-flavored initiatives have nearly as extensive a history, and fueled regulatory efforts to foster competition in end-user equipment and computer-based “enhanced services” starting in the 1960s. The development of the internet, and the move in the 1990s toward competitive communications markets, gave additional prominence to interconnection questions. For the first time, traffic hand-offs between potentially competing networks became essential for smooth connectivity. Yet there is still little appreciation of the increasing importance of interconnection in the dawning age of digital convergence.<sup>4</sup>

Technology is now eliminating historical differences between network platforms, as well as blurring the lines between physical networks and the service providers that use those networks.<sup>5</sup> The internet, long seen as an unregulated bastion of experimentation and free expression, is becoming the central battleground for massive communications, media, and online services companies. The delivery of content and applications across interconnected networks is, increasingly, the lifeblood of these industries. One should, therefore, expect interconnection rules to take center stage.

Instead, communications policy today is heavily focused on discrimination.<sup>6</sup> An intense debate rages over proposed “network neutrality” non-discrimination rules to prevent broadband network owners (such as AT&T, Comcast, and Verizon) from disadvantaging unaffiliated content

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3. See *infra* Section II.B.

4. There has been some attention paid to contemporary interconnection questions. See generally RICHARD LEVINE & RANDOLPH MAY, INTERCONNECTION WITHOUT REGULATION: LESSONS FOR TELECOMMUNICATIONS REFORM FROM FOUR NETWORK INDUSTRIES (2005), available at <http://www.pff.org/issues-pubs/communications/books/051018Interconnection.pdf> (arguing that interconnection can be achieved through market mechanisms); Adam Candeub, *Network Interconnection and Takings*, 54 SYRACUSE L. REV. 369 (2004) (discussing the applicability of interconnection rules in the digital world); Francois Bar, Michael Borrus & Richard Steinberg, *Islands in the Bit-Stream: Charting the NII Interoperability Debate* (Berkeley Roundtable on Int'l. Econ., Working Paper No. 79, 1995), available at <http://bric.berkeley.edu/publications/WP%2079.pdf> (mapping the early debate over interconnection and the internet).

5. See *infra* Section III.A.1.

6. See *infra* Section III.B.

and application providers (such as Google, Microsoft, and Amazon.com).<sup>7</sup> Both sides presume that the critical question is whether the network operators should be allowed to discriminate. In actuality, the core threat to the internet is the potential erosion of robust interconnection, creating a balkanized environment in which innovation opportunities are circumscribed. Constant battles about whether network operators are engaged in permissible traffic management or prohibited discrimination will detract attention from the development of next-generation interconnection rules.

The defining characteristic of the internet is not the absence of discrimination, but a relentless commitment to interconnection.<sup>8</sup> The engineers and entrepreneurs who laid the foundations for today's commercial internet developed a set of technical protocols, business norms, and contractual arrangements to link together diverse networks.<sup>9</sup> In such an environment, blockages and restrictions at any point are simply obstacles to route around. A close examination of the technical and business dynamics of next-generation broadband networks reveals that properly defined interconnection rules could address the concerns of both sides in the network neutrality conflict.<sup>10</sup> They could also address other developments that threaten the internet's rich web of interconnection, but are receiving little attention amid the loud network neutrality controversy.<sup>11</sup>

In short, non-discrimination was crucial in the old era of scarcity; interconnection is the essential input of the new age of abundance. The animating mandate for a contemporary approach to network infrastructure policy should be the one eloquently articulated by E.M. Forster: Only connect.

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7. See generally Tim Wu, *Network Neutrality, Broadband Discrimination*, 2 J. TELECOMM. & HIGH TECH. L. 141 (2003) (arguing for the network neutrality approach) [hereinafter Wu, *Broadband Discrimination*]; Tim Wu, *The Broadband Debate, A User's Guide*, 3 J. TELECOMM. & HIGH TECH. L. 69 (2004) (describing the conflict between "openists" who favor network neutrality rules and "deregulationists" who oppose them) [hereinafter Wu, *Broadband Debate*]; Christopher S. Yoo, *Beyond Network Neutrality*, 19 HARV. J.L. & TECH. 1 (2005) [hereinafter Yoo, *Beyond Network Neutrality*] (rejecting network neutrality in favor of network diversity); Christopher S. Yoo, *Network Neutrality and the Economics of Congestion*, 94 GEO. L.J. 1847 (2006) [hereinafter Yoo, *Congestion*] (attacking network neutrality on economic and technical grounds).

8. See *infra* Section II.B.2.

9. See generally KATIE HAFNER & MATTHEW LYON, *WHERE WIZARDS STAY UP LATE: THE ORIGINS OF THE INTERNET* (1996) (telling the story of the researchers who built the internet).

10. See *infra* Section IV.B.

11. See *infra* Section III.C.

Part II of the Article develops the distinction between interconnection and non-discrimination rules, and traces its expression in communications law and its antecedents. Part III details the regulatory, technical, and business developments that threaten interconnection in a converging world. It critiques the non-discrimination turn of the current policy debate, as reflected in the confused battle over network neutrality. Part IV sketches the outlines of an interconnection-focused alternative.

## II. FOUNDATIONS OF NETWORK POLICY: A HISTORICAL SURVEY

Communications networks form the basis for the telephone, television, radio, cable television, and cellular telephone industries, as well as all the dynamic segments of the internet economy, from broadband access to electronic commerce. It is difficult to imagine a major corporation today that does not see such networks as crucial to its operations, just as it is difficult to imagine contemporary entertainment, retail, transportation, financial services, and other industries without them. The legal rules governing networks are thus of immense significance.

Yet despite extraordinary legislative,<sup>12</sup> judicial,<sup>13</sup> administrative,<sup>14</sup> and academic<sup>15</sup> efforts over the past decade, communications policy has rarely been so muddled or uncertain. The current legal framework, embodied in the Telecommunications Act of 1996 (1996 Act), is widely regarded as a colossal failure.<sup>16</sup> There are grave concerns that the United States govern-

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12. See Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (codified in scattered sections of 47 U.S.C.).

13. See, e.g., Nat'l Cable & Telecomms. Ass'n v. Brand X Internet Servs., 545 U.S. 967 (2005) (upholding FCC classification of broadband internet access over telephone lines as an information service); AT&T Corp. v. Iowa Utils. Bd., 525 U.S. 366 (1999) (reviewing FCC interconnection rules).

14. A good example is the FCC's tortuous path in reviewing and revising its rules for unbundling of local telecommunications networks. See Review of the Section 251 Unbundling Obligations, 18 F.C.C.R. 16978, 17079 (2003) (report and order); 18 F.C.C.R. 19020 (2003) (errata), *partially vacated sub nom.* United States Telecomm. Ass'n v. FCC, 359 F.3d 554 (D.C. Cir. 2004), *on reconsideration* 19 F.C.C.R. 15856 (2004), *also on reconsideration* 19 F.C.C.R. 20293 (2004); Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers, 19 F.C.C.R. 16783 (2004) (order and notice of proposed rulemaking); Unbundled Access to Network Elements, 20 F.C.C.R. 2533 (2005) (order on remand).

15. A string cite of all significant telecommunications law scholarship over the past decade would be as unenlightening as it was voluminous.

16. See Richard A. Epstein, *Takings, Commons, and Associations: Why the Telecommunications Act of 1996 Misfired*, 22 YALE J. ON REG. 315, 315-16 (2005) (discussing the dysfunctional results of the 1996 Act).

ment's current policy direction will not only foreclose further entry into traditional markets, but will also harm the country's global competitiveness and undermine the great innovation engine of the internet.<sup>17</sup> Before considering how to escape this mess, we must explore how it arose.

The history of communications policy evinces two recurring concerns: that network operators will deny necessary connections to their competitors, and that those operators will use their market leverage to treat certain customers unfairly. In response, judges, legislatures, and regulatory agencies adopted rules requiring certain networks to accept and hand off traffic on defined terms, and barring certain networks from treating similarly situated users differently. I call the first category interconnection rules, and the second category non-discrimination rules.<sup>18</sup> This Part first elucidates the two types of rules, and then traces their application through the history of telecommunications networks and the internet.

#### A. Interconnection and Non-Discrimination

##### 1. *A Tale of Two Approaches*

*Interconnection* is the agreement of two or more networks to carry each other's traffic on a reciprocal basis.<sup>19</sup> Although networks may interconnect voluntarily, regulators often find it necessary to adopt rules specifying interconnection terms. Thus, for example, the 1996 Telecommunications Act contains a provision requiring incumbent telephone companies to hand off calls to the new local competitors that it authorizes.<sup>20</sup> It also includes specific interconnection obligations setting pricing and other terms for particular traffic types, such as local calls.<sup>21</sup> In contrast to the relationships that networks have with their users, interconnection is a network-to-network relationship.

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17. See Wu, *Broadband Discrimination*, *supra* note 7; Ex parte letter from Timothy Wu and Lawrence Lessig at 12-15, Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities, CS No. 02-52, (Aug. 22, 2003), available at [http://gullfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native\\_or\\_pdf=pdf&id\\_document=6514683884](http://gullfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6514683884).

18. The terms "interconnection" and "non-discrimination" are widely used in communications policy. See, e.g., Wu, *Broadband Discrimination*, *supra* note 7. However, the particular meaning developed in this Article is original.

19. Cf. Daniel F. Spulber & Christopher S. Yoo, *Network Regulation: The Many Faces of Access*, 1 J. COMPETITION L. & ECON. 635, 641 (2005) ("*Interconnection access* refers to reciprocal connections between networks that provide access to each other's facilities, forming a larger network in the process.") (italics in original).

20. See 47 U.S.C. § 251(a)(1) (2000).

21. See 47 U.S.C. § 251(b)(5) (2000).

*Discrimination*, the other basic concept, is the refusal to give similarly situated customers the same treatment, including refusal to provide services that are available to other customers.<sup>22</sup> Non-discrimination emphasizes the relationship between networks and their customers.<sup>23</sup> Because customers both make and receive calls, non-discrimination rules prohibit differential treatment of traffic in either direction. The network operator cannot refuse to offer one customer a service it offers to others. Nor can it deny customers the equal ability to receive communications from other subscribers.

The two categories naturally derive from fundamental policy choices. To clarify the distinction, assume that AT&T regained the monopoly position it held during its glory days as the “Ma Bell” monopoly over telephone service in most of the United States. A regulator concerned that AT&T would abuse its dominant position would have two choices.<sup>24</sup> Under the first approach, which could be labeled “Competition-Facilitation,” it might encourage other networks to compete against AT&T. If sufficient competition developed, market forces would then discipline AT&T’s behavior. Or, under the “Monopoly-Policing” approach, it might identify the specific practices it feared, and bar AT&T from directly engaging in them.<sup>25</sup>

Under Competition-Facilitation, the regulator would quickly run into a problem. An erstwhile competitor against AT&T would start with zero

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22. In the communications context, the overwhelming concern is private economic discrimination, although the rules adopted would generally cover discrimination on other bases such as race or point of view.

23. Thus, for example, former FCC Chairman Michael Powell’s “Four Freedoms,” the original blueprint for network neutrality non-discrimination rules, were couched not as restrictions on network operators, but as a bill of rights for users. *See infra* note 179 and accompanying text.

24. A third approach, of course, would be to challenge the monopoly directly on antitrust grounds. This was the track the U.S. government eventually took; it led to the divestiture of AT&T into a competitive long-distance carrier and seven Regional Bell Operating Companies. *See infra* note 72 and accompanying text. Even an antitrust approach, however, must determine appropriate remedies when a violation of the Sherman Act is found. As described below, the AT&T divestiture process involved the same contention among interconnection and non-discrimination solutions. *See id.*

25. One could also imagine a hybrid of the two approaches. Indeed, as described below, interconnection and non-discrimination rules are sometimes implemented together. *See infra* Section II.B.3. To a degree, though, successful implementation of either approach should moot the other. Sufficient market competition eliminates the need for prophylactic non-discrimination regulation, and, at least in a natural monopoly environment, effective non-discrimination rules replicate the efficient outcome with no barriers to competitive entry.

market share. Its customers would be much more likely to call AT&T customers than each other because there were so many more users on the AT&T network. A service offering that could only reach the limited circle of customers on the entrant's network would thus face an insurmountable disadvantage against AT&T, even though AT&T customers were similarly limited in their ability to reach the entrant's customers.

Competition-Facilitation would therefore have to include a requirement that AT&T allow customers of the entrant to call its own customers, and vice versa. In fact, the specific terms of this requirement would be the defining feature of the Competition-Facilitation rule. The rule could specify under what circumstances AT&T would have to interconnect, at which locations, and at what prices. Thus, although Competition-Facilitation starts with a commitment to competition and avoidance of direct regulation, the result is regulation of the terms under which competing or potentially competing networks interconnect.<sup>26</sup>

Under Monopoly-Policing, by contrast, the regulator would not have the same concern about how AT&T treated its competitors. In fact, there might well not be any competitors. Monopoly-Policing would focus on what AT&T had to offer its own customers. As a matter of elementary economics, the initial concern would be that AT&T would price its services at the monopoly level rather than at marginal cost.<sup>27</sup> So, some form of price regulation would be necessary under a Monopoly-Policing regime.

However, the story would not end there. AT&T might decide to give preferential or inferior treatment to certain customers. It might even decide to block customers from certain actions, such as the attachment of a device to their telephones that potentially deprived AT&T of additional reve-

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26. There is an alternative view that, even in such an unbalanced situation, mandatory interconnection is unnecessary. Tom W. Bell, *The Common Law in Cyberspace*, 97 MICH. L. REV. 1746, 1757-61 (1999) (reviewing PETER HUBER, *LAW AND DISORDER IN CYBERSPACE* (1997)). The claim is that, without interconnection requirements, competition will still emerge if the market is not in fact a natural monopoly, and the presence of multiple facilities-based competitors will produce a better-performing market than under mandatory interconnection. I am skeptical of this viewpoint, as applied to the early telephone industry. However, my argument does not depend on whether or not interconnection is mandatory. A conscious regulatory decision to rely on voluntary interconnection as the basis for competition and innovation is also an interconnection rule.

27. In competitive markets, prices are driven down toward marginal cost. Monopolies, however, can generate greater profits by restricting output and charging higher prices for the artificially scarce goods. See KARL E. CASE & RAY C. FAIR, *PRINCIPLES OF MICROECONOMICS* 311-12 (Prentice Hall, Inc. 4th ed. 1996) (1989).

nue.<sup>28</sup> Such restrictions would potentially curtail innovation and additional investment in the telephone network platform.<sup>29</sup> Because customers would not have the option of switching to a competitor, the regulator would have to impose rules to limit AT&T's freedom of action.

Such rules would bar either AT&T's refusal to provide its full range of services to bona fide customers or AT&T's differential treatment of customers in the same situation. In short, Monopoly-Policing would necessarily evolve toward a non-discrimination model. The critical issue would be which distinctions counted as impermissible discrimination. For example, could a large corporate customer negotiate a special volume and term discount that AT&T did not expressly offer to all other customers?<sup>30</sup>

Thus, depending on the initial choice by the government policy-maker, regulators would have to adopt either interconnection or non-discrimination rules. This unavoidable choice is why the two approaches appear repeatedly in communications policy.

## 2. *Sharpening the Distinction*

There are many variations of both interconnection and non-discrimination approaches. An interconnection rule might be more or less intrusive; the same is true of a non-discrimination rule. However, there remain fundamental differences. Non-discrimination rules mandate full equivalence: the network operator cannot treat third parties any worse than it treats itself or its partners. The tricky question is how "discrimination" is defined. Interconnection rules have more leeway. A very loose interconnection regime might not even require parties to interconnect, and only limit what practices are allowable when they choose to do so. A very strict interconnection regime might specify every detail of mandatory interconnection.

Both rule types are means to the same end: well-functioning markets subject to Schumpeterian competition, producing optimal social welfare gains.<sup>31</sup> However, they use different means to that end. To oversimplify,

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28. See *Hush-A-Phone Corp. v. United States*, 20 F.C.C. 391 (1955), *rev'd*, 238 F.2d 266, 267 (D.C. Cir. 1956) (seeking to bar the attachment of a rubber noise-shield to telephone receivers).

29. See generally LAWRENCE LESSIG, *THE FUTURE OF IDEAS: THE FATE OF THE COMMONS IN A CONNECTED WORLD* (Random House 2001) (explaining how open interfaces for network attachments and uses promote innovation).

30. Under the actual common carriage rules governing pre-divestiture AT&T, such a deal would run afoul of the requirement that the carrier could only offer services pursuant to its posted tariffs.

31. See JOSEPH A. SCHUMPETER, *CAPITALISM, SOCIALISM, AND DEMOCRACY* 81-90 (2d ed. 1947); Wu, *Broadband Debate*, *supra* note 7, at 80-84. My argument in the Arti-

interconnection benefits competition, while non-discrimination benefits customers.<sup>32</sup> When interconnection is widely available, customers can exert pressure on incumbents by switching to competitors, or they can turn themselves into quasi-competitors using the open interfaces that interconnection promotes. Entry barriers for new facilities-based entrants are reduced, and opportunities for incumbents to leverage market power are circumscribed by the terms of their interconnection agreements with other networks. Non-discrimination rules can approximate the disciplining effects of competition by forcing incumbents to behave as they might in a truly competitive environment. However, designing and enforcing rules that mimic the distributed constellation of decisions in a functioning market is a Herculean task, especially when that market is dynamic.<sup>33</sup>

The significance of both rule types can be traced to the fundamental dynamics of networks. The value of a network increases with the number of users, a phenomenon known as network effects.<sup>34</sup> The more people or devices you can reach, the more utility you (and everyone else) gain from connectivity. Without interconnection, the largest network may have an insurmountable advantage, because customers of competing networks will defect to gain the benefits of scale.<sup>35</sup> In markets with low capital costs of infrastructure, such as instant messaging software, duplicate networks may be sustainable, although still raising market power concerns and limiting the utility of the service. Otherwise, monopoly is the likely result.

In situations where government seeks to facilitate competitive entry, such as the AT&T Competition-Facilitation scenario, interconnection is critical.<sup>36</sup> New entrants often cannot survive without the ability to offer

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cle does not hinge on selection of a particular normative goal. In essence, my argument is that whatever the over-arching outcome desired, interconnection is a better route to get there than non-discrimination.

32. These distinctions should not be overstated. The presence of competition can reduce prices and produce service innovation, benefiting incumbents' customers as well as those of new entrants. Similarly, non-discrimination rules prevent incumbents from imposing restrictions that prevent new forms of competition. Nonetheless, interconnection and non-discrimination represent distinct concepts about the core problem and appropriate solution.

33. This is, in essence, the powerful argument that Austrian School economists such as Friedrich Hayek leveled against socialism. See Friedrich Hayek, *The Use of Knowledge in Society*, 35 AM. ECON. REV. 519-30 (1945).

34. See Mark A. Lemley & David McGowan, *Legal Implications of Network Economic Effects*, 86 CALIF. L. REV. 479, 488-500 (1998) (explaining the concept of network effects, and its potential significance).

35. See *id.* at 549; Candeub, *supra* note 4, at 387-88; Nicholas Economides, *The Economics of Networks*, 14 INT'L J. INDUS. ORG. 673, 679, 692-93 (1996).

36. See *supra* text accompanying note 26.

access to the incumbent's customers. For this reason, an interconnection mandate is the first provision of the section of the 1996 Telecommunications Act devoted to "Development of Competitive Markets."<sup>37</sup> Interconnection, however, does not only benefit new entrants. It is a two-way street. Each network's subscribers benefit from the ability to reach those of the other, even as the two networks compete.<sup>38</sup> Interconnection is thus a form of "co-opetition:" a mutually beneficial business arrangement between companies that otherwise compete. The terms of those arrangements go a long way toward defining the terms of competitive engagement for the industry.

Non-discrimination rules also shape the competitive landscape, but in a different way. Discrimination is an effort by the network operator to maintain control over the entire network ecosystem. Non-discrimination rules seek to divide the competitive environment on top of the network and the competitive environment (if it exists) among networks. However, such intervention can have unpredictable consequences. Networks are complex adaptive systems, in which the behavior of the whole often cannot be predicted accurately from knowledge of the individual components.<sup>39</sup> Non-discrimination rules can work effectively to promote innovation on one side of the boundary they establish, but they can also damage the overall level of innovation, investment, and network growth. The problem is that it is difficult to predict the results ahead of time.

### 3. *Areas of Overlap*

There is some overlap between the two approaches. Any interconnection rule implies a limited form of non-discrimination through its reciprocity requirement: the interconnecting parties will treat each other's traffic as

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37. 47 U.S.C. § 251(a)(1) (2000).

38. See Candebub, *supra* note 4, at 408 (arguing that this mutual benefit obviates the need for positive interconnection charges on transiting traffic).

39. See Susan P. Crawford, *The Internet and the Project of Communications Law* 31 n.128 (Feb. 11, 2007) (unpublished draft, on file with the Social Science Research Network), available at <http://ssrn.com/abstract=962594>; David G. Post & David R. Johnson, "Chaos Prevailing On Every Continent": Towards a New Theory of Decentralized Decision-Making in Complex Systems, 73 CHI-KENT L. REV. 1055 n.34 (1998); Daniel F. Spulber & Christopher S. Yoo, *On the Regulation of Networks as Complex Systems: A Graph Theory Approach*, 99 NW. U. L. REV. 1687, 1693-95 (2005). See generally M. MITCHELL WALDRUP, *COMPLEXITY: THE EMERGING SCIENCE AT THE EDGE OF ORDER AND CHAOS* (1992) (providing an overview of complexity theory); STEVEN JOHNSON, *EMERGENCE: THE CONNECTED LIVES OF ANTS, BRAINS, CITIES, AND SOFTWARE* (2001) (applying complexity theory to the internet and other systems).

their own.<sup>40</sup> The agreement for network 2 to terminate the phone calls or internet data packets of network 1 is also necessarily the agreement of network 1 to do the same for network 2.<sup>41</sup> However, under a pure interconnection regime, the obligation is limited to that relationship. Network owners are not per se prohibited from other discriminatory conduct, such as offering different prices and services to different users.

If regulators choose, they can incorporate more extensive non-discrimination requirements within an interconnection regime. For example, as part of the Federal Communications Commission's (FCC's) *Third Computer Inquiry (Computer III)* proceedings governing use of data processing technologies over the telephone network, the Commission in the 1980s adopted Comparably Efficient Interconnection (CEI) mandates on AT&T and its successor Bell Companies.<sup>42</sup> *Computer III* was an interconnection regime, defining how those network operators linked with enhanced service providers.

The CEI component, however, incorporated non-discrimination principles as well. CEI allowed the Bell Companies to offer their own integrated enhanced services, such as voice-mail or alarm monitoring, if they also made the underlying network features and functions available to unaffiliated providers.<sup>43</sup> CEI thus ensured that the operators' own enhanced services did not have an inherent advantage over those of competitors. The Commission could have simply defined the terms under which the Bell Companies had to make network features and functions available. However, it took the additional step of mandating non-discrimination because it wished to foster an independent enhanced services industry.

An interconnection rule can also include standardized technical terms that produce a non-discriminatory effect. For example, the FCC's network attachment rules required AT&T and its successors to allow third-party

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40. The exact form of this embedded non-discrimination requirement is, like other aspects of interconnection rules, subject to variation. It is theoretically possible to imagine an interconnection agreement that only imposes carriage obligations on one side, but any interconnection rule would, at a minimum, guarantee the non-dominant party the benefits of reciprocal connectivity.

41. This reciprocity reflects the fact that all forms of communications today are effectively interactive: they involve communication from as well as to the customer. The framework described in the Article does not apply to truly one-way distribution media, such as broadcast television and radio.

42. See Amendment of Sections 64.702 of the Commission's Rules and Regulations (Third Computer Inquiry), 104 F.C.C.2d 958, 1021-59 (1986) (report & order).

43. An example of a network feature might be transmitting the originating phone number of a call.

devices, such as telephones, fax machines, and computer modems.<sup>44</sup> Because, under these provisions, any device conforming to technical specifications could be connected to the network, AT&T could not favor its own equipment over that of other suppliers. The rules thus had an anti-discriminatory effect, even though they are structured in interconnection terms.<sup>45</sup>

## B. The Models in Action

For much of the history of telecommunications, non-discrimination was privileged over interconnection. Interconnection was described as a necessary evil, or as an interim step to the ultimate goal of non-discrimination.<sup>46</sup> Even in recent years, as interconnection has become more central, regulators have focused on the minutiae of interconnection pricing, rather than on crafting a regime that provides incentives for optimal interconnection arrangements.<sup>47</sup> The one area where interconnection has always been central is the internet backbone, which not surprisingly happens to be the market where regulators have rarely found the need to intervene.<sup>48</sup>

The emphasis on non-discrimination is best understood in the appropriate historical and technological context. Interconnection has always been an important element of communications policy. However, interconnection rules were frequently devaluated because they were viewed as too difficult to achieve or, in other cases, taken for granted without close scrutiny.<sup>49</sup> An examination of historical approaches to communications regulation provides a basis, in Part III, to distinguish the unique elements of the current situation that call for greater attention to interconnection.

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44. See Connection of Terminal Equipment to the Telephone Network, 47 C.F.R. § 68.100 (1998).

45. See Tim Wu, *Why Have a Telecommunications Law? Anti-Discrimination Norms in Communications*, 5 J. TELECOMM. & HIGH TECH. L. 15, 33 (2006).

46. Part 68 is an interconnection framework because it mandates open relationships at the edges of the telephone network. A modem, of course, is just an end-user device, not a competing network. However, it can be a bridge between the regulated communications network and networks of computers on the other side. By adopting Part 68, the FCC removed from AT&T the power to bar interconnection at the customer premises. Its specifications became the technical foundations for such interconnection when it occurred. Nonetheless, because the FCC acted in a way that prevented differential treatment of network attachments, Part 68 has been labeled by other scholars as a non-discrimination framework. See *id.*; Wu, *Broadband Discrimination*, *supra* note 7, at n.5.

47. See *infra* text accompanying note 131.

48. See *infra* Section II.B.2.

49. See *infra* text accompanying notes 60-65.

*1. Common Carriage: Non-Discrimination Ascendant*

The dominant communications regulatory paradigm of the twentieth century was common carriage.<sup>50</sup> Common carriage is primarily a non-discrimination approach, and its prominence created a distorted perception of the relative merits of non-discrimination and interconnection.

A common carrier bears special obligations not imposed on other businesses. The concept derives from the idea of “common callings” developed in England in the Middle Ages, itself building on earlier concepts dating back to ancient Rome.<sup>51</sup> A common carrier cannot, for example, differentiate in the treatment of similarly situated customers, evaluate the content of what it receives from its customers, or refuse to serve interested customers, even when that means building out its facilities to reach them.<sup>52</sup>

At common law, common carriage applied to a range of industries, including innkeepers, railroads, grain elevators, and ferry operators, which scholars have had difficulty grouping under any consistent definition.<sup>53</sup> In the U.S., the common law doctrine of common carriage was formalized in the Interstate Commerce Act (ICA) of 1887, which imposed a comprehensive regulatory regime on the railroad industry.<sup>54</sup> The ICA was the model for public utility regulation in other sectors, including electricity, natural gas, airlines, and telecommunications. Its “public interest” standard and

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50. See generally ITHIEL DE SOLA POOL, *TECHNOLOGIES OF FREEDOM* (1983) (arguing for the enduring significance of common carriage in the digital age).

51. See BRUCE WYMAN, *THE SPECIAL LAW GOVERNING PUBLIC SERVICE CORPORATIONS AND ALL OTHERS ENGAGED IN PUBLIC EMPLOYMENT* 5-6 (1911); Charles K. Burdick, *The Origin of the Peculiar Duties of Public Service Companies*, 11 COLUM. L. REV. 514, 519 (1911); Candeub, *supra* note 4, at 381; James B. Speta, *A Common Carrier Approach to Internet Interconnection*, 54 FED. COMM. L.J. 226, 251-52 (2002); Thomas B. Nachbar, *Open Access* 6-7 (unpublished draft, on file with author), available at <http://web.si.umich.edu/tprc/papers/2006/557/Nachbar%20-%20Open%20Access.pdf>.

52. See Jim Rossi, *The Common Law “Duty to Serve” and Protection of Consumers in an Age of Competitive Retail Public Utility Restructuring*, 51 VAND. L. REV. 1233, 1247-48 (1998); Nachbar, *supra* note 51, at 5-9.

53. Early accounts of common carriage offer two justifications for subjecting particular enterprises to such restrictions: they are imbued with the public interest, or they are natural monopolies. Compare David S. Bogen, *The Innkeeper’s Tale: The Legal Development of a Public Calling*, 1996 UTAH L. REV. 51, 53 (arguing that common carriage arose from public interest, rather than natural monopoly concerns) with Bruce Wyman, *The Law of the Public Callings as a Solution of the Trust Problem*, 17 HARV. L. REV. 156, 161 (1904) (arguing that common carriage arose from natural monopoly concerns); Nachbar, *supra* note 51, at 9-39 (reviewing a variety of potential justifications for common carriage and similar requirements).

54. See *An Act to Regulate Commerce*, 24 Stat. 379 (1887).

common carriage concepts were incorporated wholesale into the Communications Act of 1934 (1934 Act), which created the Federal Communications Commission.<sup>55</sup>

In telephony, common carriage means that telephone companies cannot differentially treat phone calls based on their contents.<sup>56</sup> Callers can say whatever they wish. What those callers pay depends on neutral factors, such as the length of the call, the distance involved, and broad user categories such as residential or business customers. The common carriage obligations of the 1934 Act remain in the law today, despite the significant changes wrought by the massive legislative revision adopted in 1996 and transformative marketplace developments. However, Congress and the FCC have expressly declined to impose common carrier requirements on the most significant new communications technologies of recent decades: cable television and broadband internet access.<sup>57</sup>

Despite its long pedigree and wide adoption, common carriage is subject to significant confusion. The very definition of the concept in the 1934 Act is circular: a common carrier is one who provides common carriage for hire.<sup>58</sup> Common law sources are also unhelpful, offering competing and largely inconsistent rationales.<sup>59</sup> If common carriage is an economic concept to rectify the market power of natural monopolies, it should be limited to those settings. If it is grounded in broader social obligations to serve the “public interest,” a more expansive interpretation is called for. Scholars have long disagreed about which approach is better grounded in law and history.<sup>60</sup>

The relationship of common carriage to interconnection is also often misunderstood. Conventional wisdom and many leading scholars claim that interconnection requirements were foreign to telecommunications regulation prior to the 1996 Act.<sup>61</sup> In reality, as Adam Candeub has docu-

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55. See Communications Act of 1934, Pub. L. No. 73-416, 48 Stat. 1064 (codified at 47 U.S.C. §§ 151-615b (2000)). Thus, common carriage today is a statutory construct, although one that draws heavily on common law antecedents.

56. See Speta, *supra* note 51, at 261-62.

57. See POOL, *supra* note 50, at 166-76 (showing the relation to cable television); Speta, *supra* note 51, at 226-27 (showing the relation to the internet).

58. The Act states that, “The term ‘common carrier’ or ‘carrier’ means any person engaged as a common carrier for hire . . . .” 47 U.S.C. § 153(10) (2000).

59. See *supra* note 53.

60. See Candeub, *supra* note 4, at 383; Nachbar, *supra* note 51, at 9.

61. See, e.g., Speta, *supra* note 51, at 258 (“[T]he common law imposed no obligation on railroads (or other carriers) to interconnect with the lines of other carriers . . . .”). Even Jim Chen, a prominent advocate of interconnection mandates for broadband internet networks, defends such rules against charges that they are tantamount to “imposing com-

mented, common carriage at common law included some interconnection obligations, along with other requirements.<sup>62</sup> For example, railroads, before the Interstate Commerce Act, were required under common law to carry freight handed off at depots by competitors.<sup>63</sup> Similar obligations applied at common law to stagecoaches and other common carriers.<sup>64</sup>

Interconnection was de-emphasized under common carriage, for several historical reasons. Some common carriers, such as innkeepers, offered services that never required shared traffic with competitors. Even railroads and stagecoaches provided mostly point-to-point service in their early days, making transit for other carriers a relatively minor issue. Moreover, the ICA was passed to counteract the power of the railroads, which had become the dominant industrial enterprises of the Gilded Age.<sup>65</sup> Railroads were seen as discriminating against smaller or unaffiliated shippers, and, more generally, as accumulating too much economic power. As a result, prohibitions on discrimination were at the core of the 1887 legislation. How railroads treated each other was less of a concern than how they treated their customers.

Specific elements of the early telephone business also favored a non-discrimination emphasis. Operators had to route calls manually outside a local exchange. There was no neutral connection point, analogous to a railroad station, through which all traffic had to pass. Telephone interconnection would therefore have required physical extension of incumbent networks to benefit competitors, something outside the bounds of the limited handoff right afforded under common law to railroads.<sup>66</sup> Thus, although some court decisions from the period state that no common law interconnection obligation existed, such conclusions speak primarily to the relatively primitive state of the telephone network at the time.

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mon carriage on the Internet,” with the rejoinder, “If anything, simply requiring a carrier to interconnect with its competitors, much less on nondiscriminatory terms, is alien to the common law understanding of common carriage.” Jim Chen, *The Authority to Regulate Broadband Internet Access Over Cable*, 16 BERKELEY TECH. L.J. 677, 717 (2001).

62. See Candeub, *supra* note 4, at 377-96.

63. See *id.* at 384-85.

64. See *id.* at 386.

65. See Joseph D. Kearney & Thomas W. Merrill, *The Great Transformation of Regulated Industries Law*, 98 COLUM. L. REV. 1323, 1331-32, n.20 (1998) (showing that “non-discrimination was unquestionably the overriding goal of the Interstate Commerce Act”).

66. See Candeub, *supra* note 4, at 394 (citing *U.S. Tel. Co. v. Cent. Union Tel. Co.*, 171 F. 130, 141-43 (N.D. Ohio 1909)).

Interconnection was, however, a hot topic in the nascent telephone industry at the end of the nineteenth century.<sup>67</sup> Alexander Graham Bell's patents on the fundamental elements of telephone service initially blocked competition with the Bell Company he established.<sup>68</sup> Following the expiration of the Bell patents, however, independent telephone companies began to spring up.<sup>69</sup> They were limited by their inability to offer long-lines service, which required greater resources, as well as technical innovations protected under later Bell patents.<sup>70</sup> So, the independents sought interconnection with AT&T. AT&T selectively used refusals and advantageous terms of interconnection to strengthen its own position.<sup>71</sup>

Before significant case law could develop on whether a common law interconnection right did in fact exist, Congress passed the 1934 Communications Act. The Act essentially formalized a regulatory deal between AT&T and the US government, which had been articulated in 1913 in the Kingsbury Commitment.<sup>72</sup> The government acquiesced in AT&T's refusal to offer universal and non-discriminatory interconnection to rivals, in return for the ability to impose price regulation and non-discrimination obligations on the monopoly phone provider.<sup>73</sup>

"Universal service," the mantra of AT&T CEO Theodore Vail, became the guiding principle of communications policy.<sup>74</sup> Although it later came to stand for a framework of cross-subsidies to make phone service more affordable for users in rural and other high-cost areas, the irony is that universal service was originally meant to promote the virtues of an exclusive AT&T network.<sup>75</sup> Only AT&T, the long-lines monopoly, could provide "universal" connections between distant callers.

Perversely, it was AT&T's refusal to serve customers of some independent telephone companies, or to give them comparable service to its own customers, that gave it the economic leverage to cross-subsidize its

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67. See Candeub, *supra* note 4, at 387-89.

68. See MILTON MUELLER, UNIVERSAL SERVICE: COMPETITION, INTERCONNECTION, AND MONOPOLY IN THE MAKING OF THE AMERICAN TELEPHONE SYSTEM 33, 43 (1997); AMY FRIEDLANDER, NATURAL MONOPOLY AND UNIVERSAL SERVICE: TELEPHONES AND TELEGRAPHS IN THE U.S. COMMUNICATIONS INFRASTRUCTURE 1837-1940, at 25 (1995).

69. See MUELLER, *supra* note 68, at 43-44.

70. See *id.* at 71-76.

71. See *id.* at 44-46.

72. See PETER W. HUBER, MICHAEL K. KELLOGG & JOHN THORNE, FEDERAL TELECOMMUNICATIONS LAW 21-24 (2d ed. 1999); GERALD W. BROCK, THE TELECOMMUNICATIONS INDUSTRY: THE DYNAMICS OF MARKET STRUCTURE 155 (1981).

73. See BROCK, *supra* note 72, at 155-56.

74. MUELLER, *supra* note 68, at 1-2.

75. See *id.* at 8.

own deployment and pricing efforts.<sup>76</sup> “Universal service” was built on non-universal interconnection.

## 2. *The Internet: Interconnection Dominates*

Just as AT&T’s universal service regime finally unraveled in the 1970s and 1980s, an alternative communications network quietly emerged: the internet. The internet backbone market is largely governed by interconnection rules. The dominance of interconnection rules reflects both the technical nature of the internet and regulatory decisions. The internet was devised to bridge different networks, using protocols that radically decentralize traffic management. Moreover, the internet was never subject to common carriage, and therefore inhabited a very different regulatory environment from the telephone system. Allowed to develop their own rules through enlightened “unregulatory” decisions of the FCC, the organizations that constructed the internet infrastructure chose a path based not on non-discrimination, but upon ubiquitous interconnection.<sup>77</sup>

At a deep level, the internet *is* interconnection.<sup>78</sup> Hence the name, “inter-net.” Though widely described as one network, the internet is actually a collection of several thousand independent networks, whose common characteristic is an agreement to interconnect to deliver internet protocol (IP) datagrams.<sup>79</sup> IP is a generic protocol designed to run on top of any physical or logical infrastructure, linking up proprietary data networks.<sup>80</sup> What distinguishes a private “intranet” from a participant in the internet is

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76. See FRIEDLANDER, *supra* note 68, at 49-50.

77. Steve Bickerstaff, *Shackles on the Giant: How the Federal Government Created Microsoft, Personal Computers, and the Internet*, 78 TEX. L. REV. 1, 6 (1999); Kevin Werbach, *The Federal Computer Commission*, 84 N.C. L. REV. 1, 21 (2005); Jason Oxman, *The FCC and the Unregulation of the Internet* 6 (Fed. Commc’ns. Comm’n Office of Plans and Policy, Working Paper No. 31, 1999), available at [http://www.fcc.gov/Bureaus/OPP/working\\_papers/oppwp31.pdf](http://www.fcc.gov/Bureaus/OPP/working_papers/oppwp31.pdf).

78. Cf. Keith Cambron, *The Next Generation Network and Why We’ll Never See It*, COMM. MAG., Oct. 2006, at 10 (“IP’s greatest contribution is its ability to switch information across diverse networks, independent of the underlying technology; the greatest legacy of IP is the universal acceptance of the address scheme and message structure . . .”).

79. See Kevin Werbach, *Digital Tornado: The Internet and Telecommunications Policy* at n.12 (Fed. Commc’ns. Comm’n Office of Plans and Policy, Working Paper No. 29, 1997), available at [http://www.fcc.gov/Bureaus/OPP/working\\_papers/oppwp29pdf](http://www.fcc.gov/Bureaus/OPP/working_papers/oppwp29pdf).

80. Today, IP is the dominant protocol for digital communications, and proprietary alternatives such as X.25 are forgotten. Originally, however, the benefit of the internet was not so much what it could deliver itself, but the fact that users of existing proprietary data networks, primarily at that time used for research and educational applications, could communicate with one another.

nothing more than the agreement to exchange traffic transparently with other networks.

The internet is a packet-switched network, which means traffic does not take a fixed path between two endpoints.<sup>81</sup> Instead, messages are broken up into small packets of data, which are transferred independently by each router they encounter along the way, and then reassembled. An internet transmission may thus traverse many different interconnected networks during the course of its journey, potentially without the knowledge of the sending or receiving network. This architecture is critical to the internet's robustness.<sup>82</sup> When congestion or other bottlenecks occur at one point in the network, local routers automatically redirect traffic along alternate routes.

The internet architecture means that each service provider can only control what happens on its own network. End-to-end service typically operates on a "best efforts" basis; there is no guarantee that any packet will reach its destination.<sup>83</sup> Customers pay a service provider for a specified level of data capacity (bandwidth) and other characteristics, but they have no control over the service providers at the other end of the connection, or in the middle. To provide high-quality service to their own customers, these service providers have incentives both to optimize the quality of their own networks and to enter into optimal interconnection agreements with other networks.<sup>84</sup> The quality of the internet experience is thus as much a function of how networks deal with each other as how they operate internally.

There are two types of internet networks.<sup>85</sup> Internet service providers (ISPs) offer connectivity directly to end users, and to businesses offering

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81. See JOHN NAUGHTON, A BRIEF HISTORY OF THE FUTURE: THE ORIGINS OF THE INTERNET 126-28 (1999); Werbach, *supra* note 79, at 2. This approach was originally developed by Paul Baran of RAND Corporation to ensure robustness in the event of catastrophic damage to the network, such as a military attack. Although the internet was largely designed for scientific and research purposes, it incorporated the basic technical approaches of the predecessor ARPANet, which was created by the US Department of Defense.

82. See Werbach, *supra* note 79, at 17.

83. See *id.* at 17-18.

84. See *id.* at 33-34; Michael Kende, *The Digital Handshake: Connecting Internet Backbones*, 11 COMMLAW CONSPECTUS 45, 47-48 (2003) (describing the economic relationships among networks comprising the internet).

85. See Werbach, *supra* note 79, at 11-12.

content, applications, and service to those end users.<sup>86</sup> Backbone providers provide connectivity between ISPs. The boundaries are fuzzy, and many companies offer both functions, but the distinction is important. Access networks touch the regulated last-mile infrastructure of common carrier networks, with their non-discrimination obligations, except where the FCC has seen fit to remove such requirements. Backbones are different. They are in essence “carriers’ carriers.” Their entire business comes from interconnection with other networks.<sup>87</sup>

The internet developed through three phases. Initially, it was an academic and scientific research network, funded primarily by the U.S. government and consortia of academic institutions.<sup>88</sup> This original internet had a single network backbone, operated by the U.S. National Science Foundation (NSF).<sup>89</sup> The NSFnet backbone was, in effect, the point of interconnection for the various local and regional networks that participated in the internet. The NSF promulgated an Acceptable Use Policy for its backbone, under which commercial activity was prohibited.<sup>90</sup> Interconnection in this first phase of the internet was therefore achieved through centralized public control.

In the second phase of internet development, in the early 1990s, the NSF privatized its backbone function, eventually withdrawing from the internet infrastructure market.<sup>91</sup> The transition from the academic NSFNet to the commercial internet was a multi-year, multi-step process. The NSF made several critical decisions in this time period that shaped the later architecture of the internet.<sup>92</sup> In particular, it mandated that not only would

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86. A better term is internet access providers, because these entities offer end users the ability to access the internet. Because internet service provider is the more familiar term, however, I employ it here.

87. See Kende, *supra* note 84, at 46-47.

88. See generally NAUGHTON, *supra* note 81, and HAFNER & LYON, *supra* note 9 (relating the history of the internet).

89. See Werbach, *supra* note 79, at 13.

90. Some commercial networks and exchange points such as CIX and UUNet were started as an alternative, but they were not a significant factor until the NSF opened up to competition. See Jay P. Kesan & Rajiv C. Shah, *Fool Us Once Shame on You—Fool Us Twice Shame on Us: What We Can Learn From the Privatizations of the Internet Backbone Network and the Domain Name System*, 79 WASH. U. L.Q. 89, 92 n.6, 111-17 (2001).

91. See Werbach, *supra* note 79, at 15.

92. See generally Kesan & Shah, *supra* note 90 (describing the NSFNet privatization); Brett M. Frischmann, *Privatization and Commercialization of the Internet Infrastructure: Rethinking Market Intervention into Government and Government Intervention into the Market*, 2 COLUM. SCI. & TECH. L. REV. 1 (2001) (describing the privatization process).

the internet backbone be privatized, but it would also be subject to competition.<sup>93</sup> The NSF funded the creation of three network access points (NAPs), at which backbones could exchange traffic.<sup>94</sup> It adopted rules to ensure that there would be multiple backbones for the commercial internet, which competed but also interconnected to hand off traffic to one another.<sup>95</sup> Independent backbones such as UUNet and Sprint soon entered the market.

In the current, third phase of internet development, private commercial arrangements define terms of interconnection.<sup>96</sup> There are a substantial number of independent backbone network operators worldwide. These include affiliates of incumbent telephone operators such as Verizon and AT&T, “pure-play” wholesale data carriers such as Level 3 and Global Crossing, and hybrid wholesale/retail data carriers such as XO Communications.<sup>97</sup> The backbones negotiate interconnection arrangements so that traffic flows across the network. These agreements are not generally subject to government oversight, and thus represent a parallel universe to the non-discrimination environment of common carriage. Their primary thrust concerns not what passes across networks, but how networks come together to deliver that content. In other words, in the internet backbone, interconnection is the currency of the realm.

Backbone operators have developed two basic models for traffic exchange: peering and transit. Under peering, “Tier 1” backbones exchange traffic on a settlement-free or “bill and keep” basis.<sup>98</sup> In other words, no payments flow between the networks. The assumption is that, since both peers are major network operators with significant traffic and distributed physical infrastructure, the relative benefits to the two networks from interconnection will be roughly equal. The costs of metering and distinguishing traffic would exceed any benefits. In contrast, non-Tier 1 networks must pay larger networks to transport their traffic. These smaller networks enter into transit agreements, under which they pay fees related to the volume of traffic they deliver or other metrics.<sup>99</sup>

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93. See Kesan & Shah, *supra* note 90, at 136-37.

94. See *id.* at 137.

95. See *id.*

96. See Kende, *supra* note 84, at 48; see generally Jacques Cremer, Patrick Rey & Jean Tirole, *Connectivity in the Commercial Internet*, 48 J. INDUS. ECON. 433 (2000) (discussing the potential for market power in the internet backbone market); Speta, *supra* note 51 (surveying internet interconnection disputes).

97. Companies such as Comcast, AOL, and Google also operate backbone assets for their own internal use.

98. See Kende, *supra* note 84, at n.60.

99. See *id.* at 57-59.

For most of the internet's history, there have been sufficient backbone competitors to limit the market power any one might enjoy.<sup>100</sup> Backbones represent alternative points of entry for the entire internet, making them relatively good substitutes for one another. A backbone that raises transit prices or restricts peering terms is therefore subject to market forces.

In recent years, a matrix of private exchange points and content delivery networks (CDNs) have sprung up to help traffic flow across this mesh of connectivity more smoothly. Private exchange points purchase transit from multiple backbones and resell it, optimizing performance and pricing through dynamic routing technologies.<sup>101</sup> When a network or company purchases transit from one of these exchange points, its traffic is automatically routed across the backbone network that offers the best performance at that moment. Customers are thus insulated from congestion as well as pricing decisions of individual backbones. The private exchange point, which charges a set rate to its customers, has incentives to use the lowest-priced backbone, all things being equal, further limiting backbone market power.

CDNs such as Akamai operate distributed networks of caching servers, hosted on large numbers of networks, which automatically serve content to end users from nearby caches.<sup>102</sup> A cache is simply a large storage device that automatically captures certain content. An internet content provider such as AOL has servers in a small number of locations, but customers distributed around the globe and across many networks. The CDN first checks to see if a copy of the requested object (such as a large video file) is already available in a cache on the customer's own network.<sup>103</sup> If so, it serves the file from there.

By avoiding the need to send content across the internet from the origin servers, CDNs both improve performance and reduce cost. The CDNs

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100. See *id.* at 57.

101. See Tim McElligott, *Network Traffic's Alternate Route*, TELEPHONY, Aug. 16, 2004, at 15.

102. See J. Dilley et al., *Globally Distributed Content Delivery*, 6 IEEE INTERNET COMPUTING 50 (2002) (describing the Akamai system and how the authors overcame specific system challenges); Mike Afegan et al., *Experience with Some Principles for Building an Internet-Scale Reliable System* (2005) (unpublished paper, presented at WORLDS '05 Workshop on Real, Large, Distributed Systems and on file with author), available at [http://www.afegan.com/research/papers/akamaiprinciples\\_worlds05.html](http://www.afegan.com/research/papers/akamaiprinciples_worlds05.html) (showing that "Akamai has built a network of 15,000+ servers located in 1,100+ third-party networks").

103. CDNs employ sophisticated algorithms to automatically push certain content out to local caches, and also to reallocate requests in situations of high demand or failure of a particular cache. See Dilley, *supra* note 102.

generate revenues from content providers who seek improved delivery of their content. ISPs are generally willing to host CDN caches for free on their networks to reduce their own bandwidth utilization, because those ISPs must pay for transit and/or fiber optic capacity proportional to their usage. The result is that, when a user views a webpage or downloads a file, the performance he or she experiences may be determined more by an independent CDN than by either the user's ISP or the backbone provider.

Actual performance of the market is not always harmonious. Prices can still vary for seemingly equivalent backbone services. Furthermore, most peering terms are secret, so it is difficult to assess their fairness or uniformity. Peering disputes occasionally erupt, most notably in 2005 between backbone operators Cogent and Level 3.<sup>104</sup> Mergers among the companies that own major backbones also produce regular spasms of controversy over peering policies, with government-imposed merger conditions often imposed to crack down on perceived anti-competitive behavior.<sup>105</sup>

Nonetheless, the FCC has declined to use its legal authority to mandate interconnection or non-discrimination among internet backbones across the board.<sup>106</sup> An FCC staff working paper in 2000 concluded that competition in the backbone market was sufficient to prevent abuses, and that backbone networks should be treated as unregulated "information service."<sup>107</sup> Although commentators such as Jim Speta have advocated a mandatory interconnection regime for internet carriers,<sup>108</sup> the Commission has shown no interest in going down that road.

The fact that, on the internet, interconnection is seen as a technical principle of network architecture, rather than an exogenous legal mandate, does not diminish its importance. As cyberlaw scholars led by Lawrence Lessig have exhaustively demonstrated, the technical code of cyberspace

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104. See, e.g., Stacy Cowley, *Level 3, Cogent Call Time Out on Peering Spat*, IDG NEWS SERVICE, Oct. 10, 2005.

105. See, e.g., Sarah L. Roberts-Witt, *Opening the Books: Major Telecom Players Make Their Peering Guidelines Public*, INTERNET WORLD, Mar. 15, 2001, at 14.

106. See Kende, *supra* note 84, at 48.

107. *Id.* at 70 (Kende's article expands upon his FCC working paper of the same title. (Office of Plans and Policy, Fed. Comm'n's Comm'n, Working Paper No. 32, 2000), available at [http://www.fcc.gov/Bureaus/OPP/working\\_papers/oppwp32.pdf](http://www.fcc.gov/Bureaus/OPP/working_papers/oppwp32.pdf)).

108. See Speta, *supra* note 51. Speta labels his proposal a "common carrier regime" for internet interconnection, which is something of an oxymoron, since common carriage rules primarily concern non-discrimination. See *supra* Section II.B.1. His use of the term is apparently intended as shorthand for the application of rules analogous to those for regulated telecommunications carriers.

can regulate behavior as effectively as the legal mandates of law.<sup>109</sup> The two mechanisms are interdependent. Architecture evolves in response to law, and law (if it is to be effective) must take into account the realities of extant architectures.

Moreover, it would be naïve to view the internet backbone market as an unspoiled preserve, free from the tribulations of telecommunications regulation. The structure of the market developed because of the NSF's decisions in the mid-1990s privatization process. The NSF ensured that multiple backbones could compete, but it declined to impose specific interconnection performance requirements for those backbones. The trajectory of the internet backbone market was a direct result of these governmental decisions.<sup>110</sup> And today, as a practical matter, the dominant US backbone operators are regulated telecommunications carriers such as AT&T and Verizon.<sup>111</sup> Those carriers may not experience direct FCC scrutiny of their internet backbone relationships, but all their strategic decisions are necessarily colored by the regulatory environment.

Regulators have intervened in the backbone market on several occasions. When, in 2004, AT&T sought to exclude voice traffic transiting its internet backbone from the interstate access charges it pays to local carriers, the FCC rejected its efforts, forcing AT&T to pay millions of dollars.<sup>112</sup> AT&T claimed it was engaged in an unregulated information service, but the FCC concluded it was simply re-labeling a regulated telecommunications service. Telecom mergers involving internet backbone assets are also subject to government review. Transactions such as Worldcom's acquisition of MCI, MCI Worldcom's attempted acquisition of Sprint, and Verizon's acquisition of GTE raised concerns about market power in the backbone segment.<sup>113</sup> Regulators stepped in and imposed antitrust conditions to thwart such a possibility.<sup>114</sup> And today, it is the possibility that Verizon and AT&T will use their internet backbones to dis-

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109. *See generally* LAWRENCE LESSIG, CODE AND OTHER LAWS OF CYBERSPACE (1999).

110. *See* Kesan & Shah, *supra* note 90, at 142-67.

111. Verizon obtained significant backbone assets through acquisition of GTE and MCI, which had themselves acquired some of the largest backbones. AT&T developed a major backbone operation prior to its acquisition by SBC, which then took the AT&T name.

112. Petition for Declaratory Ruling that AT&T's Phone-to-Phone IP Telephony Services are Exempt from Access Charges, 19 F.C.C.R. 7457, 7472 (2004).

113. *See* Roberts-Witt, *supra* note 105, at 14.

114. *See, e.g.*, Application of GTE Corporation, 15 F.C.C.R. 14032, 14035-36 (2000).

criminate against unaffiliated internet content providers that is driving the debate over network neutrality.<sup>115</sup>

The internet backbone market is thus an example of largely private interconnection decisions in the shadow of regulatory intervention. The FCC has no general rules governing internet backbones, but it retains the right to impose either non-discrimination or interconnection obligations as the situation requires. Moreover, the Commission has never formally declared all backbones as unregulated information services, and its decision in the 2004 AT&T access charge case expressly preserved its ability to decide otherwise.<sup>116</sup> Backbone providers must therefore consider how their regulators might interpret their actions, even when not subject to explicit rules. Although the Level 3/Cogent dispute never reached this point, there is no doubt that the FCC was carefully watching how it unfolded.

Regardless of whether the government or companies contractually define the rules, the major policy questions in the backbone market involve interconnection, not non-discrimination. Backbones are free to shape traffic on their networks as they please. However, they are required to fulfill their obligations to carry traffic handed off to them at interconnection points. The terms of peering and other interconnection agreements are the battlegrounds that matter.

### 3. *The Access Model: An Uneasy Combination*

Interconnection eventually re-emerged in mainstream—that is, non-internet—communications policy. The final decades of the twentieth century witnessed a dramatic shift away from the non-discrimination focus of common carriage.<sup>117</sup> Rather than regulate rates to forestall discrimination and approximate the consumer welfare benefits of a competitive market, regulators increasingly devoted their energy to creating the conditions under which truly competitive markets could do such work themselves. Legislative, judicial, and administrative policy-makers now see it as their duty to eliminate barriers to competition, whether those barriers are encoded in law or enforced by market participants enjoying market power.<sup>118</sup>

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115. Network neutrality is couched as a policy governing last-mile broadband service providers. However, the potential actions giving rise to concerns about “non-neutral” behavior involve linkages between those last-mile operations and the same companies’ backbones, which interconnect with unaffiliated content and application providers.

116. *See supra* note 112, at 7457.

117. *See* Kearney & Merrill, *supra* note 65, at 1323 (describing this shift in the context of a broader revolution in regulatory policy).

118. *See id.*

After so many years of a legally protected AT&T monopoly, simply removing formal prohibitions on competitive entry would not suffice. The traditional tools of the communications regulator, directed at the incumbent's practices towards its customers, said nothing about how the incumbent treated erstwhile competitors. And, for reasons explained in the previous section, those competitors simply could not function without effective interconnection.<sup>119</sup>

Once the decision was made to promote competition, the central task for regulators was no longer to calculate what the incumbent could charge its customers, but to determine the mechanisms (and sometimes prices) under which it allowed competitors to connect to its network. The extreme market power of incumbents still necessitated non-discrimination protections, but these were no longer sufficient. Communications regulation thus shifted from an emphasis on *rate* regulation to one on *access* regulation: an uneasy combination of non-discrimination and interconnection obligations.<sup>120</sup>

There were three phases in this reformation of U.S. telecommunications policy. First, from the 1960s to the early 1980s, the FCC sharply limited the ability of AT&T to control how its customers used its network. It did so through what were effectively interconnection obligations. The Commission, in the landmark 1968 *Carterphone* decision, mandated that AT&T provide access for customers to attach devices of their choosing to its network.<sup>121</sup> It also mandated that AT&T offer circuits that could be employed for data transmission and other "enhanced services," which AT&T itself could not offer except through compliance with strict safeguards.<sup>122</sup>

Although these decisions did not, given the technology of the time, allow AT&T's customers to offer basic telephone services comparable to those AT&T provided, they did permit AT&T's customers to compete in the provision of enhanced services and to use equipment from competitors

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119. See *supra* Section II.A.1.

120. See Kearney & Merrill, *supra* note 65, at 1325-26; Daniel F. Spulber & Christopher S. Yoo, *Access to Networks: Economic and Constitutional Connections*, 88 CORNELL L. REV. 885, 919, 921, 926 (2003); Spulber & Yoo, *supra* note 19, at 635.

121. See *Use of the Carterphone Device in Message Toll Telephone Services*, 13 F.C.C.2d 420, 423-24. (1968), *reconsideration denied*, 14 F.C.C.2d 571 (1968).

122. See Oxman, *supra* note 77, at 24-25 (describing the FCC's *Computer II* and *Computer III* rules distinguishing regulated basic services from enhanced services). In his forthcoming dissertation, internet backbone expert Tom Vest argues that the growth of private lines is the crucial metric for the success of the internet. Interview with Tom Vest, Senior Econ. and Policy Analyst, Coop. Assoc. for Internet Data Analysis (Sept. 12, 2006).

of AT&T's Western Electric subsidiary. In a string of *Computer Inquiry* decisions in the 1980s, the FCC defined the interconnection terms for such enhanced services.<sup>123</sup> While some, such as voice-mail, still resided on AT&T's network, others linked the public switched telephone network to nascent data networks.

An important point about access regulation is that it can determine not only how network operators link to other networks outside their boundaries, but also where those boundaries are located.<sup>124</sup> The "edge" of a network is not just a physical concept; it represents the demarcation point beyond which the network cannot exert its logical control. This becomes particularly significant for an interoperable packet-switched network such as the internet. The FCC's *Carterphone* and *Computer Inquiry* decisions meant that data services, which could ride transparently on top of the voice telephone network, were effectively outside of that network's sphere of influence. The internet is perhaps the most significant development that was made possible by this division.<sup>125</sup>

The second phase of access regulation was a more direct challenge to AT&T's monopoly. Prodded by the Department of Justice, AT&T signed a consent decree in 1983, which opened the door for long-distance competition. The best-known aspect of the AT&T divestiture was the structural separation of AT&T into a competitive long-distance carrier and seven regional "Baby Bell" monopoly local carriers, which were initially precluded from offering long-distance and other services.<sup>126</sup> The FCC created a regime of access charges, essentially interconnection rates, for the local transmission portions at the beginning and end of a long-distance call.

The third phase of the transformation involved efforts to open the local market to competition, with the promise of banishing traditional rate regulation from its final domain. The 1996 Telecommunications Act adopted not one but several overlapping access regimes for local telephone networks.<sup>127</sup>

The shift to access regulation marked a decreased emphasis on non-discrimination, and a parallel re-emergence of interconnection. Traditional common carriage regulation, and its administrative embodiment under the 1934 Communications Act, held that any differential pricing of services to

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123. See Oxman, *supra* note 77; Robert Cannon, *The Legacy of the Federal Communications Commission's Computer Inquiries*, 55 FED. COMM. L.J. 167, 181-204 (2003).

124. See Spulber & Yoo, *supra* note 19, at 647.

125. See Bickerstaff, *supra* note 77, at 45; Oxman, *supra* note 77.

126. See HUBER ET AL., *supra* note 72, at 372-73.

127. See Spulber & Yoo, *supra* note 19, at 638.

similarly situated end users constituted impermissible discrimination.<sup>128</sup> AT&T was required to tariff its services, and not to deviate from those filed rates, even when a customer would prefer a special deal.<sup>129</sup> Under access regulation, regulators focus less on discrimination, and more on whether the carrier doing it has market power.

Non-discrimination did not vanish from communications policy. Telecommunications carriers that offer their service to the public are still common carriers, with everything that implies.<sup>130</sup> Telephone companies still cannot discriminate among their customers, including customers (such as ISPs) who use the incumbent access networks to deliver internet-based services that may compete against the incumbents.

Access regulation thus sought to marry the competition focus of interconnection rules with the more direct intervention of non-discrimination rules. It foundered when it came time to set prices for the new linkages the 1996 Act envisioned. Deciding the appropriate pricing for any interconnection relationship can be challenging.<sup>131</sup> Interconnection always creates benefits for customers of both networks, because they can reach additional endpoints. However, it also involves costs, including direct investment in facilities to join with the other network, additional capacity to handle more traffic, and the opportunity cost of not serving the new customers directly. Quantifying these effects is necessarily controversial, especially when networks have different cost structures or business models. Network effects, which can magnify the benefits of connectivity but produce difficult-to-assign externalities, further complicate the issue.

In attempting to replace rate regulation with access regulation, Congress and the FCC made the mistake of micro-managing pricing disputes among competitors. Pricing rules for the unbundled network elements (UNEs) that incumbents are required to offer under the 1996 Act consumed the telecom industry for years.<sup>132</sup> New competitive local exchange carriers (CLECs) could only enter the market with interconnection agreements, and those agreements were subject to a gauntlet of state-by-state

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128. See Kearney & Merrill, *supra* note 65, at 1325.

129. See Jim Rossi, *Lowering the Filed Tariff Shield: Judicial Enforcement for a Deregulatory Era*, 56 VAND. L. REV. 1591, 1592 (2003) (assessing how the filed tariff doctrine creates an opportunity for strategic manipulation of the tariffing process, encouraging firms to rent-seek by over-divulging information to regulators).

130. 47 U.S.C. § 153 (2000).

131. See Candeb, *supra* note 4, at 409-10. The FCC has an entire proceeding posing the question of what regime is appropriate. See *Developing a Unified Inter-carrier Compensation Regime*, 16 F.C.C.R. 9610 (2001).

132. See Epstein, *supra* note 16, at 316.

private negotiations, arbitration decisions of state regulators, complex FCC rulemaking decisions, and repeated judicial remands. Incumbents successfully challenged the FCC's Total Element Long Run Incremental Cost (TELRIC) methodology for pricing UNEs, as well as other aspects of its rules.<sup>133</sup>

Ultimately, the delays, uncertainties, and expense of the battle proved too great for most of the new entrants in the local phone market to bear. Many of these companies rode the venture-capital-fueled late-1990s boom, and crashed when public markets decided no longer to reward potential over profits.<sup>134</sup> The failure of the UNE pricing regime dragged down the entire competitive vision of the 1996 Act.

The present interconnection environment is thus a somewhat uneasy mixture of different models. Telecommunications services, which fall under Title II of the Communications Act, are subject to a set of somewhat arbitrary regulated interconnection arrangements, with vestiges of the common carrier non-discrimination rules still in place. Information services and internet backbones are allowed to operate through private negotiation, but with the ever-present possibility of government intervention. This system is only sustainable as long as the boundaries among its constituent parts remain in place.

That static situation is not likely to be the case for long.

### III. NETWORK POLICY IN THE CONVERGENCE AGE

#### A. Challenges of Convergence

##### 1. *From Silos to Layers*

The major force shaping the present and future of communications policy is convergence. Digital convergence is generally understood as the elimination of distinctions between analog communications systems such as broadcast television, cable television, and telephone networks.<sup>135</sup> Once

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133. AT&T Corp. v. Iowa Utils. Bd., 525 U.S. 366 (1999).

134. Whether the wild swings in capital markets were a cause or an effect of the UNE pricing battles is an open question.

135. See Kevin Werbach, *Breaking the Ice: Rethinking Telecommunications Law for the Digital Age*, 4 J. TELECOMM. & HIGH TECH. L. 59, 61-62 (2005) (mapping a new grammar for telecommunications policy); Werbach, *supra* note 2, at 46-47; Werbach, *supra* note 79, at 5.

encoded in digital form, all information is ultimately interchangeable.<sup>136</sup> This means that networks previously in distinct markets can become direct competitors. The transformation of local telephone and cable television companies into competing providers of “triple-play” bundles of voice telephony, multi-channel video programming, and high-speed internet access is a canonical example.<sup>137</sup>

It is particularly significant that convergence implies a transition from analog to digital delivery.<sup>138</sup> In other words, converged networks are data networks, first and foremost. The internet and its data-networking predecessors have traditionally functioned as “value added networks” on top of the core communications infrastructure. Now it is the data networks that are becoming primary, with other service offerings as higher-level applications of that core infrastructure.

At the same time as the horizontal convergence of communications network silos is progressing, the vertical dimension of the network is being transformed as well.<sup>139</sup> Traditional telecommunications networks were vertically integrated. Each physical network was optimized for delivery of a particular service, such as voice calling or television broadcasts, and the operators of those networks controlled every aspect of their functionality. By contrast, data networks tend to be organized in layers.<sup>140</sup> A layer is a functional aspect of the network, which conceptually operates on top or underneath other layers.<sup>141</sup> Each layer is distinct, in that it need only interface with the adjacent layers.

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136. Some information flows may have special performance requirements, such as low latency and jitter (variability of latency) for real-time voice traffic, but the bits involved are identical to other kinds of bits.

137. See David LaGesse, *The Battle Over Bundles*, U.S. NEWS & WORLD REPORT, Mar. 20, 2006, at 60. Convergence has in the past been over-hyped as an investment thesis. The fact that bits are ultimately fungible does not eliminate all differences among networks in cost structure, culture, capabilities, and regulatory treatment. And even though convergence is happening, particular strategies for taking advantage of it may be poorly designed, timed, or executed. However, none of these caveats undermine the central fact that formerly distinct communications networks increasingly find themselves in overlapping if not identical competitive spaces.

138. See Werbach, *supra* note 79, at 5-6.

139. In an earlier article, I referred to this as the horizontal aspect of layered networks. See Werbach, *supra* note 2, at 39. Here I adopt the more common formulation.

140. See *id.*; Werbach, *supra* note 135, at 65-67.

141. In the past, I have proposed a four-layer model, dividing the network into physical, logical, application, and content slices. See Werbach, *supra* note 2, at 59. This model distinguishes the primary layers of concern to policy-makers: the underlying network infrastructure; the systems that allow information to flow among nodes on those networks; the functionality that information delivers to end users; and the information itself

An internet application such as eBay's auction site, for example, need not consider whether it reaches its customers over the coaxial cable of a cable modem service or the wireless signals of a WiFi connection to a laptop. Nor does it need to consider the congestion algorithms that the routers along the way employ. It sees the network from the perspective of its own layer. The layered approach allows companies at each layer to optimize their services without having to worry about the rest of the stack.<sup>142</sup> It creates flexibility for innovation, because new entrants can operate on top of the existing network and ignore other layers unrelated to their emphasis.

Separating networks into layers does not mean that layers must always remain discrete, or that certain functionality must be delivered by means of a particular layer. On the contrary, a layered approach provides a map to visualize such combinations and transformations when they occur. The internet architectural model does not forbid layer crossing; it provides a small set of "spanning layers" that allow freedom of movement on either side.<sup>143</sup> The critical spanning layer for the internet is the Internet Protocol itself.<sup>144</sup> Above and below the Internet Protocol, providers can recombine functionality to produce innovation and value. Thus, Google can combine content (its search results), applications (tools such as an e-mail service, video hosting, and aggregated news stories), and logical delivery (distributed server farms throughout the world).

Convergence and layering make interconnection both more vital and more complex. Voice, video, and data providers are no longer in separate worlds. If they wish to provide users with the seamless connectivity they expect, different kinds of networks must interconnect. Moreover, interconnection is no longer flat. Every layer can potentially interconnect horizontally with analogous layers on other networks.<sup>145</sup> And every layer within a network also interfaces vertically with layers above and below

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that is sent and received. Other variations of the layered model have been proposed, most notably the three-layer model of Yochai Benkler. See Yochai Benkler, *From Consumers to Users: Shifting the Deep Structures of Regulation Towards Sustainable Commons and User Access*, 52 FED. COMM. L.J. 561, 562 (2000). In a more recent article, I attempt to refine the four-layer model to highlight the significance of "interface" layers, and to incorporate network-connected elements at the user premises. See Werbach, *supra* note 135, at 80-82. Although it uses the original four-layer model, the instant discussion does not rely on the selection of a particular layered framework.

142. See Werbach, *supra* note 2, at 58-59.

143. David Clark et al., *New Arch: Future Generation Internet Architecture*, Final Technical Report 19 (Dec. 31, 2003) (unpublished report, on file with author).

144. See *id.*

145. See PETER W. HUBER, *THE GEODESIC NETWORK: 1987 REPORT ON COMPETITION IN THE TELEPHONE INDUSTRY* at § 1.6 (1987).

it.<sup>146</sup> The FCC's *Computer Inquiry* decisions, which differentiated "basic" connectivity from the computer-driven "enhanced services" on top of the network, represented the first effort to regulate such interactions.<sup>147</sup> By mandating open interconnection with enhanced services through its CEI rules, the FCC created the conditions for explosive growth in innovative computer-driven devices and applications.<sup>148</sup>

Future network regulation must account for this multi-dimensional environment. Non-discrimination rules, which emphasize the internal relationship of networks and their customers, are ill-suited for the web of modular linkages among interconnected data networks. Even along the vertical dimension, a sharp division between a physical network substrate and the innovation occurring on top of it, as non-discrimination approaches presuppose, fails to do justice to the increasingly network-like character of many logical- and application-layer entities, such as Google and Akamai. The new converged, layered network is a complex tapestry, on which both individual threads and larger patterns contribute to the overall whole. Viewing all of these interactions as potential network-to-network interconnections provides a richer set of tools to evaluate the policy implications of behavior by various actors.

## 2. *Blurring the Lines Between Users and Service Providers*

Traditionally, the "edge" of the network was the outermost point within the network operator's infrastructure. It was the local switch in the telephone network, or arguably the telephone that originated and terminated calls. Anything beyond that point was a separate, internal activity of the end user, rather than an element of the interconnected network. Today, the devices at the user premises are digital computing and switching equipment, which extend the network beyond its historical edge.

Most analysis of network policy questions assumes a sharp division between "service providers" and "end users." Yet it is one of the defining characteristics of the convergence age that such boundaries are eroding. On the individual customer side, information consumers are turning into information producers, through various mechanisms of "peer production" such as weblogs, collaborative wiki sites, open source software, social

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146. Thus, the approach described herein differs from the one proposed by James Speta for mandatory interconnection between internet carriers. *See* Speta, *supra* note 51, at 275-79. Speta's interconnection model tracks the traditional price-based framework of the telephone network.

147. *See* Cannon, *supra* note 123, at 183.

148. *See id.* at 169.

networks, and more.<sup>149</sup> On the “server” side, content and application providers are morphing from business customers to carrier-like entities themselves, running distributed server farms with links between them. Google is an excellent example. It has engaged in activities, including buying up dark fiber, funding a powerline broadband startup, and helping to build municipal wireless networks, which are not normally considered functions of a content provider.<sup>150</sup>

Continued adherence to carrier/customer distinction is a consequence of the FCC’s enhanced service provider (ESP) exemption.<sup>151</sup> In the 1980s, when AT&T was broken up, the FCC established the regime of access charges to govern interconnection between local and long-distance carriers. Access charges replaced a set of internal transfer payments within the integrated Bell System, which had long been set at distorted levels. Although access charges did not completely mirror the internal Bell transfer payments, they replicated the general model of extra-high prices. This was possible at the time because even though long-distance service was being opened to competition, local exchange service remained a protected monopoly. Thus, competitive arbitrage would not undermine the artificially high access rates.

As enhanced services began to develop, the FCC had to decide how to treat providers of such services under the access charge regime. Some providers of enhanced services, such as alarm monitoring or answering services, were not traditional carriers. Others were. Some of the most significant, such as IBM, were not carriers, but they offered enhanced services that bore a striking resemblance to communications services, albeit for transporting data rather than voice. They were “carriers” in the sense that they carried messages for their own customers.

The enhanced service providers did not wish to be subject to the inflated access charges. The FCC, concerned that imposition of access charges would harm the nascent enhanced services market, adopted an exemption in 1983.<sup>152</sup> It determined that enhanced service providers should be permitted to purchase services from local phone companies as business

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149. See generally YOCHAI BENKLER, *THE WEALTH OF NETWORKS: HOW SOCIAL PRODUCTION TRANSFORMS MARKETS AND FREEDOM* (2006) (describing the growth of peer production).

150. Large enterprise users always have also self-provisioned infrastructure for some time. The difference here is that companies like Google are doing more than internal provisioning. They are taking on aspects of the carrier function with regard to the services they offer to their customers.

151. See *MTS and WATS Market Structure*, 97 F.C.C.2d 682, 711-22 (1983).

152. See *id.*

users. As a result, they pay lower and less usage-sensitive rates than carriers for essentially the same services.

Although phrased as a temporary exemption, the treatment of enhanced service providers remains the same today, twenty years later. It was essentially codified by the 1996 Act in its treatment of "information services."<sup>153</sup> Such services are not subject to the carrier-style obligations on "telecommunications."

The ESP exemption produced many significant benefits. The dial-up internet industry would never have succeeded in the same way without the possibility of flat rates and the opportunity for ISPs to avail themselves of the customer-focused protections of common carriage.<sup>154</sup> Nonetheless, allowing enhanced service providers to purchase services under regulated business line tariffs rather than under regulated exchange access tariffs was a convenient fiction. With content and application providers at the edges of the internet essentially becoming network operators themselves, the conceptual distinction between users and service providers becomes difficult to defend. Non-discrimination rules focus on the relationship of service providers to their customers; if some of those customers actually function more like network-based competitors, a different approach is called for. The traditional policy framework for such provider-to-provider interactions is, of course, interconnection.

## **B. The FCC Response: Out of the Regulatory Box**

The FCC's response to the challenges of convergence has been to run away from hard choices. By moving most broadband platforms to the ill-defined category of "information services," the Commission has eliminated traditional common carriage protections without articulating anything to replace them. This, in turn, set the stage for the network neutrality debate that subsequently erupted.

The Communications Act, even after its 1996 rewrite, divides the world into discrete regulatory silos: Title II for telecommunications carriers, Title III for broadcasters, and Title VI for cable television.<sup>155</sup> It offers definitional categories, such as "telecommunications service" and "information service" that are anachronistic in a world where all communications is ultimately just bits of data organized in different ways. Assignment of a service to one of these categories has tremendous consequences. Yet in a converged world, there is often no good way to map the catego-

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153. See 47 U.S.C. § 153 (2000).

154. See Oxman, *supra* note 77, at 17.

155. See Werbach, *supra* note 2, at 39.

ries to reality. Voice over Internet Protocol (VoIP), for example, is fundamentally both voice and data, straddling the line between telecommunications and information services.

The FCC's initial response to this difficulty was to avoid making any decision. When VoIP was first commercially offered in the mid-1990s, the FCC saw it as an innovative new offering, with potentially significant benefits for customers.<sup>156</sup> It was concerned that imposition of regulatory obligations designed for established traditional communications providers would stifle this nascent technology.<sup>157</sup> So, when faced with a petition in 1995 to classify VoIP as a regulated telephone service, the FCC declined to act on it.<sup>158</sup> When charged by Congress to issue a report justifying its non-regulation of VoIP, the agency crafted a nuanced statement that left open the possibility of future action, but took no steps toward imposition of regulation.<sup>159</sup>

Eventually, though, the FCC was forced to act. VoIP services began to gain significant numbers of subscribers. The leading independent VoIP provider, Vonage, now has over two million customers, making it an appreciable competitor for incumbent carriers.<sup>160</sup> The incumbents themselves began to offer VoIP services—in particular cable operators, who are now employing VoIP as their primary means to compete in the telephony market.<sup>161</sup> And, beyond VoIP, the incumbent cable and telephone providers

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156. See Werbach, *supra* note 79, at 36-40 (outlining the FCC's initial views on VoIP); Federal-State Joint Board on Universal Service, Report to Congress, CC Docket No. 96-45, 16-25 (1998), available at [http://www.fcc.gov/Bureaus/Common\\_Carrier/Reports/fcc98067.pdf](http://www.fcc.gov/Bureaus/Common_Carrier/Reports/fcc98067.pdf) [hereinafter *Stevens Report*] (declining to impose traditional telephone regulation on certain VoIP services).

157. See Kathleen Q. Abernathy, Commissioner, Fed. Comm'n. Comm'n, Remarks before the Federal Communications Bar Association New York Chapter on the Nascent Services Doctrine, 1-2 (July 11, 2002), <http://www.fcc.gov/Speeches/Abernathy/2002/spkqa217.pdf>.

158. See Provision of Interstate and International Interexchange Telecommunications Service Via the "Internet" by Non-Tariffed Uncertified Entities, America's Carriers Telecommunication Association, Petition for Declaratory Ruling, Special Relief, and Institution of a Rulemaking, RM 8775 (Mar. 4, 1996), available at [http://www.fcc.gov/Bureaus/Common\\_Carrier/Other/actapet.html](http://www.fcc.gov/Bureaus/Common_Carrier/Other/actapet.html).

159. See *Stevens Report*, *supra* note 156, at 4.

160. See Vonage Fact Sheet, <http://www.vonage.com/corporate/factsheet/images/FactSheet.pdf> (last visited Nov. 26, 2007).

161. See Carol Wilson, *The Climb on Uncertain Ground*, TELEPHONY, Sept. 10, 2007, at 24.

launched broadband internet access services over their existing networks.<sup>162</sup>

Broadband connectivity services such as digital subscriber line (DSL) and cable modem service combine the pure transmission capabilities of the carrier networks with the data processing attributes of the internet. If those two attributes were separable, the transmission component could be classed as regulated telecommunications under Title II of the Communications Act<sup>163</sup>. That would mean the interconnection and unbundling obligations of the 1996 Act would apply, forcing the incumbents to give independent internet service providers access to their networks.<sup>164</sup> In 1999, the FCC rejected calls to impose such an “open access” mandate on the cable modem services of @Home, which was then the market leader.<sup>165</sup> Following a change in leadership at the FCC, the Commission opened parallel proceedings to classify both DSL and cable modem services as inseparable information services, excluded from the Title II unbundling requirements.<sup>166</sup>

In *National Cable & Telecommunications Ass’n v. Brand X Internet Services (Brand X)*, decided in 2005, the Supreme Court upheld the FCC’s decision to classify cable modem services as information services.<sup>167</sup> The Court deferred to the Commission’s action on administrative law grounds.<sup>168</sup> *Brand X* ended the legal battle over the FCC’s decision, but it did not conclude the issue. By classifying cable modem and DSL services as information services, the Commission excluded them from the specific unbundling requirements of Title II but not the general grant of FCC authority under Title I of the Act.

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162. James M. Pethokoukis, *War of the Wires*, U.S. NEWS & WORLD REPORT, Sept. 27, 2004, at 44.

163. See *Nat’l Cable & Telecomms. Ass’n v. Brand X Internet Servs.*, 545 U.S. 967, 977-78 (2005).

164. See *id.*

165. See Mark Lemley & Lawrence Lessig, *The End of End-to-End: Preserving the Architecture of the Internet in the Broadband Era*, 48 UCLA L. REV. 925, 928-29 (2001) (addressing the question of “open access” and its relationship to the architecture of the internet).

166. See *Appropriate Framework for Broadband Access to the Internet over Wireline Facilities*, 17 F.C.C.R. 3019 (2002) (notice) (concerning DSL service); *Inquiry Concerning High-Speed Access to the Internet over Cable and Other Facilities*, 17 F.C.C.R. 4798 (2002) (decl. ruling and notice) [hereinafter *Cable Broadband Reclassification*] (concerning cable modem service). The underlying telecommunications components, such as loops and interoffice transport, are still available unbundled from the phone companies, but these do not allow competitors to take advantage of the broadband infrastructure.

167. 545 U.S. 967, 1002-03 (2005).

168. *Id.*

The FCC asserted that its decision was not an abdication of its regulatory responsibilities because it retained the power to fashion pro-competitive rules under Title I.<sup>169</sup> Commentators have questioned the legal basis for this assertion,<sup>170</sup> but the Supreme Court used it to support its decision in *Brand X*.<sup>171</sup> Exactly what Title I rules the FCC might adopt remains an open question. Title I requirements could conceivably include some interconnection obligations, although information services are not subject to the express interconnection mandates of Title II.<sup>172</sup>

While the broadband reclassification debate was making its way through the FCC and the courts, the Commission issued another decision removing traditional regulatory obligations from the incumbent telecommunications carriers. Specifically, it did away with line sharing, an arrangement that gave independent broadband providers access to just the data portion of the local loop at a reduced rate, and declared that new deployments of fiber optic connections directly to homes and neighborhoods would be exempt from unbundling.<sup>173</sup>

Thanks to these developments, it is now clearer what rules do *not* apply to converged broadband networks than which requirements do. The FCC today promotes “intermodal” competition between facilities-based broadband competitors as the primary means of preventing abuse of market power by network operators.<sup>174</sup> Thus, it retained the emphasis of access regulation on competition as the primary goal, but removed many of the access rules that typically attend such an effort. Because the cable and telephone companies providing broadband access remain regulated, and the option of new Title I rules for broadband information services remains in the air, the possibility exists that the FCC will impose new requirements

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169. See *Cable Broadband Reclassification*, *supra* note 166, at 4841.

170. See James B. Speta, *FCC Authority To Regulate the Internet: Creating It and Limiting It*, 35 LOY. U. CHI. L.J. 15, 16 (2003) (arguing for the development of a substantial regulatory regime for the internet).

171. See *Brand X*, 545 U.S. at 996 (“[T]he Commission remains free to impose special regulatory duties on facilities-based ISPs under its Title I ancillary jurisdiction.”).

172. The best precedent so far for such an extension is the FCC’s imposition of conditions on instant messaging in the AOL/TimeWarner merger. See Philip J. Weiser, *Internet Governance, Standard Setting and Self-Regulation*, 28 N. KY. L. REV. 822 (2001) [hereinafter Weiser, *Internet Governance*]; Philip J. Weiser, *The Internet, Innovation, and Intellectual Property Policy*, 103 COLUM. L. REV. 534 (2003) [hereinafter Weiser, *Innovation*].

173. See Paul Davidson, *Rule that Lowered Broadband Prices May be Revived*, USA TODAY, Aug. 4, 2004, at 2B.

174. Michael K. Powell, Chairman, Fed. Commc’ns. Comm’n, Digital Broadband Migration (pt. 2), Press Conference (Oct. 23, 2001), available at <http://www.fcc.gov/Speeches/Powell/2001/spmkp109.html>.

of some sort. At this point, however, that possibility is unfulfilled. The project of adapting communications regulation to the convergence age is still just getting off the ground.

### C. Network Neutrality and the Non-Discrimination Turn

If the FCC thought its reclassification effort would resolve lingering controversies over the regulatory status of broadband services, it was grossly mistaken. A relatively narrow battle between incumbents and potential new entrants such as CLECs and ISPs quickly gave way to an intense controversy over “network neutrality”: whether broadband access providers should be barred from disadvantaging unaffiliated providers of internet content and applications. Network neutrality gained traction for several reasons, including concerns about the emergence of a duopoly among incumbent cable modem and DSL providers; the relatively poor performance of the U.S. broadband market compared to other countries; academic and public interest advocacy for new legal constraints to replace the Title II safeguards of common carriage; remarks by telephone company executives suggesting they would engage in discriminatory practices; new assertiveness on policy issues by content and application providers, especially Google; and the development of technologies allowing more sophisticated differentiation among applications on broadband networks. Whatever the cause, the struggle over network neutrality came to dominate telecom policy debates.

The current proposals for network neutrality are non-discrimination rules.<sup>175</sup> They would prevent broadband operators from differentiating traffic on their networks, similar to the obligations placed on common carriers. While the concerns of network neutrality advocates are legitimate, their favored solutions are misguided. Opponents of network neutrality are also mistaken, however, in their belief that tying applications to networks will produce enhanced internet functionality.

The problem with both sides of the network neutrality debate is that they fail to recognize the significance of interconnection. A more nuanced history reveals that network neutrality grew out of an interconnection proposal and even now focuses on the kinds of conduct traditionally subject to interconnection rules. Although the original network neutrality proposals addressed discriminatory practices of broadband operators toward their customers, the debate today focuses on the relationships among linked networks. Moreover, rather than appearing in response to new forms of discrimination, network neutrality proposals are a continuation of an ear-

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175. See Wu, *Broadband Discrimination*, *supra* note 7, at 169-70.

lier battle over broadband “open access.” The shift from open access to network neutrality was a strategic move that succeeded in galvanizing significant support. Unfortunately, it is likely to lead to a dead end. Non-discrimination rules for converged networks will be difficult to implement effectively, and they focus on the wrong set of developments in the evolution of converged networks.

### 1. *Broadband Discrimination*

When network neutrality was first promoted, around 2003, it followed a classic non-discrimination script. The focus was on restrictions that broadband access providers might impose on their users.<sup>176</sup> For example, they might block access to certain websites, or they might adopt unreasonable restrictions on how users employed their broadband connections.<sup>177</sup> Tim Wu, for example, conducted a survey of allegedly discriminatory actions by broadband access providers that included restrictions on streaming video, prohibitions on using virtual private networking software, and prohibitions on operating home servers.<sup>178</sup>

Then-FCC Chairman Michael Powell expressed sympathy for these concerns, but he rejected calls for enforceable prophylactic neutrality regulations.<sup>179</sup> Instead, Powell propounded what he called the “Four Freedoms”: the unfettered ability of users to access content, use applications, attach personal devices, and obtain service plan information.<sup>180</sup> The FCC should use its authority, Powell indicated, to address individual cases in which these freedoms were violated. Indeed, when a rural telephone company, Madison River Communications, apparently blocked network ports used by VoIP provider Vonage, the FCC stepped in and secured a fine and consent decree to stop it.<sup>181</sup> The FCC later, under the leadership of Kevin

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176. *See id.* at 158-67; Declan McCullagh, *Tech Companies Ask for Unfiltered Net*, CNET NEWS.COM, Nov. 18, 2002, available at <http://news.com.com/2100-1023-966307.html>.

177. *See Wu, Broadband Discrimination, supra* note 7, at 159-66.

178. *See id.* at 158-67. In proposing a rule to address broadband discrimination, Wu does distinguish between permissible discrimination based on local network characteristics (such as limited bandwidth in the last mile) and impermissible discrimination based on external factors (such as the originating address of a packet).

179. Michael Powell, Chairman, Fed. Commc'ns. Comm'n, *Preserving Internet Freedom: Guiding Principles for the Industry*, Remarks at the Silicon Flatirons Symposium on the Digital Broadband Migration: Toward a Regulatory Regime for the Internet Age (Feb. 8, 2004), available at [http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/DOC-243556A1.pdf](http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-243556A1.pdf).

180. *Id.*

181. *See* Madison River Commc'ns, LLC, 20 F.C.C.R. 4295, 4297 (2005).

Martin, formally adopted a version of the Four Freedoms as a non-binding policy statement.<sup>182</sup>

Rather than allay network neutrality concerns, the FCC's action spurred greater outcry. By adopting the policy statement, the Commission gave credence to those who argued that broadband discrimination was a legitimate worry. Yet by refusing to adopt enforceable mandates, the Commission left those network neutrality advocates unsatisfied. The FCC's simultaneous decision to classify broadband access as an information service added fuel to the fire. There was a perception that the FCC had eliminated existing safeguards for broadband, or that the common carriage and interconnection/unbundling obligations for Title II carriers were equivalent to network neutrality mandates.

## 2. Access Tiering

Concern about limitations broadband providers might place on their users were not, however, what stoked the network neutrality controversy after the FCC's actions. Rather, the current wave of network neutrality focuses on how broadband access providers relate to unaffiliated providers of content and applications. Specifically, it involves concerns that the broadband providers will implement capabilities in their network to block or degrade unaffiliated content unless the providers of that content pay supplemental fees.

AT&T CEO Ed Whitacre gave ammunition to this position when he declared, somewhat inaccurately: "[n]ow what [content and application providers] would like to do is use my pipes free, but I ain't going to let them do that because we have spent this capital and we have to have a return on it."<sup>183</sup> Less colloquially, companies such as AT&T and Verizon say what they seek is "access tiering:" charging content and application providers additional fees for preferential access to their broadband access customers.<sup>184</sup>

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182. See *Appropriate Framework for Broadband Access to the Internet over Wireline Facilities*, 20 F.C.C.R. 14986, 14987-88 (2005).

183. Roger O. Crockett, *At SBC, It's All About "Scale and Scope,"* BUSINESSWEEK ONLINE, Nov. 7, 2005, available at [http://www.businessweek.com/@n34h\\*IUQu7KtOwgA/magazine/content/05\\_45/b3958092.htm](http://www.businessweek.com/@n34h*IUQu7KtOwgA/magazine/content/05_45/b3958092.htm); see Arshad Mohammed, *SBC Head Ignites Access Debate*, WASH. POST, Nov. 4, 2005, at D1 (describing the firestorm in response to Whitacre's comments). At the time, Whitacre's company was called SBC. It adopted the AT&T name when it acquired AT&T in 2005.

184. Although the policy debate around network neutrality has not yet reached the same intensity elsewhere, similar tiering efforts are underway outside the US. See Alexander Panetta, *Videotron Lobbying for Internet "Transmission Tariff" on Content Providers*, CANADIAN PRESS, Nov. 1, 2006 (discussing a proposal to make content owners

Though each is posed as the threat that network neutrality addresses, broadband discrimination and access tiering are different issues. The former concerns how a broadband provider constrains its own network, through actions such as banning particular applications or customer practices.<sup>185</sup> The latter concerns how that provider constrains or assists providers on other networks, through actions such as tiered performance for connections to its backbone. Broadband discrimination is a textbook case of discriminatory conduct by a network operator. By contrast, access tiering is a different model for linking content providers and access providers across the internet. Whether justified or not, it involves the business terms under which packets are routed from service providers such as eBay and Google across the internet backbone cloud to and from their users. Access tiering is, in other words, an interconnection practice.

The FCC's "Four Freedoms" policy statement squarely targets broadband discrimination. The open questions are whether the FCC has sufficient legal authority to implement its principles, especially for networks not traditionally subject to Title II common carriage obligations, and whether the Commission will choose to act when situations arise. Network neutrality advocates have proposed legislation that would give the FCC explicit enforcement authority.<sup>186</sup> However, other bills that network operators favor would couple solidification of the FCC policy statement with the removal of FCC authority over access tiering.<sup>187</sup> Access tiering has thus quietly replaced broadband discrimination as the focus of the network neutrality debate.

Fears about access tiering are warranted, although the reasons have not been effectively articulated. Access tiering plans may represent a direct challenge to the internet's traditional interconnection model. The network operators are suggesting that they can charge higher fees for interconnec-

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pay some of the costs of broadband networks used to carry video); Michael Geist, *Videotron Rekindles Fear of a Two-Tier Internet*, TORONTO STAR, Nov. 6, 2006 (describing the Videotron example as well as a case in South Korea involving internet video).

185. A broadband access provider that blocked a network-based application such as the Vonage VoIP service would only be deciding what packets flowed across its own network. Such an act would be a violation of non-discrimination rather than interconnection policies. Even though the ISP would be treating its own customers equally, it would be treating some application providers (functioning as users on the end of the connection) differently than others.

186. See *Markey Offers Network Neutrality Alternative To Barton Bill*, NATIONAL JOURNAL'S CONGRESSDAILY, May 2, 2006.

187. See Anne Broache & Declan McCullagh, *Senate Deals Blow to Network Neutrality*, NEWS.COM, June 28, 2006, available at [http://news.com.com/Senate+deals+blow+to+Net+neutrality/2100-1028\\_3-6089197.html](http://news.com.com/Senate+deals+blow+to+Net+neutrality/2100-1028_3-6089197.html).

tion for the privilege of enhanced delivery of packets to their subscribers, and potentially deny or degrade delivery for other interconnected traffic. Existing backbone transit agreements incorporate differential pricing for greater capacity or otherwise enhanced delivery, but those arrangements are for connectivity to the whole internet, not the end-user broadband customers affiliated with the backbone provider.

Today's internet already countenances discrimination, in the sense that only larger backbones are entitled to peering, and only those who pay for private exchange points and CDNs receive the benefit of enhanced delivery they offer. It is also a two-sided market, in that network operators may receive revenue both from end-user customers and from content and application providers on the "server side" of the network.<sup>188</sup> Neither is a challenge to the "neutral" character of the internet, because, from the end-user perspective, there is still one universal network. Providers of content and applications that desire enhanced delivery have several options: they can buy a bigger pipe or a stricter service level agreement (SLA) from their backbone operator; they can go to a private exchange point or CDN that overlays intelligence on the internet infrastructure; or they can self-provision distributed capacity, as companies such as Google and Microsoft do today.<sup>189</sup>

If access tiering is widely practiced, such providers will have more limited options. If the backbone operator connected to a last-mile network conditions enhanced delivery on the purchase of quality of service (QOS) capabilities that it hard-wires into its network, that operator becomes the sole arbiter of how the content or application provider can reach some of its customers. Connectivity across the internet becomes less of an opportunity to take advantage of pervasive interconnection than a set of isolated, private negotiations with broadband carriers.

Such an environment would threaten the delicate balance of the existing peering and transit regime, and could undermine the dynamic of network effects through which a parade of unexpected internet-based innovations—Amazon.com, Hotmail, eBay, Google, MySpace, YouTube, and more—have emerged.<sup>190</sup> Today, such businesses can select among the

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188. See generally Jean Charles Rochet & Jean Tirole, Two-Sided Markets: An Overview (Mar. 12, 2004) (unpublished working paper, on file with author), available at [http://www.frbatlanta.org/filelegacydocs/ep\\_rochetover.pdf](http://www.frbatlanta.org/filelegacydocs/ep_rochetover.pdf).

189. See *supra* text accompanying note 102.

190. Cf. William B. Norton, Video Internet: The Next Wave of Massive Disruption to the U.S. Peering Ecosystem (v.0.91), (unpublished paper, on file with author), available at <http://www.pbs.org/cringely/pulpit/media/InternetVideo0.91.pdf> (describing how

various options for network-wide connectivity as they grow, and the facilities-based and distributed service providers who facilitate that connectivity compete and cooperate to do so. In an access-tiered world, the last-mile broadband operator defines the economic and technical arrangements for reaching its users. Such operators are unlikely to optimize for the unexpected and uncertain benefits of new market entrants.

The present indeterminacy of end-to-end internet connectivity actually provides valuable incentives.<sup>191</sup> Because no network can control the full experience it provides to its customers, networks that seek to offer enhanced delivery are willing to overprovision capacity or pay for overlays such as CDNs and private peering. In those cases where the service involved (such as secure transmission of financial information or point-to-point videoconferencing) requires a particular guarantee between endpoints, the network serving the end user or service provider can either expand its own infrastructure or negotiate SLAs with other networks to achieve the desired result. Such private and tiered arrangements supplement, rather than replace, the default model of open interconnection. Under access tiering, the initiative for enhanced connectivity to a particular endpoint comes from the last-mile broadband network operator and its affiliated backbone carrier, not the service provider or user defining the application or content.

### 3. *The Open Access Back-Story*

In essence, network neutrality is now a non-discrimination concept being promoted to address interconnection behavior. This disconnect is particularly interesting because today's network neutrality argument grew out of an interconnection-focused antecedent: broadband open access.<sup>192</sup> The open access debate, between approximately 1998 and 2002, concerned whether cable modem services should be required to allow unaffiliated ISPs access to their broadband platforms.<sup>193</sup> The open access controversy did not generate the same level of public debate as the current network neutrality battle because there was relatively limited broadband adoption

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video distribution across the internet will undermine the current backbone interconnection equilibrium).

191. The architects of the internet chose not to emphasize "source routing," in which the originator of a transmission can specify its exact path through the network. Instead, routing decisions are generally distributed to the intermediate devices along the path.

192. Spulber & Yoo, *supra* note 19, at 643 (describing "platform access" as a species of access, meaning that the facilities conform to a standard allowing others to provide complementary access).

193. See Lemley & Lessig, *supra* note 165, at 927-29.

at the time. However, it covered much of the same ground as the current fight.

Opponents of broadband open access successfully painted the proposed requirements as protecting particular competitors—the independent ISPs—rather than competition and innovation *per se*.<sup>194</sup> And they convinced the FCC that physical interconnection with broadband access networks would be burdensome to implement.<sup>195</sup> The Commission declined to impose general open access mandates, although it did adopt limited requirements for Time Warner Cable in connection with the AOL/TimeWarner merger.<sup>196</sup>

Current proponents of network neutrality, such as Tim Wu, reject the broadband open access approach.<sup>197</sup> Wu gives two primary reasons to prefer non-discrimination rules (network neutrality) over interconnection-oriented solutions (open access). First, open access is itself discriminatory, he claims, because it may preclude applications that require tight integration between the end-user ISP and the broadband network owner.<sup>198</sup> Since non-discrimination is the deeper goal of telecom policy, regulators should choose the least discriminatory mechanism.<sup>199</sup> Second, open access sought to promote competition among broadband access providers, but such competition is only a means to the ultimate aim of non-discrimination.<sup>200</sup> So, according to Wu, policy-makers should target non-discrimination directly through rules barring discriminatory conduct.<sup>201</sup>

A third justification for the shift from open access to network neutrality was instrumental. The FCC rejected calls for broadband open access requirements. It did so in part because of concerns that interconnection regulation would be too intrusive, and would dampen incentives for

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194. See Michael E. Kanell, *Rivals Worrying about AT&T's Control of "Last Mile" to Homes*, ATLANTA JOURNAL AND CONSTITUTION, Sept. 15, 1999, at 6D.

195. See *id.*

196. See Patrick Ross & Evan Hansen, *AOL, Time Warner Complete Merger with FCC Blessing*, CNET NEWS.COM, Jan. 11, 2001, available at <http://news.com.com/2100-1023-250781.html>.

197. See Wu, *Broadband Discrimination*, *supra* note 7, at 149-50. Wu goes farther, arguing that anti-discrimination has always been the core element of telecommunications policy. See Wu, *Anti-Discrimination Norms*, *supra* note 45, at 16. Other network neutrality proponents are not so categorical. See Lawrence Lessig, *Reply: Re-Marking the Progress in Frischmann*, 89 MINN. L. REV. 1031, 1042-43 (2005) (posing the challenge of what solutions are best for the problem).

198. See Wu, *Broadband Discrimination*, *supra* note 7, at 150.

199. See *id.*

200. See *id.*

201. See *id.*

broadband deployment.<sup>202</sup> Network neutrality, as a policy toward *how* broadband providers use their network rather than one guiding *what* networks they build, seems on its face a more palatable approach.

The shift toward network neutrality has had salutary effects. It has started a debate, both at the FCC and in Congress, as well as in other countries, about the impact of actions such as access tiering on the future broadband ecosystem. It has also catalyzed valuable scholarship on the relationship of network infrastructure to higher-level innovation.<sup>203</sup> Yet the abandonment of open access, and of interconnection-based approaches more generally, has significant downsides. As converged, layered competition among multi-faceted and interconnected providers is becoming the norm, policy-makers have largely abandoned the very tool best suited to such an environment. Pushed by the network neutrality debate, regulators are focused on models that address exactly the wrong question.

#### IV. THE INTERCONNECTION ALTERNATIVE

##### A. Why Non-Discrimination Fails

There are two main reasons to question the value of casting broadband policy primarily in non-discrimination terms. First, any discrimination rule will involve behavioral determinations. There is benign discrimination, and there is harmful discrimination. Distinguishing the two in the current technological and market environment is nearly impossible, because from a technical perspective, they look identical.

Second, the current network neutrality debate fails to appreciate the engineering tradeoffs that will determine the shape of the next-generation converged broadband internet. The expected all-or-nothing choice between universal and fine-grained quality of service management on the one hand, and unfettered best-efforts delivery on the other, misrepresents technical realities. The actual future will be messier and more heterogeneous, making it even harder to evaluate actions against a discrimination-oriented backdrop. For example, most video services require tremendous bandwidth but can tolerate some latency (delay) because they are not live, while voice demands reliable real-time delivery, and wireless connections need robustness to interruptions and the ability to support hand-offs across

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202. See Paul Davidson, *Talk is Not Cheap to FCC Chief: Kennard Fights for Consumers from Bully Pulpit*, USA TODAY, Oct. 10, 2000, at 1B.

203. See generally Yoo, *supra* note 7 (attacking network neutrality proposals); Brett M. Frischmann, *An Economic Theory of Infrastructure and Commons Management*, 89 MINN. L. REV. 917 (2005) (explaining the economic case for treating infrastructure as commons).

geographically fixed infrastructure. When all these services are delivered through the same handheld device, which is capable of using several distinct network access technologies, seeing the internet as a featureless mass is unhelpful.

It should be emphasized that questioning the non-discrimination turn of the debate does not challenge the fundamental point that network neutrality advocates make: namely, that broadband access providers may use their bottleneck control to disadvantage unaffiliated applications and content, with negative consequences for usage and innovation. The core network neutrality thesis is that an industry model in which innovators can introduce new services without reliance on network operators is superior to the alternative that those operators are now promoting.<sup>204</sup> That claim does not rest on a non-discrimination worldview. In fact, the arguments for this innovation thesis were originally introduced as reasons for interconnection-oriented open access requirements.<sup>205</sup>

### 1. *Good and Bad Discrimination*

In a competitive market, it is eminently natural, even desirable, for firms to maximize competitive advantage. Exercising leverage over partners, customers, and suppliers is, in and of itself, an unexceptional example of such behavior. Discrimination, in the general sense of treating some customers differently than others, is also not normally a troubling practice. To take but one example, an airline may charge every passenger on a flight a different price, even though the seats are largely identical and the flight arrives at the same time for everyone.<sup>206</sup> Closer to home, telephone companies charge business customers higher rates for the exact same local calling service they sell to residential users.<sup>207</sup> Regulators for many years actually encouraged such discrimination as a cross-subsidy mechanism.<sup>208</sup> And on the internet, companies such as Google and Yahoo! sell top listings in their paid search results and ads on their pages to the highest bidder, “discriminating” against everyone else.

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204. See LESSIG, *supra* note 29, at 175.

205. See Lemley & Lessig, *supra* note 165, at 927; Francois Bar et al., *Access and Innovation Policy for the Third-Generation Internet*, 24 TELECOMM. POL’Y 489, 490 (2000).

206. Such “yield management,” an extreme form of discrimination, optimizes the airline’s revenues from relatively fungible but time-limited assets.

207. See Thomas G. Krattenmaker, *The Telecommunications Act of 1996*, 49 FED. COMM. L.J. 1, 21 (1996).

208. See MUELLER, *supra* note 68, at 5.

Discrimination is, in fact, not ordinarily something regulators worry about today.<sup>209</sup> Government intervenes, as the antitrust mantra intones, to protect competition, rather than competitors. Certain forms of conduct, such as deceptive trade practices or predatory pricing, may be considered “beyond the pale” and legally precluded. However, the mere act of preferring your partners over your competitors generally does not fit that bill.

To support their non-discrimination argument, network neutrality advocates make two moves. First, they claim that network infrastructure providers are a special class of companies which should be subject to higher standards.<sup>210</sup> There are several potential bases for this distinction: government use of eminent domain power and rate-of-return regulation to grant incumbent operators special economic privileges; the sense that communications access networks are natural monopolies where unregulated competition is infeasible; the absence of actual competition for broadband access, even if theoretically possible; and the claim that the broadband internet is an “infrastructure” technology that serves as a foundation for a wide range of innovation. It is not my goal to critique these arguments. However, it bears noting that all of them are amenable to challenge on factual grounds. There are no bright lines that distinguish companies deserving special non-discrimination obligations from those that do not.

The second element of the mainstream network neutrality argument is a claim that a non-discrimination rule can effectively address the innovation-killing behavior of network operators.<sup>211</sup> Yet that assumes government can craft and enforce a rule that distinguishes benign from anti-competitive discrimination, which is more difficult than it might seem. This difficulty is why virtually every article or bill advocating network neutrality uses a slightly different definition.<sup>212</sup> Network neutrality advocates use as examples clear cases of anti-competitive animus, such as the blocking of ports of rival VoIP providers or the slowing down in website

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209. This Section focuses on economic discrimination. Invidious discrimination on the basis of categories such as race, gender, age, or sexual orientation may be Constitutionally proscribed.

210. See Wu, *Anti-Discrimination Norms*, *supra* note 45, at 30-31.

211. See Wu, *Broadband Discrimination*, *supra* note 7, at 167-68.

212. Compare *id.* at 169-71 (distinguishing acceptable on-network discrimination from unacceptable cross-network discrimination) with Network Neutrality Act, H.R. Res. 5273, 109th Cong. (2006) (prohibiting broadband providers from “discriminat[ing] in favor of itself in the allocation, use, or quality of broadband services . . .”).

responsiveness of a search engine that refuses to pay a toll.<sup>213</sup> However, major broadband operators are unlikely to engage in anything so blatant.

Given the technical characteristics of the internet, a broadband operator that degraded traffic from an unaffiliated application or content provider could easily claim its actions were benign. It would label the degradation as either an accidental outcome of neutral network engineering decisions or a legitimate effort to maintain acceptable network performance for its users. Such a claim could be well grounded technically. Every router decides to drop some packets some of the time, which is inherent to the nature of packet switching.<sup>214</sup> Routers use algorithms to determine which packets to drop when, whether as part of a network-wide traffic shaping effort or as a purely local response to transient conditions.<sup>215</sup>

Regulators will have a difficult time determining if such algorithms are motivated by legitimate network management concerns or anti-competitive impulses.<sup>216</sup> For example, some internet service providers now block network Port 25, used for e-mail relaying, as a means of cutting down on unsolicited commercial e-mail (spam). Network neutrality proponents have raised concerns that such blocking may be designed to harm competing providers.<sup>217</sup> There are technical arguments why blocking Port 25 is a poor response to spam, but the evaluation of such claims effectively forces regulators to second-guess engineering decisions, which is something they are ill-equipped to do.

There are many legitimate reasons for network operators to discriminate against classes of traffic. Traffic may be “malware” such as spam, phishing traffic, worms, viruses, or part of a denial of service attack. It may involve a distant server, requiring transit payments, instead of coming from a local Akamai cache. It may simply tax their network in ways they are not prepared to handle. Studies suggest that a third of all traffic on the internet is peer-to-peer video file sharing, a category of application involv-

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213. Also, these examples primarily involve broadband discrimination, rather than the access tiering that is the current focus of network neutrality advocacy. *See supra* Section III.C.2.

214. Edward Felten, Nuts and Bolts of Network Neutrality 2 (July 6, 2006) (unpublished manuscript, on file with author), *available at* <http://itpolicy.princeton.edu/pub/neutrality.pdf>.

215. *See id.* at 2-3.

216. *See id.* at 5-6.

217. *See* David Isenberg, Is Telepocalypse a Good Thing? (Nov. 16, 2005) (unpublished manuscript, on file with author), *available at* <http://isen.com/blog/2005/11/is-telepocalypse-good-thing.html>.

ing massive quantities of bandwidth and non-traditional traffic patterns.<sup>218</sup> Many ISPs, while not specifically looking to disadvantage such applications, are implementing traffic management approaches to reduce the load certain applications place on their networks.<sup>219</sup>

Broadband access providers could well engage in anti-competitive discriminatory practices masquerading as neutral traffic engineering. Such practices may have a chilling effect on welfare-enhancing innovation on the internet. The problem is that the Commission will be hard pressed to assess whether such anti-competitive activity is taking place.<sup>220</sup> *Madison River*, which involved the blocking of VoIP ports to prevent customers from using a service that directly competed against Madison River's core telephone business, was a much simpler case.<sup>221</sup> Significantly, Madison River's behavior was tantamount to an interconnection restriction, preventing Vonage from linking with its network.

Another dispute involving Vonage further illustrates how non-discrimination decisions may be difficult to make in practice even when they address legitimate competitive concerns. Shaw, a major cable operator in Canada, has deployed technology on its network that it claims enhances the performance of VoIP. It uses this technology for its own VoIP offering. However, it also demands that unaffiliated VoIP providers, such as Vonage, pay a \$10/month fee to take advantage of the enhanced capabilities.<sup>222</sup> Shaw's argument that it is helping VoIP providers by offering a QOS-enhanced service seems odd when one of those very providers is attacking it. Rather, Shaw's imposition of a \$10 fee for independent VoIP providers to receive QOS capabilities that Shaw's own VoIP service receives for free looks like a classic price squeeze.<sup>223</sup>

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218. See Kevin Werbach, *The Implications of Video P2P on Network Usage*, VIDEO PEER TO PEER (forthcoming 2007).

219. See [Azureuswiki.com](http://www.azureuswiki.com/index.php/Bad_ISPs), Bad ISPs, [http://www.azureuswiki.com/index.php/Bad\\_ISPs](http://www.azureuswiki.com/index.php/Bad_ISPs) (last visited Nov. 26, 2007) (listing more than forty service providers worldwide who limit BitTorrent in some way).

220. For this reason, some network neutrality advocates have shifted to a hortatory argument, hoping to make discriminatory practices too embarrassing or risky for carriers even if not expressly prohibited. See, e.g., The Doc Searls Weblog, <http://doc-weblogs.com> (Nov. 11, 2006).

221. See *Madison River Commc'ns, LLC*, 20 F.C.C.R. 4295, 4297 (2005).

222. See *Shaw, Vonage Engage in War of Words Over Internet Phone Service*, CBC NEWS, Mar. 8, 2006, <http://www.cbc.ca/money/story/2006/03/08/shaw-060308.html>.

223. Chicago School antitrust analysis might take issue with such a characterization, on the grounds that any customers Shaw took from Vonage would cost it the \$10 in additional revenue, plus any additional value the Vonage application brought to the platform. However, the potential for the Vonage VoIP service to be a substitute, rather than merely a complement, for Shaw's own offerings, is a recognized exception to this analysis. See

Assume for the moment that Shaw's actions are definitely anti-competitive and produce an inefficient result as a matter of social welfare. Would a network neutrality regime prevent this harm?<sup>224</sup> Shaw's position is that it is engaged in neutral traffic management (to deal with congestion caused by real-time applications such as VoIP), and that it is offering a beneficial enhancement on top of its platform. Under a network neutrality regime, a regulatory agency would have to decide that Shaw was, in effect, not honestly describing its motivations. It would have to substitute its engineering judgment for that of the operator, and conclude that the QOS service was an anti-competitive action rather than an innovation.

Any blanket non-discrimination rule is likely to quickly run into situations where a straightforward application produces unacceptable results. A feasible neutrality regime would have to operate as a vague "thumb on the scale," essentially suggesting that, while some engineering decisions that incorporate application-aware elements into the network are legitimate, the presumption is that such decisions are ultimately harmful to innovation and should be blocked. Such an approach would require a difficult case-by-case assessment that, public choice considerations suggest, will be influenced by many external factors. At a minimum, a non-discrimination rule is unlikely to provide the certainty and predictability that investors crave.

## 2. *The QOS Mirage*

A second flaw in the non-discrimination turn of the debate is that it wrongly presumes a particular technical trajectory for broadband networks. All network architectures make engineering tradeoffs that influence the feasibility and economic viability of different classes of applications. The decentralized packet-switched architecture of the internet was developed with relatively latency-tolerant applications such as file transfer and e-mail in mind.<sup>225</sup> There were good reasons for this tradeoff. The existing public switched telephone network did an excellent job of handling reliable, low-latency voice telephone traffic, and the internet's designers saw no need to reinvent that wheel. Moreover, file transfer was a primary

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Joseph Farrell & Phil Weiser, *Modularity, Vertical Integration, and Open Access Policies: Towards a Convergence of Antitrust and Regulation in the Internet Age*, 17 HARV. J.L. & TECH. 85, 109-112 (2003) (assessing whether regulation should mandate open access to information platforms).

224. Because the situation arises in Canada, it has not been tested under the U.S. legal framework described herein.

225. See Andrew Orlowski, *How "Saving the Net" May Kill it*, THE REGISTER, July 17, 2006.

activity that the researchers who built the internet engaged in themselves.<sup>226</sup>

Engineering tradeoffs are not absolute. The internet architecture made real-time communications more difficult to implement, but not impossible. As internet performance increased, and commercial demand developed, engineers worked out mechanisms to build real-time communications such as VoIP and video streaming over the best-efforts internet. Some of these efforts involved proposed changes to basic network standards, such as implementation of the RSVP protocol for bandwidth reservation.<sup>227</sup> Others, such as the caching networks deployed by Akamai and others, were layered on top of the existing standards-based infrastructure.<sup>228</sup>

The internet's end-to-end design philosophy, which directs the network to focus solely on delivering packets, allows such adaptability.<sup>229</sup> Application-specific functionality can be added later, at the network's edges. Network architectures optimized for real-time services, such as asynchronous transfer mode (ATM) are less flexible, and have generally lost out to IP as a result.<sup>230</sup> Despite pronouncements that the internet would never support real-time audio or video, such media types are now a significant component of the commercial internet landscape. Most recently, YouTube, a site that hosts and distributes streaming video clips across the public internet, was acquired for \$1.65 billion by Google, demonstrating the significance of online video as a business opportunity.<sup>231</sup>

YouTube's success points out a flaw in the arguments of both network neutrality proponents and opponents. Both sides of the debate accept the premise that new QOS mechanisms are necessary for the next generation of internet-based services. Wu, for example, accepts that QOS may require close cooperation or vertical integration between a broadband access provider and an internet backbone and argues for limits to prevent discriminatory behavior.<sup>232</sup> On the other side of the debate, Christopher Yoo argues that such discriminatory behavior may be necessary to make the QOS-based services economically viable, and that excessive discrimination will

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226. *Id.*

227. See Michael J. DeMaria, *Does QoS Deliver?*, NETWORK COMPUTING, Sept. 4, 2003, at 61.

228. See Dilley, *supra* note 102.

229. See Lemley & Lessig, *supra* note 165, at 930-31.

230. ATM is widely deployed for certain functions within the network, but it never became the uber-protocol its designers anticipated.

231. See *YouTube Serves Up 100 Million Videos a Day Online*, REUTERS, July 7, 2006.

232. See Wu, *Broadband Discrimination*, *supra* note 7, at 149-50.

prompt competitive entry of other access/backbone hybrids.<sup>233</sup> If, in fact, the kinds of cross-network QOS that broadband network owners seek are unnecessary or unworkable, the fight over their adoption loses much of its salience.

In reality, the technological and business cases for QOS are more complex and far from definite. QOS is a broad term covering a variety of technical approaches. Outside of the policy and business domains, network engineers have struggled for years to determine how to make QOS function effectively across the internet. While QOS mechanisms are widespread on today's networks and are essential to its smooth functioning, these are generally not the QOS techniques the network neutrality debate assumes.

Broadly speaking, there are two approaches to QOS.<sup>234</sup> One involves mandatory partitioning of the network to allocate more capacity, or even guaranteed end-to-end "virtual circuits," to a given class of users or applications. The other provides voluntary mechanisms for providers and users to opt into higher QOS arrangements.<sup>235</sup> On a single network, mandatory QOS mechanisms can work effectively. Across networks, however, engineers have found QOS surprisingly difficult to achieve, due to a combination of technical and economic factors.<sup>236</sup> Policies are simply too difficult to synchronize with the necessary specificity to enforce end-to-end performance guarantees. And without a complex billing infrastructure that might cause more problems than it solves, providers have insufficient incentives to make QOS work for the benefit of someone else's customers.<sup>237</sup>

The same story played out even more clearly in the Internet2 research project. Internet2 is a government-funded consortium of universities that

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233. See Yoo, *Congestion*, *supra* note 7, at 1852-53.

234. See *IP Quality of Service*, LIGHT READING, Oct. 9, 2002, available at [http://www.lightreading.com/document.asp?site=lightreading&doc\\_id=22375&page\\_number=5](http://www.lightreading.com/document.asp?site=lightreading&doc_id=22375&page_number=5). The primary example of these two approaches was the effort to standardize INT-SERV (integrated services) as an internet standard for QOS, and the later shift to DIFF-SERV (differentiated services) when that approach failed.

235. See *id.*

236. See Stanislav Shalunov & Ben Teitelbaum, *Why Premium IP Service Has Not Deployed (and Probably Never Will)* (January 9, 2006) (unpublished working paper, on file with author), available at <http://qos.internet2.edu/wg/documents-informational/20020503-premium-problems-non-architectural.html>.

237. The IMS vision, in which all traffic flows are tracked and categorized, might create a better economic infrastructure for interdomain QOS. However, it would do so at great cost to the internet's open interconnection norms. See John G. Waclawsky, *IMS: A Critique of the Grand Plan*, BUS. COMM. REV., Oct. 2005, at 54.

seek to advance the state of the art for IP networking.<sup>238</sup> Among its primary projects was the development of interoperable QOS mechanisms. However, after substantial effort, the Internet2 QOS working group declared the effort a failure.<sup>239</sup> Instead, Internet2 researchers are exploring voluntary mechanisms, such as allowing users to identify traffic with less-than-average delivery requirements, opening up more capacity for everything else.<sup>240</sup>

To understand why the broadband QOS model is unlikely to succeed, consider a Google-owned video service, such as YouTube. Verizon approaches Google and demands an incremental fee for enhanced delivery of YouTube-hosted videos to Verizon broadband customers. From Google's perspective, Verizon is just one of many broadband access providers. Verizon's customers are only a fraction of those Google wishes to reach with YouTube.

When other broadband access providers such as AT&T, Qwest, Comcast, Time Warner, and Cablevision approach Google with the same proposition, Google will be faced with a dilemma. To make these QOS systems work, it would effectively have to replicate its content onto caches on each network, which is likely to be a costly proposition. Moreover, the broadband operators' QOS initiatives are not the only enhanced delivery options available today on the internet. Google itself is spending heavily to create a distributed, high-capacity network optimized for delivery of its own content and services and linked together with its own private dark fiber.<sup>241</sup> Other major internet companies are doing the same thing, even if not quite at Google's scale.<sup>242</sup> And CDNs such as Akamai have built out their own virtual networks of caches to provide enhanced delivery across many networks and access providers.<sup>243</sup>

Network neutrality opponents point to these webs of overlapping QOS mechanisms as evidence that the internet is already non-neutral, without

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238. About Internet2, <http://www.internet2.edu/about/> (last visited Nov. 26, 2007).

239. See Shalunov & Teitelbaum, *supra* note 236; *Net Neutrality: Hearing Before the S. Comm. on Commerce, Science & Transportation*, 109th Cong. 2 (2006) (testimony of Gary R. Bachula), available at <http://commerce.senate.gov/pdf/bachula-020706.pdf> [hereinafter *Net Neutrality*] ("For a number of years, we seriously explored various 'quality of service' schemes . . . [A]ll of our research and practical experience supported the conclusion that it was far more cost effective to simply provide more bandwidth.").

240. See *Net Neutrality*, *supra* note 239.

241. See George Gilder, *The Information Factories*, WIRED, Oct. 2006; Saul Hansell & John Markoff, *Hiding in Plain Sight, Google Seeks an Expansion of Power*, N.Y. TIMES, June 14, 2006.

242. See Hansell & Markoff, *supra* note 241.

243. See Dilley et al., *supra* note 102.

damaging innovation.<sup>244</sup> While that is true at some level, the point is trivial. Network neutrality advocates are promoting the good (sufficient neutrality to allow for innovation and competition on the network) rather than the perfect (identical treatment of every packet, always).<sup>245</sup> What concerns them is that broadband access providers can use their market power in the access market to distort opportunities for investment and competition through their non-neutral practices. The traditional internet “best efforts” model may not be strictly neutral, but it avoids such mandatory linkages.

In fact, the more accurate picture of how QOS works and does not work on the internet poses more of a challenge for the broadband access providers fighting network neutrality requirements. They and their supporters argue that non-discrimination rules are harmful because QOS mechanisms that tie end-user broadband access to backbones are essential for next-generation internet investment and innovation.<sup>246</sup> Yet in reality, any such arrangement can only succeed with a proper alignment of interests. Akamai and other CDNs are effective because they align the interests of content providers (who want to deliver a better experience to their customers, and who want to avoid the expense of replicating content themselves), network operators (who value the reduced bandwidth requirements when content is served from a cache rather than delivered across the network), advertisers (who appreciate the presence of intermediaries between the large number of content providers and users), and users (who value faster and more reliable content delivery).

In the case of broadband QOS, it is not clear that content providers will see a benefit from the service the broadband operators hope to offer. In fact, some content providers may seek to reverse the money flow. The cable television channel ESPN, for example, offers a service called ESPN 360, a package of proprietary video content on its website, to broadband access providers for a fee.<sup>247</sup> If the broadband providers pay, their customers see the content on the ESPN site; if not, they don't. ESPN and its content are the valuable asset for users; that is why ESPN is able to charge cable operators huge monthly fees simply for carrying the channel on their

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244. See Craig McTaggart, *Was The Internet Ever Neutral?* (Sept. 30, 2006) (unpublished manuscript, presented at the 34th Research Conference on Communication, Information and Internet Policy), available at <http://web.si.umich.edu/tprc/papers/2006/593/mctaggart-tprc06rev.pdf>.

245. See Wu, *Anti-Discrimination Norms*, *supra* note 45, at 42.

246. See Yoo, *Congestion*, *supra* note 7.

247. See George Ou: *Real World IT*, <http://blogs.zdnet.com/Ou/> (June 21, 2006, 03:08); Bob Wolfley, *ESPN's Decision to Bump Badgers*, MILWAUKEE J.-SENTINEL, Oct. 5, 2006.

cable systems. Users forced to choose between no ESPN online content and switching broadband providers might well take the latter route. One could certainly make that assumption about Google, if it were to use a similar approach. The assumption that network operators will be able to extract supplemental revenue from content or application providers is thus a questionable basis for policy arguments.

The business realities of QOS belie the hyperbolic claims of both sides of the network neutrality debate. The internet is always evolving, both in terms of technical protocols and the business relationships among the providers that own its infrastructure. That evolution will not stop if some providers push QOS arrangements beyond what their customers will bear, nor will it stop if government adopts rules limiting the scope of QOS mechanisms the providers can impose. Even if the interdomain QOS dream of the broadband access providers is ultimately realized, the process is certain to be drawn out, with different players taking different approaches. Regulators will need clearer tools than non-discrimination to evaluate market developments.

## **B. Refocusing the Debate**

Rather than starting from the premise that non-discrimination rules are the only way to foster competition and innovation in a converged world, policy-makers should examine the trends militating against robust interconnection. Convergence is bringing together two forms of interconnection with very different traditional models: telephony and the internet. Regulators must decide whether to safeguard robust interconnection rights for such traffic. In contrast to the internet backbone market, where competition and custom were generally sufficient to produce an effective interconnection regime, the new environment of converged services is likely, absent regulatory involvement, to produce a more balkanized outcome. These possibilities are largely being ignored in the clamor over network neutrality.

### *1. Peering Disputes*

Among internet backbone operators, a relatively stable structure of peering and transit relationships has persisted for most of the period since the NSF turned over the backbone to private control.<sup>248</sup> With changes in internet usage patterns and business interests, however, there are reasons to worry that such stability will no longer hold.

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248. See Kende, *supra* note 84, at 45-46.

The earlier-referenced dispute between Level 3 and Cogent is indicative.<sup>249</sup> Level 3 is one of the largest U.S. and international internet backbones, providing wholesale capacity over its massive fiber optic network to carriers, internet service providers, and corporations. Cogent is a smaller but still substantial wholesale provider, whose primary business is providing high-speed “Ethernet” data connections to businesses and carriers. The two companies had an established peering contract, but it was terminable with sixty days notice. Level 3 precipitated the dispute in 2005. It argued that Cogent should no longer be entitled to peer with it, because Cogent sent significantly more traffic to Level 3 than the reverse.<sup>250</sup>

From Level 3’s perspective, the peering relationship was unbalanced, with Cogent receiving most of the benefits. Level 3 invoked the contract’s termination clause, and asked Cogent to switch to a paid termination agreement. Cogent refused, arguing that it was a “Tier 1” provider of similar status to Level 3. After some public back-and-forth, Level 3 “de-peered” Cogent, severing the direct connection between the networks. While Level 3 was within its contractual rights, this was a draconian step, making it difficult for customers on one backbone to reach sites on the other.<sup>251</sup> After a few days, Level 3 agreed to re-establish the link, and the parties ultimately reached a confidential agreement.<sup>252</sup>

In all likelihood, the Level 3/Cogent dispute is not unique. Most backbones do not publish their peering terms, and negotiations usually take place under confidentiality agreements. Every backbone is different, and there are sure to be contentious issues in many peering negotiations. The Level 3/Cogent situation was distinguished by the fact that it became public, and that it resulted in the temporary severance of connections between the two networks. De-peering is an extreme step, because it means cus-

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249. See Cowley, *supra* note 104.

250. See Ben Charny, *Cogent-Level 3 Peering Spat Ends—for Now*, E-WEEK, Oct. 7, 2005, available at <http://www.eweek.com/article2/0,1895,1868765,00.asp>; *Level 3 Issues Statement Concerning Internet Peering and Cogent Communications*, PR NEWSWIRE, Oct. 7, 2005, available at <http://www.prnewswire.com/cgi-bin/stories.pl?ACCT=104&STORY=/www/story/10-07-2005/0004164041> [hereinafter *Level 3 Press Release*].

251. The exact impact was difficult to gauge, since most users can reach virtually any point on the internet through more than one backbone. More pervasive peering disputes, or disputes among the very largest backbones, would have more significant consequences.

252. See James Crowe, *Regulation and Free Markets Redux: Additional Insights on Regulating the Telecommunications Industry in the New Economy*, 5 J. TELECOMM. & HIGH TECH. L. 487, 497 (2007); Stacy Cowley, *Level 3, Cogent Call Time Out on Peering Spat*, IDG NEWS SERVICE, Oct. 10, 2005; Charny, *supra* note 250.

tomers may, for reasons they cannot identify, be unable to reach certain sites on the internet.

As the internet evolves, however, it is unlikely this dispute will be the last such experience. The Level 3/Cogent dispute revolved around traffic asymmetries that affected the costs and benefits each network expected from the peering arrangement.<sup>253</sup> The directionality of internet traffic, although complex, is something network engineers understand. It derives from the dominant uses of the network: for the past decade, symmetric high-latency e-mail traffic, and asymmetric lower-latency client-server connections to websites. Newer applications such as peer-to-peer file sharing could change those traffic patterns, because they involve different distributions of outbound and inbound traffic.<sup>254</sup> Whether the peering regime can accommodate such changes remains to be seen.

One reason to be skeptical that the voluntary peering regime will endure is the consolidation of the backbone market. Following a series of mergers, a relatively small number of operators dominate backbone capacity, and three of them—AT&T, Verizon, and Qwest—are also the major incumbent telephone companies in the U.S.<sup>255</sup> There is a perception that backbone providers originating in the data networking world are more likely to observe the internet cultural norms that promote voluntary peering. In contrast, the dominant paradigm of the telephone world is regulated, billed settlements for all traffic.<sup>256</sup> The current balance of peering and transit arrangements for the internet backbone is not written in stone; it is a particular stage of evolution in an industry marked by constant change. If transit-type arrangements replace peering for a significant percentage of major backbone interconnects, however, the basic economics of internet transport could shift in unpredictable ways.

## 2. *IP Interconnection*

Even if converted at the edge for delivery to ordinary telephones, a growing percentage of voice traffic is being routed across the network as IP packets. Data-centric operators such as Level 3 and Global Crossing are seeking interconnection terms and pricing with incumbent telephone companies that more closely resemble the internet than the telephone network. For example, they are seeking to deliver traffic in native Ethernet format at central hubs, rather than connecting traditional voice lines at every cen-

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253. See *Level 3 Press Release*, *supra* note 250.

254. See, e.g., Werbach, *supra* note 218 (discussing how video P2P affects network usage).

255. See Posting of Om Malik to <http://gigaom.com/> (Oct. 17, 2006 09:05 PST).

256. See Waclawsky, *supra* note 237, at 54.

tral office, as they do for telephone traffic. Some telephone companies are refusing. Qwest and Level 3 are in arbitration before several state commissions over Qwest's insistence that Level 3 interconnect using the traditional phone network model.<sup>257</sup>

The next frontier for interconnection disputes is likely to be in the area of VoIP peering.<sup>258</sup> Today, there is no general standard for VoIP networks to interconnect with one another. A user of the Skype VoIP software can reach a user of the Vonage VoIP service only by routing their connections through the legacy telephone infrastructure.<sup>259</sup> In other words, the recipient's address must be translated into an ordinary telephone number, the call must be converted back into the time-division multiplexed format of the telephone system, and the traffic must be handed off to a conventional telephone company, only to have the entire conversion happen again on the terminating end.

This process adds cost and complexity. The VoIP providers must pay the phone companies involved the access or reciprocal compensation charges applicable to traditional telephone traffic, rather than peering directly through internet backbones.<sup>260</sup> The absence of VoIP peering also prevents the use of new features. If Skype and Vonage could peer directly, they could exchange data such as presence status, allowing a caller to see in real time whether the recipient is online. Moreover, VoIP users wishing to call ordinary telephone users must dial traditional phone numbers, rather than take advantage of the flexibility of the internet to bring together different communications channels and identity-based services.<sup>261</sup>

To overcome these limitations, VoIP carriers are looking to implement VoIP peering.<sup>262</sup> Such arrangements would allow VoIP services to interconnect and exchange traffic while preserving the integrity of addressing, services, and reliability mechanisms. Cable operators, who are aggressively deploying VoIP services on their broadband networks, are establishing private VoIP peering arrangements among themselves in order to

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257. See Level 3 Communications, LLC's Petition for Arbitration Pursuant to Section 252(b) of the Communications Act Of 1934, Arizona Corporation Commission Docket No. T-01051B-05-0350, available at <http://gordoncook.net/FinalAZBrief.pdf>.

258. See James Kobielus, *New Federation Frontiers in IP Network Services*, BUS. COMM. REV., Aug. 1, 2006, at 37; David Passmore, *Connecting Islands of VOIP*, BUS. COMM. REV., Sept. 1, 2003, at 14; Carol Wilson, *VoIP Peering's Business Model Shifts*, TELEPHONY, Sept. 25, 2006, at 6.

259. See Passmore, *supra* note 258, at 14.

260. See *id.*

261. For example, an e-mail address or an instant messaging user name could be the identifier for VoIP calling, instead of a phone number.

262. See Passmore, *supra* note 258, at 15.

avoid paying access charges to telephone companies. Other VoIP peering schemes are open to anyone. Several companies are seeking to be intermediaries to facilitate such arrangements, thus aiming to replicate the success of public and private exchange points on the internet backbone.<sup>263</sup>

So far, efforts to facilitate VoIP peering have taken place outside the purview of regulation. However, the case for excluding VoIP interconnection from the rules governing telecommunications services is weaker than for ordinary internet traffic. After all, the protocol may be different, but the end-user service is voice rather than data connectivity. Moreover, the current fragmentation of VoIP peering efforts seem unlikely to produce a unified environment in which all VoIP users can benefit from seamless connectivity, as they do on the internet and telephone network.

Voice peering hints at a broader set of questions about interconnection mandates at the application layer. On data networks, real-time voice is simply a class of application. Requiring VoIP services to interconnect is therefore not all that different from imposing such a requirement on instant messaging applications or search engines.<sup>264</sup> There is already some precedent in this area. In its review of the AOL/TimeWarner merger, the FCC imposed conditions to force the merged company to open up its market-leading AIM and ICQ instant messaging services.<sup>265</sup> AOL dragged its feet in implementing the requirement, and changes in the market reduced the competitive significance of instant messaging applications. Because the requirements arose in a merger, they were never applicable to the industry in general or to other internet applications.

One lesson of the layered regulatory model is that regulators should be increasingly hesitant to impose obligations at higher levels of the protocol stack.<sup>266</sup> The application layer is likely to function more effectively under private arrangements than the logical and physical layers, and the content layer more still. After all, sunk costs are lower and markets are more fluid for applications than for physical networks. The AOL/TimeWarner instant messaging case is a good illustration.<sup>267</sup> At the time of the merger, instant messaging seemed like a central leverage point for online activity; instead, search engines, especially Google, have taken on that role. The FCC's

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263. See Wilson, *supra* note 258, at 6-7.

264. Indeed, network neutrality opponents have questioned why network neutrality would only impose non-discrimination requirements on broadband network operators. See Speta, *supra* note 51, at 278 (proposing "common carrier" interconnection requirements for instant messaging).

265. See Weiser, *Internet Governance*, *supra* note 172, at 842.

266. See Werbach, *supra* note 2, at 65.

267. See Weiser, *Internet Governance*, *supra* note 172, at 843.

mandates for AOL had little impact on the market. Proposals for an internet interconnection right that fail to distinguish among network layers are thus likely to be overbroad.<sup>268</sup>

Nonetheless, it is possible for applications to become exclusive platforms with anti-competitive effects similar to those of exclusive physical broadband networks. Google's dominant search engine and MySpace's massive social networking site might be candidates for such scrutiny at some point in the future. Because these are network-centric applications, whatever ability they have to distort competition and innovation arises from their ability to capture network effects. If a policy concern does arise, the most effective remedy is likely to be one built around interconnection.

### 3. *IMS and Rationed Interconnection*

The final threat to interconnection has received less attention in policy circles than those mentioned above, perhaps because the technology involved is still largely in the technical planning stages. Throughout the world, telecommunications carriers are making plans to deploy a technology called Integrated Multimedia Subsystem (IMS).<sup>269</sup> To the carriers, IMS is the holy grail of convergence: an architecture for bringing together voice, video and data, wireline and wireless, onto a unified platform. IMS goes hand-in-hand with the deployment of broadband "next-generation networks" (NGNs), in which incumbents adopt internet protocol technologies as the core for their entire infrastructure.<sup>270</sup> The best-articulated example in a major market is British Telecom's 21CN, which is now in the process of deployment.<sup>271</sup> Throughout the world, incumbent carriers are making massive investments to move toward next-generation networks.<sup>272</sup>

IMS is not a single product or network design; it is an evolving collection of standards, implemented independently by a large number of equipment vendors and operators. Many details about the timing and implementation are still uncertain, and carriers may be wrong in their IMS adoption estimates. Given the public commitments of most major carriers

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268. See Speta, *supra* note 51, at 276-78 (stating that his proposed interconnection rule would apply to instant messaging, and suggesting that it would cover other internet applications as well).

269. See John G. Waclawsky, *IMS 101: What You Need to Know Now*, BUS. COMM. REV., June 2005, at 18.

270. See *id.* at 22.

271. See *BT Transforms Phone Network*, BBC NEWS, June 9, 2004, available at <http://news.bbc.co.uk/2/hi/technology/3791319.stm>.

272. See *No Signal*, TOTAL TELECOMM., Sept. 1, 2006 (pointing to data from Ovum-RHK that over 70% of telecom carriers' equipment spending in 2005 was on NGN equipment).

worldwide to move to an IMS approach, though, ignoring the potential implications of IMS would be unwise.

The IMS architecture is designed to differentiate and segregate all traffic that passes through the network. At interconnection points, IMS-enabled networks can apply pre-established settlement rates for particular classes of traffic.<sup>273</sup> The loose arrangements that typify the competitive internet backbone market, in which a great deal of traffic flows without charges under no-cost peering arrangements, are anathema to the traditional carrier mindset. For example, at a CEO summit in July 2006, hosted by the International Telecommunications Union, NTT CEO Norio Wada called for an interconnection framework “that will extend national NGNs into a secure and fully managed global IP network.”<sup>274</sup> Such a “fully managed” network would be far different from today’s internet, in which each network controls traffic on its own facilities, but cannot extend that control to its interconnection partners without voluntary SLAs.

Widespread deployment of IMS will not preclude interconnection, but it will frame it in terms significantly different from today’s internet. Once the network architecture is established, it automatically biases business relationships in a particular direction. Thus, the IMS implementation process will likely parallel the development of broadband cable modem access networks, which were at the center of the original open access debate.<sup>275</sup> Today, when the standards are being developed and investment decisions being made, is the best time to consider how architectural choices may affect competitive relationships, and the policy implications of such changes.

Regardless of how the IMS story unfolds, these decisions are extremely relevant to any conversation about the future of the internet. If policy-makers wish to preserve the kind of open, unsegmented interconnection that dominates today’s internet, they should pay more attention to the process of IMS implementation. Once next-generation network architectures are defined and infrastructure investments have been made, their policy ramifications may be difficult to change or even to observe. Carri-

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273. *See id.*

274. *See id.*

275. In the cable modem context, the FCC had to decide whether to allow the deployment of networks that excluded competing ISPs from the broadband platform, in contrast to dial-up internet access. *See* Kevin Werbach, *The Architecture of Internet 2.0*, RELEASE 1.0, Feb. 1999, at 6-7, available at <http://downloads.oreilly.com/radar/r1/02-99.pdf>. With IMS, regulators will have to consider whether to allow the replacement of free peering and application-insensitive pricing with metered settlement charges.

ers' business decisions about IMS-related technologies should be constrained by public policy objectives, rather than the reverse.

### C. The Case for Interconnection

#### 1. "Routing Around"

Interconnection rules can address the emerging challenges described in the previous section as well as the concerns raised by network neutrality proponents. The genius of interconnection obligations, especially in a complex, multi-layered environment, is that they create opportunities to "route around" bottlenecks that incumbents establish.<sup>276</sup> One of the subtle benefits of the internet's interconnection-centric architecture is that it offers network traffic multiple alternative paths that can be selected in real time. This gives the network a powerful resiliency, both to external attacks and to internal power grabs.<sup>277</sup> The internet has proven surprisingly capable of scaling and continuing to function amid cable cuts, distributed denial of service attacks, worms, power outages, and both natural and man-made disasters.

Interconnection rules leverage this capacity for routing around. Non-discrimination regulates operator behavior directly, while interconnection controls it indirectly through competitive pressure. For example, imagine that Verizon designs its internet backbone network to limit capacity and reliability for content providers who do not pay for "enhanced delivery" services. A non-discrimination rule might block such behavior, but only if competitors could demonstrate that Verizon's behavior was other than a normal example of network engineering. An interconnection rule, by contrast, might do two things. First, it could mandate that Verizon's enhanced delivery service be available to any content provider willing to pay. Second, it could give those content providers the opportunity to send their content over other backbone networks, which would then interconnect with Verizon to deliver the traffic to Verizon's broadband customers. Again, Verizon could offer a special enhanced delivery service to that other backbone, which could pass the charge on to the content provider, but it could not refuse to accept the packets for delivery on terms equiva-

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276. See, e.g., David Gilo, *A Market-Based Approach to Telecom Interconnection*, 77 S. CAL. L. REV. 1, 6-7 (2003) (explaining how interconnection rules can address competitive bottlenecks by routing around them).

277. Though it is a fable that the internet was designed primarily to allow military communications to survive in the event of a nuclear war, a desire for resiliency against infrastructure attacks did motivate the original research into packet switching by Paul Baran, and the funding of the internet predecessor ARPANet by the Department of Defense. See HAFNER & LYON, *supra* note 9, at 56.

lent to those under which the independent backbone carries traffic it receives from Verizon.

Or consider what would happen if AT&T offered an Akamai-like caching service that provided faster performance for content and application providers who subscribed to it.<sup>278</sup> Under a non-discrimination approach, AT&T might be forbidden from offering the service, because those companies who paid the additional charge would gain a benefit relative to others when AT&T's customers accessed them. Under an interconnection approach, the key question would be whether AT&T offered the caching service to all providers who might take advantage of it. If so, it would effectively be offering a new form of interconnection to its backbone.<sup>279</sup>

This, in fact, is what Akamai offers to its customers today, and has for several years without raising network neutrality concerns.<sup>280</sup> Websites that use Akamai and other CDNs offer better performance and reliability than those that don't. For that reason, virtually all of the most popular sites on the internet either subscribe to a CDN or self-provision distributed caching infrastructure. Smaller providers who cannot afford such service are thus at a disadvantage. However, the fact that larger companies have advantages over smaller ones is one of the forms of discrimination traditionally seen as benign. After all, smaller firms may have advantages as well, especially in nimbleness and ability to innovate.<sup>281</sup> Small firms can, if successful, become big themselves, and thus take advantage of enhancements like CDNs at the time when they most need it.

The CDN example shows how interconnection dynamics change in a layered environment. CDNs operate at the logical layer of the network: the software that manages how information flows from place to place, on top of the physical network connections but beneath the specific applications

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278. See *supra* note 222 (showing similarities to the Shaw-Vonage case mentioned above).

279. If, however, AT&T simultaneously eliminated existing interconnection options, an interconnection-focused approach might well lead to regulatory intervention as well. The argument of some opponents of access tiering is that, in providing enhanced delivery of some packets across their backbones, the broadband access providers will be driven to degrade the baseline "best-efforts" services they offer today. An interconnection approach would focus on whether such degradation is actually taking place, rather than on the relative positioning of existing and new services.

280. See Dille et al., *supra* note 102.

281. Cf. CLAYTON CHRISTENSEN, *THE INNOVATOR'S DILEMMA: WHEN NEW TECHNOLOGIES CAUSE GREAT FIRMS TO FAIL* (1997) xx-xxi (showing how successful established firms sometimes miss new market opportunities because they are too focused on existing customers).

and content. They are both complements to networks, enhancing performance and adding additional functionality, as well as substitutes for that same infrastructure. A cross-network CDN such as Akamai reduces traffic across its participating networks. It also begins to abstract out those networks, at least from the perspective of the content or application provider. The CDN, not the network, starts to become the platform the content or application provider builds to.<sup>282</sup>

Such “diagonal competition” between players at different levels of the communications network stack is a defining characteristic of the convergence era. VoIP, which both rides on top of and competes against incumbent telephone networks, is a canonical example. In an interconnected, layered environment, a vertical customer can route around a gatekeeper platform by turning into a horizontal competitor. This process is crucial for game-changing innovation. Compare Vonage, a VoIP service that involves end-user hardware and ties into the legacy addressing and termination infrastructure of the public switched telephone network, with Skype, which arose as a purely software-based alternative. Vonage offers a very similar feature set to the incumbents, albeit at an attractive price.<sup>283</sup> Skype, by contrast, has introduced a number of innovative features, including flexible instant conference calls and instant messaging integration.<sup>284</sup>

By emphasizing interconnection, in both the vertical and horizontal directions, regulators can ensure that such opportunities for disruptive innovation remain available.<sup>285</sup> When higher layers can change from complements into substitutes for the underlying platform, the competitive dynamics change. Not surprisingly, the most blatant examples to date of discriminatory conduct by broadband operators concern internet-based services that compete against the operators’ core businesses. The early cable modem service leader @Home imposed significant restrictions on streaming video to protect the video revenues of its cable operator parents, and Madison River blocked VoIP ports in order to preserve its voice-based revenues.<sup>286</sup>

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282. See Kevin Werbach, *Meta Service Providers: The Internet’s SS7 Network*, RELEASE 1.0, Dec. 1999, at 17, available at <http://downloads.oreilly.com/radar/r1/12-99.pdf>.

283. See Mark C. Del Bianco, *Voices Past: The Present and Future of VoIP Regulation*, 14 COMM.LAW CONSP. 365, 369 (2006).

284. See *id.* at 370.

285. Cf. Weiser, *Innovation*, *supra* note 172, at 560-61 (distinguishing horizontal and vertical scenarios for reverse engineering of proprietary protocols).

286. See *Madison River Commc’ns, LLC*, 20 F.C.C.R. 4295 (2005); Lemley & Lesig, *supra* note 165, at 943.

Situations involving substitutes rather than complements are a recognized exception to the general economic argument that platform owners are likely to have efficient incentives to maximize welfare in the management of their platforms.<sup>287</sup> Even though the platform owner benefits from the opportunity to internalize complementary externalities on its platform, it suffers from the substitution of revenue from its core business, potentially including the platform itself. While not every higher-level service in the converged broadband world will be a substitute for existing offerings of network operators, convergence creates an environment in which all providers can offer bundles that overlap at least in part.

Interconnection, as a safety valve for routing around platform bottlenecks, is the best mechanism to tame anti-competitive behavior in such an environment. Otherwise, operators will have incentives to turn substitutes back into complements, restricting the potential for innovation. Jim Speta inadvertently makes this point in attacking proposals for open access to cable broadband networks.<sup>288</sup> He asserts that open access rules are not needed to preserve potential substitutes such as streaming video, because cable operators will change video from an independent application into an explicit part of their broadband service bundle.<sup>289</sup> To be indifferent to new competition for their incumbent service, the cable operators must ensure that internet-based video becomes a paying part of that incumbent service. The best way to avoid such a scenario is to guarantee users the ability to benefit from video services based on *other* networks, something only possible through interconnection rules.

## 2. *Avoiding Micromanagement*

The traditional objection to interconnection rules is that they are complicated and intrusive to implement. Fortunately, a properly designed interconnection regime for converged networks can overcome both difficulties. In today's environment, interconnection does not involve the same physical alteration it once required because it is increasingly a matter of software, rather than hardware. The wires are connected; what matters is how the data they carry are encapsulated and how standardized are the logical-layer standards that define its end-to-end delivery parameters. Handing off traffic between networks, the exception in traditional telephone systems, is already the rule for the internet.

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287. See Farrell & Weiser, *supra* note 223, at 109-12.

288. See James Speta, *The Vertical Dimension of Cable Open Access*, 71 U. COLO. L. REV. 975, 977 (2000) (considering the possibility that a broadband platform owner would seek to extend that monopoly into ISP or content markets).

289. See *id.*

Moreover, the pricing issues that bedeviled some earlier interconnection mandates, such as the unbundled elements mandates of the 1996 Act,<sup>290</sup> can readily be avoided through “bill and keep” approaches. Bill and keep means that neither party pays the other anything for carriage of its traffic.<sup>291</sup> The basic assumptions are that interconnection benefits both networks, and that each network should recover its costs from its own subscribers.<sup>292</sup> Bill and keep is particularly attractive when the costs of metering and billing for traffic seem significant relative to the net inflows carriers would receive from any positive interconnection charge. It is essentially the model used today for peering between Tier 1 internet backbones. However, bill and keep is controversial when networks have different cost structures or traffic patterns, making it hard to simply declare that interconnection is a financial wash.

A paper by two FCC economists, Jay Atkinson and Christopher Barnekov, offers an approach that captures the benefits of both traditional interconnection pricing and bill and keep.<sup>293</sup> Atkinson and Barnekov’s “Coasian” approach starts with bill and keep as a baseline but permits interconnecting operators to recover the incremental cost of interconnection from each other. The authors develop a formal method to calculate such incremental costs, and then adopt an initial default rule that such costs be split among the interconnecting networks.<sup>294</sup> Networks are free to negotiate alternative arrangements.

The Atkinson-Barnekov approach builds on Ronald Coase’s famous insight that parties will, absent transaction costs, bargain around legal rules to the welfare-maximizing result.<sup>295</sup> An interconnection regime cannot entirely do away with legal entitlements because, absent the level of competition and other pro-interconnection elements of the internet backbone, larger networks have incentives to block interconnection as a way of excluding rivals.<sup>296</sup> However, once interconnection is mandated, a quasi-

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290. See Epstein, *supra* note 16, at 316.

291. See Kende, *supra* note 84, at n.60.

292. See Candeub, *supra* note 4, at 423.

293. See Jay M. Atkinson & Christopher C. Barnekov, A Coasian Alternative to Pigovian Regulation of Network Interconnection 1 (unpublished working draft, on file with author), available at <http://web.si.umich.edu/tprc/papers/2004/348/CoasianAlternative040901b.pdf>. See also Candeub, *supra* note 4, at 420-24 (describing the policy implications of the Atkinson-Barnekov model).

294. *Id.* at 421-23.

295. See R.H. Coase, *The Problem of Social Cost*, 3 J. L. & ECON. 1, 4-5 (1960).

296. See *supra* note 35.

Coasian bargaining process can produce efficient interconnection pricing without dragging in regulators.<sup>297</sup>

An effective set of interconnection rules would be designed to maximize the likelihood of voluntary private agreement. Such an outcome is not farfetched. Ever since the FCC adopted “must-carry” rules, cable television operators and broadcasters have had to negotiate agreements for carriage under an obligation of mandatory interconnection.<sup>298</sup> The business terms of these agreements, however, are left up to the companies involved. For the most part, these negotiations have proceeded smoothly and outside the public eye.<sup>299</sup>

### 3. *Towards a Converged Interconnection Regime*

A brief outline of a workable interconnection regime would be as follows. If a network service provider wished to obtain interconnection, it would first enter into private negotiations with the other party. The service provider category would include not only the existing incumbent and competitive carriers, but others, including application or content providers such as Google, with substantial distributed network infrastructure. The parties would be free to adopt any mutually agreeable interconnection terms. However, if they could not agree within a specified time limit, perhaps sixty days from the initiation of negotiations, the Atkinson-Barnekov Coasian variant of bill and keep would apply.

As an alternative, parties could opt for baseball-style “best and final” arbitration, with the arbitrator selecting from the two parties’ proposals. Best and final arbitration would also be used, absent voluntary agreement, to assign any costs attributable to interconnection under the Atkinson-Barnekov model. Any arbitrated agreements would be filed with the FCC and subject to public review; voluntary private agreements would not be subject to such disclosure obligations. Judicial review would be limited to procedural flaws, or misconduct by one of the parties.

Such a structure would bring to bear powerful incentives for parties to negotiate in good faith. Strong default rules and an expedited dispute resolution process would limit opportunities for delay and strategic behavior. Parties will also often see mandatory disclosure of terms as a strong incen-

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297. See Atkinson & Barnekov, *supra* note 293, at 3-9.

298. See HUBER ET AL., *supra* note 72, at 1163.

299. On at least one occasion, a dispute over must-carry terms resulted in temporary removal of a network from a cable system. However, this exception proved the rule, as the parties reached a compromise soon thereafter. See Paul Farhi & Peter S. Goodman, *Viewers Casualties in TV War; Skirmish Between Time Warner, Disney Sharpens Focus on Media Consolidation*, WASH. POST, May 4, 2000, at E01.

tive for voluntary agreement. In the internet backbone market today, for example, most companies keep peering terms and agreements confidential, seeing them as competitively sensitive. Conversely, in those cases where parties go to arbitration, mandatory disclosure of contractual terms will improve transparency of the interconnection process and enhance efficiency of future negotiations.

At a more general level, interconnection rules could vary depending on the market context. In nascent markets, such as the internet backbone, where robust interconnection arrangements seem likely to develop through private arrangements, regulators should hesitate to impose mandatory obligations. On the other hand, as the cable open access debate illuminated, policy decisions at the initial stages of infrastructure deployment may define the architecture of new networks.<sup>300</sup> While policy-makers should not assume that mandatory interconnection or pricing rules are always needed, neither should they assume that the legal framework can always be adopted at a later date. Careful analysis of the nature of the platforms and competitive dynamics involved can guide decisions about the proper scope of interconnection rules.

## V. CONCLUSION: FROM UNIVERSAL SERVICE TO UNIVERSAL CONNECTIVITY

The time has come to make universal connectivity a pre-eminent goal of a new, converged, network infrastructure policy. "Universal service" made sense in an environment of vertically integrated monopolies, but today, the greatest benefits flow from connections among multiple networks. Likewise, a non-discrimination emphasis was appropriate for the flat world of traditional telephony, but falls down amid the complexity of converged networks.

In communication and internet policy today, network neutrality advocates raise important and legitimate concerns about broadband network operators. However, the non-discrimination solution they propose will not work, and it is distracting attention from more significant developments: namely, the erosion of the internet's robust interconnection model. The true choice facing policy-makers is not whether or not to sanction network discrimination, but whether to defend network interconnection.

The successor to universal service should not be an unreachable vision of a totally neutral network, nor an increasingly fragmented network where physical network owners dominate. It should be universal connec-

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300. See Werbach, *supra* note 275, at 11.

tivity. Connectivity is the ability to access any node on the network, not just as a physical matter, but through logical, application, and content links. Preventing anti-competitive and innovation-killing discrimination is important, but not at the expense of the interconnection that feeds the virtuous circle of connectivity.

Communications and the internet should live in fragments no longer. They should only connect.

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# THE SOCIAL COSTS OF PROPERTY RIGHTS IN BROADCAST (AND CABLE) SIGNALS

By *Shyamkrishna Balganesb*<sup>†</sup>

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## I. INTRODUCTION

The use of property as a regulatory mechanism in the telecommunications sector is hardly novel. Since the early twentieth century, policy makers and regulators in the United States have experimented with different mechanisms for allocating private rights in the radio spectrum.<sup>1</sup> In 1959, Ronald Coase proposed that the FCC auction rights in the broadcast spec-

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1. See Thomas W. Hazlett, *Assigning Property Rights to Radio Spectrum Users: Why Did FCC License Auctions Take 67 Years?*, 41 J.L. & ECON. 529, 532-33 (1998) [hereinafter Hazlett, *Assigning Property Rights*] (noting how the idea began in 1912 and identifying four approaches that were adopted). See also Thomas W. Hazlett, *The Rationality of U.S. Regulation of Broadcast Spectrum*, 33 J.L. & ECON. 133 (1990); Lawrence J. White, "Propertyizing" the Electromagnetic Spectrum: *Why it's Important, and How to Begin*, in COMMUNICATIONS DEREGULATION AND FCC REFORM 111 (Jeffrey A. Eisenach & Randolph J. May eds., 2001).

trum and convert broadcast licenses into tradable commodities.<sup>2</sup> However, it was not until very recently that the FCC implemented Coase's idea. At least part of the reason for the long delay in implementing this seemingly efficient mechanism lay in the public nature of broadcasting and the perceived trade-offs between the "public interest" and private control.<sup>3</sup>

Since its creation, the FCC has regulated the grant of broadcast licenses using the rubric of "public interest."<sup>4</sup> All the same, the FCC's ideal of "public interest" and its conception of what a property right is have varied over time.<sup>5</sup> Historically, the well-documented taxonomical categories of ownership have included the privilege-based model, the "social compact" or "public trusteeship" model, and, more recently, the expansive market-oriented model.<sup>6</sup>

Spectrum allocation, however, is far from being the only area where property rights have been deployed to regulate broadcasting. Content producers have long enjoyed copyright protection over individual content that is broadcast over the spectrum.<sup>7</sup> Additionally, many countries around the world recognize that broadcasters hold a property right in their content-carrying broadcast signals, independent of the copyright in the underlying content.<sup>8</sup> Referred to as "broadcasters' rights", the purported justification for their existence derives from the need to equip broadcasters with mechanisms to prevent others from free-riding on their investment of time, skill, and effort in working the infrastructure of the television industry.<sup>9</sup>

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2. R.H. Coase, *The Federal Communications Commission*, 2 J.L. & ECON. 1 (1959).

3. See William H. Melody, *Radio Spectrum Allocation: Role of the Market*, 70 AM. ECON. REV. 393, 394 (1980) (characterizing the broadcast spectrum as a form of "social property"). Numerous other competing explanations exist for this anomaly and are considered in detail by Thomas Hazlett in his study. See Hazlett, *Assigning Property Rights*, *supra* note 1. Interestingly, Coase, the original proponent of the idea, would later characterize the public interest argument as "syrupy talk." Ronald H. Coase, *Evaluation of Public Policy Relating to Radio and Television Broadcasting: Social and Economic Issues*, 41 LAND ECON. 161, 167 (1965).

4. 47 U.S.C. § 309(a) (2000) (using the phrase "public interest, convenience, and necessity"). See discussion *infra* Section IV.C.

5. Hazlett, *Assigning Property Rights*, *supra* note 1, at 532-37.

6. *Id.*

7. 17 U.S.C. § 102(a)(6) (2000).

8. This is a consequence of the Rome Convention, otherwise known as the International Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations, brought into force in 1961.

9. CLAUDE MASOUYÉ, WORLD INTELLECTUAL PROP. ORG. [WIPO], GUIDE TO THE ROME CONVENTION AND TO THE PHONOGRAMS CONVENTION (William Wallace trans., 1981).

Structured analogously to traditional copyright, these rights (together with certain others) are often characterized as “neighboring” or “related” rights.<sup>10</sup>

The idea of broadcasters’ rights, however, never found much favor in the United States. As early as 1930, decades before the idea of broadcasters’ rights assumed international importance, Louis Caldwell, General Counsel of the Federal Radio Commission (the predecessor to the FCC), argued that the idea of granting broadcasters property rights in their program-carrying signals was likely to pose innumerable conceptual, doctrinal, and practical problems.<sup>11</sup> Specifically, he argued that “the ‘juridical concept of broadcaster’s proprietorship’ might seem overly radical in the American context, where audiences had become accustomed to receiving broadcasts for ‘free.’”<sup>12</sup> For over seven decades since, the United States has stayed clear of adopting a system of open-ended broadcasters’ rights.<sup>13</sup>

Since 1998, however, the United States has been pushing for the adoption of a new treaty at the WIPO that would grant broadcasters and cablecasters independent property rights in their transmission signals.<sup>14</sup> Titled the “WIPO Broadcasting Treaty”, this new instrument would update the existing international regime governing broadcasters’ rights and extend it to the digital world.

The creation of new property interests in intangible and informational goods (i.e., intellectual property rights) has been the subject matter of intense debate for quite some time now.<sup>15</sup> In a similar vein, many have ques-

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10. See, e.g., George H.C. Bodenhausen, *Protection of “Neighboring Rights”*, 19 LAW & CONTEMP. PROBS. 156 (1954).

11. Louis G. Caldwell, *Piracy of Broadcast Programs*, 30 COLUM. L. REV. 1087, 1101, 1110-12 (1930). For an overview of Caldwell’s attempted reform of the broadcasting industry as a whole, see Robert W. McChesney, *Free Speech and Democracy! Louis G. Caldwell, the American Bar Association and the Debate Over the Free Speech Implications of Broadcast Regulation, 1928-1938*, 35 AM. J. LEGAL HIST. 351 (1991).

12. Caldwell, *supra* note 11, at 1112-14.

13. The United States did not ratify the Rome Convention, despite participating actively during the actual negotiations. The reasons for this remain somewhat unclear.

14. Discussions on the treaty commenced in 1998 at the WIPO and the United States delegation submitted a detailed proposal in 2002. WIPO, *Protection of the Rights of Broadcasting Organizations*, WIPO Doc. No. SCCR/8/7 (Oct. 21, 2002), available at [http://www.wipo.int/edocs/mdocs/copyright/en/sccr\\_8/sccr\\_8\\_7.pdf](http://www.wipo.int/edocs/mdocs/copyright/en/sccr_8/sccr_8_7.pdf).

15. For a sample of this literature, see PETER DRAHOS & JOHN BRAITHWAITE, INFORMATION FEUDALISM: WHO OWNS THE KNOWLEDGE ECONOMY? (2002); EXPANDING THE BOUNDARIES OF INTELLECTUAL PROPERTY: INNOVATION POLICY FOR THE KNOWLEDGE SOCIETY (Rochelle Dreyfuss et al. eds., 2001); James Boyle, *A Politics of Intellectual Property: Environmentalism for the Net?*, 47 DUKE L.J. 87 (1997); Richard A. Pos-

tioned the wisdom of the WIPO Broadcasting Treaty and its potential impact on television broadcasting.<sup>16</sup> These debates tend to ignore the reality that while the United States never recognized open-ended broadcasters' rights as several other countries did, it nevertheless did grant the industry's main players (broadcasters, cable companies, and content producers) *attenuated exclusionary protection*, or limited property rights, believing that this grant would optimize competition to create a balanced, workable system. Television broadcast and cable revenues have continued to rise steadily under this system and there remains little reason to believe that broadcasting as a whole has suffered in any way.<sup>17</sup>

What, then, prompted the shift in the United States' position on broadcasters' rights, and what benefit, if any, is the new property regime likely to confer on national television broadcasting? More importantly, will the introduction of a new form of property remain compatible with the existing structural and functional attributes of the industry, which for decades has committed itself to the "public interest" and operated on a system of limited exclusionary protection?

This Article examines the implications of granting broadcasters and cablecasters open-ended property rights (as opposed to *limited* exclusionary privileges) in their transmission signals (as contemplated under the new WIPO Broadcast Treaty regime), specifically in the context of the United States television industry. It argues that while the gains associated with these rights are not readily identifiable, the regime is nevertheless likely to have significant costs.

Part II of the Article provides an overview of the idea of broadcasters' rights in their signals. It examines the genesis of the idea at the Rome Convention, then outlines the basic idea behind the WIPO Broadcast Treaty and concludes with a conceptual discussion of the possible justifications that might exist for these rights. Part III examines the existing structure of the U.S. broadcast industry and the myriad property rights re-

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ner, *Intellectual Property: The Law and Economics Approach*, 19 J.L. & ECON. PERSP. 57 (2005).

16. See, e.g., James Boyle, *More Rights are Wrong for Webcasters*, FT.COM, Sep. 26, 2005, <http://www.ft.com/cms/s/441306be-2eb6-11da-9aed-00000e2511c8.html>; Adam R. Tarosky, *The Constitutionality of WIPO's Broadcasting Treaty: The Originality and Limited Times Requirements of the Copyright Clause*, 2006 DUKE L. & TECH. REV. 0016.

17. For an overview of revenues in the television broadcasting sector, see 12 FED. COMM'NS COMM'N ANN. ASSESSMENT OF THE STATUS OF COMPETITION IN THE MARKET FOR THE DELIVERY OF VIDEO PROGRAMMING 4 (2006), available at [http://fjallfoss.fcc.gov/edocs\\_public/attachmatch/FCC-06-11A1.pdf](http://fjallfoss.fcc.gov/edocs_public/attachmatch/FCC-06-11A1.pdf) [hereinafter FCC ASSESSMENT] (noting that the market has continued to grow).

gimes that govern interactions between the different players therein. Part IV examines the possible effects that the new property regime is likely to have on the new user dynamic that has begun to emerge on the internet, on the ideal of greater authorial control over dissemination, and lastly on the public interest ideal that has remained central to communications regulation.

Part V argues that if broadcasters' arguments for property rights do have any merit, they derive from the principle of "unjust enrichment." It then goes on to suggest a staggered two-phase approach to implementing broadcasters' exclusionary privileges against commercial webcasters with the intention of recreating a level playing field and at the same time enabling the internet to develop as an independent distribution channel.

## II. OPEN-ENDED PROPERTY PROTECTION FOR BROADCAST SIGNALS: THE CURRENT AND PROPOSED INTERNATIONAL REGIMES

The concept of broadcasters' rights has been in existence for at least four decades now.<sup>18</sup> In spite of this, however, as an idea it remains relatively unknown in the United States. What does it mean to recognize *property rights* in broadcast signals, independent of the copyright in the underlying content?

Consider the following hypothetical: Walter, a film producer, produces a documentary on earthquakes entitled *Quakes*. Under the terms of both domestic and international copyright law, he obtains copyright in the documentary.<sup>19</sup> Walter then licenses the use of the documentary to XBC Inc., a private broadcasting corporation that agrees to broadcast the documentary. Under the traditional model, XBC merely acquires the right of public performance<sup>20</sup> over *Quakes* that Walter originally had (either exclusively or non-exclusively). Under a broadcasters' rights model, however, XBC would also acquire, in addition to the right it licenses from Walter, an independent set of rights over its own broadcast signals carrying *Quakes*. The regime thus effectively converts XBC's contractually ac-

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18. See International Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations, Oct. 26, 1961, 496 U.N.T.S. 43, art. 1 [hereinafter Rome Convention].

19. See 17 U.S.C. § 102(a)(6) (2000); Berne Convention for the Protection of Literary and Artistic Works, Sept. 9, 1886, as last revised at Paris, July 24, 1971, 828 U.N.T.S. 221, art. 2(1) [hereinafter Berne Convention].

20. 17 U.S.C. § 106(4) (2000); Berne Convention, *supra* note 19, at art. 11bis.

quired right into a full-blown set of rights that arise independent of XBC's license with Walter.

Now, if DBC Inc., another broadcaster, were to intercept XBC's transmission of *Quakes* and re-broadcast it as its own, what rights would Walter and XBC have against DBC? What if Boris, a viewer, made a recording of *Quakes* from the broadcast at home and later sold copies of his recording to the public? A broadcasters' rights regime purports to deal with precisely these types of situations.

### A. Origins of the Idea: The Rome Convention

At the Brussels Revision Conference of the Berne Convention, member states settled on the idea of extending copyright to performers, phonogram producers, and broadcasters.<sup>21</sup> Following the conference, actual work on a new instrument came to be delegated to three international organizations—the BIRPI (predecessor to the WIPO), the ILO, and UNESCO.<sup>22</sup> After going through several drafts, the three organizations together finally convened a Diplomatic Conference at Rome in 1961, resulting in the Rome Convention.<sup>23</sup>

Interestingly, each of the rights protected under the Convention is derivative of traditional literary and artistic works, the subject matter of copyright.<sup>24</sup> Performers *perform* musical or dramatic works; phonogram producers are responsible for the *fixation* of musical performances; and broadcasters facilitate the public *distribution* of audiovisual works. The activities covered by the Convention are thus “related to” creative works covered by copyright, but are rarely ever directly creative themselves. They do little more than facilitate the process by which creative works are

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21. See DOCUMENTS DE LA CONFÉRENCE RÉUNIE À BRUXELLES DU 5 AU 26 JUIN 1948, 425-29 (1951); MASOUYÉ, *supra* note 9, at 8; SAM RICKETSON & JANE C. GINSBURG, INTERNATIONAL COPYRIGHT AND NEIGHBOURING RIGHTS: THE BERNE CONVENTION AND BEYOND (2d ed. 2006).

22. 2 RICKETSON & GINSBURG, *supra* note 21, at 1211-12. WIPO stands for the World Intellectual Property Organization, ILO for the International Labor Organization, and UNESCO for the United Nations Educational Scientific and Cultural Organization.

23. *Id.*

24. See *id.* at 1206-7. Hence the name “neighboring” or “related” rights. It is of course open to debate as to why these rights have not formed the subject matter of traditional copyright, especially given that copyright covers a wide spectrum of property-like rights over expressive activities. One answer is that historically, in most European countries with a civil law tradition, copyright or *droit d'auteur* is restricted to authorial rights and requires the identification of a creative author for the grant of property protection. Consequently, the need emerged to move away from the traditional conception of copyright. See Rudolf Monta, *The Concept of Copyright Versus the Droit d'Auteur*, 32 S. CAL. L. REV. 177 (1959).

produced and disseminated publicly, with the obvious consequence that the traditional justifications for copyright do not automatically carry over.

The Convention clarifies that the protection accorded under it does not detract from traditional copyright protection afforded to the underlying work independently.<sup>25</sup> In relation to broadcasters' rights, it defines broadcasting as the "transmission by wireless means for public reception" of the audiovisual work,<sup>26</sup> and thus excludes from its scope transmission over wires—i.e., cable transmissions.<sup>27</sup> This is explained by the fact that cable television emerged as a commercially significant player only after the actual adoption of the treaty.

The Convention grants broadcasters the "right to authorize or prohibit" a series of activities in relation to their broadcasts.<sup>28</sup> It does not use the phrase "exclusive right" commonly used in relation to copyright holders' rights over their works.<sup>29</sup> While the element of exclusivity may be inherent in the acts of authorizing or prohibiting, the absence of any express reference to it does enable the creation of overlapping rights over the same subject matter vested in multiple parties. This is probably a recognition of the fact that broadcasts are derivative resources and that copyright holders can already exercise some of these rights under traditional copyright law.

The Convention rights include: (i) rebroadcasting the broadcasts in question; (ii) fixation of the broadcasts; (iii) reproducing the fixations so made; and (iv) communicating the broadcasts to the public, when made in a publicly accessible place.<sup>30</sup> Much like copyright, the duration of these rights is limited, but to twenty years from the year of the first broadcast.<sup>31</sup>

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25. Rome Convention, *supra* note 18, at art. 1.

26. *Id.* at art. 3(f).

27. See 2 RICKETSON & GINSBURG, *supra* note 21, at 1216. Ricketson & Ginsburg also argue that it is likely that the protection does not extend to encrypted wireless broadcasts, given that such broadcasts are not meant for *public* reception in the traditional sense, but rather for reception by a defined *subscriber* base.

28. Rome Convention, *supra* note 18, at art. 13.

29. See, e.g., Berne Convention, *supra* note 19, at arts. 8, 9, 11, 11*bis*, 12.

30. Rome Convention, *supra* note 18, at art. 13(a)-(d). Rebroadcasting is defined in art. 3(g) to include only the simultaneous retransmission of one broadcasting organization's broadcasts by another and is therefore distinct from the right to communicate to the public. The right to communicate the broadcast to the public is also known as the "television exhibition right" and was the subject of some debate during the Diplomatic Conference. See Abraham L. Kaminstein, *Report of the Rapporteur-General*, in RECORDS OF THE DIPLOMATIC CONFERENCE ON THE INTERNATIONAL PROTECTION OF PERFORMERS, PRODUCERS OF PHONOGRAMS AND BROADCASTING ORGANIZATIONS, ROME, 10 TO 26 OCTOBER 1961, at 33, 49-51 (1968).

31. Rome Convention, *supra* note 18, at art. 14(c).

These rights extend not just to the ephemeral transmission, but to subsequent fixations as well.<sup>32</sup> The broadcaster thus gets to control uses of the broadcast beyond the actual broadcast itself. Thus, in relation to our earlier hypothetical, XBC is now equipped with claims against both DBC for *communicating* its broadcasts to the public and against Boris for *fixing* the broadcast and *reproducing* the fixation. The rights thus operate to give broadcasters a cause of action against competitors (i.e., XBC against DBC) as well as a mechanism to control revenue generation from uses of their broadcasts after its transmission (i.e., XBC against Boris). This distinction is critical when examining the justification for these rights.

Perhaps most interestingly, though, the Convention avoids defining with any degree of precision what exactly a “broadcast” is. During the Diplomatic Conference, it appears that countries interpreted the term to cover transmissions by “hertzian waves or other wireless means.”<sup>33</sup> Nowhere during the conference did countries consider problematic the fact that broadcasts (or transmissions) derive their physical existence and commercial significance exclusively from the underlying content that remains the subject matter of copyright. Conceivably, they may have believed that the independence safeguard in Article 1 was sufficient to take care of this.<sup>34</sup>

At the Rome Conference, the U.S. delegation was by far one of the largest.<sup>35</sup> The head of the delegation, Abraham Kaminstein, then head of the Copyright Office, also served as Rapporteur-General to the Conference.<sup>36</sup> The United States participated rather actively through the drafting process and at the actual conference. Specifically, in relation to the broadcasters’ rights provisions, it proposed alternative definitions of “broadcast” and “broadcasting organizations” and even proposed extending the

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32. *Id.* at art. 13(b).

33. Kaminstein, *supra* note 30, at 40. This emerged consequent to an Austrian proposal that broadcasting be defined to cover transmissions over wire as well, which the Conference ultimately rejected. See *CDR/49 Austria*, in RECORDS OF THE DIPLOMATIC CONFERENCE ON THE INTERNATIONAL PROTECTION OF PERFORMERS, PRODUCERS OF PHONOGRAMS AND BROADCASTING ORGANIZATIONS, ROME, 10 TO 26 OCTOBER 1961, at 209 (1968).

34. See Rome Convention, *supra* note 18, at art. 1 (“Protection granted under this Convention shall leave intact and shall in no way affect the protection of copyright in literary and artistic works. Consequently, no provision of this Convention may be interpreted as prejudicing such protection.”).

35. Consisting of twenty members.

36. See RECORDS OF THE DIPLOMATIC CONFERENCE ON THE INTERNATIONAL PROTECTION OF PERFORMERS, PRODUCERS OF PHONOGRAMS AND BROADCASTING ORGANIZATIONS, ROME, 10 TO 26 OCTOBER 1961, at 28, 32 (1968).

period of protection to fifty years.<sup>37</sup> Yet when it came to actually *signing* the convention, the head of the U.S. delegation placed on record the fact that he had yet to receive authority to sign the Convention from his government and had come merely with instructions to “return with the Final act.”<sup>38</sup> To this day, the exact reasons for the United States not signing the Rome Convention (either in 1961 or since), despite its active role in the drafting process, remain a mystery.

Following the adoption of the Rome Convention, many common law countries (other than the United States) amended their copyright laws to include broadcasts within the category of protected subject matter and thereby granted broadcasters rights analogous to those given to content producers.<sup>39</sup>

The Rome Convention thus laid the foundation for the idea of copyright-like protection for broadcast signals. By failing to (i) specify the nature of the resource over which the right is to be exercised; or (ii) delineate the exact manner in which the new rights would interact with traditional copyright, the Convention avoided having to get into the broader regulatory implications of the new regime.<sup>40</sup> More importantly, though, the regime also avoided specifying the parties against whom these rights would operate. As technology developed and new means of distribution emerged, the Convention came to be viewed as largely outdated, although its general idea of property rights in broadcasts formed the basis for a newer, more expansive proposal.

## **B. Open-ended Property Protection: The WIPO Broadcast Treaty**

Beginning in the 1990s, the WIPO embarked on the project of updating the existing international copyright and related rights regimes to adapt them to the digital age. The WIPO Copyright Treaty (WCT) updated traditional (authorial) copyright mechanisms, while the WIPO Performances & Phonograms Treaty (WPPT) involved an analogous updating of perform-

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37. *See id.* at 67, 209, 225-26 (1968).

38. *Id.* at 134. Interestingly, though, the records seem to indicate that the United States did indeed sign the Final Act, but not the actual Convention. *See id.* at 20.

39. *See, e.g.*, Copyright, Designs and Patents Act, 1988, c. 48, §§ 6, 9, 14, 16, 19, 20, 35 (U.K.); Copyright Act, 1968, c. 133, §§ 87, 91, 95, 99 (Austl.). For an overview of the Australian regime and an interpretation of the provisions involved, see *Network Ten Pty. Ltd. v. TCN Channel Nine Pty. Ltd.* (2004) 218 C.L.R. 273 (Austl.).

40. *See generally* Gillian Davies, *The Rome Convention 1961—A Brief Summary of its Development and Prospects*, 2 EUR. INTELL. PROP. REV. 154 (1979); Andre Kerever, *Should the Rome Convention Be Revised and, If So, Is This the Right Moment?*, 25 COPYRIGHT BULL. 4 (1991).

ers' and phonogram producers' rights.<sup>41</sup> Given that the Rome Convention dealt with performers, phonogram producers, and broadcasters, when discussions on the WPPT began, many countries felt that the instrument needed to include provisions protecting the rights of broadcasters as well.<sup>42</sup> However, most countries ultimately concluded that further analysis was necessary before treaty language could be proposed, and as a result, discussions on broadcasters' rights were put off until the WPPT was adopted.<sup>43</sup> With the adoption of the WPPT in 1995, the WIPO began discussions on a new instrument on broadcasters' rights in 1998 in its expert body on copyright, called the Standing Committee on Copyright and Related Rights (SCCR).<sup>44</sup> Initially several countries proposed including these rights as an additional protocol to the WPPT, but eventually this idea was dropped and work began on drafting an altogether independent instrument.<sup>45</sup>

After about fifteen SCCR sessions over seven years, the WIPO General Assembly called for two further special SCCR sessions, to be followed by a Diplomatic Conference in 2007.<sup>46</sup> At the first special session, most countries agreed that "signal protection" remained the objective. Yet

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41. For a general overview of the WCT, the WPPT, and the radical changes they introduced, see MIHÁLY FICSOR, *THE LAW OF COPYRIGHT AND THE INTERNET: THE 1996 WIPO TREATIES, THEIR INTERPRETATION AND IMPLEMENTATION* (2002); JÖRG REINBOHE & SILKE VON LEWINSKI, *THE WIPO TREATIES 1996: THE WIPO COPYRIGHT TREATY AND THE WIPO PERFORMANCES & PHONOGRAMS TREATY: COMMENTARY AND LEGAL ANALYSIS* (2002). For analyses of their impact on U.S. domestic law see Julie E. Cohen, *WIPO Copyright Treaty Implementation in the United States: Will Fair Use Survive?*, 21 EUR. INTELL. PROP. REV. 236 (1999); Pamela Samuelson, *The U.S. Digital Agenda at WIPO*, 37 VA. J. INT'L L. 269 (1997).

42. WIPO, *Existing International, Regional and National Legislation Concerning the Protection of the Rights of Broadcasting Organizations*, art. 1, WIPO Doc. No. SCCR/1/3 (Sept. 7, 1998), available at [http://www.wipo.int/edocs/mdocs/copyright/en/sccr\\_1/sccr\\_1\\_3.pdf](http://www.wipo.int/edocs/mdocs/copyright/en/sccr_1/sccr_1_3.pdf).

43. *Id.*

44. WIPO, *Report of the Third Session of the Standing Committee on Copyright and Related Rights*, at 17-18, WIPO Doc. SCCR/3/11 (Dec. 1, 1999).

45. *See id.*

46. *See* WIPO, *Protection of Broadcasting Organizations*, WIPO Doc. No. WIPO/GA/33/4 (Sept. 22, 2006), available at [http://www.wipo.int/edocs/mdocs/govbody/en/wo\\_ga\\_33/wo\\_ga\\_33\\_4.doc](http://www.wipo.int/edocs/mdocs/govbody/en/wo_ga_33/wo_ga_33_4.doc) (setting the dates for the Diplomatic Conference); Standing Committee on Copyright and Related Rights, *Revised Draft Basic Proposal for the WIPO Treaty on the Protection of Broadcasting Organizations*, SCCR/15/2 (July 31, 2006), available at [http://www.wipo.int/edocs/mdocs/sccr/en/sccr\\_15/sccr\\_15\\_2.pdf](http://www.wipo.int/edocs/mdocs/sccr/en/sccr_15/sccr_15_2.pdf) [hereinafter *Revised Draft Basic Proposal*]. *See also* William New, *WIPO Broadcasting Treaty Advances Past Disagreements*, INTELL. PROP. WATCH, Sep. 14, 2006, <http://ip-watch.org/weblog/wp-trackback.php?p=395>.

considerable ambiguity seemed to persist over *exactly* how a signal-protection-based instrument ought to be structured.<sup>47</sup> By the second special session, it became clear that countries could not quite agree on the *real* objectives and scope of the treaty. Consequently, parties concluded that more time was needed before a Diplomatic Conference could be convened.<sup>48</sup> Yet the treaty is to remain on the WIPO's agenda and is unlikely to disappear altogether in the near future.<sup>49</sup>

The product of these discussions, called the draft WIPO Broadcast Treaty (WBT),<sup>50</sup> builds on the basic framework of the Rome Convention but expands on the nature of protection afforded to broadcasters.<sup>51</sup> One of the major changes in the Rome Convention framework that the WBT introduces is in extending protection to cablecasters as well. It retains the classic definition of broadcasting as encompassing a wireless transmission,<sup>52</sup> but at the same time introduces the concept of "cablecasting," which refers specifically to wire transmissions.<sup>53</sup> This is an obvious recognition of the emergence of cable TV as a major player in the television industry and the perceived need for analogous protection in this segment.

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47. See Int'l Ctr. for Trade & Sustainable Dev., *Governments Remain Divided on WIPO Broadcast Treaty*, BRIDGES: WEEKLY, Jan. 24, 2007, at 4, available at <http://www.ictsd.org/weekly/07-01-24/BRIDGESWeekly11-02.pdf>; William New, *Questions Loom for WIPO Broadcasting Negotiation*, INTELL. PROP. WATCH, Jan. 23, 2007, [http://www.ip-watch.org/weblog/index.php?p=511&res=1024\\_ff&print=0](http://www.ip-watch.org/weblog/index.php?p=511&res=1024_ff&print=0).

48. See WIPO, CONCLUSIONS OF THE SECOND SPECIAL SESSION OF THE SCCR ON THE PROTECTION OF BROADCASTING ORGANIZATIONS (2007).

49. *Id.* at 2.

50. It is worth mentioning that during discussions, more than one draft proposal was considered. The final official version that incorporated them all was the one of Feb. 8, 2006. See *Revised Draft Basic Proposal*, *supra* note 46. During the special sessions of the SCCR, however, the Chairman was entrusted with the responsibility of modifying this version informally, in an attempt to generate consensus among countries. The version that resulted from this came to be described as the "non-paper" version of the treaty. Given its unofficial status, the Revised Draft Basic Proposal continued to form the baseline for the negotiations. See WIPO, *supra* note 48. Where the non-paper version introduced significant changes to the treaty's ideas that were noteworthy, special mention is made in this Article of it.

51. For an overview of the scheme in very general detail, see MEGUMI OGAWA, PROTECTION OF BROADCASTERS' RIGHTS 73-113 (2006).

52. Standing Committee on Copyright and Related Rights, *Revised Draft Basic Proposal for the WIPO Treaty on the Protection of Broadcasting Organizations*, art. 5(a), SCCR/15/2 (July 31, 2006) [hereinafter *WIPO Broadcast Treaty*], available at [http://www.wipo.int/edocs/mdocs/sccr/en/sccr\\_15/sccr\\_15\\_2.pdf](http://www.wipo.int/edocs/mdocs/sccr/en/sccr_15/sccr_15_2.pdf).

53. *WIPO Broadcast Treaty*, *supra* note 52, at art. 5(b). It is interesting to note that the definitions of both broadcasting and cablecasting exclude the concept of webcasting—the transmission of signals over computer networks such as the internet—from their coverage.

Protection under the treaty is restricted to broadcasting and cablecasting *organizations*—defined as entities that take the initiative and have the responsibility for the transmission, assembly, and scheduling of content.<sup>54</sup> Thus, *individuals* engaged in the same activities are not entitled to the benefits of the treaty.

Unlike the Rome Convention, the WBT explicitly defines its protectable subject matter. It provides in no uncertain terms that protection “extends only to signals” used for transmission and not to the underlying content that they carry.<sup>55</sup> The WBT goes beyond the Rome Convention in that it grants broadcasters and cablecasters a set of seven expansive “exclusive rights” in relation to their transmission signals.<sup>56</sup> These are the rights to authorize:

- 1) retransmission, by any means, of their broadcasts;<sup>57</sup>
- 2) communication to the public of their broadcasts;<sup>58</sup>
- 3) fixations of their signals;<sup>59</sup>
- 4) reproduction (direct or indirect) of the fixations;<sup>60</sup>
- 5) distribution of the original and copies of the fixations;<sup>61</sup>
- 6) transmission to the public of the broadcasts following fixation;<sup>62</sup>  
and
- 7) making available to the public of the fixations through broadcasts.<sup>63</sup>

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54. *Id.* at arts. 5(c) & 5(d). See also *Revised Draft Basic Proposal*, *supra* note 46, at 26-27.

55. *WIPO Broadcast Treaty*, *supra* note 52, at art. 6(1).

56. The non-paper of April 20, 2007 sought to move away from enumerating these rights individually, providing instead that broadcasters were to have the exclusive right to authorize the “retransmission of their broadcasts” and “deferred transmission” of fixed broadcasts. It omitted the fixation rights of the original proposal. However, given that fixation was protected under the Rome Convention, *see supra* note 30, this omission proved to be unacceptable, with many countries viewing it as doctrinally retrograde. See WIPO, *Non-paper on the WIPO Treaty on the Protection of Broadcasting Organizations*, art. 7, WIPO Doc. No. SCCR/S1/WWW[75352] (Apr. 20, 2007), available at [http://www.wipo.int/edocs/mdocs/sccr/en/sccr\\_s1/sccr\\_s1\\_www\\_75352.doc](http://www.wipo.int/edocs/mdocs/sccr/en/sccr_s1/sccr_s1_www_75352.doc).

57. *WIPO Broadcast Treaty*, *supra* note 52, at art. 9.

58. *Id.* at art. 10.

59. *Id.* at art. 11.

60. *Id.* at art. 12.

61. *Id.* at art. 13.

62. *Id.* at art. 14.

Together, these seven rights would give broadcasters and cablecasters near-complete control over the use and fixation of their transmission signals. In addition, the WBT mandates that countries recognize technological protection measures and grant rights-holders adequate legal remedies to enforce them.<sup>64</sup> It requires countries to create a cause of action against any person who circumvents a technological protection measure that prevents the access to and copying of broadcasters' signals.<sup>65</sup> From the structure of the treaty and the inclusion of the technological protection measures mandate, it is abundantly clear that the rights are meant to operate both against competitors *and consumers*.

While the treaty does not explicitly say so, the default assumption appears to be that these rights are to operate in rem, along the lines of traditional property rights.<sup>66</sup> Also, the theme of "anti-piracy" is a recurrent one throughout the treaty.<sup>67</sup> Furthermore, the rights would persist for a period of fifty years after the broadcast.<sup>68</sup>

Going back then to our earlier hypothetical, XBC Inc., under this new regime, would have a larger bundle of rights to exercise against DBC and Boris. In addition to being able to preclude Boris from fixing its signals, XBC now obtains absolute control over the uses of the recording of *Quakes* from its broadcast. If XBC were to encrypt its transmission using digital technology, and Boris were to decrypt the transmission to view *Quakes* without XBC's authorization, XBC could then initiate a circumvention action against Boris. Further, if Boris were to distribute his recording of *Quakes* over the internet, this too would give XBC a cause of

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63. *Id.* at art. 15.

64. *Id.* at art. 19.

65. For an overview of the WCT and WPPT's technical protection measures, see Dean S. Marks & Bruce H. Turnbull, *Technical Protection Measures: The Intersection of Technology, Law and Commercial Licenses*, WIPO Doc. No. WCT-WPPT/IMP/3 (Dec. 3, 1999). For a general overview of their implementation under U.S. and E.U. law, see Terese Foged, *U.S. v. E.U. Anti-Circumvention Legislation: Preserving the Public's Privileges in the Digital Age?*, 24 EUR. INTELL. PROP. REV. 525 (2002).

66. The Revised Draft Proposal provision on limitations and exceptions to the rights granted contains four alternatives, each with varying degrees of specificity. Three out of the four proposals contain an express exception for "private use"—thereby making it clear that individual users making unauthorized use of the broadcast signals would ordinarily be liable under the treaty. See *Revised Draft Basic Proposal*, *supra* note 46, at 65-70. For more discussion of in rem rights, see also *infra* Part III.

67. See *WIPO Broadcast Treaty*, *supra* note 52, Preamble (noting the "anti-piracy" function of the treaty). See also DARRELL PANETHIERE, *THE PERSISTENCE OF PIRACY: CONSEQUENCES FOR CREATIVITY, FOR CULTURE, AND FOR SUSTAINABLE DEVELOPMENT* 17-18 (2005), <http://unesdoc.unesco.org/images/0013/001396/139651e.pdf>.

68. *WIPO Broadcast Treaty*, *supra* note 52, at art. 18.

action against him. Thus XBC is given near-absolute control over its transmission of *Quakes*.

Now assume CC, a cablecaster, enters the picture and provides its own content to its subscribers. In addition, CC records XBC's broadcast and retransmits it to its own subscribers at a later date. Under the new regime, CC is given property rights over its transmissions analogous to XBC's rights over its transmission of *Quakes*. XBC now also has a claim against CC's recording and retransmission of its broadcast. This latter claim assumes special relevance in the U.S. broadcasting context, as will be seen later.

The WBT thus seeks to create a full-blown property rights regime in broadcast and cable transmission signals. Coupled with its anti-circumvention mandate, it enables broadcasters and cable operators to exercise a significant amount of control over the use of their signals.

### C. Broadcasters' Rights: From Contract to Property?

Property rights can and often do minimize transaction costs.<sup>69</sup> The allocation of an in rem exclusionary entitlement ex ante reduces the need to contractually acquire it. Contractual acquisitions entail significant search, information, and negotiation costs and involve uncertainties associated with holdouts and cognitive biases.<sup>70</sup> By ensuring an optimal allocation up front and thus obviating the need for individual contractual transfers, property rights can enhance overall efficiency. It might therefore be argued that broadcasters' rights—as property rights—achieve precisely this result.

In this understanding, broadcasters' rights do little more than convert rights that a broadcaster might have contractually obtained from the original copyright holder into a property right. By vesting them in the broad-

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69. See WILLIAM M. LANDES & RICHARD A. POSNER, *THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW* 12-13 (2003) ("Reducing transaction costs is the very *raison d'être* of property rights."). For some of the seminal literature seeking to establish this correlation see YORAM BARZEL, *ECONOMIC ANALYSIS OF PROPERTY RIGHTS* (2d ed. 1997); Armen A. Alchian, *Some Economics of Property Rights*, 30 *IL POLITICO* 816 (1965); Harold Demsetz, *Toward a Theory of Property Rights*, 57 *AMER. ECON. REV.* 347 (1967); Harold Demsetz, *The Exchange and Enforcement of Property Rights*, 7 *J.L. & ECON.* 11 (1964); Eirik G. Furnbotn & Svetozar Pejovich, *Property Rights and Economic Theory: A Survey of Recent Literature*, 10 *J. ECON. LIT.* 1137 (1972); Thomas W. Merrill & Henry E. Smith, *Optimal Standardization in the Law of Property: The Numerus Clausus Principle*, 110 *YALE L.J.* 1 (2000).

70. See generally Lloyd Cohen, *Holdouts and Free Riders*, 20 *J. LEGAL STUD.* 351 (1991); Richard A. Epstein, *Holdouts, Externalities, and the Single Owner: One More Salute to Ronald Coase*, 36 *J.L. & ECON.* 553 (1993).

caster *ex ante*, this regime obviates the need for the broadcaster to convince the content producer to either (i) sue for an infringement when the broadcaster lacks standing; or (ii) transfer to it the entire copyright in the work.<sup>71</sup> It thus gives XBC, a non-exclusive licensee of the “right to broadcast” *Quakes* from Walter, independent standing to sue both DBC and Boris. This seemingly represents an obvious efficiency gain. On deeper analysis, however, this view overlooks several significant elements.

While copyright law recognizes the divisibility of rights during a transfer, it continues to draw a clear distinction between exclusive and non-exclusive licenses.<sup>72</sup> Exclusive licenses are treated as transfers of the copyright, while non-exclusive licenses are not.<sup>73</sup> Therefore, only an exclusive license would give a licensee an independent right to sue for infringement. Yet, even in relation to exclusive licenses, the licensee’s standing is limited by the scope of the license.<sup>74</sup> Thus, in our hypothetical, if XBC were to obtain a non-exclusive license from Walter to “broadcast *Quakes* nationally over the air,” it would lack independent standing to sue for copyright infringement.<sup>75</sup> Now if the license were *exclusive*, XBC *would* have standing to sue. Even with an exclusive license, though, it would have an action only against DBC, a broadcaster, and not against Boris, a copier and distributor, unless Walter transferred to XBC the exclusive rights to copy and distribute *Quakes*. This distinction remains crucial.

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71. This analysis assumes, of course, that a broadcaster attempts to sue on either a contract or property theory. A third alternative that may be invoked involves tort law and in particular the claim of “tortious interference with a contract.” The tort has both contract and property overtones, but entails a strong intention/recklessness requirement that might be hard to establish in simple instances of infringement. See Richard A. Epstein, *Inducement of Breach of Contract as a Problem of Ostensible Ownership*, 16 J. LEGAL STUD. 1 (1987); Benjamin L. Fine, *An Analysis of the Formation of Property Rights Underlying Tortious Interference with Contracts and Other Economic Relations*, 50 U. CHI. L. REV. 1116 (1983); Mark P. Gergen, *Tortious Interference: How it is Engulfing Commercial Law, Why This is Not Entirely Bad, and a Prudential Response*, 38 ARIZ. L. REV. 1175 (1996).

72. For an overview of the doctrine of indivisibility, contained in the Copyright Act of 1909, see 3 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT: A TREATISE ON THE LAW OF LITERARY, MUSICAL AND ARTISTIC PROPERTY, AND THE PROTECTION OF IDEAS § 10.01 (2006); Robert A. Gorman, *An Overview of the Copyright Act of 1976*, 126 U. PA. L. REV. 856, 860 (1978); Leon Kaplan, *Artistic and Literary Property (Including Copyright) as Security: Problems Facing the Lender*, 19 LAW & CONTEMP. PROBS. 254, 265 n.51 (1954).

73. See 17 U.S.C. § 201(d)(2) (2000); 3 NIMMER, *supra* note 72, at § 10.02[A].

74. 3 NIMMER, *supra* note 72, at § 10.02[B][1] (noting how this amounts to a limited retention of the indivisibility rule).

75. *Id.* & n.16.

Additionally, the law forbids a transfer of the mere right to sue, independent of a transfer of the underlying right.<sup>76</sup> The Copyright Act allows for a transfer only of the exclusive rights it confers on the owner, and the right to commence an action for infringement is treated as an “entitlement” rather than an exclusive right.<sup>77</sup> Since a non-exclusive license is not treated as a transfer, anything short of an exclusive license to copy and distribute the work would render unenforceable an independent transfer of the right to sue for these actions.<sup>78</sup> In other words, barring a complete transfer of the rights to broadcast, copy, and distribute, XBC would have no action against DBC *or* Boris under copyright law.

A regime of broadcasters’ full-blown property rights would now grant the broadcaster independent causes of action against other broadcasters and individuals fixing its broadcasts and using them post-fixation. In spite of the broadcaster’s need for a license from the copyright holder (to avoid copyright infringement<sup>79</sup>), the nature or existence of this license and its scope would now have *no bearing whatsoever* on the broadcaster’s ability to commence an action for use of the broadcast and its underlying content.<sup>80</sup>

To be sure, each of the doctrinal subtleties outlined has a rational basis. To grant non-exclusive licensees the right to sue independently would create multiple infringement actions. Further, the very idea of a non-

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76. See *Silvers v. Sony Pictures Entm’t, Inc.*, 402 F.3d 881 (9th Cir. 2005) (examining the statutory language, legislative history, and analogies to patent law and concluding that the mere right to sue for copyright infringement cannot be assigned); *Eden Toys, Inc. v. Florelee Undergarment Co.*, 697 F.2d 27 (2d Cir. 1982). Indeed, this principle seems to be fairly well established in the law of patents, having been affirmed by the Supreme Court on more than one occasion. See *Indep. Wireless Tel. Co. v. Radio Corp. of Am.*, 269 U.S. 459 (1926); *Crown Die & Tool Co. v. Nye Tool & Mach. Works*, 261 U.S. 24, 35-36 (1923).

77. See 17 U.S.C. § 501(b) (2000). For a comprehensive overview of the rules of standing in intellectual property, see Roger D. Blair & Thomas F. Cotter, *The Elusive Logic of Standing Doctrine in Intellectual Property Law*, 74 TUL. L. REV. 1323 (2000).

78. See 3 NIMMER, *supra* note 72, at § 12.02 (“An exclusive licensee may not sue for infringement of rights as to which he is not licensed, even if the subject matter of the infringement is the work as to which he is a licensee.”).

79. See 17 U.S.C. § 106(4) (2000 & Supp. IV 2004).

80. It might of course be argued that Article 1(2) of the WBT, which specifically provides that the treaty is in no way meant to prejudice copyright in the underlying content, would require such a correspondence between the exercise of rights and the underlying license. While such a correspondence might be necessary for the actual *exercise* of the exclusive right (i.e., to actually distribute reproductions of the fixation) to avoid *infringing* the underlying copyright, it certainly would not be necessary for the exercise of the right to initiate an action, since that would in no way interfere with the content holder’s rights. See *WIPO Broadcast Treaty*, *supra* note 52, at art. 1(2).

exclusive license incorporates the basic understanding that the value of the license lies in its enabling the use of the work in and of itself, not the *exclusive* or even *limited* use of the work (the copyright holder being free to create infinite non-exclusive licenses), but by the *use* alone.

The efficiency argument ignores altogether the reality that broadcasters' rights go well beyond just granting broadcasters the right to sue for infringement of any right they might have contractually obtained. As noted earlier, broadcasters' rights extend beyond the right to broadcast to post-fixation actions.<sup>81</sup> In other words, they replicate several of the copyright holder's exclusive privileges, but through the broadcast. Given the inseparability of the signal from its underlying content, these in turn translate into rights over the content. Thus, the broadcaster's exclusive right to authorize the "reproduction of fixations"<sup>82</sup> means little more than the right to authorize the reproduction of the content of the broadcast, a right that is also vested in the content producer.<sup>83</sup> A user reproducing content obtained via a broadcast is now subject to two potential lawsuits—one from the copyright holder, and another from the broadcaster. Whereas avoiding multiple lawsuits remains central to the rules surrounding copyright licensing, the broadcasters' rights regime *is directed* at creating an additional right to sue.

Broadcasters' rights thus do much more than just *move* the entitlement from the content producer to the broadcaster, they *replicate* it. A mere duplication of the gate-keeping function might in some situations work to create what economists call a "polyarchical" or decentralized project structure.<sup>84</sup> Central to realizing the efficiency gains from such a structure is the need for the decision-making process to be substantively decentralized *as a whole*.<sup>85</sup> In other words, if an authorization from the broadcaster were to alleviate the need for a similar or equivalent authorization from

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81. See *supra* notes 55-65 and accompanying text.

82. *WIPO Broadcast Treaty*, *supra* note 52, at art. 13.

83. See 17 U.S.C. § 106(1) (2000).

84. See Patrick Bolton & Joseph Farrell, *Decentralization, Duplication, and Delay*, 98 J. POL. ECON. 803 (1990); Raaj Kumar Sah & Joseph E. Stiglitz, *The Architecture of Economic Systems: Hierarchies and Polyarchies*, 76 AM. ECON. REV. 716 (1986). For further literature focusing on this distinction, see Ruth Ben-Yashar & Shmuel Nitzan, *The Robustness of Optimal Organizational Architectures: A Note on Hierarchies and Polyarchies*, 18 SOC. CHOICE & WELFARE 155 (2004); Thomas Gehrig, Pierre Regibeau & Kate Rockett, *Project Evaluation and Organizational Form*, 5 REV. ECON. DESIGN 177 (2004); and Raaj Kumar Sah & Joseph E. Stiglitz, *Committees, Hierarchies, and Polyarchies*, 98 ECON. J. 451 (1988).

85. See Tim Wu, *Intellectual Property, Innovation and Decentralized Decisions*, 92 VA. L. REV. 123, 129 (2006) ("[A]ny single actor's approval of a project is sufficient").

the content producer and vice versa, such that consent from either would immunize a user from liability (under both regimes), the decision-making structure then becomes truly polyarchical (i.e., with multiple gate-keepers, *any* of whom are sufficient for entry/authorization). Broadcasters' rights consciously reject such a model (of decentralized authorization), however, in the legitimate belief that so doing would undermine the content producers' contribution, which is central to the entire creative process.<sup>86</sup> Thus broadcasters' rights contemplate a structure that is distinctly hierarchical, detracting from the possibility of any structural efficiency gains.

The efficiency argument thus fails on three fronts. First, broadcasters' rights go far beyond the ideal of minimizing broadcasters' costs of contracting for similar rights, simply because broadcasters could not have contracted for such rights to begin with (except by acquiring the copyright in its entirety). Second, they do not effect a mere reallocation of the entitlement to sue for infringement. Instead, they replicate the entitlement and consciously contemplate a multiplicity of lawsuits for a single act of infringement. Third, the efficiency argument ignores the fact that transaction costs exist on both sides of the producer-consumer equation.<sup>87</sup> Even if the regime minimized broadcasters' transaction costs, it multiplies users' costs by now requiring them to navigate through an additional layer of liability.

#### D. Investment Protection & Piracy Prevention as a Rationale

Attempts to develop coherent theoretical justifications for copyright abound in the literature.<sup>88</sup> They range from the utilitarian or law-and-economics-based explanations to the more deontological ones based on

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86. See Rome Convention, *supra* note 18, at art. 1; *WIPO Broadcast Treaty*, *supra* note 52, at art 1. See also *supra* text accompanying note 34.

87. In many respects this tracks the problem of an anticommons, identified by Michael Heller. Here, the creation of additional layers of property rights increases the transaction costs of using the underlying resources, thereby deterring actual use and resulting in an altogether different inefficiency. See Michael A. Heller, *The Tragedy of the Anticommons: Property in the Transition from Marx to Markets*, 111 HARV. L. REV. 621 (1998); James M. Buchanan & Yong J. Yoon, *Symmetric Tragedies: Commons and Anticommons*, 43 J.L. & ECON. 1 (2000). The argument has been further extended to the world of intangibles. See Michael A. Heller & Rebecca S. Eisenberg, *Can Patents Deter Innovation? The Anticommons in Biomedical Research*, 280 SCIENCE 698 (1998).

88. See, e.g., Edwin C. Hettinger, *Justifying Intellectual Property*, 18 PHIL. & PUB. AFF. 31 (1989); Stewart E. Sterk, *Rhetoric and Reality in Copyright Law*, 94 MICH. L. REV. 1197 (1996); Samuel E. Trosow, *The Illusive Search for Justificatory Theories: Copyright, Commodification and Capital*, 16 CANADIAN J.L. & JURISPRUDENCE 217 (2003).

personality.<sup>89</sup> While none has proven to be unproblematic altogether, the utilitarian framework appears to be dominant in the traditional conception of copyright.<sup>90</sup> In this understanding, property rights are granted to authors of literary and artistic works as an *ex ante* incentive for their creativity.<sup>91</sup>

Broadcasters' rights and other related or "neighboring" rights represent an altogether different story because broadcasters and cablecasters never directly engage in any creative activity, in the traditional sense of the term.<sup>92</sup> They nevertheless do contribute to the dissemination of creative works through their distribution networks. Hence, their rights remain conceptually related to traditional copyright. Broadcasters' rights, however, seemingly derive from a different type of utilitarian rationale—one related to their investment of time, energy, and resources.<sup>93</sup> As the WIPO Secretariat notes:

Broadcasting organizations have been granted protection for the result of their investment, their entrepreneurial efforts and their contribution to the diffusion of culture and their public information service. Broadcasting organizations are entities that take the

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89. For the utilitarian approaches to the topic, see Deborah Chalsty, *The Economic Logic of Copyright*, in *THE POLITICAL ECONOMY OF LEGAL INFORMATION: THE NEW LANDSCAPE* 145 (Samuel E. Trosow ed., 1999); Robert M. Hurt & Robert M. Schuchman, *The Economic Rationale of Copyright*, 56 *AMER. ECON. REV.* 421 (1966); William M. Landes & Richard A. Posner, *An Economic Analysis of Copyright Law*, 18 *J. LEGAL STUD.* 325 (1989). For the more deontological philosophical justifications, see Jane C. Ginsburg, *A Tale of Two Copyrights: Literary Property in Revolutionary France and America*, 64 *TULANE L. REV.* 991 (1990); Wendy J. Gordon, *A Property Right in Self-Expression: Equality and Individualism in the Natural Law of Intellectual Property*, 102 *YALE L.J.* 1533 (1993); Justin Hughes, *The Philosophy of Intellectual Property*, 77 *GEO. L.J.* 287 (1988); Jeremy A. Waldron, *From Authors to Copiers: Individual Rights and Social Values in Intellectual Property*, 68 *CHI.-KENT L. REV.* 841 (1968).

90. Part of this justification, at least in the context of the United States, derives from the fact that copyright derives from the Constitution, which in Article I, Section 8, provides: "To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries." This clearly is a utilitarian approach to the subject.

91. See Mark A. Lemley, *Ex Ante Versus Ex Post Justifications for Intellectual Property*, 71 *U. CHI. L. REV.* 129 (2004).

92. 2 RICKETSON & GINSBURG, *supra* note 21, at 1212.

93. See Werner Rumphorst, *Neighbouring Rights Protection of Broadcasting Organizations*, 14 *EUR. INTELL. PROP. REV.* 339, 340 (1992); Werner Rumphorst, *The Broadcasters' Neighbouring Right: Impossible to Understand?*, *COPYRIGHT BULL.*, July-Sept. 2006, at 1, 3, <http://unesdoc.unesco.org/images/0014/001477/147736e.pdf> ("The broadcasters' neighbouring right is there to protect the broadcasters' entrepreneurial efforts and investments in the form in which they materialize as an end product from their activity, viz. the broadcasts.").

financial and editorial responsibility for the selection and arrangement of, and investment in, the transmitted content.<sup>94</sup>

The rationale thus appears to be that since broadcasters invest a significant amount of time and resources that indirectly contribute to the creative process, they ought to be granted property rights that enable them to control their investment. In a sense, this rationale is Lockean, yet significantly more consequentialist.<sup>95</sup>

But why might such control be *necessary* at all? Surely not all investments require control as a quid pro quo. This takes us to the other side of the investment protection rationale: the piracy argument—that the unauthorized use of broadcasters' signals results in a diminution of their revenue. The UNESCO, in its discussion of the treaty, seems to allude to the legitimacy of this justification and its connection to the investment rationale, in observing that protection is intended to “prevent third parties from using these [signals] without . . . authorization” which could result in “economic losses” and that the rights involved are a recognition of the “investments [broadcasters] make . . . that benefit the eventual consumers.”<sup>96</sup>

The piracy argument is one that has been made ever since discussions on a new instrument began at the WIPO.<sup>97</sup> Broadcasters argue that with

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94. WIPO, *Protection of Broadcasting Organizations: Terms and Concepts*, WIPO Doc. No. SCCR/8/INF/1 (Aug. 16, 2002), available at [http://www.wipo.int/edocs/mdocs/copyright/en/sccr\\_8/sccr\\_8\\_inf\\_1.pdf](http://www.wipo.int/edocs/mdocs/copyright/en/sccr_8/sccr_8_inf_1.pdf).

95. The Lockean argument is, of course, one from labor-desert, that an individual's expenditure of labor and effort entitles him or her to an exclusionary right over the product of those labors. JOHN LOCKE, *TWO TREATISES OF GOVERNMENT: A CRITICAL EDITION WITH AN INTRODUCTION AND APPARATUS CRITICUS* BY PETER LASLETT, §§ 25-51, at 302-51 (Peter Laslett ed., Cambridge Univ. Press 2d ed. 1967) (1690). The Lockean theory has been applied rather extensively in the context of intellectual property, especially copyright. See, e.g., PETER DRAHOS, *A PHILOSOPHY OF INTELLECTUAL PROPERTY* 41-72 (1996); Richard A. Epstein, *Liberty Versus Property? Cracks in the Foundations of Copyright Law*, 42 SAN DIEGO L. REV. 1, 21 (2005); Wendy J. Gordon, *Render Copyright unto Caesar: On Taking Incentives Seriously*, 71 U. CHI. L. REV. 75 (2004); Adam D. Moore, *A Lockean Theory of Intellectual Property*, 21 HAMLINE L. REV. 65 (1997). For an interesting revisionist account of the Lockean theory, applied in the context of copyright law, see Lior Zemer, *The Making of a New Copyright Lockean*, 29 HARV. J.L. & PUB. POL'Y 891 (2006).

96. *Protection of the Rights of Broadcasting Organizations*, para. 6, UNESCO Doc. No. 171 EX/59 (Apr. 8, 2005), available at <http://unesdoc.unesco.org/images/0013/001390/139057e.pdf>.

97. See WIPO, *Agenda Item 4: Protection of the Rights of Broadcasting Organizations, Submissions Received from Non-Governmental Organizations by March 31, 1999*, at 8, WIPO Doc. No. SCCR/2/6 (Apr. 7, 1999), available at [http://www.wipo.int/edocs/mdocs/copyright/en/sccr\\_2/sccr\\_2\\_6.pdf](http://www.wipo.int/edocs/mdocs/copyright/en/sccr_2/sccr_2_6.pdf) (“Comprehensively updated international pro-

the advent of new technologies of digital copying, unauthorized interception, fixation, and retransmission of broadcasts has become rampant.<sup>98</sup> Studies undertaken by broadcasters' collectives to support this argument show that there was a 150% increase in television piracy in 2004; that 7% of all broadcast piracy occurred in the United States; and that revenue losses from signal theft globally amounted to approximately \$2 billion<sup>99</sup>. The emergence of the internet as a distribution medium and its transnational nature, broadcasters claim, further diminishes their revenues.<sup>100</sup> Broadcasters often use the *iCrave TV* controversy that erupted in 2000 to illustrate the threat posed by the internet to their revenues.

The *iCrave TV* episode involved a Canadian entrepreneur capturing over-the-air broadcast signals from the United States and Canada and streaming them digitally over the internet, enabling others to view television broadcasts on their computers, for a subscription fee.<sup>101</sup> After much convincing, U.S. broadcasters managed to get copyright owners to initiate an action against him for copyright infringement, on the premise that since users in the United States could access the service, he was infringing their rights in the United States. They eventually succeeded in getting an in-

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tection of the broadcasters' neighboring right is the only way to ensure the possibility of swift and effective action against piracy of broadcasts."); WIPO, *Protection of Broadcasting Organizations*, at 15, WIPO Doc. No. SCCR/7/8 (Apr. 4, 2002), available at [http://www.wipo.int/edocs/mdocs/copyright/en/sccr\\_7/sccr\\_7\\_8.pdf](http://www.wipo.int/edocs/mdocs/copyright/en/sccr_7/sccr_7_8.pdf). See also Viviana Munoz Tellez & Andrew Chege Waitara, *A Development Analysis of the Proposed WIPO Treaty on the Protection of Broadcasting and Cablecasting Organisation* 26-31 (South Ctr. Research Paper No. 9, Jan. 2007), available at <http://www.southcentre.org/publications/researchpapers/ResearchPapers9.pdf> (providing an overview of the piracy rationale).

98. See sources cited *supra* note 97.

99. These figures are from a briefing note by internet monitoring company *Envisional* in 2005, entitled *TV Piracy*. Broadcast unions such as the European Broadcasting Union (EBU) relied upon the figures extensively to establish an increase in piracy rates worldwide. See Will Sturgeon, *24 Reasons Why TV Piracy is Soaring*, WEBWATCH, Feb. 17, 2005, <http://networks.silicon.com/webwatch/0,39024667,39127919,00.htm>; Daisy Whitney, *Spiraling Piracy Threatens TV*, TVWEEK, Feb. 21, 2005, <http://www.tvweek.com/article.cms?articleId=27301>.

100. EUROPEAN BROADCAST UNION, SOME RECENT EXAMPLES OF BROADCAST PIRACY (2005), available at [www.ebu.ch/CMSImages/en/leg\\_p\\_pressreports\\_piracy\\_120905\\_tcm6-42762.pdf](http://www.ebu.ch/CMSImages/en/leg_p_pressreports_piracy_120905_tcm6-42762.pdf) (last visited Nov. 13, 2006).

101. See John Borland, *Broadcasters Win Battle Against iCraveTV.com*, CNET NEWS.COM, Jan. 28, 2000, <http://news.com.com/2100-1033-236255.html>; John Townley, *Movie, Broadcasting Companies Sue iCraveTV*, INTERNETNEWS.COM, Jan. 21, 2000, <http://www.internetnews.com/bus-news/article.php/291131>.

junction against him.<sup>102</sup> However, the case is often used to illustrate the ease with which broadcast signals can be converted into digital format and retransmitted over global networks, and broadcasters' dependence on content owners to commence an action to stop the retransmitter—the alleged pirate.

The anti-piracy argument, however, raises an important conceptual issue that has significant practical implications. This relates to the distinction that is rarely ever made between revenue losses (strictly speaking) and lost revenue streams. A revenue loss from piracy may be said to occur when individuals or organizations deny broadcasters a source of revenue that they *would have had*, in the normal scheme of things. A failed revenue stream, on the other hand, represents the broadcaster being denied a source of revenue that it would not have ordinarily had, except in a hypothetical or theoretical sense. Take the *iCrave TV* episode described above. Broadcasters at the time were not yet making their content available online. Although a broadcaster might indeed argue that online broadcasting was the next natural step, this argument is at best hypothetical. The distinction is thus one of appropriate baselines to ascertain the status quo (and thereby losses). Broadcasters argue that a world with the entitlement is the status quo and anything short of it is a *loss*, which ignores the nuance that the very existence of the entitlement is at issue.<sup>103</sup>

Computations of piracy-related losses do not seem to make this distinction.<sup>104</sup> They operate on the assumption that a diminution of any form of actual and potential revenue resulting from the use of broadcasters' signals represents a piracy-related loss. This distinction is relevant when it comes to the piracy-related justification for property rights in broadcast signals, for it is not clear that the losses identified merit classification as piracy-related when broadcasters' entitlement to them is unclear a priori.

Broadcasters' open-ended definition of piracy as including all revenue diminutions assumes that broadcasters are entitled to internalize *all* the positive externalities associated with their investment, at least insofar as these externalities are reducible to sources of revenue.<sup>105</sup> Their conception

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102. Nat'l Football League v. TVRadioNow Corp., 53 U.S.P.Q.2d (BNA) 1831 (W.D. Pa. 2000).

103. For more on the use of baselines to determine harm and losses in intellectual property contexts, see Wendy J. Gordon, *Of Harms and Benefits: Torts, Restitution, and Intellectual Property*, 21 J. LEGAL STUD. 449 (1992).

104. See *supra* note 99 and accompanying text.

105. For a theoretical exposition of this argument and its application in the property-intellectual property debate, see Mark A. Lemley, *Property, Intellectual Property, and Free Riding* 83 TEX. L. REV. 1031 (2005). See also Mark A. Lemley, *The Economics of*

of the property right is tied intrinsically to their understanding of piracy.<sup>106</sup> Thus, if piracy were understood as being limited to revenue losses, claims should be limited to unfair competition, restricting competitors from free-riding on the first-mover's efforts when such free-riding leads to a direct loss (for example, XBC against DBC). On the other hand, if piracy encompasses failed revenue streams as well, an open-ended property right becomes necessary. All of this of course depends on who broadcasters characterize as "pirates," and given the general tendency to include in this category any person making an unauthorized use of the broadcast signal, the usage tends to be in the direction of the widest possible interpretation.

Piracy losses ought to be understood as revenue losses resulting from free-riding on the efforts of an earlier entrant into the market and as excluding losses resulting from another party's identification of a new revenue stream, even if the new stream remains in some way indirectly connected to the established one. Discussions of signal piracy do not, at present, reflect this distinction. Indeed, a few years before discussions commenced at the WIPO, a prominent member of the European Broadcasting Union (EBU) observed that private copying of broadcasts by individuals "constitute[d] unjust enrichment on the part of the private individuals carrying out such recording [since] there is a corresponding actual loss or loss of opportunity to . . . license its protected material . . . ."<sup>107</sup> The tendency to equate revenue losses with lost revenue streams thus dominates the debate.

This analysis logically leads to a case that has become infamous in the information property context: *International News Service v. Associated Press*.<sup>108</sup> For quite some time now, commentators have faulted the Court's analysis of property in news there.<sup>109</sup> Where the *International News Ser-*

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*Improvement in Intellectual Property Law*, 75 TEX. L. REV. 989 (1997); Mark A. Lemley & Brett M. Frischmann, *Spillovers*, 107 COLUM. L. REV. 257 (2007).

106. See generally Peter K. Yu, *Four Common Misconceptions About Copyright Piracy*, 26 LOY. L.A. INT'L & COMP. L. REV. 127 (2003).

107. Moira Burnett, *Thirty-Four Years On: High Time for Filling the Gaps in Broadcasters' Protection*, 6 ENT. L. REV. 39, 40 (1995).

108. 248 U.S. 215 (1918).

109. See, e.g., Douglas G. Baird, *Common Law Intellectual Property and the Legacy of International News Service v. Associated Press*, 50 U. CHI. L. REV. 411 (1983); Richard A. Epstein, *International News Service v. Associated Press: Custom and Law as Sources of Property Rights in News*, 78 VA. L. REV. 85 (1992); Dennis S. Karjala, *Misappropriation as a Third Intellectual Property Paradigm*, 94 COLUM. L. REV. 2594 (1994); Bruce P. Keller, *Condemned to Repeat the Past: The Reemergence of Misappropriation and other Common Law Theories of Protection for Intellectual Property*, 11 HARV. J.L. & TECH. 401 (1998); Richard A. Posner, *Misappropriation: A Dirge*, 40

*vice* holding might yet be useful to the present analysis is in the Court's attempt to understand excludability as being limited in scope to losses arising out of direct free-riding. In his majority opinion, Justice Pitney granted the plaintiffs a limited property interest in their news stories—one that would operate only against competitors, was time-specific, and would come into existence only when there was actual *ex post* free-riding.<sup>110</sup> At the root of the Court's reasoning appears to have been a concern that one party was profiting off of the investments of another, a form of unfair competition. The Court thus recognized that an ordinary revenue loss was unfair, whereas losing a new revenue stream was not. If an individual had come along and found a way to distribute news stories freely using a novel mechanism—on kites, for example—the Court would probably have disallowed the plaintiff's claim, even though in an ideal world the plaintiff might have seen a new revenue stream in the distribution and preferred to control it.<sup>111</sup>

Perhaps all of this piracy talk, which derives from the rhetorical force of identifying a "pirate," is one-sided. In other words, a pirate is but an individual who makes unauthorized use of another's property rights, and consequently we ought to first identify the owner of the property right before we embark on a discussion about piracy and related losses. While this would certainly be the case for real and personal property, it is not so for intangibles.<sup>112</sup> Real and personal property are at all material times endowed with the characteristic of ownability, by virtue of their being tangible (or a *res*). Conversely, an intangible is converted into an ownable *res* only through a legal fiction, and its independent legal existence as a *res* is consequent upon the identification of rights individuals have in relation to it.<sup>113</sup> Thus, information becomes property only when the legal system accords individuals exclusionary entitlements over it.<sup>114</sup> The same is true for

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HOUS. L. REV. 621 (2003); Leo J. Raskind, *The Misappropriation Doctrine as a Competitive Norm of Intellectual Property*, 75 U. MINN. L. REV. 875 (1991).

110. *Int'l News Serv.*, 248 U.S. at 241-42.

111. *See id.* at 239 ("The right of the purchaser of a single newspaper to spread knowledge of its contents gratuitously, for any legitimate purpose not unreasonably interfering with complainant's right to make merchandise of it, may be admitted.").

112. *See* LAWRENCE LESSIG, *FREE CULTURE: THE NATURE AND CULTURE OF CREATIVITY* 53-84 (2005) (providing an exhaustive overview of the genesis of the term in the context of intellectual property discourses).

113. *See* Stephen L. Carter, *Owning What Doesn't Exist*, 13 HARV. J.L. & PUB. POL'Y 99 (1990).

114. *But see* Frank Easterbrook, *Intellectual Property Is Still Property*, 13 HARV. J.L. & PUB. POL'Y 108 (1990); Richard A. Epstein, *Intellectual Property: Old Boundaries and New Frontiers*, 76 IND. L.J. 803 (2003). Another way of *owning* information, so to speak, is through mechanisms of secrecy—and here secrecy converts the element of de

broadcast signals that are equally intangible. Consequently, it becomes critical to identify the reasons upon which the justification for a property regime depends before bestowing proprietary status upon broadcast signals. Since the primary justification for the property regime is the existence of revenue losses from piracy, we need to begin from the piracy argument.

Undoubtedly, the main factor driving the broadcasters' push for extended property rights in their signals is the emergence of digital copying and with it the internet as a global medium of communication.<sup>115</sup> In the internet, they see a huge market from which to eventually generate significant revenue. At the same time, they see it as a major source of potential competition for their analog revenues—especially when it involves their own signals.<sup>116</sup> Creating a property regime over their signal *and its fixation* enables them to control *all uses* of the signal—in both the analog and digital worlds. This in turn ensures that until they decide to enter the world of internet broadcasts (or webcasts) themselves, they get to extend their dominance in the analog world to the digital one.<sup>117</sup>

Equipping broadcasters with broad exclusionary control over their broadcast signals, which in turn derive their existence from other sources, is bound to upset the equilibrium that currently exists between different players in the television broadcasting industry. It remains to be seen what the nature and consequences of this are likely to be.

In sum, the WBT would, if implemented, give broadcasters a set of independent exclusionary rights over their broadcast signals, many of which replicate copyright owners' control over the underlying content. Rather than move the entitlement from the content producer (i.e., copyright owner) to the broadcaster, the WBT *replicates* it, creating a system of dual liability. The WBT's sole justification seemingly derives from an open-ended view of piracy—one that treats any inability to internalize benefits

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jure exclusivity into a de facto one. Secrecy arguments are made most commonly in the context of indigenous cultural property. See Michael F. Brown, *Can Culture Be Copyrighted?*, 39 CURRENT ANTHROPOLOGY 193, 199 (1998).

115. This is most apparent in the preamble to the WBT, which explicitly recognizes the threat posed by new technologies that have given rise to new opportunities for unauthorized use of broadcasts. See *WIPO Broadcast Treaty*, *supra* note 52, Preamble.

116. See *supra* text accompanying notes 96-101.

117. For a review of similar rationales in the context of Australia and Japan, see OGAWA, *supra* note 51, at 167-76. It is interesting to note that Australia introduced broadcasters' rights into its copyright legislation pursuant to a Free Trade Agreement (FTA) entered into with the United States in 2000, in order to provide protection for U.S. broadcasters. *Id.* at 122 n.15.

associated with the broadcast as a loss that detracts from broadcasters' legitimate entitlement.

### III. ATTENUATED EXCLUSIONARY RIGHTS IN THE TELEVISION INDUSTRY

Part II examined the basic structure of the property rights regime for which broadcasters have been lobbying and which countries including the United States seem ready to adopt at the WIPO. This Part examines the current regime in place in the United States television broadcast industry and the nature of interactions that exist between its different players. The basis of the regulatory regime here is a balanced system of what I call *attenuated exclusionary rights*, vested in each of the primary actors. These rights together form a regime that creates a level playing field between different interests in the industry, and at the same time aims to preserve the ideal of the public interest.

A word first about the idea of "attenuated rights." Traditionally, one of the characteristic differences between property and contractual rights is that property encompasses rights that operate in rem against the world at large, whereas contractual rights only ever operate inter se between contracting parties.<sup>118</sup> The in rem/in personam distinction is often taken as the basis for characterizing certain rights as property rights or otherwise.<sup>119</sup> The regimes that exist in the current television industry are not in rem in the absolute or traditional sense, but are restricted to the existing industry players and are thus significantly more nuanced than the traditional ideal of exclusionary property, which tends to ignore the identity of a potential transgressor of the right.<sup>120</sup> In this sense, the existing property bundle remains *limited*. However, the concept of "limited rights" is today associated almost entirely with the intellectual property discourse and its emphasis on *temporally limited* rights.<sup>121</sup> The word "attenuated" is therefore employed to highlight the fact that the limits here are *operational* rather than temporal. Yet the rights remain in rem—in that they come into existence independent of a contract or other ex ante interaction between the parties and

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118. See generally Thomas W. Merrill & Henry E. Smith, *The Property/Contract Interface*, 101 COLUM. L. REV. 773 (2001). See also Steven N.S. Cheung, *The Structure of a Contract and the Theory of a Non-exclusive Resource*, 13 J.L. & ECON. 49 (1970); Wesley Newcomb Hohfeld, *Fundamental Legal Conceptions as Applied in Judicial Reasoning*, 26 YALE L.J. 710 (1917).

119. See Merrill & Smith, *supra* note 118.

120. See J.E. PENNER, *THE IDEA OF PROPERTY IN LAW* 128 (1997).

121. In the context of the U.S., at least, this derives from the phrase "limited times" as used in the Copyright Clause of the Constitution. U.S. CONST. art. I, § 8, cl. 8.

are to that extent independent of the parties' identities. Hence the phrase "attenuated exclusionary rights."

## A. A Structural Overview of the U.S. Television Industry

### 1. *The Basic Structure*

Apart from audiences (who in some sense remain passive) and advertisers, the U.S. television industry is today characterized by the existence of four primary players—program producers, networks, television stations, and cable companies.<sup>122</sup> Cable television emerged as a commercial phenomenon only in the early 1960s, and to a large extent required the introduction of new rules that found a place for it within the overall system.<sup>123</sup>

All legal rights of concern here originate with the producers of an audiovisual work such as a movie or a "television show." These program producers are either independent producers or produce programs based on the requirements of networks.<sup>124</sup> Independent producers sell their programs to television networks and are in turn paid a royalty rate that is often computed on the basis of factors such as the number of affiliate stations likely to broadcast the program and the amount of advertising revenue the network is likely to be able to keep for itself.<sup>125</sup>

Television networks are brokers whose sole purpose is the assembly of television programs by purchasing content from producers and selling the assembled programming to television stations.<sup>126</sup> At the same time, however, they act as intermediaries between advertisers and television stations. In assembling the programming, networks offer advertisers internal spots, short time slots *within* each program, and receive compensation for each

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122. See BRUCE M. OWEN ET AL., TELEVISION ECONOMICS 6 (1974) (profiling the different players in the television broadcasting industry at the time). Note that this book was published before the cable television boom and consequently does not devote significant attention to this segment.

123. See 3 ERIK BARNOUW, A HISTORY OF BROADCASTING IN THE UNITED STATES: THE IMAGE EMPIRE 247 (1970); VINCENT MOSCO, BROADCASTING IN THE UNITED STATES: INNOVATIVE CHALLENGE AND ORGANIZATIONAL CONTROL 85 (1979).

124. See Susan C. Greene, *The Cable Television Provisions of the Revised Copyright Act*, 27 CATHOLIC U.L. REV. 263, 265-66 (1978).

125. Stanley M. Besen et al., *Copyright Liability for Cable Television: Compulsory Licensing and the Coase Theorem*, 21 J.L. & ECON. 67, 77 (1978). In a comprehensive review of the television program production segment of the industry, Owen et al. demonstrate that the industry is characterized by very high levels of competition, yet at the same time monopolistic competition—in the sense that numerous producers produce differentiated products that are easily substitutable and no producer earns profits in excess of a normal rate of return. See OWEN ET AL., *supra* note 122, at 17.

126. OWEN ET AL., *supra* note 122, at 7.

of these slots, priced commensurate with the size and demographic of the program's audience.<sup>127</sup> The networks are arguably the most important players in the television broadcasting industry.

Television stations, in turn, are of two kinds—affiliates and independents. Affiliates are television stations that are *affiliated* with an individual network.<sup>128</sup> Affiliates receive almost all their programming from the networks, and affiliates in the same time zone typically receive identical programming packages.<sup>129</sup> However, an affiliate is usually granted a certain degree of exclusivity in carrying the program within each geographic market. Interestingly, though, the network compensates affiliates for carrying programming, which implies the transfer of a certain portion of a network's advertising revenue to its affiliates.<sup>130</sup> It is important to remember, though, that the only advertising slots that networks can sell and derive revenue from are *in-program* slots. In addition to these internal slots, however, are time slots *between* individual programs, referred to either as "announcement time" or "adjacencies."<sup>131</sup> These are controlled exclusively by the television stations. Television stations similarly sell these adjacencies to advertisers for revenue, determined again by variables such as viewership, nature and duration of the time slot, etc. The sharing of this advertising revenue is unidirectional. Unlike networks, who must share their revenue with stations, stations *do not* have to share their revenues from advertising sales with the networks.<sup>132</sup>

Independents are local television stations that are not affiliated with any network.<sup>133</sup> This being the case, their primary source of programming comes from producers in the syndication market.<sup>134</sup> This market is gener-

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127. Stanley M. Besen & Ronald Soligo, *The Economics of the Network-Affiliate Relationship in the Television Broadcasting Industry*, 63 AMER. ECON. REV. 259, 259 (1973); Franklin M. Fisher et al., *The Audience-Revenue Relationship for Local Television Stations*, 11 BELL J. ECON. 694, 695 (1980).

128. Regulations define a "full network station" as: "A commercial television broadcast station that generally carries in weekly prime time hours 85 percent of the hours of programming offered by one of the three major national television networks with which it has a primary affiliation (i.e., right of first refusal or first call)." 47 C.F.R. § 76.5(j) (2004).

129. Besen et al., *supra* note 125, at 77.

130. OWEN ET AL., *supra* note 122, at 97-100.

131. Fisher et al., *supra* note 127, at 695; Besen & Soligo, *supra* note 127, at 259.

132. Besen & Soligo, *supra* note 127, at 259.

133. Regulations characterize an "independent station" as one which generally carries no more than ten hours of programming per week offered by the three major national television networks during prime time. 47 C.F.R. § 76.5(l) (2004).

134. Greene, *supra* note 124, at 77. Regulations define a syndicated program as "any program sold, licensed, distributed or offered to television station licensees in more than

ally regarded as the secondary market for television programs. It is very rare for new programming to enter the syndicated market directly; consequently, the market here consists of programs that have completed their run on the primary networks. Obviously, the revenue that these programs generate is significantly lower than on the primary market. Occasionally, network affiliates (affiliate stations) also purchase programming on the syndicated market in order to fill non-network time.<sup>135</sup>

Television stations—both affiliates and independents—then broadcast the content to viewer audiences *for free*. Of course, viewers do not represent a direct source of revenue for content producers, broadcast networks, or television stations.<sup>136</sup>

The picture presented above is a rather simplistic model of the television broadcasting market. Two important exceptions, however, exist to the general model. The first is that the network-affiliate relationship merely gives affiliate stations a first claim over a network's programming, as opposed to an actual obligation to carry whatever the network gives them.<sup>137</sup> This exception is important, and it ensures that television stations also retain some amount of control over the content of what they broadcast. The second is that networks retain all the advertising revenue associated with a pre-determined amount of broadcast program time carried by the station.<sup>138</sup>

## 2. *The Emergence of Cable Television*

Arguably, the most important development in the television industry prior to the digital revolution was the emergence of cable television as a commercial phenomenon. Cable television presented regulators and pol-

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one market within the United States other than as network programming." 47 C.F.R. § 76.5(ii) (2004).

135. Owen et al. analyze the syndication market and conclude that, unsurprisingly, this market remains less competitive and at the same time less monopolistic. They attribute at least part of this effect to the fact that here content producers can interact with television stations directly, thereby taking advantage of the public good nature of their products, which producers cannot in the primary market. While the market is concentrated, the speed with which the demand needs to be met ensures its continuing viability. *See OWEN ET AL.*, *supra* note 122, at 31-35.

136. Recent years have of course seen the emergence of new subscription-based broadcast technologies such as Direct Broadcast Service (DBS) and the Home Satellite Dish (HSD). While these continue to grow in popularity, their penetration rates continue to remain rather low compared to both cable and broadcast television. *See FCC ASSESSMENT*, *supra* note 17, at 36-46.

137. *See* 47 C.F.R. § 76.5(j) (2004) ("right of first refusal").

138. Besen & Soligo, *supra* note 127, at 259.

icy-makers with a host of different issues, all of which had major implications for the overall structure of the broadcasting industry.

In its most basic form, cable television is a hybrid between television and telephone technologies.<sup>139</sup> Cable systems use antennas to receive television signals (broadcast by broadcast stations) and wires to then carry them to individual subscribers.<sup>140</sup> While the emergence of broadcast technology marked the move from wired communication to over-the-air communication, cable television reversed this trend and thus to many seemed technologically regressive at the time.

Cable television in the United States began in the late 1940s as community antenna television (CATV)—a way of bringing broadcast signals to remote areas where they would not reach directly.<sup>141</sup> In the typical setup, special antennas were installed at certain locations, such as hilltops. These antennas received television signals, amplified them, and then delivered them via coaxial cables strung from utility poles to individual homes. “Cable television” has since evolved into a generic phrase for three different things:<sup>142</sup> (i) the community antenna system just described, where four to six channels were captured and delivered via coaxial cables; (ii) the CATV service which involves capturing broadcast signals from other cities or locations and transmitting it to local audiences (thereby augmenting local transmissions); and (iii) an independent service where content generated specifically for this service is delivered to a subscriber base.

In its initial stages, cable television worked as a supplement to broadcast television and actually enhanced broadcaster revenues by increasing overall viewership. Cable television first started to run into problems when operators began carrying signals from distant locations to local communities, and later when they began to provide audiences with programming of their own. When this happened, broadcasters, both local and out-of-state, began to worry that cable television was eating into their revenues. Ini-

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139. STEVEN R. RIVKIN, *A NEW GUIDE TO FEDERAL CABLE TELEVISION REGULATIONS* (1978).

140. See generally MARY ALICE MAYER PHILLIPS, *CATV: A HISTORY OF COMMUNITY ANTENNA TELEVISION* (1972); CHARLES C. WOODARD, JR., *CABLE TELEVISION: ACQUISITION AND OPERATION OF CATV SYSTEMS* (1974).

141. David F. Simon, *Local Television Versus Cable: A Copyright Theory of Protection*, 31 FED. COMM. L.J. 51 (1979). For an elaborate overview of CATV's early years and the regulatory issues it presented see Note, *Wire Mire: The FCC and CATV*, 79 HARV. L. REV. 366 (1965); John C. Palmer Jr. et al., *CATV: Survey of a Regulatory Problem*, 52 GEO. L.J. 136-137 (1963).

142. DON R. LE DUC, *CABLE TELEVISION AND THE FCC: A CRISIS IN MEDIA CONTROL* 6 (1973).

tially, the FCC refused to exercise jurisdiction over cable operators.<sup>143</sup> It was not until cable began to gain significant popularity and broadcasters' complaints increased that the FCC eventually promulgated guidelines for cable transmission.<sup>144</sup> Current estimates of the National Cable & Telecommunications Association (NCTA) indicate that the countrywide cable penetration levels as of September 2006 are around 58.9% of all households with a television set.<sup>145</sup>

The most important characteristic of cable television, for the purposes of this Article, is that it acquires its content from two sources. First, cable operators retransmit basic broadcast signals. Second, in a more recent phenomenon, they also acquire rights to content meant *for* cable systems. Cable television networks have emerged much along the lines of broadcast networks.<sup>146</sup> These networks act as similar intermediaries between individual cable operators, broadcast networks, content producers, and advertisers. They acquire content from producers and broadcast networks, sell advertising space to advertisers, and then put together cable programming that is relayed to individual cable operators via satellite.

Cable networks, however, diverge from broadcast networks in one critical respect. They *sell* their programming to individual (affiliated and independent) cable operators with the royalties they receive dependent on the operator's subscription base, and at the same time they sell advertising slots to advertisers. Thus, unlike broadcast networks, cable networks have two independent sources of revenue.<sup>147</sup>

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143. See Joseph R. Fogarty & Marcia Spielholz, *FCC Cable Jurisdiction: From Zero to Plenary in Twenty-Five Years*, 37 FED. COMM. L.J. 113, 114 (1985) (noting the FCC's initial "unwillingness to impose any regulatory constraints on the cable industry").

144. For an overview of the FCC's attempts to regulate cable television, see generally ROBERT W. CRANDALL & HAROLD FURCHTGOFF-ROTH, *CABLE TV: REGULATION OR COMPETITION?* (1996); LELAND L. JOHNSON, *TOWARD COMPETITION IN CABLE TELEVISION* (1994); William S. Comanor & Bridger M. Mitchell, *The Costs of Planning: The FCC and Cable Television*, 15 J.L. & ECON. 177 (1972); Richard A. Posner, *The Appropriate Scope of Regulation in the Cable Television Industry*, 3 BELL J. ECON. & MGMT. SCI. 98 (1972); Daniel J. Smith, Note, *Stay the Course: A History of FCC's Response to Change in the Cable Industry*, 13 J.L. & POL. 715, 717-718 (1997).

145. Nat'l Cable & Telecomms. Assoc., Statistics, <http://www.ncta.com/ContentView.aspx?contentid=54> (last visited Nov. 14, 2006).

146. 47 C.F.R. § 78.5(i) (2004) ("A cable network-entity is an organization which produces programs available for simultaneous transmission by cable systems serving a combined total of at least 5,000,000 subscribers and having distribution facilities or circuits available to such affiliated stations or cable systems.").

147. Museum of Broadcast Communications, Cable Networks, <http://www.museum.tv/archives/etv/C/htmlC/cablenetwork/cablenetwork.htm> (last visited Nov. 16, 2006).

In cable television's early days, most networks tended to transmit programs previously aired over broadcast networks, continuations of programs that were not picked up by broadcast networks, or a few made-for-television movies. By the 1990s, however, cable networks began producing original programming.<sup>148</sup> Today several basic cable networks provide their own programming (e.g., ESPN or C-SPAN) or contract with independent producers to make movies or shows for them. In addition, many of them contract with movie producers to air movies after theatrical release. Another alternative is for cable networks to include shows that broadcast networks decide are not worth giving air time.<sup>149</sup>

Cable television has become a major force in the U.S. television industry, and today generates more revenue than traditional broadcasting.<sup>150</sup>

## B. Exclusionary Rights Regimes in the Television Industry

Having examined the structure of the television industry in terms of both organization and revenue flows, this Section proceeds to examine the various property and quasi-property regimes that currently exist between the different industry players. The current claims of broadcasters and cablecasters for property rights (i.e., "broadcasters' rights") are hardly novel in light of the history of broadcast television regulation in the United States. In varying degrees, the FCC and Congress already rejected or accepted these claims to create the current system. To better understand the implications of the proposed regime, it thus becomes critical to analyze the current exclusionary regimes that exist and the process by which they came into existence.

The idea of property rights is generally associated with two related but somewhat independent concepts—tradability and excludability.<sup>151</sup> Tradability is the notion that a property right creates a market for something and allows the forces of demand and supply to operate in ensuring its effi-

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148. *Id.*

149. *Id.*

150. See *TV Industry Revenues*, in GLOBAL ENTERTAINMENT AND MEDIA OUTLOOK: 2006-2010, available at [http://www.tvnewsday.com/fast\\_facts/tv\\_revenues](http://www.tvnewsday.com/fast_facts/tv_revenues).

151. Indeed, this is a debate that has existed among property theorists for a while now. For an excellent overview of the ideas involved, see Thomas W. Merrill & Henry E. Smith, *What Happened to Property in Law and Economics*, 111 YALE L.J. 357 (2001). For conceptions of property emphasizing the excludability element, see J.E. PENNER, *THE IDEA OF PROPERTY IN LAW* (1997); and Thomas W. Merrill, *Property and the Right to Exclude*, 77 NEB. L. REV. 730 (1998). But see Carol M. Rose, *Canons of Property Talk, or, Blackstone's Anxiety*, 108 YALE L.J. 601, 631 (1998) (arguing that the exclusivity metaphor is "at most a cartoon or trope" and ought to be used with caution).

cient allocation.<sup>152</sup> In a sense, tradability represents a macro-conception of property rights. Excludability, however, relates to the actual functioning of the property right and to the idea that a property right fundamentally gives its holder (usually the owner) a right (in rem) to exclude the rest of the world from the object over which the right operates.<sup>153</sup> It thus represents a micro-conception of property. To a large extent, the macro- and micro-conceptions represent two sides of the same coin, in that excludability (or exclusivity) is critical to any idea of tradability. Thus, it makes little sense for *A* to sell *B* his car unless the car is *A*'s to begin with, which would only be true if *A* can exclude everyone else (including *B*) from it. But when we move to the world of intangibles, the presumptive inseparability of the two concepts becomes somewhat complicated.<sup>154</sup> Part of this complexity relates to the very definition of *property rights* over an intangible entity, but another part derives from the fact that property rights over intangibles are ultimately instrumental, in that their existence does not necessarily derive from the rivalrous nature of the resource in question.<sup>155</sup>

In the context of most property regimes, tradability and excludability go hand in hand. However, one of them remains dominant. In the context of the television industry, and broadcast signals in particular, if tradability were the primary motive of the regime, it would hardly require the introduction of new rights. Copyright holders would transfer their rights (exclusively or non-exclusively) to networks, which would in turn transfer their rights to stations, and, through a chain of contracts, traditional copyright would continue to be a tradable asset. No new rights would be needed. Excludability thus remains the primary motive, a conclusion bolstered by broadcasters' reliance on piracy-related arguments to justify the

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152. See David Berry, *The Market for Tradable Renewable Energy Credits*, 42 ECOLOGICAL ECON. 369 (2002) (applying the concept to renewable energy credits); Robert W. Hahn, *Market Power and Transferable Property Rights*, 99 Q. J. ECON. 753 (1984) (providing a conceptual overview of this idea). Cf. Martin Feldstein, *Tradeable Gasoline Rights*, WALL ST. J., June 5, 2006, <http://online.wsj.com/article/SB114946588448771080.html> (extending the idea to tradable gasoline rights for households).

153. For more on this, see Shyamkrishna Balganesh, *Demystifying the Right to Exclude: Of Property, Inviolability, and Automatic Injunctions*, 31 HARV. J.L. & PUB. POL'Y (forthcoming 2008) (describing the actual functioning of excludability in property law).

154. See *supra* note 113 and accompanying text. Cf. Christopher Kalanje, *Leveraging Intellectual Property: Beyond the Right to Exclude*, [http://www.wipo.int/sme/en/documents/leveraging\\_ip.html](http://www.wipo.int/sme/en/documents/leveraging_ip.html) (last visited Nov. 15, 2006) (arguing that the two go hand in hand and that the power of one ought to be leveraged into the other to render intellectual property meaningful).

155. See, e.g., Joshua A.T. Fairfield, *Virtual Property*, 85 B.U. L. REV. 1047 (2005) (arguing that virtual property, unlike informational property, is rivalrous).

new regime.<sup>156</sup> The idea of a property regime for broadcast signals is thus predicated on excluding others' use of signals. These rights may indeed be traded or transferred, but excludability remains central.

Exclusionary rights have existed in the U.S. television broadcast industry for quite some time now. Given that excludability has been their primary focus, it becomes critical to delineate the parties *against whom* the rights operate at each stage. The television industry reveals an interesting dynamic of attenuated exclusionary rights between content producers, broadcasters, and cable operators that operate inter se and occasionally in rem. What follows is an outline of each of the regimes, organized structurally rather than chronologically, to illustrate the dynamic.<sup>157</sup>

### 1. *Content Producers' Rights: Extending Copyright Law*

Of the different players in the television broadcast industry, the legitimacy of content producers' rights has remained unquestioned because of the belief that, as authors, content producers directly contribute to the creative process and therefore are entitled to authorial property rights in the work they directly create.<sup>158</sup> Since the emergence of television broadcasting, federal law has recognized the existence of copyright in audiovisual programs.<sup>159</sup> The real challenge for content producers has remained, however, in adapting these rights to new and emerging technologies.

Among the several rights granted to content producers as copyright holders under the Copyright Act of 1909 was the "exclusive right" to perform the work publicly.<sup>160</sup> Until the 1976 revision of the Copyright Act, the precise definition of "public performance" remained unclear, although it was undisputed that an unauthorized broadcast of a work (over the air) amounted to a public performance that was actionable.<sup>161</sup> Content produc-

156. See *supra* Section II.D. It is also interesting to note that the WBT uses the phrase "exclusive right" throughout the treaty, but nowhere deals in any great detail with mechanisms through which these rights may indeed be transferred or sold.

157. For a chronological overview of the current structure, see LE DUC, *supra* note 142, at 81-106. See also Stanley M. Besen & Robert W. Crandall, *The Deregulation of Cable Television*, 44 LAW & CONTEMP. PROBS. 77 (1981); Ashutosh Bhagwat, *Of Markets and Media: The First Amendment, the New Mass Media and the Political Components of Culture*, 74 N.C. L. REV. 141, 150 (1995); Tim Wu, *Copyright's Communications Policy*, 103 MICH. L. REV. 278, 311-24 (2004).

158. This is the traditional authorial conception of copyright as an incentive or reward system. See, e.g., MARSHALL LEAFFER, UNDERSTANDING COPYRIGHT LAW 58 (3d ed. 1999).

159. Today, this finds recognition in 17 U.S.C. § 102(a)(6), discussed *supra*.

160. See Copyright Act § 1, 17 U.S.C. § 1 (1974).

161. *Id.* § 1(d) ("to make or procure the making of any transcription or record thereof by or from which, in whole or in part, it may in any manner or by any method be exhib-

ers were thus entitled to exclusionary protection against broadcasters, which they often invoked. As a consequence, broadcast networks began licensing copyrighted works from producers prior to broadcasts, which remained a relatively uncontroversial system.

With the emergence of cable television, things began to change. Cable television soon began to eat into the revenues of television broadcasting, and initially, as discussed, cable programming mainly involved the retransmission of content carried by broadcasters.<sup>162</sup> Broadcasters and content producers felt that cable operators were free-riding off of their rights—rights that the broadcasters had paid for. In two separate cases, copyright holders attempted to assert their exclusionary rights under the copyright regime against cable operators. While it remains contestable whether they were motivated to do so on their own<sup>163</sup> or whether they were acting as proxies for broadcasters, the claims were doctrinally structured as assertions of copyright holders' rights.

The first case was *Fortnightly Corp. v. United Artists Television, Inc.*<sup>164</sup> The plaintiff was a production company that held the copyright in various motion pictures it had licensed to television broadcasters. The defendant operated a CATV service that captured the signals of five broadcasters (to whom the plaintiff had licensed its copyright) and retransmitted the unedited content to its own subscribers through wire.<sup>165</sup> The plaintiff argued that the defendant's retransmission amounted to a "performance" under copyright law that infringed its exclusive rights in the work.<sup>166</sup> Drawing a distinction between the role of a broadcaster and that of a viewer (who uses "equipment to convert electronic signals into audible sound and visible images"<sup>167</sup>), the Court concluded that CATV fell on the "viewer's side of the line" and went on to conclude that cable operators (CATV operators) did not perform the work in question when they retransmitted it.<sup>168</sup> In his forcefully worded dissent,<sup>169</sup> Justice Fortas admon-

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ited, delivered, presented, produced, or reproduced; and to play or perform it in public for profit, and to exhibit, represent, produce, or reproduce it in any manner or by any method whatsoever"). The Act goes on to draw a distinction between intentional and unintentional infringement by "broadcasters," thus making it clear that broadcasting was indeed covered by its express terms.

162. See *supra* Section III.A.2.

163. Wu, *supra* note 157, at 317 (noting that this was indeed a broadcasters' attack).

164. 392 U.S. 390 (1968).

165. *Id.* at 392.

166. *Id.*

167. *Id.* at 398.

168. *Id.* at 399-401.

ished the majority for “attempt[ing] to foster the development” of cable and abandoning precedent on the meaning of “performance.”<sup>170</sup> Arguing that the majority characterization was overly simplistic<sup>171</sup>, he concluded that cable retransmission was indeed a performance under the Act and therefore constituted an infringement.<sup>172</sup>

While Justice Fortas’ suggestion that the majority was *driven* by the need to develop cable may seem extreme, it is plausible that it was at least influenced by the advertising model that broadcast television operated on and was therefore skeptical of any harm actually ensuing.<sup>173</sup> The *Fortnightly* majority opinion adopted a bipartite classification that does indeed seem overly simplistic and ignores the technical details of how cable television actually functions.<sup>174</sup>

The second case on the same subject matter, decided six years later, was *Teleprompter Corp. v. Columbia Broadcasting System, Inc.*<sup>175</sup> Here the plaintiffs owned copyright in several television programs and commenced an action against the defendant, a cable operator that was retransmitting its programs from distant areas to its own subscribers. While the District Court had found for the defendant (relying on *Fortnightly*),<sup>176</sup> the Second Circuit divided the defendant’s activities into two categories—one involving the wire retransmission of broadcast signals to subscribers within the range of the actual broadcast signals and the other involving the retransmission of signals to areas where the signals were not directed—and found the defendant’s activities to amount to a “performance” in the latter, though not in the former.<sup>177</sup> The Supreme Court rejected this reasoning, concluding that merely “by importing signals that could not normally be received with current technology in the community it serves, a CATV system does not, for copyright purposes, alter the function it per-

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169. *Id.* at 402 (“This case calls not for the judgment of Solomon but for the dexterity of Houdini.”).

170. *Id.* at 404-05.

171. *Id.* at 405.

172. *Id.* at 408.

173. *Id.* at 400 (using the phrase “*additional viewers*”) (emphasis added).

174. The Court relied on the *Fortnightly* reasoning in another case involving the retransmission of a radio broadcast over a speaker system. *Twentieth Century Music Corp. v. Aiken*, 422 U.S. 151 (1975). See Greene, *supra* note 124, at 271 (characterizing its use as precedent as a “disruptive consequence”).

175. *Teleprompter Corp. v. Columbia Broad. Sys., Inc.*, 415 U.S. 394 (1974).

176. *Columbia Broad. Sys., Inc. v. Teleprompter Corp.*, 355 F. Supp. 618 (S.D.N.Y. 1972), *rev’d in part*, 476 F.2d 338 (2d Cir. 1973).

177. See *Columbia Broad. Sys., Inc. v. Teleprompter Corp.*, 476 F.2d 338, 350 (2d Cir. 1973), *rev’d in part*, *Teleprompter Corp. v. Columbia Broad. Sys., Inc.*, 415 U.S. 394 (1974).

forms for its subscribers."<sup>178</sup> The Court accordingly found for the defendant, as in *Fortnightly*.<sup>179</sup>

Most interestingly, though, the Court seems to have been directly influenced by the revenue model that broadcast television operated on, in particular the fact that copyright holders and broadcasters were compensated by advertising revenue and never directly by subscribers. It went on to note:

Unlike propagators of other copyrighted material . . . holders of copyrights for television programs or their licensees are not paid directly by those who ultimately enjoy the publication of the material—that is, the television viewers—but by advertisers who use the drawing power of the copyrighted material to promote their goods and services.

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By extending the range of viewability of a broadcast program, CATV systems thus do not interfere in any traditional sense with the copyright holders' means of extracting recompense for their creativity or labor.<sup>180</sup>

The Court thus appears to have been implying that broadcasters should find mechanisms to internalize the benefits of this enhancement in viewership rather than stifle technological development.<sup>181</sup>

As a direct consequence of these decisions, Congress amended the copyright law to extend content producers' exclusionary rights to cable television.<sup>182</sup> The Copyright Act of 1976, which replaced the 1909 Act, defined a "public performance" as including any transmission or communication and, to clarify, defined "transmit" as including transmission by "any device or process."<sup>183</sup> Cable transmissions by wire are thus expressly covered.<sup>184</sup> A direct consequence of this amendment was that cable opera-

178. *Teleprompter Corp.*, 415 U.S. at 408.

179. *Id.*

180. *Id.* at 411-12.

181. For analyses of the decision see Gillis L. Heller, *Regulatory Versus Property Rights Solutions for the Cable Television Problem*, 69 CALIF. L. REV. 527 (1981); Note, *CATV and Copyright Liability: Teleprompter Corp. v. Columbia Broadcasting System, Inc. and the Consensus Agreement*, 25 HASTINGS L.J. 1507 (1974). See also Note, *Cable Television and Copyright Royalties*, 83 YALE L.J. 553 (1974) (analyzing the Second Circuit's decision).

182. Copyright Law Revision Act, Pub. L. No. 94-553, § 101, 90 Stat. 2541 (1976).

183. 17 U.S.C. § 101 (2000).

184. See H.R. REP. NO. 94-1476, at 63 (1976) ("[A] cable television system is performing when it retransmits the broadcast to its subscribers.").

tors who chose to carry copyrighted content *directly*, as opposed to retransmitting broadcast signals, were now subject to content producers' exclusionary rights.

In relation to retransmissions, however, the Act introduced a somewhat complex mechanism. For cable retransmissions, referred to as "secondary transmissions," the Act introduced a statutory licensing regime. Under this new licensing regime, cable systems are permitted to retransmit copyright content carried by broadcasters, upon the payment of a statutorily determined license fee.<sup>185</sup> The royalty received under this statutory license is then distributed to copyright holders through a mechanism involving the Copyright Royalty Tribunal.<sup>186</sup> The Act thus introduced an exclusionary entitlement vested in content producers but subjected it to a liability (as opposed to property) rule.<sup>187</sup> Scholars have called into question the efficiency of this mechanism, arguing that it stifles the free negotiation of royalties.<sup>188</sup> With the emergence of new services such as Direct Broadcasting (DBS) and satellite broadcasting, the same statutory license mechanism came to be extended there as well.<sup>189</sup>

Even in relation to cable retransmissions, however, cable operators that are mere "passive carriers" of broadcast signals (i.e., those who exercise no editorial control over the selection and carriage of content) are exempted from any liability, including the payment of a licensing fee.<sup>190</sup> Thus, cable operators that merely pick up a broadcaster's signals and carry them to subscribers are not subject to the regime.<sup>191</sup> However, the law makes a cable operator liable for infringement if it alters either programming content or commercial advertising in the broadcast signal.<sup>192</sup> In such

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185. 17 U.S.C. § 111(c) (2000).

186. 17 U.S.C. § 111(d)(4) (2000). For an elaborate overview of this mechanism and its functioning, see 2 MELVILLE B. NIMMER & DAVID NIMMER, *NIMMER ON COPYRIGHT: A TREATISE ON THE LAW OF LITERARY, MUSICAL AND ARTISTIC PROPERTY, AND THE PROTECTION OF IDEAS*, § 8.18 (2006).

187. In the Calabresi-Melamed formulation. See Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089 (1972).

188. See, e.g., Besen et al., *supra* note 125, at 68, 94-95 (concluding that the long run impact of the mechanism will be detrimental to the overall supply of programs and that a full copyright liability regime would present a much better solution to the free-rider problem); Greene, *supra* note 124, at 264-65 (noting that the Act is likely to generate extensive litigation owing to its complex procedures).

189. See 17 U.S.C. §§ 119, 122 (2000). See also H.R. REP. NO. 108-660, at 1 (2004).

190. See 17 U.S.C. § 111(a)(3) (2000).

191. See *Hubbard Broad., Inc. v. S. Satellite Sys., Inc.*, 593 F. Supp. 808, 817-18 (D. Minn. 1984).

192. 17 U.S.C. § 111(c)(3) (2000).

a scenario, the operator is clearly no longer a “passive” conduit. This rule is thus designed primarily to safeguard broadcasters’ main source of revenue—advertising. Much like the Supreme Court, Congress structured the liability regime around the centrality of the advertising model to the system.<sup>193</sup>

Content producers are today protected by a limited set of property rights against broadcasters, cable companies, and third parties, such as other producers who might reproduce their content. Through a mix of property and liability rules, their rights operate against all the other major incumbents in the television industry.

## 2. *Broadcasters’ Exclusionary Rights: Beneficial Ownership and Retransmission Consent*

Unlike content producers, broadcasters in the United States were originally without rights.<sup>194</sup> Under the rules applicable to radio broadcasts under the Communications Act of 1934, prohibitions existed on the re-broadcasting of one station’s programming by another without the original broadcast station’s authorization.<sup>195</sup> This regime thus operated between broadcasters inter se and prohibited one broadcaster from free-riding on another’s programs. With the introduction of television broadcasting, courts applied the open-ended language of the rule to television broadcasts as well.<sup>196</sup>

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193. See H.R. REP. NO. 94-1476, at 93-94 (1976), *reprinted in* 1976 U.S.C.C.A.N. 5659, 5708-09. It notes:

In the Committee’s view, any willful deletion, substitution, or insertion of commercial advertisements of any nature by a cable system or changes in the program content of the primary transmission, significantly alters the basic nature of the cable retransmission service, and makes its function similar to that of a broadcaster. Further, the placement of substitute advertising in a program by a cable system on a “local” signal harms the advertiser and, in turn, the copyright owner, whose compensation for the work is directly related to the size of the audience that the advertiser’s message is calculated to reach.

194. The phrase broadcasters’ rights as used here is not to be confused with the concept of “broadcasters’ rights” as used in connection with the rights proposed under the new regime. Here, they refer merely to the limited exclusionary rights granted to them as part of the overall regulatory structure.

195. 47 U.S.C. § 325(a) (2000) (“[N]or shall any broadcasting station rebroadcast the program or any part thereof of another broadcasting station without the express authority of the originating station.”). See *Frontier Broad. Co. v. FCC*, 412 F.2d 162 (D.C. Cir. 1969).

196. See *United Video, Inc. v. FCC*, 890 F.2d 1173, 1176 (D.C. Cir. 1989) (noting that the section forbids a broadcast station from rebroadcasting another broadcast station’s signal without permission in the context of video transmissions as well).

With the emergence of cable television, however, broadcasters began to see their signals being retransmitted into both local and distant markets. More importantly, though, they noticed that cable operators were making significant profits from their subscribers, *using* broadcasters' program-carrying signals. They began to make the argument that this constituted a form of unfair competition, since they were required to pay the content producers for content, while cable operators were not.<sup>197</sup> But since § 325(a) was restricted in its operation to a "broadcasting station," they were seemingly without a statutory cause of action. As a consequence, they initially raised different common law claims as substitutes.

In *Intermountain Broadcasting & Television Corp. v. Idaho Microwave Inc.*,<sup>198</sup> a group of television stations (network affiliates) initiated an action against Idaho-based cable operators who carried their signals to subscribers located in the same geographic area over which they held exclusive contracts from their networks to carry the programming.<sup>199</sup> The plaintiffs here claimed that the defendants had engaged in a form of "unfair competition" and "unjust enrichment" and ought to be restrained through injunctive relief along the lines of the Supreme Court's decision in *International News Service*.<sup>200</sup>

In refusing to extend the doctrine of "unfair competition" to cable re-transmissions, the court proceeded to deny the plaintiffs any relief.<sup>201</sup> In addition, it seemingly restricted the operative scope of § 325(a) by holding that the provision did not grant broadcasters a *property* right of any kind against a re-broadcaster:

[T]he statutory requirement (Sec. 325(a)), of consent before re-broadcast is not based upon, or intended to recognize any property right of the originating station in its broadcast signal as such. It was designed only as a means for safeguarding the interests of such persons as might have property rights in program content which would be protectible under established law, as, for example, statutory or common law copyright or exclusive license arrangements protectible under the doctrine of unfair competition.

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197. At one point, the National Association of Broadcasters (NAB) asserted that the broadcasting industry as a whole paid about 25% of its gross revenues for copyrighted material. See Greene, *supra* note 124, at 267 n.16.

198. 196 F. Supp. 315 (S.D. Idaho 1961).

199. *Id.* at 317-20.

200. *Id.* at 321.

201. *Id.* at 326.

The Commission points out that, since Sec. 325(a) does not purport to alter or define the property rights in program material, in some cases the consent given under the section may be of little value as authority for the rebroadcast of a program because of the station's lack of authority to give consent to a third party for the use of someone else's property.<sup>202</sup>

It is, of course, open to dispute whether the court's interpretation of § 325(a) is correct, given the express statutory language in question and other cases applying that language to television broadcasts. What is important to note, however, is the court's flat refusal to restrain defendants' transmission of content-carrying signals, even if transmission amounted to free-riding and even if the defendants were making a significant profit from such activity.<sup>203</sup>

In *Cable Vision, Inc. v. KUTV, Inc.*,<sup>204</sup> brought the very next year, a group of cable operators brought an antitrust action against a local television station. In its counterclaim, the station alleged both tortious interference with its exclusive contractual rights and unfair competition.<sup>205</sup> The district court initially found for the defendant and enjoined the plaintiffs.<sup>206</sup> The Ninth Circuit reversed, concluding that since the television station had failed to establish the existence of a "protectible interest" by virtue of copyright law or other Congressional enactment, the court was forbidden from laying down a rule that would restrict access to the public domain without legislative authorization.<sup>207</sup>

A direct consequence of these decisions was that broadcasters could not exclude cable operators from retransmitting their signals. Immediately after *Cablevision*, the Supreme Court decided *Fortnightly* and *Teleprompter*, which together eliminated even the possibility of broadcasters initiating copyright infringement claims through content producers. Interestingly, studies show that broadcasters failed to maintain a cohesive position

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202. *Id.* at 327.

203. *Id.* at 328 ("The Court does not believe that the mere profit-purpose of defendants' rendition of an identical service to the owners would transform the operation into unfair competition with plaintiffs.").

204. 211 F. Supp. 47 (S.D. Idaho 1962).

205. *Id.* at 50.

206. *Id.* at 60-61.

207. *Cable Vision, Inc. v. KUTV, Inc.*, 335 F.2d 348, 354 (9th Cir. 1964) ("In conclusion, we hold that unless appellees are able to demonstrate a protectible interest by virtue of the copyright laws or bring themselves within the contemplation of some other recognized exception to the policy promoting free access to all matter in the public domain, they cannot prevail.").

in the wake of these decisions.<sup>208</sup> Some were more interested in obtaining cable franchises, while others genuinely wanted to eliminate competition from cable television.<sup>209</sup> This again brings to the forefront the *reasons* for which the property idea is deployed.

When Congress amended the copyright laws subsequent to *Teleprompter*, it did more than just give copyright holders rights against cable operators. In giving a “legal or beneficial owner of an exclusive right” the right to initiate an action for infringement, Congress went on to provide that broadcast stations (as licensees or assignees) were entitled to initiate actions for infringement against cable systems that retransmitted their signals, but only when such retransmission occurred within their local service area.<sup>210</sup> Thus, local broadcasters could restrict cable operators from retransmitting their signals into the same area they service. Broadcasters were given absolutely no control over cable operators that pick up their signals and retransmit them to other areas. This seems logical. If the real reason broadcasters seek to curb cable retransmissions is because cable operators compete with their source of revenue, then they should not object to operators who make profits by transmitting their programming to other areas because new areas represent new, rather than existing, revenue streams, given that broadcasters’ revenues derive entirely from local advertising.<sup>211</sup>

Broadcasters were also given the right to commence an action against cable operators that alter the content of their signals to modify the programming or substitute the advertisements between such programming.<sup>212</sup> Once again, this right was in recognition of the centrality of the advertising model to broadcasters.

Even after the 1976 Act, broadcasters were not given a property right in their signals. In 1984, Congress deregulated cable rates across the country in an effort to stimulate competition.<sup>213</sup> In the years following the 1984 deregulation, cable subscription prices in the United States rose by an av-

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208. See LE DUC, *supra* note 142, at 134 (noting that 13% of all cable systems in 1965 were owned by broadcasters and that the members of NAB often exhibited more bitterness to each other than to cable television rivals).

209. *Id.*

210. 17 U.S.C. § 501(c) (2000).

211. See David F. Simon, *Local Television Versus Cable: A Copyright Theory of Protection*, 31 FED. COMM. L.J. 51, 57 (1978) (noting that the protection of local broadcasting was central to the provisions introduced in 1976).

212. 17 U.S.C. § 501(d)(i) (2000).

213. Cable Communications Policy Act, Pub. L. No. 98-549, § 601, 98 Stat. 2779, 2780 (codified at 47 U.S.C. § 521 (1984)).

erage of 56%, alarming policy makers and regulators.<sup>214</sup> In response, Congress passed the Cable Act of 1992.<sup>215</sup> Among its provisions were regulations granting broadcasters further property-like protection over their signals.

Referred to as the “retransmission consent” provisions, these new rules now required cable operators that sought to retransmit broadcasters’ programming to obtain the express consent of the broadcast station originating the signals.<sup>216</sup> In effect, these rules gave broadcasters control over the distant transmission of their signals via wire by cable operators, even when the recipients were not in their local service area. The rationale was no longer that the retransmission affected their advertising revenue, but rather that as originators of the signals they were entitled to control the revenue that cable operators were making off of *their signals*. Once again we see the explicit resurgence of property talk.

At the hearings before the Senate sub-committee prior to the passage of the Act, broadcasters were vocal about their reasons for the protection.<sup>217</sup> Edward Fritts, then president of the NAB, noted that broadcasters were merely seeking the right to control “uses” of their signal and specifically requested the committee to include retransmission consent in the original bill.<sup>218</sup> On another occasion before the House of Representatives, Fritts specifically noted that there existed an “interest in the *signal* which belongs to the broadcaster” making the ownership claim explicit.<sup>219</sup> During the FCC’s rulemaking proceedings following the Act’s passage, the

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214. See Gregory S. Crawford, *The Impact of the 1992 Cable Act on Household Demand and Welfare*, 31 RAND J. ECON. 422, 422 (2000). See also GEN. ACCOUNTING OFFICE, 1991 SURVEY OF CABLE TELEVISION RATES AND SERVICES (1991); THOMAS W. HAZLETT & M.L. SPITZER, PUBLIC POLICY TOWARD CABLE TELEVISION: THE ECONOMICS OF RATE CONTROLS (1997).

215. Cable Television Consumer Protection and Competition Act, Pub. L. No. 102-385, 106 Stat. 1460 (1992). For an exhaustive study of the legislative history surrounding the Act, see Nicholas W. Allard, *The 1992 Cable Act: Just the Beginning*, 15 HASTINGS COMM. & ENT. L.J. 305 (1993).

216. 47 U.S.C. § 325(b) (2000 & Supp. IV 2004).

217. For an elaborate overview of the legislative history surrounding the retransmission consent provisions of the Act, see Charles Lubinsky, *Reconsidering Retransmission Consent: An Examination of the Retransmission Consent Provision (47 U.S.C. § 325(b) of the 1992 Cable Act*, 49 FED. COMM. L.J. 99 (1996).

218. *Cable TV Consumer Protection Act of 1991: Hearings on S. 12 Before the Subcomm. on Communications of the S. Comm. on Commerce, Science and Transportation*, 102d Cong. 199, 254 (1991).

219. *Cable Television Regulation: Hearings on H.R. 1303 and 2546 Before the Subcomm. on Telecommunications and Finance of the H. Comm. on Energy and Commerce*, 102d Cong. 774 (1991).

FCC specifically noted that "Congress created a new communications right in the broadcaster's signal, completely separate from the programming."<sup>220</sup> This rhetoric suggests that retransmission consent was intended as an independent property right that broadcasters had in their transmission signals.

The retransmission consent provisions were structured in such a way that broadcasters were given the option of negotiating a royalty with cable operators *or* choosing to have them carry *all* their programming in return for the permission to carry some, called the must-carry alternative.<sup>221</sup> Negotiations were meant to happen every three years.<sup>222</sup> In the first round of negotiations since the provisions' introduction in 1992, most stations chose retransmission consent with a royalty instead of the must-carry option.<sup>223</sup>

The retransmission consent provisions also make it clear that they do not affect the compulsory copyright licensing mechanism introduced in 1976.<sup>224</sup> Nevertheless, some remain skeptical about the ability of broadcasters to use the mechanism to extract revenues from cable operators without also affecting the copyright licensing mechanisms.<sup>225</sup> Furthermore, although the Telecommunications Act of 1996 sought to further deregulate telecommunications, it left intact the retransmission consent provisions.<sup>226</sup>

As things stand today, then, broadcasters are equipped with limited property rights against other broadcasters, local cable operators, and distant cable operators.

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220. *In re Implementation of the Cable Television Consumer Prot. & Competition Act of 1992*, 8 F.C.C.R. 2965 ¶ 173 (1993).

221. *See* 47 U.S.C. § 325(b)(3) (2000).

222. *Id.* § 325(b)(3)(B) (2000).

223. *Most Stations Seek Pay for Must-Carry*, S.F. CHRON., July 16, 1993, at C4. *See also* Lubinsky, *supra* note 217, at 146.

224. 47 U.S.C. § 325(b)(6) (2000).

225. *See, e.g.*, Patrick Murphy, Note, *Retransmission Consent: A Mixed Signal for Cable Copyright*, 17 COLUM.-VLA J.L. & ARTS 237 (1993). *See also* Lorna Veraldi, *Newscasts as Property: Will Retransmission Consent Stimulate Production of More Local Television News?*, 46 FED. COMM. L.J. 469, 489-90 (1994); Project, *Regulatory Reform in the Cable Industry: The Effect of the 1992 Cable Act's Must Carry and Retransmission Consent Rules on the Industry and the Consumer*, 47 ADMIN. L. REV. 587, 604 (1995) (noting that the regime produced no "new bountiful revenue streams").

226. *See* Telecommunications Act of 1996, Pub. L. 104-104, 110 Stat. 56 (1996).

### 3. *Cable Operators' Rights: Service Theft*

Of the three main players in the television industry, the law provides cable operators with the fewest rights and the widest protection. The Cable Communications Policy Act of 1984 introduced a provision aimed specifically at the theft of cable service.<sup>227</sup> Specifically, it prohibits the “unauthorized interception or rece[ption] . . . [of] any communication service” offered over a cable system.<sup>228</sup> The provision also allows a cable operator to bring a civil claim for an injunction or compensation.<sup>229</sup>

The cable operator is not granted an explicit property right in the ordinary sense of the term, but for all practical purposes, the regime operates analogously. The cable operators’ “authorization” is the equivalent of a tradable right in the property sense, which is protected by a property rule. The provision is purportedly directed at individual users who might gain access to cable television without authorization, but would obviously operate against others as well (e.g., one operator seeking to access another’s service to retransmit).<sup>230</sup>

Thus, although cable operators are not explicitly granted property protection over the content of their transmissions or over their signals, their service remains protected through property-rule-type remedies.

The present system thus represents a complex balance between the interests of content producers, broadcasters, and cable companies—interests manifested in the grant of limited exclusionary rights, or their analogs. Figure 1 summarizes the current regime and its equilibrium, identifying the party in whom the exclusionary right is vested and against whom it can be exercised. It is clear that content producers have by far the most expansive set of rights, under traditional copyright, while broadcasters have a more attenuated set of rights. Cable companies, on the other hand, are provided with mere property-analogs. The boxes in gray represent areas where full-blown exclusionary protection is absent, and for good reason.

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227. Cable Communications Policy Act, Pub. L. No. 98-549, § 633, 98 Stat. 2779, 2796-97 (1984).

228. 47 U.S.C. § 553(a)(1) (2000). Assisting is also prohibited. 47 U.S.C. § 553(a)(2) (2000).

229. 47 U.S.C. § 553(c) (2000).

230. See generally MARTIN GREEN, *THEFT OF CABLE SERVICE* (1990); Kevin W. Grillo, *Electronic Piracy: Can the Cable Television Industry Prevent Unauthorized Interceptions*, 13 ST. MARY’S L.J. 587 (1982); Paul J. Mass & Carl S. von Mehren, *Cable Theft: The Problem, the Need for Useful State Legislation, and a Proposed Solution for Georgia*, 35 EMORY L.J. 643 (1986). See also 74 AM. JUR. 2D *Telecommunications* § 190 (2006).

Figure 1: Exclusionary Rights Regimes in the Television Industry

Against Vested in ↓	Content Producers	Broadcasters	Cable Companies	Third Parties (Audiences)
Content Producers	Copyright (17 U.S.C. § 106(1))	Copyright (17 U.S.C. § 106(4)&(5))	Copyright (17 U.S.C. § 106(4) & (5)) Compulsory Statutory License (17 U.S.C. § 111)	Copyright (17 U.S.C. § 106)
Broadcasters	No Fixation or Reproduction Rights	Retransmission Prohibition (47 U.S.C. § 325(a))	Beneficial Copy- right (17 U.S.C. § 501(c)) Integrity Rights (17 U.S.C. § 501(d)) Retransmission Consent (47 U.S.C. § 325(b))	No Fixation or Reproduc- tion Rights
Cable Operators	Cable Theft (47 U.S.C. § 553)—No independent property protection			

#### 4. *The Ideal of Balance: A Meta-Narrative of Property*

The system of limited property rights described is thus characterized by one unifying characteristic—*balance*. The efficient functioning of the television broadcasting industry required limiting individual players' exclusionary rights and simultaneously ensuring that all the players in question were granted some kind of protection, even if only quasi-property in nature.

From one perspective, these limitations may appear artificial and without any rational basis. For example, consider the compulsory licensing mechanisms that Congress introduced for cable operators in 1976.<sup>231</sup> Scholars have criticized these provisions as resulting in the creation of an unfair and inefficient system.<sup>232</sup> However, the rationale for the mecha-

231. 17 U.S.C. § 111(c) (2000).

232. See Besen et al., *supra* note 125 (identifying the problems associated with the licensing system); Heller, *supra* note 181 (arguing for the imposition of full copyright liability).

nisms was never *purely* efficiency-driven, but rather involved the balancing of competing interests.

Thomas Streeeter, in his interesting sociological analysis of the broadcast industry, characterized the property regimes that exist in the telecommunications sector as a form of postmodern property, where the concepts of "property" and "markets" are simulated through bureaucratic mechanisms.<sup>233</sup> He additionally observes, in a related context, that "[w]hen faced with the absence or breakdown of traditional market relations, our bureaucratically structured business world sometimes sets out to establish an administrative counterpart to property, a *simulation* of property using the language and procedures of bureaucracy."<sup>234</sup> In this understanding, much of what goes by the title of property in the broadcast world is merely a metaphor for some kind of regulation aimed at a set of some broader aggregate goals. What is apparent from the previous discussion of individual incumbents' rights is that one such goal is the notion of *balance*.

Balance of course has a specific meaning within this context. It is the idea that:

- 1) The effective functioning of the industry requires providing adequate financial and regulatory incentives to different participants. These incentives must relate to individual players' abilities to internalize revenue streams associated with their activities.
- 2) The incentives provided to one segment could prove to operate as a disincentive to another.
- 3) These systems of incentives and disincentives tend to exhibit variations in efficiency as technology develops.

The current exclusionary rights framework that exists between the different players represents this basic ideal: content producers need incentives, but ones that do not stifle broadcast and cable distribution; broadcasters need similar mechanisms, but ones that do not stifle cable or eat into content producers' incentives, and so on.

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233. THOMAS STREETER, *SELLING THE AIR: A CRITIQUE OF THE POLICY OF COMMERCIAL BROADCASTING IN THE UNITED STATES* 208 (1996). Part of Streeeter's thesis involved the rejection of the functionalist approach to property rights in certain areas, a view that believes that property rights are justified because they are needed to achieve the purpose they serve.

234. Thomas Streeeter, *Broadcast Copyright and Bureaucratization of Property*, 10 CARDOZO ARTS & ENT. L.J. 567, 589 (1992).

In addition to the basic rights framework laid out before, the FCC had for several years prescribed regulations governing the activities of cable and broadcast companies. All of these mechanisms supplemented the regimes discussed above and were structured as exclusionary regimes, thereby tracking the general property structure in place. Taken together, they provide an ideal illustration of Streeter's point on simulated property. What they also represent, however, is a set of regulations that operate in the interstices of the property regimes, directed at introducing a sense of balance into the system. Their periodic modification (and eventual abolition) merely represents a series of attempts to remedy perceived imbalances in the system.

The FCC's first set of regulatory rules for cable television was promulgated in 1965.<sup>235</sup> Since then, it has developed four primary sets of rules to govern the balance between content producers, broadcasters, and cable operators.<sup>236</sup> The first were the "mandatory carriage rules," which required cable systems to carry *all* of the local broadcast stations' content over wire in their service areas.<sup>237</sup> These rules highlighted the FCC's emphasis on localism in broadcast services and the belief that local stations formed the backbone of the public television system.<sup>238</sup> Second were the "network non-duplication rules."<sup>239</sup> These rules forbade cable operators from importing broadcast signals from distant markets if the programs were shown simultaneously (or near-simultaneously) on a local broadcast station, and were intended to protect network exclusivity.<sup>240</sup> Third were the infamous "distant-signal-carriage rules."<sup>241</sup> These rules placed limitations on the number of distant broadcast signals cable systems could import. Lastly, the "syndicated-exclusivity" rules afforded syndicated programs (carried by independent stations) the same protection that the non-duplication rules afforded network ones.<sup>242</sup>

All of these regulations represented a balance between the interests of content producers, broadcasters, and cable operators. In the 1980s, the

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235. See First Report and Order in Dockets 14895 and 15233, 38 F.C.C. 683, 716 (1965).

236. See Jules F. Simon, *The Collapse of Consensus: Effects of the Deregulation of Cable Television*, 81 COLUM. L. REV. 612, 616-17 (1981) (identifying five major rules, but noting that one of them applies only to sports broadcasts).

237. See 47 C.F.R. §§ 76.51-.55 (1980).

238. For an overview of the FCC's localism arguments, see Stanley M. Besen, *The Economics of the Cable Television "Consensus"*, 17 J.L. & ECON. 39, 49-50 (1974).

239. See 47 C.F.R. §§ 76.92-.94 (2004).

240. *Id.*

241. See 47 C.F.R. §§ 76.57-.65 (1979) (repealed 1980).

242. See 47 C.F.R. §§ 76.151-.161 (1979) (repealed 1980).

FCC eliminated altogether the distant-signal-carriage and syndicated-exclusivity rules.<sup>243</sup> Over the years, the FCC has made modifications to the other rules as well to reflect Congressional changes in policy and advancements in technology.<sup>244</sup> The system thus consisted of a complex interplay between the FCC's regulatory rules and Congressional grants of rights, both of which remained integral to the exclusionary regimes. Ever since the Supreme Court affirmed the FCC's authority to partake in this balancing process when it refused to invalidate the FCC's first round of cable regulations, the FCC has attempted to step in at various stages to supplement Congressional grants of rights and privileges.<sup>245</sup>

Since the 1990s, however, the FCC's regulatory incursions into the broadcast station-cable television conflict have been minimal relative to its initial foray into the area.<sup>246</sup> The present system (and its equilibrium) is now largely a matter of statutory grants and denials of rights. The question this poses for both the present regime and the proposed system of broadcasters' and cablecasters' rights is whether the FCC will intervene to implement or dilute these rights and the stage at which such intervention would likely occur (i.e., before, concurrent with, or after Congressional implementation). If the FCC's recent attempts are any indication,<sup>247</sup> it will probably play more than just a passive role in this ongoing debate.

#### IV. RECOGNIZING BROADCASTERS' (AND CABLECASTERS') OPEN-ENDED PROPERTY RIGHTS: IMPLICATIONS & CONSEQUENCES

Having seen how limited exclusionary rights function in the television industry, this Part focuses on the likely consequences of introducing open-ended property rights (i.e., broadcasters' rights) as an alternative. The analysis here derives from some of the key attributes of the modern television industry in an internet age, characterized by greater user autonomy and participants' ready access to new methods of distribution.

Broadcasters, cable companies, and content producers are each interested in controlling the revenue streams associated with their contribution

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243. *In re Cable Television Syndicated Program Exclusivity Rules*, 79 F.C.C.2d 663 (1980). This deregulation was challenged in *Malrite T.V. of N.Y. v. FCC*, 652 F.2d 1140 (2d Cir. 1981), where the Court upheld the FCC's jurisdiction to deregulate.

244. For analyses of the FCC's more recent deregulatory initiatives, see Donald J. Boudreaux & Robert B. Ekelund, Jr., *Cable Reregulation*, 14 CATO J. 87 (1994).

245. *United States v. Sw. Cable Co.*, 392 U.S. 157 (1968).

246. Boudreaux & Ekelund, *supra* note 244, at 87-88.

247. Specifically in the context of the Broadcast Flag controversy, discussed later. See *infra* Section IV.A.

to the process. While content producers' contribution is by far the most significant (and therefore seemingly worthy of the most extensive protection), broadcasters and cable companies also partake in the process as distributors. The broadcast chain thus involves different participants at each stage. This necessitates tailoring the protection provided to the exact contribution that each makes to the complex process.

To qualify for protection under the WBT, entities need to satisfy two conditions. The entity must take the initiative and responsibility for (i) the transmission of content to the public and (ii) the assembly and scheduling of content.<sup>248</sup>

In the case of broadcasting, it is reasonably clear that affiliates qualify for protection. Most broadcast programming is put together by the major networks and relayed to their affiliates. However, affiliates retain the right to refuse the network's lineup, and therefore retain control over the content and its scheduling; they are also responsible for transmitting it to the public.<sup>249</sup> In the cable industry, however, the matter is different. While cable operators remain responsible for providing individual households with wired connections, they have little to no control over the content of the programming. They may, of course, limit the channels carried, but not the content of the programming in each channel, which is the exclusive prerogative of cable networks. While cable networks retain control of the assembly and scheduling of content, they are not responsible for transmitting it to the public, since they remain dependent on cable operators for subscribers. The two elements of the definition of a cablecaster are therefore split between two categories of incumbents in the industry, and it is not clear which one of them will come to acquire the "cablecasters' right." Ultimately it remains more than likely that the ultimate beneficiaries will remain cable networks. But if this is the case, the need for such protection becomes even more tenuous, given that networks seldom have any direct interaction with the public. To the limited extent that they might be concerned about unauthorized interception of their communications over the

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248. See *WIPO Broadcast Treaty*, *supra* note 52, at art. 5(c). It provides: "[B]roadcasting organization' and 'cablecasting organization' mean the legal entity that takes the initiative and has the responsibility for the transmission to the public of sounds or of images or of images and sounds or of the representations thereof, and the assembly and scheduling of the content of the transmission."

249. 47 C.F.R. § 76.5(j) (2004). Indeed, an affiliate (or "full network station") is defined by its broadcasting no less than 85% of its content from one of the major television networks. This clearly indicates that a station, even if an affiliate, retains control over the content selection and assembly process.

air to cable operators for distribution, this activity is covered by an existent regime.<sup>250</sup>

Additionally, under the new regime, the extent of individual incumbents' contributions is likely to be minimal, given that broadcasters' and cablecasters' rights are in a sense derivative.<sup>251</sup> This resonates with the "tomato juice" hypothetical that Nozick famously used to identify a problem with the classic Lockean property rights argument.<sup>252</sup> The question becomes: why should broadcasters' and cablecasters' contribution to the distribution process entitle them to a property right that covers content, given that they contribute very little to its production?

In the current regime, the FCC and Congress have tailored individual claimants' rights to reflect both the extent of their contributions and the parties against which the rights are to be asserted, in order to enable each party to internalize particular positive gains. This narrow tailoring reflects the ideal of balance and suggests that extensive and unjustified property protection could interfere with a host of other interests and values.

One such value is that of freedom of expression, which is enshrined in the First Amendment.<sup>253</sup> The First Amendment implications of television are some of the most well-documented issues in the literature.<sup>254</sup> The prin-

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250. This would be covered by the cable theft regime, which would take care of an unauthorized interception and reception of a cable service. 47 U.S.C. § 553 (2000). Indeed, if cable networks are worried about their over-the-air transmissions to individual operators, protection for over-the-wire cablecasting seems completely redundant.

251. See *supra* Part II.A.

252. Locke's labor theory of property postulates that when an individual exerts his or her labor over something and as a consequence the labor gets irreversibly mixed with the thing, the thing ought to become the property of the individual. Nozick highlights the fallacy of this argument—by asking whether the equivalent of Locke's argument meant that if a person emptied his bottle of tomato juice into the ocean and the juice got irreversibly mixed with the waters there, the person could now claim ownership over the entire ocean. Nozick of course assumed that mixing one's property (i.e., tomato juice) with something was equivalent to Locke's idea of mixing one's labor with something. See ROBERT M. NOZICK, *ANARCHY, STATE, AND UTOPIA* 174-76 (1974).

253. For an overview of the free speech implications of the new regime, specifically in the context of the European Convention Human Rights, see Patricia Akester, *The Draft WIPO Broadcasting Treaty and Its Impact on Freedom of Expression*, COPYRIGHT BULL., Apr.-June 2006, at 1, <http://unesdoc.unesco.org/images/0014/001464/146498E.pdf> (last visited Nov. 16, 2006).

254. See, e.g., H.C. DONAHUE, *THE BATTLE TO CONTROL BROADCAST NEWS: WHO OWNS THE FIRST AMENDMENT* (1989); RICHARD E. LABUNSKI, *THE FIRST AMENDMENT UNDER SIEGE: THE POLITICS OF BROADCAST REGULATION* (1981); CHARLES H. TILLINGHAST, *AMERICAN BROADCAST REGULATION AND THE FIRST AMENDMENT: ANOTHER LOOK* (2000); Jack M. Balkin, *Media Filters, the V-Chip, and the Foundations of Broadcast Regulation*, 45 DUKE L.J. 1131 (1996); Jerome A. Barron, *Access to the Press—A*

cial issues relate to the basic understanding that the First Amendment exists to promote a free “marketplace of ideas,”<sup>255</sup> and consequently that both government regulation aimed at controlling media companies and private control vested in media companies are capable of impeding the realization of that ideal. The First Amendment issues associated with new broadcasters’ rights are likely to be cognates of similar debates that have occurred elsewhere. While several of the issues discussed here do implicate First Amendment values, they also derive their basis quite independent of the same.

#### A. Failing to Recognize the Emergence of a New User Dynamic

The emergence of digital technologies and the internet in the later part of the last century resulted in significant changes for communications media. The internet made the process of information dissemination relatively effortless, cheap, and instantaneous, not only for producers, but also for consumers. Additionally, the emergence of digital copying drastically reduced the marginal costs of copying, and at the same time made the process of copying itself very simple—requiring little technological expertise or financial investment.<sup>256</sup>

For incumbents in the television industry, though, digital technology had both positive and negative implications. On the one hand, the ease of dissemination meant that the costs of transmitting information to audiences across the world reduced dramatically. At close to zero marginal cost, content providers could transmit information and entertainment almost immediately to millions of individuals on the internet. However, the same technology that gave rise to this capability also enabled audiences to exercise greater control over what they were receiving—copying, moving, editing, altering, *and sharing* the content of the transmissions they received.

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*New First Amendment Right*, 80 HARV. L. REV. 1641 (1967); Thomas W. Hazlett, *Physical Scarcity, Rent Seeking, and the First Amendment*, 97 COLUM. L. REV. 905 (1997); Robert B. Horwitz, *The First Amendment Meets Some New Technologies: Broadcasting, Common Carriers, and Free Speech in the 1990s*, 20 THEORY & SOC’Y. 21 (1991); L.A. Powe, Jr., *Mass Communications and the First Amendment: An Overview*, 55 LAW & CONTEMP. PROBS. 53 (1992).

255. See, e.g., *Red Lion Broad. Co. v. FCC*, 395 U.S. 367, 390 (1969) (applying the idea). See also T. EMERSON, *TOWARD A GENERAL THEORY OF THE FIRST AMENDMENT* (1966). *But cf.* Stanley Ingber, *The Marketplace of Ideas: A Legitimizing Myth*, 1984 DUKE L.J. 1 (criticizing the idea).

256. See generally LAWRENCE LESSIG, *THE FUTURE OF IDEAS: THE FATE OF THE COMMONS IN A CONNECTED WORLD* (2001); Boyle, *supra* note 15.

In the early part of the century, radio and television broadcasting revolutionized mass communication. By using the spectrum, broadcasters could communicate with millions of individuals who owned a television set. The traditional one-to-many model on which broadcasting operated, however, rested on the core principle of *audience passivity*.<sup>257</sup> Audiences had little control over the content of what they received on their televisions except for the ability to switch their television sets off. To be sure, audience control has steadily increased over the years. Audiences now have multiple channels from which to choose, and cable and pay television allow more control over the time and quantity of programming. Nonetheless, the element of passivity has remained dominant.

This passivity-driven model of broadcasting is often characterized as the “market for eyeballs.”<sup>258</sup> The main deficiency in this model is that it remains premised on the ideal of mass appeal and tends to ignore altogether the diversity of actual interests and the individual needs of audience members.<sup>259</sup> Since broadcasters’ compensation derives from viewership, their concern is limited to putting together programming that attracts the most viewership. The advent of the internet changed all of this. It gave rise to a whole new category of players, *users*, who controlled the quantity, nature, and timing of information and, more importantly, often reworked the information to send to others.<sup>260</sup> They thus situated themselves between producers and consumers by receiving, modifying, and transmitting information. As the *iCrave TV* episode illustrated, an individual could easily convert analog broadcast programming into digital format and transmit it over the internet to millions of users, who could in turn copy the stream and retransmit it to others. When this happened, incumbents began to clamor for greater control once they realized the threat that this posed to their model.

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257. Indeed, even the Supreme Court operated on the assumption of audience passivity—using the phrase “captive audience” in relation to broadcast media quite often. For an overview of the doctrine and its use by the Supreme Court, see Charles L. Black, Jr., *He Cannot Choose But Hear: The Plight of the Captive Auditor*, 53 COLUM. L. REV. 960 (1953); Marcy Strauss, *Redefining the Captive Audience Doctrine*, 19 HASTINGS CONST. L.Q. 85 (1991).

258. E.g., Yochai Benkler, *From Consumers to Users: Shifting the Deeper Structures of Regulation Toward Sustainable Commons and User Access*, 52 FED. COMM. L.J. 561, 564 (2000).

259. See C. Edwin Baker, *Giving the Audience What It Wants*, 58 OHIO ST. L.J. 311 (1997).

260. For a comprehensive comparison between the traditional broadcast model and the internet model, see Yochai Benkler, *Communications Infrastructure Regulation and the Distribution of Control Over Content*, 22 TELECOMM. POL’Y 183 (1998).

Audience passivity thus came to be replaced by greater *interactivity*. In the past, the established incumbents rallied together in an attempt to eliminate competition from new players bearing new technologies. Each time they sought to use copyright or analogous property arguments to keep new players out, as they did with the advent of cable television.<sup>261</sup> The response to the perceived threat from users is no different, and we thus see cablecasters and broadcasters claiming exclusionary rights over their activities.<sup>262</sup>

In the past, threats to distributors' revenue streams normally came from commercial entities like broadcast retransmitters or cable companies, and the argument for exclusionary rights ordinarily derived its justification either from (i) perceived free-riding *for commercial gain*, or (ii) the need to restrict players' activities to promote *overall competition*. The FCC in turn derived its rule-making jurisdiction from one or the other of these rationales.<sup>263</sup>

Users present an altogether different situation since they are not necessarily commercially driven and do not compete with broadcasters and cablecasters in the traditional horizontal sense. To the current incumbents, they represent both a *source* of additional revenue, as audiences, and a *threat* to it, as redistributors (albeit for non-commercial purposes).

The idea of the user continues to present problems for the intangible property rights discourse. For quite some time now, intellectual property theorists in general and copyright scholars in particular have grappled with the role of the user in relation to these rights.<sup>264</sup> At one end of the spectrum remain the user-focused idealists who argue that copyright is in reality about the "the use of the work," with owners being granted a special right for a limited period and users a more general one that is not tempo-

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261. Randy Picker describes this phenomenon as the use of copyright as "entry policy", observing that copyright law and presumably its variants have important competition consequences, especially in relation to new entrants. See Randal C. Picker, *Copyright as Entry Policy: The Case of Digital Distribution*, 47 ANTITRUST BULL. 423, 462 (2002) ("Copyright law, both judge-made and statutory, sets key features of the legal regime for digital distribution entrants.").

262. See generally *WIPO Broadcast Treaty*, *supra* note 52.

263. See *United States v. Sw. Cable Co.*, 392 U.S. 157 (1968) (upholding the FCC's jurisdiction in connection with its property-like regulations as deriving from its ancillary jurisdiction); *United States v. Midwest Video Corp.*, 406 U.S. 649 (1972) (upholding the FCC's jurisdiction in connection with certain must-carry regulations imposed on local cable companies). *But see* *FCC v. Midwest Video Corp.*, 440 U.S. 689 (1979) (finding that the FCC lacked jurisdiction in relation to similar regulations).

264. See generally Benkler, *supra* note 258.

rally bounded.<sup>265</sup> They thus argue for the recognition of a set of “user’s rights” within copyright (and indeed all of intellectual property)—rights that limit the normative claims of authors for greater control and simultaneously entitle the public to greater informational access. At the other end of the spectrum are the user-skeptics, who argue that users’ rights tend to focus on user consumption and ignore the role that copyright plays as an incentive mechanism in the creative process. Although the skeptics do agree that users are entitled to *some privileges*, they tend to disagree with the idealists in believing that focusing on users dilutes the proprietary significance of copyright.<sup>266</sup>

In any event, the key point is that the users’ rights discourse has existed within the realm of copyright and intellectual property for quite some time now. The intellectual property system that exists today represents a dynamic equilibrium between users’ access rights and owners’ exclusionary privileges.

In contrast, the regulatory property discourse that recognizes exclusionary rights in *distribution* channels has thus far never had to grapple with the idea of non-commercial users. Given that property rights, in the sense of *attenuated exclusionary rights*, existed exclusively between distributors in an effort to preserve a competitive balance, the regulatory regime recognized neither the legitimacy nor the need for such user regulation. This state of affairs is well illustrated by the recent disputes concerning the “broadcast flag mandate.”<sup>267</sup>

In late 2003, the FCC adopted the “Broadcast Flag Regulations,” a series of rules aimed at safeguarding broadcasters’ and cablecasters’ inter-

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265. See L. RAY PATTERSON & STANLEY W. LINDBERG, *THE NATURE OF COPYRIGHT: A LAW OF USERS’ RIGHTS* 191 (1991); Benkler, *supra* note 258; Julie E. Cohen, *The Place of the User in Copyright Law*, 74 *FORDHAM L. REV.* 347 (2005). See also Joseph P. Liu, *Copyright Law’s Theory of the Consumer*, 44 *B.C. L. REV.* 397 (2003).

266. See Kenneth W. Dam, *Self-Help in the Digital Jungle*, 28 *J. LEGAL STUD.* 393, 394 (1999) (observing that users’ rights advocates “effectively emasculate” traditional copyright principles); Jane C. Ginsburg, *Copyright and Intermediate Users’ Rights*, 23 *COLUM.-VLA J.L. & ARTS.* 67 (1999); Jane C. Ginsburg, *Authors and Users in Copyright*, 45 *J. COPYRIGHT SOC’Y* 1 (1997).

267. For an overview of some of the issues involved here, see Susan P. Crawford, *The Biology of the Broadcast Flag*, 25 *HASTINGS COMM. & ENT. L.J.* 1 (2002); Randal C. Picker, *From Edison to the Broadcast Flag: Mechanisms of Consent and Refusal and the Propertization of Copyright*, 70 *U. CHI. L. REV.* 281, 291 (2003); Debra Kaplan, Note, *Broadcast Flags and the War Against Digital Television Piracy: A Solution of Dilemma for the Digital Era?*, 57 *FED. COMM. L.J.* 325 (2004).

ests during the transition to digital television.<sup>268</sup> The rules mandated that television digital receivers incorporate the “broadcast flag,” a digital code that would prevent the receivers from redistributing broadcast content once received.<sup>269</sup> The FCC relied exclusively on its ancillary jurisdiction for these regulations.<sup>270</sup> However, the D.C. Circuit concluded that the FCC did not have authority to issue these rules since the broadcast flag only came into play *after* the transmission was complete.<sup>271</sup> It concluded that the Communications Act only granted the FCC jurisdiction to regulate devices associated with broadcasts, and therefore Congress did not delegate to the FCC jurisdiction over devices (and uses) not engaged in actual transmission.<sup>272</sup> Thus, actual post-reception *use* involving the broadcast flag was something the FCC’s exclusionary regime could not legitimately regulate. Of course, much of the concern with the broadcast flag arose because the FCC’s proposal was seemingly biased against consumers and sought to replicate copyright’s restrictions with few exceptions.<sup>273</sup>

What the broadcast flag case thus demonstrates is that the idea of users’ rights is largely alien to broadcast regulation, not because users’ privileges are in any sense neglected, but rather more fundamentally because the regime does not legitimately extend to regulating their activities to begin with.<sup>274</sup> Users are not regulated because doing so is extraneous to the regime’s basic purpose—creating a competitive balance and no more.

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268. See *In re Digital Broad. Content Prot.*, 18 F.C.C.R. 23,550 (2003). These rules were codified at 47 C.F.R. §§ 73, 76 (2003). See also *In re Hoover & Hoover Capital Mgmt., Inc.*, 17 F.C.C.R. 16,027 (2002) (inviting public comments on the idea).

269. *In re Digital Broad. Content Prot.*, 18 F.C.C.R. 23,550 (2003).

270. *Id.* at 23,563. The ancillary jurisdiction of the FCC derives from 47 U.S.C. § 153 (2000 & Supp. IV 2004), which in different places authorizes the FCC to regulate services incidental to broadcasting. The Supreme Court has in the past interpreted the scope of the FCC’s powers under ancillary jurisdiction. See, e.g., *United States v. Sw. Cable Co.*, 392 U.S. 157 (1968) (finding jurisdiction); *FCC v. Midwest Video Corp.*, 440 U.S. 689 (1979) (overturning regulation because of lack of jurisdiction).

271. *Amer. Lib. Assoc’n v. FCC*, 406 F.3d 689, 705 (D.C. Cir. 2005).

272. *Id.* at 704-05.

273. See BRIAN T. YEH, CONG. RESEARCH SERV., COPYRIGHT PROTECTION OF DIGITAL TELEVISION: THE BROADCAST VIDEO FLAG (2007), available at [http://openncrs.cdt.org/rpts/RL33797\\_20070111.pdf](http://openncrs.cdt.org/rpts/RL33797_20070111.pdf).

274. Interestingly, some argue that the regime ought to step in not at the exclusionary rights end, but rather at the users’ access-privileges end of the debate. Thus, in situations where the market results in access being diluted, quite independent of exclusionary rights (e.g., self-help, technical protection measures)—regulators such as the FCC are thought to have a role in restoring some balance. See Molly S. Van Houweling, *Communications’ Copyright Policy*, 4 J. TELECOMM. & HIGH TECH. L. 97 (2005).

Property in the regulatory context and traditional intellectual property differ fundamentally. In the former, property is not temporally limited, but is nevertheless constrained by the actors *against whom* the exclusionary mechanism operates. In the latter, by contrast, it is temporally limited, but in rem in terms of its applicability. Limitations on users are deemed acceptable in the intellectual property context because they (i) remain temporally limited, and (ii) result in long-term efficiencies that accrue back to users through works entering the public domain.<sup>275</sup> In the context of distribution-related exclusionary rights, however, the matter is different. Here, temporal limitations are absent *because* equivalent long-term efficiencies are unlikely. Thus, limiting cablecasters' ability to retransmit broadcast content only twenty (or fifty) years after the original broadcast is inefficient principally because any value associated with the content is largely *immediate*. Consequently, a temporal limitation is likely to be of little to no value. It is precisely for this reason that older programming (i.e., rerun programming from past seasons) is almost exclusively a part of the syndicated programming market carried by independent stations and not affiliates.<sup>276</sup> Temporally limited, as opposed to operationally attenuated, exclusionary rights over the distribution process are of little utility, which explains why the regulatory discourse stayed by and large clear of time-bound in rem rights.

It is obvious that the user remains the target of the new regime—given that all other incumbents are already regulated. Interestingly, though, the new regime is structured in the nature of a temporally limited intellectual property right. The temporal tradeoff, however, is unlikely to be of significant value to the public, given the value of immediacy that remains central to television broadcasting and viewership.

Users are thus relegated to the peripheries of the new system in the belief that their interests will be served by the limitations and exceptions of the regime's exclusionary rights, which are analogous to those contained

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275. For an elaboration on the efficiency trade-offs involved in limiting intellectual property terms, see WILLIAM D. NORDHAUS, *INVENTION, GROWTH, AND WELFARE: A THEORETICAL TREATMENT OF TECHNOLOGICAL CHANGE* 79 (1969); Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265, 284 (1977); Landes & Posner, *supra* note 89.

276. See Museum for Broadcast Communications, Syndication, <http://www.museum.tv/archives/etv/S/htmlS/syndication/syndication.htm> (last visited Dec. 5, 2006) (noting that the syndicated market does not cover prime time network programming, live news, and live sports events); James E. Fletcher, *The Syndication Marketplace*, in *MEDIA ECONOMICS: THEORY AND PRACTICE* 84 (Alison Alexander et al. eds., 1993).

in traditional copyright.<sup>277</sup> This approach adopts an overly simplistic and outmoded conception of the user in the digital age—as a passive consumer of information supplied by content producers and distributors, who consequently cares very little about the use-value inherent in the timeliness of the broadcast.<sup>278</sup> It ignores the fact that users in an interconnected environment function as *producers, consumers, and distributors*, and typically do so for non-commercial purposes. By forcing users into a regime premised on temporality, the new structure neglects at once (i) the reasons for which they were kept out of the regulatory property regime *and* (ii) the historical rationale for why the temporally limited intellectual property regime stayed clear of distribution rights in the United States. At least part of the reason for this neglect stems from the lack of a cohesive organizational framework for the category of users. In addition, users' interests are diversified and at times seemingly incompatible.

This user dynamic is thus one that the current version of the proposed broadcasters' rights regime completely glosses over. The regime remains premised on the belief that through exclusionary rights, broadcasters can extract rents from users and at the same time control their behavior. Situated midway between authors and passive consumers, users get none of the protective rights that authors and owners do, nor the protection ordinarily associated with consumers.

## **B. Detracting from the Benefits of a New Distribution Structure**

One of the consequences of the internet and the emergence of digital technologies is that it decentralizes and democratizes the process of distribution.<sup>279</sup> Broadcasters and cable companies are no longer viewed as *indispensable* agents in the distribution process.

The most obvious example of this is the emergence of companies such as YouTube, an online broadcasting (or webcasting) facility that allows members to share their video programming with others for free.<sup>280</sup> Its

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277. See *WIPO Broadcast Treaty*, *supra* note 52, at art. 14. The exact nature of these limitations and exceptions is, however, left to individual nations to determine while enacting treaty-implementing legislation.

278. See generally ERIC VON HIPPEL, *DEMOCRATIZING INNOVATION 1* (2005) (documenting the different forms of user innovation that occur and noting that “[u]ser-centered innovation processes offer great advantages over the manufacturer-centric innovation development systems that have been the mainstay of commerce for hundreds of years”).

279. For a detailed elaboration of this argument and an analysis of the potential benefits associated with this decentralization, see YOCHAI BENKLER, *THE WEALTH OF NETWORKS: HOW SOCIAL PRODUCTION TRANSFORMS MARKETS AND FREEDOM* (2006).

280. It describes itself as follows:

company slogan—"Broadcast Yourself"—is aptly indicative of its goals. Producers and directors of original videos merely upload their videos onto the service, and users of the service view the videos there for free. Services such as these are not targeted only at independent producers, who produce videos not necessarily meant for mass audiences; YouTube is today viewed as a major distribution base for commercial production as well. With more than 100 million viewers *each day* and 65,000 new videos added daily, YouTube presents advertisers and programmers dependent on advertising with an additional source of viewership.<sup>281</sup> Not surprisingly, commercial sports leagues have begun forming strategic alliances with the service—previously relegated exclusively to broadcast stations.<sup>282</sup>

Most importantly, though, broadcast networks have come to view online broadcasting as providing them with additional indirect benefits. In October 2006, CBS began supplying YouTube with programming. Within a month, CBS' content on the website became the most viewed, and CBS soon acknowledged that online distribution actually increased the ratings for its traditional programming content.<sup>283</sup>

Google's recent acquisition of YouTube reemphasized the growing importance of online broadcasting services.<sup>284</sup> Some have argued that the growing importance of online broadcasting is likely to eat into television

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YouTube is a consumer media company for people to watch and share original videos worldwide through a Web experience. Everyone can watch videos on YouTube—both at YouTube.com and across the Internet. People can see first-hand accounts of current events, find videos about their hobbies and interests, and discover the quirky and unusual. As more people capture special moments on video, YouTube is empowering them to become the broadcasters of tomorrow.

YouTube, YouTube Fact Sheet, [http://www.youtube.com/t/fact\\_sheet](http://www.youtube.com/t/fact_sheet) (last visited Nov. 24, 2006).

281. *YouTube Serves Up 100 Million Videos a Day Online*, USATODAY.COM, July 16, 2006, [http://www.usatoday.com/tech/news/2006-07-16-youtube-views\\_x.htm](http://www.usatoday.com/tech/news/2006-07-16-youtube-views_x.htm).

282. *See YouTube in Web Video Deal with National Hockey League*, REUTERS.COM, Nov. 15, 2006, <http://www.reuters.com/article/sportsNews/idUSN1548693420061116>.

283. *See Vito Pilioci, YouTube Clips Boost CBS Ratings*, THE OTTAWA CITIZEN, Nov. 23, 2006, available at <http://www.canada.com/ottawacitizen/news/business/story.html?id=2e7b9c59-aebe-4206-b315-31cd5bec9c81>; Chris Tew, *CBS Happy with YouTube*, PVR WIRE, Nov. 22, 2006, available at <http://www.pvrwire.com/2006/11/22/cbs-happy-with-youtube>.

284. *See Michael Liedtke, Google Holds Back Stock in YouTube Deal*, USA TODAY.COM, Nov. 15, 2006, [http://www.usatoday.com/tech/techinvestor/corporatenews/2006-11-15-google-youtube-cushion\\_x.htm?POE=TECISVA](http://www.usatoday.com/tech/techinvestor/corporatenews/2006-11-15-google-youtube-cushion_x.htm?POE=TECISVA).

broadcast advertising revenues, which is already affected by competition from cable advertising.<sup>285</sup>

Content producers can enter into distribution contracts directly with these services, thereby bypassing broadcast and cable intermediaries altogether, which is precisely what the sports leagues and CBS have attempted. Additionally, advertisers can now contract with these services for similar chunks of the viewership pie. While it may be premature to predict the likelihood of this occurring, the mere possibility drives home the point that online distribution services present a threat to broadcasters' and cable companies' revenues in more ways than one.

Online broadcasting allows authors to play a more active role in controlling the dissemination of their work. Historically, copyright law has long recognized the exclusive right of public distribution to be one of the fundamental elements in the constituent bundle.<sup>286</sup> Online broadcasting offers authors the chance to resurrect direct distribution and thereby directly internalize the benefits of their creations.<sup>287</sup>

Scholarly debate on the value of direct distribution has been both overly optimistic and overly pessimistic. Jane Ginsburg's position reflects the former.<sup>288</sup> She argues that the emergence of the digital world equips authors with the opportunity to disseminate their works to the public and thereby internalize the incentive framework more directly, without having to submit to control by intermediary media companies.<sup>289</sup> According to Ginsburg, this is likely to have two implications. First, it enhances the legitimacy of copyright as an exclusionary framework by remaining premised on generating creativity, and second, it offers the public access to an

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285. See Bob Garfield, *YouTube vs. Boob Tube*, WIRED, Dec. 2006, at 226, available at <http://www.wired.com/wired/archive/14.12/youtube.html?pg=2>.

286. See generally LYMAN RAY PATTERSON, *COPYRIGHT IN HISTORICAL PERSPECTIVE* (1968).

287. What exactly constitutes "direct distribution" might of course be a matter of some contention. It certainly would encompass the case of the author/producer/musician disseminating the work to the public directly, under some kind of a revenue model. See MARK W. CURRAN, *SELL YOUR MUSIC!: HOW TO PROFITABLY SELL YOUR OWN RECORDINGS ONLINE* (2001). Increasingly, however, authors/producers are also making use of free distribution channels, such as free webcasters (e.g., Google Video or YouTube). Here, authors retain complete control over the production process and the content of their work, but nevertheless reach the general public via free distribution channels that operate on business (i.e., revenue) models independent of subscription fees. This would qualify as direct distribution in the traditional sense simply because the process involves the same element of authorial control over the process that *true* direct distribution would entail.

288. Jane C. Ginsburg, *Copyright and Control Over New Technologies of Dissemination*, 101 COLUM. L. REV. 1613, 1619 (2001).

289. *Id.* at 1617-18.

increased diversity of works.<sup>290</sup> However, others argue that although the authorial control argument is laudable, it remains only an ideal given that the majority of creative works today are either *owned* by media companies through the work-for-hire doctrine or procured by them through assignments of copyright, and these intermediaries have a significant comparative advantage by specializing in the distribution process.<sup>291</sup>

The answer probably lies somewhere between the two extremes. Webcasting has begun to assume a major role in the overall market for creative works only in the past year.<sup>292</sup> Online distribution is thus unlikely to eliminate the role of the intermediary distributor anytime soon, but authors are beginning to see a resurgence in their ability to communicate with the public directly. It is precisely this outlet with which the expansive set of new broadcasters' rights is likely to interfere.

The first thing to remember about the proposed bundle of broadcasters' and cablecasters' rights is that it extends beyond just the *act of broadcasting*. In other words, the rights are not restricted to *concurrent* retransmissions or *interferences* with an ongoing broadcast, but extend to fixations of the broadcast and uses of the fixation after the actual broadcast ends.<sup>293</sup> In this latter respect, it obviously extends beyond just protecting the ephemeral signal to controlling its manifestations in a fixed after-life. In this respect, the proposed rights are more analogous to exclusive copyright in granting broadcasters absolute control over all *current* and *potential* uses of their signals. Furthermore, given that the signal is physically indistinguishable from (and indeed, dependent on) the underlying content, control over the signal after its ephemeral existence amounts to control over the underlying content.

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290. *Id.*

291. See Wu, *supra* note 157, at 339-41 (noting the existence of "reasons to suspect that developments like the Internet . . . are unlikely to eliminate the central role of disseminators").

292. The first phase of online distribution involved the webcasting of music by online companies, which raised a plethora of issues related to the compulsory licensing scheme under 17 U.S.C. § 114 (2000 & Supp. IV 2004). It eventually resulted in the Small Webcaster Settlement Act, Pub. L. 107-321, 116 Stat. 2780 (2002). For an overview of the debates in this area, which are largely related to our present debate, see Lydia Pallas Loren, *Untangling the Web of Music Copyrights*, 53 CASE W. RES. L. REV. 673 (2003). See also Mark A. Lemley & Philip J. Weiser, *Should Property or Liability Rules Govern Information?*, 85 TEX. L. REV. 783, 827-29 (2007) (providing for a theoretical analysis of the regime introduced).

293. See *WIPO Broadcast Treaty*, *supra* note 52, at arts. 12-15.

Recall the hypothetical involving Walter and *Quakes*.<sup>294</sup> Granting XBC the exclusive right to control the *post-transmission* fixation of its broadcast of *Quakes* and distribute copies of the fixation effectively gives XBC control over the work itself. Even if Walter were to make his work available free of charge on the internet, a user is unlikely to be able to determine whether a given version originated from Walter (legally) or from XBC's broadcast (illegally), which will most likely deter actual viewing of *Quakes* altogether.

If the skeptics are right, and Walter continues to remain dependent on XBC to distribute his work, the addition of this new set of rights to XBC's existing arsenal is clearly a step in the wrong direction—away from greater authorial control. In describing the emergence of a new paradigm of copyright law, which he calls “copyright's communications policy,” Tim Wu notes that giving an existent incumbent exclusionary control places the development of technologies of dissemination in the incumbent's hands.

Assuming that the pioneer controls the creation of content (either by controlling copyright, vertical integration, or through simple economic dependence), it can dictate what happens and what does not. . . . Everything then depends on whether policymakers believe that an incumbent can be trusted to promote, rather than destroy, its technological rivals.<sup>295</sup>

He proceeds to argue that this often militates against the recognition of broad initial entitlements in the incumbent.<sup>296</sup>

Broadcasters and cablecasters cannot be expected to act except with their own private interests in mind. Throughout the history of U.S. television broadcasting, they have sought to curtail the development of new technologies of dissemination, for fear that the technologies would cut into their sources of revenue. The most obvious instance of this was, of course, the emergence of cable television. Consequently, authors' distributive interests can hardly be left exclusively to their noble intentions. The new set of rights thus aptly illustrates Wu's point regarding the nature of the entitlement and individuals against whom it is to operate.

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294. See *supra* text accompanying notes 18-21.

295. Wu, *supra* note 157, at 338. He also notes that in “the example of broadcast, if copyright in programming had clearly included future technologies like cable and satellite transmission, the decision to allow these dissemination technologies to develop would have rested with the broadcast industry.” Ironically, it is precisely copyright in broadcasts that the new regime seeks to introduce. See also Trotter Hardy, *Copyright and “New-Use” Technologies*, 23 NOVA L. REV. 657 (1999).

296. Wu, *supra* note 157, at 338.

Thus, quite apart from the effects the new regime is likely to have on the user, it also detracts more fundamentally from the basis of traditional copyright—and the central role of the author therein. In the past, when broadcasters sought exclusionary control against a new entrant (e.g., cable), authors were never directly implicated because of their almost complete dependence on intermediary distribution. At present, the internet will probably decentralize distribution and minimize this dependency. Thus, moving to a regime that negates the benefits of this decentralization will only stifle further creativity.

### C. The Paradox of the “Public Interest”

This Section examines what the phrase “public interest” means in the broadcasting industry and how that understanding might impact or be impacted by the new regime of broadcasters’ rights. Few terms have garnered as much ignominy as the phrase “public interest” in the context of television broadcasting.<sup>297</sup> It is therefore not surprising to see a significant amount of cynicism characterize discussions of public interest over the years. While it may indeed be difficult to construct a single coherent definition of public interest applicable across time and technology, one finds the semblance of a pattern in regulatory decisions premised on the ideal.

The FCC is mandated by law to use some standard of public interest in connection with innumerable regulatory and policy-making functions assigned to it under the Communications Act of 1934.<sup>298</sup> Attempts to attribute meaning to the phrase by scholars over the past several years exhibit a significant amount of ideological variety and seemingly conflicting notions.

One of the earliest conceptions of public interest adopted by regulators reflected what came to be known as the “trusteeship model.”<sup>299</sup> This

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297. For general studies on the topic, see PATRICIA AUFDERHEIDE, COMMUNICATIONS POLICY AND THE PUBLIC INTEREST: THE TELECOMMUNICATIONS ACT OF 1996 (1999); MIKE FEINTUCK, “THE PUBLIC INTEREST” IN REGULATION (2004); LAURA R. LINDER, PUBLIC ACCESS TELEVISION: AMERICA’S ELECTRONIC SOAPBOX (1999); DENNIS MCQUAIL, MEDIA PERFORMANCE: MASS COMMUNICATION AND THE PUBLIC INTEREST (1992).

298. See, e.g., 47 U.S.C. §§ 154, 157-61, 201, 214, 229, 251, 257, 259, 271-72, 303, 307, 309, 310-11, 315, 319, 325, 332, 335-36, 362, 396, 533-34, 543, 548, 572-73, 605-06, 610 (2000). Of course, the standard applies to almost all of the FCC’s functions. For an excellent overview of the standard’s origins and its evolution, see Erwin G. Krasnow & Jack N. Goodman, *The “Public Interest” Standard: The Search for the Holy Grail*, 50 FED. COMM. L.J. 605 (1998).

299. For apt examples of this model, see, for example, the FCC’s infamous 1946 Bluebook, FED. COMM’NS COMM’N, PUBLIC SERVICE RESPONSIBILITY OF BROADCAST LICENSEES (1946), and for the policies that followed its adoption, see Mark S. Fowler &

model was premised on the need for governmental guidance over all aspects of broadcast decision-making, including content-related decisions. This was indeed the approach adopted by the FCC early on.<sup>300</sup>

Over time, an expansive reading of broadcasters' First Amendment rights and various statutory amendments diluted the rigidity of the trusteeship model. In the 1970s, the FCC began to move away from this model, preferring instead to adopt a distinctively market-driven approach to defining the public interest.<sup>301</sup> FCC Chairman Mark Fowler made this position explicit in his well-known law review article expounding on the virtues of the new approach, where he noted that "the public's interest . . . defines the public interest."<sup>302</sup> This model adopted a decentralized marketplace approach to broadcast regulation, in the belief that broadcasters, driven by advertising revenues, would structure their activities and programming depending on public demand.<sup>303</sup> At least part of the rationale for this approach derived from the belief that any monopoly over content distribution was likely to be diluted by new technologies of content delivery.<sup>304</sup> The 1980s witnessed a spate of FCC action deregulating industry players (most notably cable television) under this model.<sup>305</sup>

In the 1990s, with the enactment of the Cable Act of 1992, the FCC began to realize that the pure marketplace approach was suboptimal. The FCC Chairman at the time, Reed Hundt, reiterated that the television industry was subject to obligations distinct from other media and advocated the introduction of specific content-related regulation, all purportedly in the public interest.<sup>306</sup> The general consensus that emerged by this time was that equating public interest with private control (in the *laissez-faire* sense) resulted in significant welfare losses, which in turn necessitated remedial

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Daniel L. Brenner, *A Marketplace Approach to Broadcast Regulation*, 60 TEX. L. REV. 207, 213-17 (1982).

300. See Robert K. Avery & Alan G. Stavitsky, *The FCC and the Public Interest: A Selective Critique of U.S. Telecommunications Policy-Making*, in PUBLIC BROADCASTING AND THE PUBLIC INTEREST 52 (Michael P. McCauley et al. eds., 2003).

301. The FCC's subsequent deregulation of cable television exemplifies this approach.

302. Fowler & Brenner, *supra* note 299, at 210.

303. *Id.* at 230.

304. *Id.* at 225-26.

305. See *supra* notes 243-244 and accompanying text.

306. Reed E. Hundt, *The Public's Airwaves: What Does the Public Interest Require of Television Broadcasters?*, 45 DUKE L.J. 1089, 1090 (1996) ("Clearly, broadcasters are subject to distinct public interest obligations not imposed on other media.").

measures, and that these market failures could be avoided by a form of “progressive paternalism” towards the industry.<sup>307</sup>

Regulators have thus gone back and forth in their conceptualization of the public interest as an ideal. Many have started to question whether the concept is worthy of any application at all, given both the readiness with which regulatory decisions have in the past been justified by appeal to the concept and the remarkable rapidity with which the philosophical basis of the idea has varied over the years.

Thomas Streeter, in his vitriolic critique of domestic telecommunications policy, argues that the FCC’s regulatory approach is driven by an ideology of what he terms “corporate liberalism,” which is premised on the ideas of property, markets, rights, and bureaucracies.<sup>308</sup> Using the largely left-leaning philosophy of the Critical Legal Studies movement, he argues that over the years the phrase has come to mean little except when used in a functional sense as an *ex post* justification for regulators to reach decisions modeled on the premises of classical liberal thought.<sup>309</sup>

Streeter’s cynical position reflects the general understanding that the public interest ideal remains an elusive palliative—one often used by regulators to justify whatever decision they reach. Indeed, attempts to generate a policymakers’ definition through interviews with individual FCC officials aptly reflect the same.<sup>310</sup>

However, the idea of public interest extends beyond content regulation into areas such as cable television regulation. Starting in the 1970s, the FCC introduced several rules and regulations for cable television, many of which were aimed at balancing competition between cable companies and local television broadcast stations. Interestingly, the FCC rationalized almost all of these regulations as instantiations of the Commission’s public interest ideal.<sup>311</sup> In relation to cable television, the FCC often invoked the public interest to argue that its regulatory measures were directed at exploring the benefits of emergent and developing technologies for the pub-

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307. See James T. Hamilton, *Private Interests in “Public Interest” Programming: An Economic Assessment of Broadcaster Incentives*, 45 DUKE L.J. 1177, 1178 (1996) (reviewing Chairman Hundt’s proposal).

308. See STREETER, *supra* note 233, at 22.

309. See Thomas Streeter, *Beyond Freedom of Speech and the Public Interest: The Relevance of Critical Legal Studies to Communications Policy*, 40 J. COMM. 43 (1990). See also ERWIN G. KRASNOW & LAWRENCE D. LONGLEY, *THE POLITICS OF BROADCAST REGULATION* 192 (1978).

310. See Dean M. Krugman & Leonard N. Reid, *The “Public Interest” as Defined by FCC Policy Makers*, 24 J. BROAD. 311 (1980).

311. *Id.* at 312.

lic.<sup>312</sup> Such policies represent a move away from a content-based approach to a process-driven one. Studies of the FCC's public interest goal in relation to cable regulation seem to indicate that it merely referenced a loose set of procedural ideals: (i) balance between different interests; (ii) diversity of content and ownership; (iii) dynamism of approach across different issues; and (iv) localism of content.<sup>313</sup> At the center of the FCC's conception of public interest in relation to cable television thus seemed to be the idea of balance—that its decisions needed to reflect the interests of the different players in the field, even if to different degrees.<sup>314</sup>

One of the major flaws with the discussions of public interest and balancing in the context of cable television was that one party directly affected by policy changes was often without effective access to the policy-making process. This was the consumer.<sup>315</sup> While every incumbent in the process argued that it was acting in the best interests of consumers, consumers' direct inputs were rarely ever considered. Representational issues and collective action problems were largely responsible for this absence. Nevertheless, consumers' interests remained at least notionally at the forefront of policymakers' agenda, and their interests were safeguarded in a majority of instances through indirect representation.<sup>316</sup> What rendered this possible was of course the fact that (i) consumer protection was viewed as an aspirational ideal, for it aptly captured the idea of public interest, and more importantly that (ii) consumers were never likely competitors or the possible targets of a regulatory regime.

Enter the debate on broadcasters' rights. As noted earlier in Part II and Section IV.A, these rights are structured as in rem rights and remain targeted at the *user*. Much like consumers, users are unlikely to be effectively represented in the balancing process, but it is difficult for them to organize.<sup>317</sup> In addition, given that users remain the targets for the new rights, it is unlikely that any of the other parties will give their interests due consideration. Their only hope, then, is for regulators to take their concerns into

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312. See, e.g., FED. COMM'NS COMM'N, CABLE TELEVISION REPORT AND ORDER AND RECONSIDERATION 4-5 (1972).

313. Krugman & Reid, *supra* note 310, at 319-20.

314. See generally Patricia Aufderheide, *Cable Television and the Public Interest*, 42 J. COMM. 52 (1992).

315. Krugman & Reid, *supra* note 310, at 323 (noting that the "most likely place for general public input is to the complaint service of the Cable Bureau").

316. For example, note that the Cable Act of 1992 was actually termed the "Cable Television Consumer Protection and Competition Act". See *supra* note 215.

317. For an overview of the collective action problem, see MANCUR OLSON, *THE LOGIC OF COLLECTIVE ACTION: PUBLIC GOODS AND THE THEORY OF GROUPS* (2d prtg. 1971).

consideration. However, the recent Broadcast Flag regulations issued by the FCC, which failed to adequately address users' interests, reflect the sad reality that this is yet to happen.<sup>318</sup>

The broadcasters' rights debate is thus likely to create an entirely new dynamic for the public interest.<sup>319</sup> Far from creating measures premised on a trusteeship ideal of broadcast regulation, incumbents advocate for measures *which directly restrict user's rights* to use broadcast signals, by arguing that those restrictions are in the public's best interest. The rhetoric seems to have thus come full circle—starting from a position where the public interest supposedly restricted private actions (trusteeship), to one where the public interest was considered to be in alignment with private interests (marketplace approach), to finally one where the public interest purportedly dictates rules directly limiting the public's use privileges. Semantic and philosophical skepticism apart, this shift is at once easy to identify, yet hard to ignore, given the extent to which the notion of public interest remains entrenched in the industry's regulatory framework.<sup>320</sup>

One might argue that any property-based exclusion is actually in the public interest, *in the long term*. Arguments along these lines—that short-term restrictions involve long-term efficiency gains—certainly are not new to intellectual property, which is premised on the idea that temporally limited use-restrictions can produce long-term use-gains. The notion of public interest, however, has never sought to place short-term detrimental limits or restrictions on the public in order to ensure long-term gains. Thus, for instance, the FCC has never in the past entertained regulatory measures that would allow cable television prices to rise exponentially in the short-term to ensure an eventual long-term price equilibrium. A distinction between short- and long-term public interest goals is both meaningless and

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318. One of the major problems with the broadcast flag regulations that public interest groups highlighted was its failure to provide for use-exceptions along the lines of copyright's fair use doctrine. *See, e.g.*, Comments of the Electronic Frontier Foundation to the FCC, *In the Matter of Digital Broadcast Copy Protection*, M.B. Docket No. 02-230, Dec. 6, 2002, at 13. *See supra* note 273 and accompanying text. The idea has since taken the form of a Bill (H.R. 5252) currently before Congress. *See Communications Opportunity, Promotion, and Enhancement Act of 1996*, H.R. 5252, 109th Cong. (2006).

319. *See generally* Krasnow & Goodman, *supra* note 298, at 630 (noting that the emergence of the digital world does not require a radical change in the meaning of the standard, given that its "genius . . . is its breadth and flexibility").

320. Indeed, some argue that the "public interest" ideal is unconstitutional to begin with, given that it is indeterminate and amounts to an abdication of Congressional responsibility. Randolph J. May, *The Public Interest Standard—Is it Too Broad to be Constitutional?*, in *COMMUNICATIONS DEREGULATION AND FCC REFORM: FINISHING THE JOB* 185 (Jeffrey A. Eisenach & Randolph J. May eds., 2001).

self-defeating within the context of the television industry, particularly given (i) the rapidity of technological innovation in the telecommunications industry and (ii) the changing socio-cultural preferences of audiences.

For example, consider the case of devices such as TiVo, which enable users to time-shift and space-shift broadcast programming, and to fast-forward through advertisements.<sup>321</sup> Under a broadcasters' rights regime, its manufacture, sale, and use would presumably all be illegal, unless one was to wait *fifty years* before watching recorded programming. This kind of time-shifting and space-shifting is meaningful *only* because the shifting is within relatively short intervals.<sup>322</sup> Thus, Ronald, a busy banker, prefers to record Monday's episode of *Heroes* to be viewed later in the same week (or at most a week later), since he's always tied up in meetings on Monday nights. Sometimes, he views the episode on his computer at work, instead of his television set, the following day over lunch. The broadcasters' rights regime would now allow him to do all of this *only for programming* that aired at least fifty years ago—all in the name of an attempted trade-off. The converse is that, in relation to the *Heroes* episode, the recording and transmission would be permitted *fifty years* from the Monday on which it aired—meaning that if someone missed it live, they would have to wait a lifetime to see it again on their television sets in the comfort of their homes.

It is precisely the in rem and user-targeted nature of broadcasters' open-ended rights that results in this outcome. And it is probably for this reason that debates are typically couched in intellectual property or copyright terms, given that the copyright law framework readily accepts the temporal limitation trade-off. The public interest at stake in the copyright debates at the international level (i.e., at the WIPO) has little relevance to the current regulatory framework (i.e., retransmission consent, compulsory licensing, etc.). Policymakers might require more forceful judicial intervention in order to realize that the regime is actually about *broadcasting*

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321. For an overview of the TiVo and its technological capabilities, see TiVo.com, Service Features, <http://www.tivo.com/1.6.4.asp> (last visited Dec. 10, 2006). For a detailed overview of the copyright-related issues that the TiVo technology (DVR) raises, see Ned Snow, *The TiVo Question: Does Skipping Commercials Violate Copyright Law?*, 56 SYRACUSE L. REV. 27, 35-38 (2005) (noting that unlike with the VCR, over 90% of DVR users actually do skip commercials); Matthew W. Bower, Note, *Replaying the Betamax Case for the New Digital VCRs: Introducing TiVo to Fair Use*, 20 CARDOZO ARTS & ENT. L.J. 417 (2002).

322. Time-shifting and space-shifting as legitimate forms of content "fair use" are normally traced back to the Supreme Court's holding in the *Betamax* case. See *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417 (1984).

and cablecasting, arenas where the public interest ideal (in whatever form) remains inescapable. The central question then is to what degree the public interest will be split into its short- and long-term variants.

## V. A BALANCED IMPLEMENTATION PROPOSAL: STAGGERED EXCLUSION

The new regime of broadcasters' rights is without a coherent justification, ignores much of what exists as regulatory mechanisms in the television industry, and is likely to have serious detrimental consequences for both emergent technologies and the dynamic to which they seem to be giving rise. Broadcasters' and cablecasters' primary motivation for the new regime derives from the emergence of the internet as a decentralized distribution mechanism, and with it digital technologies of copying and transmission.<sup>323</sup> Claims of signal piracy are in reality claims that broadcasters' de facto exclusivity over distribution is now being eroded.

But might there be a rationale for introducing a regulatory framework that at once both alleviates *some* of the concerns of broadcasters and at the same time is fully cognizant of the pitfalls of straying too far in the direction of property protection? This Part argues that there might indeed be, drawing from the discussion of attenuated rights in the current regime, and outlines the structure such a solution might take.

### A. Unfair Competition as a Regulatory Basis

A regime premised on the ideal of unfair competition—aimed at recreating a level playing field *between competitors*—might represent a suitable alternative. Historically, the principle of unfair competition has been associated with the doctrine of misappropriation and notions of “free-riding.”<sup>324</sup> However, the basis of the unfair competition regime proposed here derives not from these notions, which are proprietary, or at best quasi-proprietary, but rather from the ideal of unjust enrichment—that an individual benefiting from a system in which others bear costs for analogous benefits ought to also bear some of the costs.

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323. See *supra* Section II.D.

324. See Rudolf Callmann, *He Who Reaps Where He Has Not Sown: Unjust Enrichment in the Law of Unfair Competition*, 55 HARV. L. REV. 595, 612 (1942) (“[O]ne who has used his intellectual, physical, or financial powers to create a commercial product should be afforded judicial relief from a competitor who seeks to ‘reap what he has not sown.’”); Miguel Deutch, *Unfair Competition and the “Misappropriation Doctrine”—A Renewed Analysis*, 48 ST. LOUIS U. L.J. 503, 545 (2004) (arguing that misappropriation doctrine must balance the “free-rider” problem with economic efficiency).

The unfair competition in the context of broadcasters does not derive from any value broadcasters add to the broadcast. Even if broadcasters add some value, determining the amount added by distribution, which would be necessary in order to limit the extent to which they can internalize the benefits that others pay for, is near impossible. A claim based on value added would track the unfair competition ideal in its misappropriation sense. The ideal of unfair competition that works best here is instead one that is uncoupled from misappropriation and tied to a notion of unjust enrichment. Specifically, one party must compensate another *only* because others are required by law to do so, and permitting the first party to avoid this result would enable it to compete on unfair terms with those others.<sup>325</sup>

Under the current system, broadcasters remunerate content producers for use of their creative works in broadcast programs.<sup>326</sup> Analogously, cable companies also compensate content producers when they use broadcasters' programming. Indeed, the very basis of the current retransmission consent regime, which requires cable companies to compensate broadcasters for use of their signals, is premised on a *restitutionary* ideal.<sup>327</sup> The basic idea is that since the regulatory framework requires current distributors to compensate the creator, a new distributor who seeks to use the same creative work ought to be subject to the same regulatory framework. Broadcasters, cable companies, and retransmitters all *compensate* authors for their work because to do otherwise would be unjust not in a property rights sense (i.e., because incumbents *own* their broadcasts), but in an equitable sense (i.e., in the interests of fairness and to create a level playing field between competitors).<sup>328</sup>

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325. Unjust enrichment, as a general principle, is based on the idea that where one person derives a benefit from the actions of another, he is mandated by the principles of equity and natural justice to part with his benefit or at least a part thereof. See Peter Birks, *Unjust Enrichment and Wrongful Enrichment*, 79 TEX. L. REV. 1769 (2001). Scholars often talk about the idea of "restitution for unjust enrichment," which is of direct application here. In the case of restitution for a wrong, restitution derives from a primary wrong, independently actionable under tort, contract, or property law. Restitution for unjust enrichment, however, is a principle of equity, for an action that is otherwise perfectly legitimate (or *damnum sine iniuria*) at law. In other words, the restitution concept used here derives from the unfairness or inequity inherent in the party's gain.

326. As an element of traditional copyright law, given that broadcasting has always been considered a "public performance."

327. See generally Allard, *supra* note 215.

328. Indeed, the unjust enrichment argument formed the basis of some of the broadcasters' early claims for property rights during the emergence of cable television. However, it is surprising that during discussions for the new regime at WIPO's SCCR, unjust enrichment arguments were never raised. For an out of context application of the unjust enrichment argument to private copying, see Burnett, *supra* note 107, at 40.

Webcasts of over-the-air or over-the-wire programming seek to make use of the same creative works for which broadcasters and cable companies must pay. If, like broadcasters, webcasters do so for a commercial motive, the principles of equity seem to require that they be subjected to similar regulatory restrictions. However, this argument is valid only if the online webcaster, or other party making use of current incumbents' programming, does so for *commercial purposes*.<sup>329</sup> This concept alone remains absolutely central to the notion of unfair competition. The entitlement is not in rem in an absolute sense of the term, but in rem only against a specified class (i.e., competitors in the distribution market, however defined).

Regulatory proposals restricted to competitors certainly are not novel, nor restricted to the judicial context. In 1999, Congress considered introducing legislation aimed at protecting electronic databases from copying *by competitors*.<sup>330</sup> The legislation was aimed at disallowing compilers of databases from avoiding the burdensome process of compiling their databases independently, by relying on the efforts of others.<sup>331</sup> It thus sought to subject new compilers to a similar detriment or a monetary equivalent. However, it differed from the proposal here, because it remained premised on copying or misappropriation by vesting the entitlement in the original compiler. An unjust enrichment rationale, on the other hand, would have vested the entitlement in some other party, such as the owner of the underlying content. Nevertheless, the legislation is aptly illustrative of a system limited to competitors.

Limiting the regime in similar manner, to new *commercial distribution* intermediaries—entities seeking to derive their profits through the distribution of content online—serves several purposes. It leaves intact the user dynamic of the internet and in a majority of instances would not interfere with the activities of individuals engaged in non-commercial activities, even if they involved the copying of current broadcast programming.

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329. Copyright law already employs the commercial/non-commercial distinction as part of its standard fair use analysis. See 17 U.S.C. § 107 (2000 & Supp. IV 2004) (requiring courts to consider “the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes”). The distinction has been applied fairly straightforwardly here and there seems little reason to believe this might present problems elsewhere.

330. Consumer and Investor Access to Information Act of 1999, H.R. 1858, 106th Cong. § 102 (1999); see also H.R. REP. No. 106-350, pt. 1 (1999) (“Congress must ensure that database publishers have sufficient protection against unfair competition.”).

331. For a comprehensive analysis of the Bill, see Yochai Benkler, *Constitutional Bounds of Database Protection: The Role of Judicial Review in the Creation and Definition of Private Rights in Information*, 15 BERKELEY TECH. L.J. 535 (2000).

Thus, individuals accessing and copying programming for their own non-commercial purposes, public or private, would not be subject to this regulatory framework. Furthermore, mere uses, commercial or not, that are not accompanied by acts of commercial distribution would remain outside the reach of this regime, since the framework extends only to competing commercial distributors. (Copyright law might, of course, provide content producers with an independent remedy against such uses.) Lastly, if the regime employed a statutory licensing mechanism, it would also exclude from its scope developers of new technologies directed at non-commercial end users, like TiVo, since such developers, even if commercial, would not be competing in the distribution segment of the market.

Unfair competition thus offers regulators a rich body of work from which to structure a regime that merely seeks to ensure the creation of a level playing field between entities using the same content for their profits.<sup>332</sup> Such a regime will of course entail significant administrative and other related transaction costs.<sup>333</sup> However, minimizing these costs by adopting an open-ended, decentralized enforcement regime of property rights would give rise to a plethora of other costs, as noted previously.<sup>334</sup> This framework enables regulators to avoid most of those pitfalls.

## **B. Optimizing the Regulatory Structure: Taking the Past Seriously**

How might a regulatory regime for the reuse of broadcasts (and cablecasts) be structured? In specific, who should compensation, if any, go to and how might this work? The regulatory battle between broadcast and cable television that eventually ended about a decade ago and resulted in the current regime is instructive.<sup>335</sup> The very same arguments for property rights were made by broadcasters in that context. Yet both the FCC and Congress rejected these arguments, and instead adopted a staggered regulatory regime of exclusion. The result was the emergence of a burgeoning

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332. Unfair competition and unjust enrichment have been tied together in the past, but in different contexts and, more importantly, as common law (i.e., judicial) solutions. See ANSELM KAMPERMAN SANDERS, *UNFAIR COMPETITION LAW: THE PROTECTION OF INTELLECTUAL AND INDUSTRIAL CREATIVITY* 134 (1997) (arguing for the creation of a new doctrine of “malign competition”). *But see* Caldwell, *supra* note 11, at 1111 (noting that he has “no faith in the unjust enrichment theory”).

333. Many of which might, of course, be minimized through a system of collective licensing as is currently in play. See Stanley M. Besen et al., *An Economic Analysis of Copyright Collectives*, 78 VA. L. REV. 383 (1992).

334. See *supra* Part IV.

335. See generally LE DUC, *supra* note 142.

cable industry that has all but replaced broadcast television as viewers' primary source of programming.

The history outlined in Part III reveals a gradual pattern in the development of broadcasters' current exclusionary rights. When cable television first emerged, broadcasters paid little heed to it. It was viewed as a mechanism to enhance broadcast viewership, and the retransmission of broadcast signals was allowed without any restrictions. It was only a few years later, when broadcasters began to realize that cable companies were competing with them and actually affecting their revenue model, that they began lobbying regulators for controls on cable. Their principal argument remained that while they were forced to contract with content producers for work, cable companies were able to short-circuit this requirement altogether. Both the courts and the FCC stayed away at first until Congress intervened with its copyright law revisions in 1976.<sup>336</sup> Congress made cable transmissions a form of public performance and introduced compulsory statutory licensing for secondary transmissions of broadcast signals carrying copyrighted content.<sup>337</sup> Additionally, it granted broadcasters standing to sue competing cable companies within their local jurisdiction. The new statute and the FCC's interstitial regulations allowed cable to flourish and compete with broadcasting on a level playing field. It was not until 1992, by which time cable revenues were substantial enough to compete with broadcasters' advertising revenues, that Congress introduced the system of retransmission consent, which granted broadcasters exclusionary rights over their content-carrying signals, but *only against cable companies* seeking to retransmit them.<sup>338</sup>

Of course, it was not owing to any lack of analytical foresight that policymakers consciously chose not to introduce property protection early on. The idea of "retransmission consent" was proposed in 1968 for the first time and rejected because of the nature of the industry.<sup>339</sup> Regulators

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336. See *supra* Section III.B.2.

337. *Id.*

338. For a historical overview of this, see LE DUC, *supra* note 142, at 86. See also ROBERT W. CRANDALL & HAROLD W. FURCHTGOTT ROTH, *CABLE TV: REGULATION OF COMPETITION* (1996); LELAND L. JOHNSON, *TOWARD COMPETITION IN CABLE TELEVISION* (1994). In addition, Congress also introduced a set of short-term liability rules to supplement these rights in 1992. The rules were to be reviewed periodically and extended if necessary, and were meant to operate in lieu of full-blown property regimes. See Lemley & Weiser, *supra* note 292, at 823 (analyzing these "program access rules" as modifications of traditional liability rules).

339. *In re* Amendment of Part 74, Subpart K, of the Comm'n's Rules & Regulations Relative to Cmty. Antenna Television Sys.; Notice of Proposed Rulemaking & Notice of Inquiry, 15 F.C.C.2d 417 ¶ 38 (1968). See Veraldi, *supra* note 225, at 480 ("Such consent

recognized that property rights could result in holdouts, which would in turn impede access to programming and the media.

**Figure 2: Exclusionary Protection in the Broadcast-Cable Tussle**

<b>Phase 1</b>	No regulation of cable television; FCC and courts decline jurisdiction
<b>Phase 2</b>	Congressional intervention: Cable transmissions rendered performances Broadcasters granted limited beneficial ownership Compulsory licensing introduced for retransmissions FCC issues exclusivity regulations to supplement these
<b>Phase 3</b>	FCC regulations relaxed considerably to promote cable
<b>Phase 4</b>	Retransmission consent introduced

One lesson to be learned from this phased approach to exclusionary protection is that although full-blown, exclusionary protection early on would have minimized administrative costs associated with the regime and decentralized enforcement to individual broadcasters, doing so would have killed the development of cable television as a viable alternative. It is likely that even the limited retransmission consent variant of exclusionary protection would have unduly stifled cable had it been introduced too early, which is one reason why its introduction was put off.<sup>340</sup> It was not until cable grew to a level where it was recognized as capable of competing with broadcast independently that full blown retransmission consent (i.e., exclusionary protection) was introduced.

A similar staggered approach has much to offer in the context of broadcasters' current concern that online transmissions of their signals is in some sense unfair. The past several decades of its functioning do provide a workable basis on which to structure a new regime aimed at regulating an altogether new medium of distribution.

### **C. A Staggered Approach to Regulating Online Retransmissions**

This section outlines a staggered approach to regulating webcasting based on three central principles. First, that the basis of the regime be neither proprietary nor wrong-based, but rather based purely on unfair competition and the belief that equity requires a level playing field. Second, given the centrality of unfair competition, that it be restricted exclusively to commercial webcasting, and thus that individual users would remain

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requirements probably would have prevented any competition at all from cable systems.”).

340. See Veraldi, *supra* note 225, at 480.

exempt from the regime altogether. Third, that it forecloses courts from inventing causes of action to supplement the regime since such intervention would likely upset the balance of interests.

The webcasting industry is today at a nascent stage in its development and only recently has begun to emerge as a viable alternative to traditional over-the-air and over-the-wire transmissions.<sup>341</sup> However, its success as a business model is likely to depend on several factors. The most important factor is, of course, determining the exact revenue model that these structures are likely to adopt: advertising-based, subscription-based, or a hybrid of the two.<sup>342</sup> All the same, the internet as a distribution and communication medium has been around for close to two decades now, and digital copyright liability for copying and distribution are fairly well settled. Thus, the webcasting regulatory regime must take as a given that it is an act of infringement for a company or individual to distribute or perform works online.<sup>343</sup>

### 1. *Phase I: Statutory Content Licensing for Retransmissions*

Because broadcasters, cable companies, re-broadcasters, and cable re-transmitters all have to pay to use authors' creative content, commercial webcasters ought to do so as well. This requirement can be achieved in one of two ways. The first mechanism is through voluntary licensing, which would require webcasters to negotiate with copyright owners for licenses to use their works in online transmissions. The problem with this solution is that content producers today depend on incumbent intermediary distributors for royalties, and most of the works they create are produced either under a work-for-hire clause or have had their copyright transferred to the intermediary as a precondition to distribution.<sup>344</sup> Under these condi-

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341. See generally JESSICA KEYES, *WEBCASTING: HOW TO BROADCAST TO YOUR CUSTOMERS OVER THE NET* (1997); PEGGY MILES, *INTERNET WORLD GUIDE TO WEBCASTING* (Robert M. Elliott ed., 1998). See also Matthew J. Astle, *Will Congress Kill the Podcasting Star?*, 19 HARV. J.L. & TECH. 161 (2005); Susan A. Russel, *The Struggle Over Webcasting—Where is the Stream Carrying Us?*, 1 OKLA. J.L. & TECH. 13 (2004).

342. For an analysis of a few potential business models, see Sylvia M. Chan-Olmsted & Louisa S. Ha, *Internet Business Models for Broadcasters: How Television Stations Perceive and Integrate the Internet*, 47 J. BROAD. & ELEC. MEDIA 597 (2003); and Ashok Ranchhod & Călin Gurău, *Internet-Enabled Distribution Strategies*, 14 J. INFO. TECH. 333 (1999) (studying different models in existence). See also INTERNET TELEVISION (Eli Noam et al. eds., 2004) (analyzing the different regulatory and business models that are likely to evolve in the context of internet television).

343. For an overview of some of the issues in relation to this area, see JESSICA LITMAN, *DIGITAL COPYRIGHT* (2001). See also Pamela Samuelson, *Toward a "New Deal" for Copyright in the Information Age*, 100 MICH. L. REV. 1488 (2002).

344. Wu, *supra* note 157, at 339-40.

tions, a voluntary licensing rule would require webcasters to negotiate either with powerless content producers or with powerful content distributors with whom they seek to compete directly. In the latter situation, holdouts are very likely.

A compulsory licensing mechanism, on the other hand, would largely avoid the holdout problem and have the added advantage of allowing the benefits to accrue back to content producers—the sole contributors of creativity to the entire process—who today lack independent negotiating power. In addition, it would also allow the system to take advantage of collective licensing schemes that currently exist for content, thereby minimizing the transaction costs associated with individualized licensing.<sup>345</sup> Of course, licensing here is *not* for works directly from the content producer, but rather for works *originating* from the producers but *obtained* from the capture of broadcasters' or cablecasters' signals. In other words, it is restricted to retransmissions and does not include primary transmissions, for which a regime already exists under traditional copyright law.

The compulsory licensing scheme would thus require commercial webcasters to pay a statutorily determined royalty fee for content contained in the broadcast signals they seek to use in their webcasts. If webcasters fail to make royalty payments, they would open themselves up to full copyright liability from content producers and their transferees. Sections 111 and 114 of Title 17 might provide policymakers with additional lessons, since they already contain similarly structured provisions—one for cable retransmissions and the other for webcasts of musical works.<sup>346</sup>

In this structure, commercial webcasters would be able to get access to creative content via the primary intermediaries—broadcasters and cable companies—but would have to remunerate the producers rather than the distributors of the content. This structure is analogous to the regime in Section 111 because its emphasis is on creating a level playing field. The effect of the statutory license here is thus that it enables webcasters to access content contained in traditional broadcasting without having to negotiate with either the producer or the distributor. A license under this regime would exempt a webcaster from all liability to both the broadcaster (should any exist) and the content producer (under traditional copyright). However, since only *commercial* webcasters can use this regime, non-commercial uses might still be subject to liability under traditional copy-

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345. Such as those organized by the ASCAP and BMI. For an overview of copyright collectives and their functioning, see ABRAHAM HOLLANDER, *MARKET STRUCTURE AND PERFORMANCE IN INTELLECTUAL PROPERTY: THE CASE OF COPYRIGHT COLLECTIVES* (1983).

346. See 17 U.S.C. § 111(d)(2) (2000 & Supp. IV 2004).

right. This Article leaves unanswered the broader question of whether the rules of online infringement need to be re-appraised.<sup>347</sup>

In 1997, the Copyright Office considered compulsory licensing for online retransmissions and concluded that compulsory licensing was best introduced *after* market experimentation.<sup>348</sup> Although the cable industry's compulsory licensing scheme did come into play *after* the industry had developed for over a decade, the industry in that case was not subject to copyright liability to producers or broadcasters. In the present scenario, this immunity does not exist, and consequently the market is not free to begin with.<sup>349</sup> Furthermore, were the compulsory license mechanism introduced with a legislatively determined time limitation in mind, the realization of a truly free and equitable market might be significantly more viable.<sup>350</sup> The objective should be to bring commercial webcasting on par with broadcast and cable television for it to compete, not to dilute the rights of content producers.

Enabling webcasters to retransmit creative works carried by broadcasters and cable companies should allow webcasting to develop as an inde-

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347. A recent development in this regard that pits the cable industry against webcasting is the case brought by Viacom against YouTube for direct and indirect copyright infringement. Much of the balance between commercial webcasting and the current incumbents (i.e., broadcasters and cable networks) is likely to be determined by the outcome of this case. *See Viacom Int'l Inc. v. YouTube, Inc.*, No. 1:07CV02103 (S.D.N.Y. filed Mar. 13, 2007). For commentary on the case and its potential impact, see Lawrence Lessig, *Make Way for Copyright Chaos*, N.Y. TIMES, Mar. 18, 2007, sec. 4, at 12.

348. U.S. COPYRIGHT OFFICE, A REVIEW OF THE COPYRIGHT LICENSING REGIMES COVERING RETRANSMISSION OF BROADCAST SIGNALS 97-99 (1997) (concluding that a license along these lines was likely to interfere with content owners' access to the internet's capabilities). For past suggestions in this vein, see Baoding Hsieh Fan, *When Channel Surfers Flip to the Web: Copyright Liability for Internet Broadcasting*, 52 FED. COMM. L.J. 619 (2000) (recommending a compulsory licensing regime for online webcasting); Michael Wirth & Larry Collette, *Should Congress Establish a Compulsory License for Internet Video Providers to Retransmit Over-the-Air TV Station Programming via the Internet?*, in COMMUNICATIONS POLICY IN TRANSITION: THE INTERNET AND BEYOND 397 (Benjamin M. Compaine & Shane Greenstein eds., 2001); Barbara S. Cohen, Note, *A Proposed Regime for Copyright Protection on the Internet*, 22 BROOKLYN J. INT'L L. 401 (1996). *But see* Fred H. Cate, *Cable Television and the Compulsory Copyright License*, 42 FED. COMM. L.J. 191 (1990).

349. Many of these arguments were made during a congressional committee hearing on the subject in 2000. *See Copyrighted Webcast Programming on the Internet: Hearing Before the Subcomm. on Courts and Intellectual Property of the H. Comm. on the Judiciary*, 106th Cong. (2000) [hereinafter *Webcast Hearings*].

350. *See* Picker, *supra* note 261, at 462-63 ("The modern structure of facilitating distributional entry by validating or conferring rights in copyright holders yet coupling those rights with statutory licenses has the virtue of mitigating the exercise of monopoly power and minimizing the transaction costs of negotiations.").

pendent distribution service. At the same time, it poses no threat to content producers who either seek to enter the webcasting world (e.g., YouTube) themselves or create content specifically for digital transmission. By creating a market for webcasting, the proposed Phase I regulations would induce producers to develop content specifically for internet audiences.<sup>351</sup>

Phase I is meant to track the boom that cable television experienced in its first two to three decades of existence. With the issue of copyright liability resolved by the 1976 Act, content producers began to develop content exclusively for cable television. Both cable networks and an entirely new segment of the television market soon emerged, all because of the realization that cable television was a viable alternative to broadcast television, and one for which independent content could be produced with an expectation of returns.<sup>352</sup>

## 2. *Phase II: Statutory Retransmission Consent*

Once commercial webcasting reaches a stage where it is capable of competing with traditional broadcast and cable media, Phase II should be put into place. Phase II involves a licensing mechanism analogous to retransmission consent, but with liability rule protection instead of property rule protection. Phase II is structurally similar to Phase I, as a statutory mechanism that enforces broadcasters' and cablecasters' consent for retransmission through a "compulsory authorization" rule that would operate as a statutory licensing scheme to fix the payments webcasters need to make to obtain retransmission authorization from broadcasters.

A mechanism such as this serves more than one purpose. First, by requiring webcasters to pay broadcasters and cable companies for retransmissions and copyright owners for their works, it forces webcasting as an industry (which ought to have developed substantially by the time the Phase II regime is introduced) to move toward creating an independent market for webcasting content. By *penalizing* webcasters who seek to re-

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351. Some argue that this is already occurring. See Jeff Howe, *Must-Stream TV*, WIRED, Feb. 2007, at 54 (noting how internet television shows are attempting to break into the world of television).

352. Once this happens for the internet, and content producers begin to contract independently with commercial webcasters, the regime in Phase I might be phased out. However, the dismantling ought to reflect the extent to which webcasting has developed vis-à-vis broadcasting and cablecasting in the market for independent original programming. Thus, if all or a substantial part of webcasters' content is original programming, it would be an indication that the time is ripe for the dismantling. Another alternative is to phase out the content license over a period of time. Ironically, in spite of cable television having become a dominant force in the television industry, the statutory licensing regime remains in place for no apparent reason.

main dependent on traditional broadcasters and cablecasters, it creates incentives for them to contribute in the development of an independent content market. All the same, since new entrants into webcasting are unlikely to have content made specifically for them, it allows them to develop through a statutory licensing regime in the absence of potential holdouts, which a property model would ordinarily entail.

It is likely that the period between Phase I and Phase II will be quite significant, given that in the context of cable television it took nearly sixteen years.<sup>353</sup> However, cable regulations moved directly from statutory content licensing (the same as in Phase I) to a full property rights regime of retransmission consent. The proposal here is not quite the same. A retransmission consent regime would allow broadcasters to determine the prices they charge for retransmission and additionally enable them to restrict access to their content-carrying signals in the event that negotiations with cable operators fail.<sup>354</sup> In the decade and a half since its adoption, conflicting reports exist on the effects of the retransmission consent provisions, with broadcasters continuing to assert that all is well, while cable operators argue that they are being forced to pay extortionate retransmission fees.<sup>355</sup> The rule proposed here operates midway between full retransmission consent and no liability and alleviates both holdout and pricing problems on the one hand, and inequality concerns on the other.

The retransmission authorization regime of Phase II comes closest to full-blown property protection, but would still operate against a limited set of actors and never in rem. One might argue that recognizing broadcasters' entitlements in terms of a property right, even in this limited sense, moves

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353. Statutory content licensing was introduced in the cable industry in 1976, while full retransmission consent was introduced only in 1992.

354. In 2005, the FCC reviewed the functioning of the retransmission consent regime and concluded that it had worked without any problems, therefore requiring little to no alteration to the basic mechanism. See FED. COMM'NS COMM'N, RETRANSMISSION CONSENT AND EXCLUSIVITY RULES: REPORT TO CONGRESS PURSUANT TO SECTION 208 OF THE SATELLITE HOME VIEWER EXTENSION AND REAUTHORIZATION ACT OF 2004, at 41 (2005), available at [http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/DOC-260936A1.pdf](http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-260936A1.pdf).

355. Compare National Association of Broadcasters, *Retransmission Consent*, <http://www.nab.org/AM/Template.cfm?Section=Resources&TEMPLATE=/CM/ContentDisplay.cfm&CONTENTID=7147> (last visited Nov. 27, 2006) ("Retransmission negotiations are fair and market driven when exercised.") with Am. Cable Ass'n, *Report Identifies Economic Harm Caused by Media Consolidation and Retransmission Consent Abuse Reinforces ACA's Call for Regulatory Reform* (2006) (on file with author); see also Richard A. Gershon & Bradley M. Egen, *Retransmission Consent, Cable Franchising, and Market Failure: A Case Study Analysis of Wood-TV 8 Versus Cablevision of Michigan*, 12 J. MEDIA ECON. 201 (1999).

the justification away from unfair competition/unjust enrichment towards a property-based one. The use of a liability rule (statutorily mandated authorization) instead of a property rule (voluntary authorization) ensures that this is not the case.<sup>356</sup> The justification for compensating broadcasters and cablecasters under this rule is not because their *property* has in any sense been used or their facilities have been transgressed upon, but rather for instrumental purposes closely related to the development of commercial webcasting as an independent channel of distribution.

Additionally, the unfair competition argument derives from the current regulatory framework, which already requires an incumbent with an independent source of content (i.e., cable companies) to negotiate with a broadcaster for the use of the latter's content. To fail to require the same of commercial webcasting would in a sense be unfair to cable companies that today require broadcasters' consent for retransmission as a matter of law.<sup>357</sup> The *unjust* element of the rationale therefore operates both vis-à-vis broadcasters and cablecasters, both of whom are regulated and constrained by the current regime. The use of a liability rule instead of a property rule, however, ensures an optimal and equitable solution that does not impede the overall flow of information and content.

#### D. Summation

The proposal described above is a conceptual overview of the direction a new regime aimed at developing webcasting as a viable distribution medium might take if it seeks to preserve the other beneficial characteristics of the internet. Phase II will certainly require fine-tuning and possibly regulatory intervention by the FCC, as it did for cable television,<sup>358</sup> assuming of course that the FCC decides to assume jurisdiction over web-based retransmission.<sup>359</sup> In addition, the statutory licensing and consent models

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356. For debates on whether protecting a right through a property rule in the Calabresi-Melamed formulation renders the framework "property" or not, see Henry E. Smith, *Property and Property Rules*, 79 N.Y.U. L. REV. 1719 (2004); Richard A. Epstein, *A Clear View of the Cathedral: The Dominance of Property Rules*, 106 YALE L.J. 2091 (1997).

357. The corollary is that if Congress were to relax the retransmission consent rules the "level playing field" rationale for webcasters would as a consequence disappear.

358. See *Webcast Hearings*, *supra* note 349, at 85-89. In particular, the Chairman of the International Webcasting Association (IWA) offered to work with regulators to introduce similar exclusivity-based restrictions (along the lines of the syndicated exclusivity rules), should the compulsory licensing scheme come to be adopted.

359. The FCC's jurisdiction over internet-related activity is an issue that itself has generated a lively debate. The Telecommunications Act of 1996 seemingly forbids the FCC from entering the domain of internet regulation. See 47 U.S.C. § 230(b)(2) (2000 & Supp. IV 2004) (stating that it is the policy of the United States to "to preserve the vibrant

that currently exist will of course have to be altered to accommodate the specifics of the internet world.<sup>360</sup> The exact time frame for the implementation of each phase will largely depend on the future direction of technology and the way in which the market develops.

More importantly, though, if the United States signs the WIPO Broadcast Treaty in its current format, it is unlikely that the above proposal will satisfy the mandate of the new treaty, which requires full-blown exclusionary protection intended to operate in rem, much like traditional copyright.<sup>361</sup>

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and competitive free market that presently exists for the Internet and other interactive computer services, unfettered by Federal or State regulation”); Jason Oxman, *The FCC and the Unregulation of the Internet* (FCC Office of Plans & Pol’y Working Paper Series No. 31, 1999), available at [http://www.fcc.gov/Bureaus/OPP/working\\_papers/oppwp31.pdf](http://www.fcc.gov/Bureaus/OPP/working_papers/oppwp31.pdf); Kevin Werbach, *Digital Tornado: The Internet and Telecommunications Policy* (FCC Office of Plans & Pol’y Working Paper Series No. 29, 1997), available at [http://www.fcc.gov/Bureaus/OPP/working\\_papers/oppwp29.pdf](http://www.fcc.gov/Bureaus/OPP/working_papers/oppwp29.pdf). More recent commentators argue for the FCC to step in on a case-by-case or limited basis. See James B. Speta, *FCC Authority to Regulate the Internet: Creating it and Limiting it*, 35 LOY. U. CHI. L.J. 15 (2003) (arguing for the introduction of Congressionally delegated authority to the FCC to regulate the internet); Philip J. Weiser, *Toward a Next Generation Regulatory Strategy*, 35 LOY. U. CHI. L.J. 41 (2003) (arguing that the FCC can regulate the internet using its ancillary jurisdiction). Some also argue that even if the FCC was found to be without jurisdiction in relation to the broadcast flag debate, it nevertheless remains the *most competent* body to regulate the area, given its expertise in the television industry. See Van Houweling, *supra* note 274, at 114.

360. One sees the creation of a similar regime in the context of satellite television. With the emergence of satellite television in the mid-1980s, Congress stepped in to regulate its use of broadcasters’ signals, when the satellite television industry moved from being one that merely provided service to areas not covered by broadcast and cable to one that began to compete with them. Congress’ first move was the introduction of a compulsory licensing mechanism. The Satellite Home Viewer Act of 1988, Pub. L. No. 100-667, tit. 2, 102 Stat. 3935, 3949 (codified at 17 U.S.C. § 119 (2000 & Supp. IV 2004)). In 1999 Congress amended its regulation of satellite television again, with the realization that the segment had grown commercially, to now subject it to the retransmission consent rule, but with numerous exceptions. The Satellite Home Viewer Improvement Act of 1999, Pub. L. No 106-113, app. I, tit. 1, 113 Stat. 1501, 1501A-523 (codified at 47 U.S.C. § 325(b)(2) (2000 & Supp. IV 2004)). An interesting question is of course whether web-casting qualifies as a “multichannel video programming distributor,” as defined under the section. If this were indeed the case, much of the present debate would be rendered moot. For a recent interpretation of some of these provisions and their purpose, see *CBS Broad., Inc. v. Echostar Commc’ns Corp.*, 265 F.3d 1193 (11th Cir. 2001) (concluding that the SHVA does not violate a carrier’s First Amendment rights).

361. In an elaborate study examining the compatibility of the § 111 statutory licensing standard with the United States’ obligations under international copyright law, David Brennan concludes that the compulsory licensing regime would indeed be in violation of both the Berne Convention and the TRIPs Agreement, both of which recognize content

The current U.S. regime with its exclusionary rights for broadcasters emerged in spite of the U.S. not being a party to the Rome Convention. That the United States participated in the Convention's drafting and yet chose not to sign it hints that the U.S. might strategically favor implementing exclusionary privileges without being mandated to do so by an international treaty, especially given that the current regulatory regime arose from the unique characteristics of television broadcasting in the United States.<sup>362</sup>

## VI. CONCLUSION

In his now classic study of the reasons why individuals seek to create or modify property rights regimes over resources, Gary Libecap argued that the primary motivations were often (i) shifts in relative prices; (ii) changes in technology; or (iii) shifts in parties' political influence.<sup>363</sup> In some form, all three reasons seem to have motivated incumbents' most recent claims for open-ended property rights over their transmission signals. The emergence of the internet as a low-cost medium of distribution, the ease with which broadcasters and cablecasters can now reach audiences across the globe with few regulatory problems, and the rising economic power of the cable and broadcast industries are all responsible for the recent push towards a new regime.

This Article has attempted to show that much can be learned by examining the history of exclusionary rights regimes in the television industry, the political process through which they evolved, the compromises that

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producers' exclusive right to broadcast the work in question. The United States is a party to both treaties—but continues to retain the compulsory licensing framework and its extensions to additional distribution channels (i.e., satellite broadcasting). Interestingly, the study does not analyze the issue of broadcasters' rights in any detail. DAVID J. BRENNAN, *RETRANSMISSION AND US COMPLIANCE WITH TRIPS 305* (2003).

362. In this context, note that the United States is one of the main countries at the WIPO that is pushing for the extension of the current WIPO Broadcast Treaty's provisions to webcasting—ironically enough, in order to grant webcasters property rights over their internet-based transmissions. This would allow commercial webcasters to exercise full exclusionary protection against individuals making use of their webcasts online and interfere more directly with the user dynamic discussed before. As the treaty heads to the General Assembly, the United States remains the only country still adamant about the webcasting proposal and there remains a strong likelihood that the non-inclusion of this aspect alone could result in its not signing on to the final version. *See* WIPO, *Submission of the United States of America to the WIPO Standing Committee on Copyright and Related Rights*, WIPO Doc. No. SCCR/15/INF/2 (Aug. 22, 2006), available at [http://www.wipo.int/edocs/mdocs/copyright/en/sccr\\_15/sccr\\_15\\_inf\\_2.pdf](http://www.wipo.int/edocs/mdocs/copyright/en/sccr_15/sccr_15_inf_2.pdf).

363. GARY D. LIBECAP, *CONTRACTING FOR PROPERTY RIGHTS 16-19* (1989).

they represent, and the doctrinal structures through which they came to be implemented. Even though the United States never implemented a system of broadcasters' rights, its domestic television industry did not develop without the idea of property rights altogether, despite the fact that the United States was never a signatory to the Rome Convention. For nearly four decades, however, policymakers and regulators have continued to deploy property institutions to regulate competition between different players in the industry—broadcasters, cable operators, and content producers. Not surprisingly, the beneficiaries at each stage sought more expansive rights than they were eventually given. *Attenuated exclusionary protection* thus formed the backbone of the system, which over the years came to develop an equilibrium—one characterized by sporadic regulatory intervention—all in the name of the ideal of “public interest” that at least notionally guided lawmakers.

The new regime that current incumbents are seeking is a continuation of this process, except that, perhaps for the first time, the right being sought is in rem in nature and aimed at the activities of the principal beneficiary of the internet revolution, the *individual user*. Unlike in the past, the primary target of the exclusionary regime is the public, and the public is without direct representation in the negotiation process.

This Article has argued that there is very little justification for the broad and open-ended exclusionary regime that broadcasters and cable companies now seek. To the extent that a justification exists, it is limited to the inequity of the current regulatory framework, which subjects the current incumbents to liability *inter se* but exempts new commercial ventures like webcasters. This result is especially inequitable since these ventures employ similar revenue models and additionally capitalize on the virtues of the internet. A staggered implementation proposal that employs the same concept of attenuated exclusionary privileges to at once enable new incumbents to develop and subject them to the same staggered approach that each of the current incumbents went through in the past will remedy this seeming inequity and re-create a level playing field. This regime derives from the ideals of unfair competition and unjust enrichment rather than from a property right, thereby foreclosing the possibility of any in rem claims while ensuring that competing distribution channels are not treated disparately.

In the end, all of this may come to mean very little, if the United States should choose to refrain from signing the final instrument of the WBT, in spite of its active participation in the drafting and treaty-making processes. Indeed, its past record in this area, with the Rome Convention, as well as

other more recent instances, such as with the Kyoto Protocol<sup>364</sup> and the Rome Charter of the International Criminal Court,<sup>365</sup> make this a distinct possibility. Nevertheless, should the idea of property rights in broadcast signals ever raise its head in domestic policy discussions, regulators and policymakers will hopefully study the long and relatively complex history of the idea, for “a page of history is [often] worth a volume of logic.”<sup>366</sup>

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364. See generally Jon Hovi et al., *The Persistence of the Kyoto Protocol: Why Other Annex I Countries Move On Without the United States*, 3 GLOBAL ENV. POL. 1 (2003) (trying to understand reasons for the United States' reluctance to sign the Kyoto Protocol).

365. See generally SARAH B. SEWALL & CARL KAYSEN, *THE UNITED STATES AND THE INTERNATIONAL CRIMINAL COURT* (2000) (attempting to understand why the United States has not signed the ICC Charter in spite of the fact that the ICC represents the “triumph of American values in the international arena”).

366. *Eldred v. Ashcroft*, 537 U.S. 186, 188 (2003) (quoting Justice Holmes' dictum in *N.Y. Trust Co. v. Eisner*, 256 U.S. 345, 349 (1921)); *eBay, Inc. v. MercExchange, L.L.C.*, 126 S. Ct. 1837, 1842 (2006) (same). Interestingly, both the *Eldred* and *eBay* cases involved intellectual property issues, the former copyright term and the latter patent injunctions.

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# THE LIMITS OF CLAIM DIFFERENTIATION

*By Mark A. Lemley<sup>†</sup>*

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### I. INTRODUCTION

The process of claim construction is the most important part of patent litigation. Courts employ a number of rules, or canons, to reach an understanding of what patent claims mean. Of these, the doctrine of claim differentiation has arguably had the most significant impact on claim construction. Understood most broadly, the claim differentiation doctrine provides that no two claims in the same patent should be interpreted to have the same scope.

As a general matter, applying the doctrine of claim differentiation results in broader constructions of patent claims, because it is most commonly used to prevent defendants from limiting a broad genus claim to the range of embodiments actually disclosed or more explicitly recited in other claims. Sometimes this is the right result, because defendants are improperly seeking to limit broader genus claims to the preferred embodiments disclosed in the specification. But at other times it leads to problematic results by expanding claims to cover things the patentee never intended.

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† William H. Neukom Professor, Stanford Law School; of counsel, Kecker & Van Nest LLP. I represented Google in the case between Yahoo! and Google discussed in this article, so I want to emphasize that my opinions are my own, and not those of my firm or my clients. I am grateful to Dennis Crouch, Daralyn Durie, Rose Hagan, Leo Lam, and Joe Miller for comments on an earlier draft and to Sarah Craven for research assistance above and beyond the call of duty on the empirical aspects of this study.

In this Article, I conduct an empirical review of claim differentiation decisions in the Federal Circuit and in the district courts, and I suggest limiting principles that can be used to guide courts in their application of the doctrine.

## II. CANONS OF CLAIM CONSTRUCTION

The process of claim construction—determining the meaning of patent claims—is central to patent litigation. Once patent claims are construed in a “*Markman* hearing,”<sup>1</sup> cases generally either settle or are resolved on summary judgment.<sup>2</sup> Accordingly, courts and commentators have paid a great deal of attention to both the process of claim construction and the interpretive sources courts can use to determine the meaning of patent claims.<sup>3</sup> Indeed, the Federal Circuit recently decided *Phillips v. AWH Corp.* en banc to settle the much-debated question of when it is acceptable to rely on the text of the patent, the prosecution history, dictionaries, and expert testimony in construing patent claims.<sup>4</sup>

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1. So called because of the Supreme Court decision in *Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996), which held that claim construction was a question of law for the judge.

2. For efforts to estimate settlement rates in patent cases, which are somewhere between 80% and 98% of all cases, see William M. Landes, *An Empirical Analysis of Intellectual Property Litigation: Some Initial Preliminary Results*, 41 HOUS. L. REV. 749 (2004); Jay P. Kesan & Gwendolyn G. Ball, *How Are Patent Cases Resolved? An Empirical Examination of the Adjudication and Settlement of Patent Disputes*, 84 WASH. U. L. REV. 247 (2006). There are only about 100 patent trials a year out of roughly 3000 suits filed. For some evidence of the increase in summary judgment grants after *Markman*, particularly in favor of defendants, see John R. Allison & Mark A. Lemley, *The (Unnoticed) Demise of the Doctrine of Equivalents*, 59 STAN. L. REV. 955 (2007).

3. Among the many scholarly articles on claim construction, see, for example, Symposium, 9 LEWIS & CLARK L. REV. 1 (2005); Ben Hattenbach, *Chickens, Eggs and Other Impediments to Escalating Reliance on Dictionaries in Patent Claim Construction*, 85 J. PAT. & TRADEMARK OFF. SOC'Y 181 (2003); Joseph Scott Miller & James A. Hilsenteger, *The Proven Key: Roles and Rules for Dictionaries at the Patent Office and the Courts*, 54 AM. U. L. REV. 829 (2005); Craig Allen Nard, *A Theory of Claim Interpretation*, 14 HARV. J.L. & TECH. 1 (2000); Kristen Osenga, *Linguistics and Patent Claim Construction*, 38 RUTGERS L.J. 61 (2006); R. Polk Wagner & Lee Petherbridge, *Is the Federal Circuit Succeeding? An Empirical Assessment of Judicial Performance*, 152 U. PA. L. REV. 1105 (2004).

4. *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). Despite the court's broad agreement on the hierarchy of interpretive sources, which focuses on the patent specification and the context of the invention at the time it was made, the court continues to disagree about the application of those rules to specific cases. Indeed, Hal Wegner has found that there are three times as many dissents in claim construction cases after *Phillips* as before. See Philip Brooks' Patent Infringement Updates, *The Call for*

Surprisingly, courts and commentators have paid less attention to the canons of claim construction. Courts use a number of such rules in applying the interpretive sources to reach an understanding of what patent claims mean. For example, courts may rely on the examples given in the specification to understand and interpret the meaning of claim language,<sup>5</sup> but they may not use examples to read new limitations into those claims.<sup>5</sup> Courts generally should not interpret a claim in a way that excludes the preferred embodiment.<sup>6</sup> Courts have also long applied a canon that patent claims should be construed to preserve their validity,<sup>7</sup> though that canon is in some disfavor today and is applied only in marginal cases.<sup>8</sup> There is even a “tie-breaker” canon that provides that if two alternative interpretations are equally plausible, the court will choose the narrower interpretation to avoid unfair surprise to the public.<sup>9</sup>

The doctrine of claim differentiation is the canon that has arguably had the most significant impact on claim construction. Used in sixty-nine reported Federal Circuit decisions and many more district court opinions in the past nine years, claim differentiation is based on the presumption that patent applicants almost always write multiple claims in an effort to get several different tries at capturing their invention in words.<sup>10</sup> Patentees often hedge their bets by “nesting” multiple claims, drafting broad claims that defendants are likely to infringe, but which courts are more likely to find invalid, as well as narrow claims that cover less ground, but which courts are therefore more likely to find valid. The claim differentiation

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*Claim Construction Improvement*, [http://infringement.blogs.com/philip\\_brooks\\_patent\\_infr/2006/12/the\\_call\\_for\\_cl.html](http://infringement.blogs.com/philip_brooks_patent_infr/2006/12/the_call_for_cl.html) (Dec. 8, 2006) (citing Harold C. Wegner, *The Non-Precedential Claim Construction Black Hole*, at 36 (2006), [http://www.patenthawk.com/blog\\_docs/060814\\_BlackHoleClaimConstruction\\_Wegner.pdf](http://www.patenthawk.com/blog_docs/060814_BlackHoleClaimConstruction_Wegner.pdf)).

5. See, e.g., *Renishaw PLC v. Marposs Societa' Per Azioni*, 158 F.3d 1243, 1248 (Fed. Cir. 1998).

6. *Burke, Inc. v. Bruno Indep. Living Aids, Inc.*, 183 F.3d 1334, 1341 (Fed. Cir. 1999).

7. *Modine Mfg. Co. v. U.S. Int'l Trade Comm'n*, 75 F.3d 1545, 1557 (Fed. Cir. 1996).

8. *Phillips*, 415 F.3d at 1327; *Rhine v. Casio, Inc.*, 183 F.3d 1342, 1345 (Fed. Cir. 1999).

9. *Athletic Alternatives, Inc. v. Prince Mfg., Inc.*, 73 F.3d 1573, 1581 (Fed. Cir. 1996); cf. *Northern Telecom Ltd. v. Samsung Elecs. Co.*, 215 F.3d 1281, 1295 (Fed. Cir. 2000) (noting the limited nature of this tie-breaker rule).

10. See John R. Allison & Mark A. Lemley, *Who's Patenting What? An Empirical Exploration of Patent Prosecution*, 53 VAND. L. REV. 2099, 2149 tbl.5 (2000) (finding that patents have 14.87 claims on average, and a median of 12 claims).

doctrine in its broadest reading provides that no two claims in the same patent should be interpreted as having the same scope.<sup>11</sup>

The doctrine seems to flow from a parallel doctrine of statutory construction that rejects statutory interpretations that would render a provision redundant or superfluous, presumably because Congress would not knowingly pass the same statute twice.<sup>12</sup> Similarly, because the Patent and Trademark Office (PTO) charges applicants a fee for each claim, and because applicants must pay attorneys to draft those claims, the law presumes that applicants do not waste their money by drafting two claims that mean exactly the same thing.<sup>13</sup> As a result, courts generally reject an interpretation of a claim term that renders that claim redundant of another claim.<sup>14</sup>

### III. CLAIM DIFFERENTIATION AND ITS PROBLEMS

Courts rely heavily on the doctrine of claim differentiation. In the last ten years alone, federal courts have done so hundreds of times.<sup>15</sup> As a gen-

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11. See, e.g., *Ecolab, Inc. v. Paraclipse, Inc.*, 285 F.3d 1362, 1375 (Fed. Cir. 2002). This version is the one that seems to be applied in the PTO, for example. See 37 C.F.R. § 1.75(b) (2006) (“More than one claim may be presented provided they differ substantially from each other.”).

12. The legal maxim is *lex rejicit superflua, pugnancia, incongrua* (“[T]he law rejects superfluous, contradictory, and incongruous things.”). FRANCIS BENNION, STATUTORY INTERPRETATION § 316, at 776 (3d ed. 1997). For applications, see, for example, *South Carolina v. Catawba Indian Tribe, Inc.*, 476 U.S. 498, 510 n.22 (1986) (“It is an ‘elementary canon of construction that a statute should be interpreted so as not to render one part inoperative.’”); *Mackey v. Lanier Collection Agency & Service, Inc.*, 486 U.S. 825, 837 (1988) (“[W]e are hesitant to adopt an interpretation of a congressional enactment which renders superfluous another portion of that same law”). *But see* CAL. CIV. CODE § 3537 (West 1997) (“Superfluity does not vitiate.”).

13. Cf. *Smith & Nephew, Inc. v. Ethicon, Inc.*, 276 F.3d 1304, 1310 (Fed. Cir. 2001) (relying on patent prosecution practice to justify the claim differentiation doctrine).

14. Cf. *Nomos Corp. v. BrainLAB USA, Inc.*, 357 F.3d 1364, 1368 (Fed. Cir. 2004) (referring to claim differentiation as “a guide, not a rigid rule”).

15. An analysis of 136 recent Federal Circuit and district court cases that dealt with the issue of claim differentiation illuminates judicial application of claim differentiation. Ten did not ultimately decide the merits of the claim differentiation question, leaving 126 cases. Of those, 90, or 71.4%, applied the doctrine in interpreting the claim; only 36 did not apply the doctrine.

I included all Federal Circuit cases dealing with claim differentiation between June 1998 and October 2006 and a sampling of district court cases between June 2000 and October 2006. For each year, I selected between 7-10 district court cases (though 15 for 2006, and only four cases for 2000) by going down the chronological order list retrieved by Westlaw using the term “claim differentiation.” I recognize the statistical limits of this selec-

eral matter, applying the doctrine results in broader constructions of patent claims, because it is most commonly used to prevent defendants from limiting a broad genus claim to the narrower range of embodiments actually disclosed or more explicitly recited in other claims. When defendants are indeed improperly seeking to limit broader genus claims to the examples disclosed in the specification, this is the right result. But at other times the doctrine can lead courts astray, causing them to expand the scope of one claim beyond what the patent supports merely to distinguish that claim from another.

For example, in *Phillips v. AWH*, the court interpreted a claim to encompass an embodiment of an invention that would not achieve the purpose of the invention. At issue in *Phillips* was the term “baffles” in a claim for a bulletproof prison wall. “Baffles” are metal reinforcements attached to the interior of the wall to prevent bullets from passing through the wall entirely. Because a metal support perpendicular to the wall will stop a bullet only if the bullet enters the wall directly into the support end-on, “baffles” are normally attached at oblique angles to the wall. Nevertheless, the Federal Circuit held en banc that “baffles” included metal supports oriented at ninety degrees to the wall because a separate claim in the patent referred to baffles “projecting inwardly from the outer shell at angles tending to deflect projectiles that penetrate the outer shell.”<sup>16</sup> The court reasoned that because one claim specified that baffles projected at particular angles, the characteristic of projecting at such angles could not be inherent in the term “baffles” itself. The problem with this interpretation is that the purpose of a “baffle” in the invention was to stop bullets from penetrating the wall. As Judge Lourie’s dissent correctly observed, a metal support attached at a right angle to the wall will stop a bullet only in the rare instances where the bullet is fired at an extremely acute angle to the wall or the bullet happens to hit right at the point where the baffle meets the wall. A steel support oriented at ninety degrees fails to achieve the purpose of the invention except by accident.<sup>17</sup> The doctrine of claim differentiation led the court astray in this case.

The problem with the doctrine of claim differentiation is that it proceeds from a false premise. It may or may not be reasonable for courts to presume that Congress does not intend to pass redundant statutes.<sup>18</sup> But

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tion method; I use it not to prove any fact about district court or Federal Circuit decisions but to get a flavor of the ways the claim differentiation doctrine has been used.

16. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1309-10 (Fed. Cir. 2005) (en banc).

17. *Id.* at 1329 (Lourie, J., dissenting).

18. Actually, I am skeptical that Congress never passes redundant legislation. Legislators may well have incentives to pass redundant statutes in order to score points with

patents are not like statutes. Patent applicants who draft multiple claims quite often *are* trying to be redundant. A patentee with sixty claims does not have sixty different inventions; indeed, patent law prevents an applicant from prosecuting different inventions in the same application.<sup>19</sup> Rather, patent applicants draft multiple claims because writing words to define ideas is an inherently difficult and uncertain process,<sup>20</sup> and taking multiple bites at the apple gives patentees a greater chance of successfully capturing their single invention in words. Although patentees sometimes draft different patent claims to cover broader or narrower ranges, in the “nesting” approach described above, it is more common for them to write multiple claims using different words to define a single attribute or embodiment of their invention.

When a patentee makes multiple attempts to define a particular attribute of an invention, the canon of claim differentiation is likely to lead courts astray. If the patentee is using different words to mean the same thing, a rule that requires each set of words to have its own unique meaning creates artificial distinctions not intended by the patentee, and accordingly means the court has likely misinterpreted at least one of the claims. The doctrine also leads to a fruitless search for gradations in meaning that simply may not exist. And by requiring courts to give a broader meaning to one claim to differentiate it from another, claim differentiation tends to artificially expand the scope of patent claims.

A recent patent dispute between Yahoo! and Google demonstrates how the canon of claim differentiation can lead to such absurd results. Yahoo! holds a patent on the arrangement of search results based on the lister’s willingness to pay per click.<sup>21</sup> Yahoo!’s predecessor Overture sued Google for infringing that patent. Google argued that it did not order its ad results in the way required by Overture’s patent. The question in the case was how to interpret the claim language covering the ordering of search list-

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voters or to embarrass adversaries. The statutory interpretation canon may have more to do with discouraging duplicative legislation than with accurately understanding what the legislature has done.

19. 35 U.S.C. § 121 (2000).

20. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 731 (2002) (“Unfortunately, the nature of language makes it impossible to capture the essence of a thing in a patent application.”); Dan L. Burk & Mark A. Lemley, *Quantum Patent Mechanics*, 9 LEWIS & CLARK L. REV. 29 (2005); Jim Bessen & Michael Meurer, *If You Can’t Tell the Boundaries, Then It Ain’t Property*, in INNOVATION AT RISK (forthcoming 2008), available at <http://researchoninnovation.org/dopatentswork/dopat3.pdf>.

21. U.S. Patent No. 6,269,361 (filed May 28, 1999).

ings.<sup>22</sup> Different claims variously covered ordering search listings “in accordance with” the amount bid (independent claim 1), in an order “determined using” bid amounts (independent claim 14), in a strict order of “ordinal rank value” from highest to lowest bid (claim 18, which depended from claim 14), “in an order corresponding to” the amount bid (independent claim 30), and once again in a strict order of “ordinal rank value” from highest to lowest bid (claim 46, which depended from claim 30). How can a court make sense of these terms?<sup>23</sup> There seem two ways to order search results contemplated by the patent—a strict ordinal ranking from highest to lowest bid, or a more complex algorithm in which bid amount is only one of several factors in determining ranking. But there are at least four different terms describing the ordering: “in accordance with,” “determined using,” “corresponding to,” and in strict “ordinal rank value.” Trying to find four different ways in which bid amounts can affect the order of search listings seems futile; these four claims simply do not have four different meanings, and *Overture* probably did not intend four different things by using four different terms.

Strategic claim drafting can exacerbate this disconnect between the intended meaning of a claim term and the meaning determined by applying the doctrine of claim differentiation. Patent prosecutors often differentiate claims not because they have a different scope in mind for different claims, but because they know that the courts will apply the claim differentiation doctrine in a *Markman* hearing. These prosecutors bank on courts seeking different meanings for at least some of the claim terms that, in fact, overlap in meaning, thereby unfairly broadening the scope of the patent. It is standard fare at patent continuing legal education programs to encourage prosecutors to arbitrarily choose different words in different claims for just this reason.<sup>24</sup> If patent lawyers are not actually seeking to differentiate claims, but instead using the claim differentiation doctrine to game the claim construction process, rote application of the canon simply plays into their hands.

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22. Complaint, *Overture Servs., Inc. v. Google Inc.*, No. 02-01991 (N.D. Cal. Apr. 23, 2002).

23. Because the case settled before a *Markman* order, the court in that case did not have to resolve this issue.

24. This was my experience in the “Strategic Prosecution” session at the University of Texas Advanced Patent Law Institute in October 2006, for example.

#### IV. PROPERLY APPLYING CLAIM DIFFERENTIATION

Does this mean that courts should abandon the doctrine of claim differentiation altogether? I think that would go too far. The canon sometimes gets it right, helping to sustain the rule against importing limitations from the specification into the claim. Sometimes, but not always. Courts should recognize that claim differentiation is a canon that can sometimes help but sometimes hurt the process of determining the meaning of a claim.

It is not enough, of course, to suggest that courts should apply the doctrine only when it helps. Fortunately, there is an identifiable class of cases where claim differentiation is likely to do more good than harm. Those are the cases with “nested” claims,<sup>25</sup> in which the patentee is attempting to create both broader and narrower claims to hedge its bets against the invalidation of the broader claims. This Part lays out several guidelines that can help courts identify these nested claims and limit application of the doctrine to circumstances in which it helps illumine the proper meaning of the claims.

First, courts should not use the doctrine unless the claims in question are in an independent-dependent relationship. Dependent claims are necessarily narrower versions of an independent claim, since they include all the limitations of the independent claim and add new limitations. Patentees write dependent claims in order to differentiate the scope of their claims, so it will often make sense to use claim differentiation in that context. Indeed, an interpretation of an independent claim that renders it identical to a claim that depends from it would defeat the purpose of having a dependent claim. By contrast, if the claims are not in a dependent relationship—if they are both independent, or if one is dependent not on the other but rather on a third claim not at issue—the superfluity rationale for claim differentiation loses much of its force.<sup>26</sup> As an initial matter, therefore, it makes sense to limit the doctrine of claim differentiation to claims in a dependent relationship.

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25. A nested claim is one in which the broader claim covers a range, and the narrower claim is a subset of that broader range. For example, if claim 1 covers a process that operates at a temperature of 200-400 degrees Fahrenheit, and claim 2 covers the same process at a temperature of 275-325 degrees, the two claims are nested.

26. The Federal Circuit has recognized this, suggesting on several occasions that the justification for applying claim differentiation was strongest when the claims were in a dependent relationship. *E.g.*, *Liebel-Flarsheim Co. v. Medrad, Inc.* (*Liebel-Flarsheim 2004*), 358 F.3d 898, 910 (Fed. Cir. 2004); *Wenger Mfg., Inc. v. Coating Mach. Sys., Inc.*, 239 F.3d 1225, 1233 (Fed. Cir. 2001).

The data I analyzed suggest that courts have generally, but not always, applied the doctrine of claim differentiation in this way.<sup>27</sup> Of the 69 Federal Circuit cases analyzed, 50 involved claim differentiation arguments based on an independent-dependent relationship, 15 involved arguments based on two independent claims, and 4 involved both. Notably, the Federal Circuit applies claim differentiation 80% of the time when the claims are in a dependent relationship, and rejects it more than half the time when claims are not.

**Table 1**  
**Relationship of Claim Type to the Application of Claim**  
**Differentiation in the Federal Circuit**

	<i>Accepted</i>	<i>Rejected</i>	<i>Did Not Decide</i>	<i>Total</i>
<u>Dependent</u>	36	9	5	50
<u>Independent</u>	6	9	0	15
<u>Both</u>	3	1	0	4
<b><u>Total</u></b>	45	19	5	69

Unfortunately, district courts have not been as clear in limiting application of claim differentiation to claims in a dependent relationship, as Table 2 indicates.

**Table 2**  
**Relationship of Claim Type to the Application of Claim**  
**Differentiation in the District Courts**

	<i>Accepted</i>	<i>Rejected</i>	<i>Did Not Decide</i>	<i>Total</i>
<u>Dependent</u>	35	10	0	45
<u>Independent</u>	10	6	5	21
<u>Both</u>	1	0	0	1
<b><u>Total</u></b>	46	16	5	67

During the period surveyed, district courts, like the Federal Circuit, heard claim differentiation arguments much more frequently in the dependent claim context, and were just as likely as the Federal Circuit to accept the argument in that context. However, unlike the Federal Circuit, district courts were more willing to accept claim differentiation arguments in the independent claim and mixed contexts as well. The Federal Circuit's

27. This data is available at [http://www.btlj.org/data/articles/22\\_01\\_04\\_data.pdf](http://www.btlj.org/data/articles/22_01_04_data.pdf)

recently issued *Curtiss-Wright* decision explains why claim differentiation makes more sense in the dependent claim context<sup>28</sup> and hopefully will encourage district courts to confine their claim differentiation analyses to the dependent claim context.

Second, patent claims that differ in the ranges or group sizes they identify are far more likely to be “nested” than claims that differ only in their descriptive words. Obviously, claim differentiation tells us what we already know here—two different numerical ranges should be interpreted differently. But claim differentiation should also be applied where one claim defines a genus in terms of its non-numerical characteristics and another claim specifies a numerical range. For example, if claim 1 covers “large widgets”<sup>29</sup> and claim 2 covers “the widgets of claim 1 that are at least two cubic meters in size,” it is reasonable to infer that “large” in this context encompasses at least some embodiments that are less than two cubic meters.<sup>30</sup> By contrast, suppose that claim 1 covers “large widgets” and claim 2 covers “sizeable widgets.” The doctrine of claim differentiation would instruct us that “sizeable” must mean something different than “large.” But it is unlikely that the applicant intended any such gradation between the two claims, particularly if the claims are not in a dependent relationship. Rather, the patentee is more likely hedging her bets, choosing different words for any number of reasons—in case the meaning of one of the claims is unclear to a court, in case one claim is invalidated or held not infringed based on the interpretation of one of the claim terms, or because the drafter hopes to take strategic advantage of the claim differentiation doctrine itself.

Third, courts should apply the doctrine of claim differentiation only where the claims in question are identical except for the elements being

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28. *Curtiss-Wright Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1380-81 (Fed. Cir. 2006).

29. “Widget” has long been the standard term in economics for a mythical product sold in markets that are the subject of economics exams. In the last few years, it has also come to mean an applet used on a computer or mobile phone. *See* Wikipedia, Widget, <http://en.wikipedia.org/wiki/Widget> (last visited Nov. 12, 2007). I am referring to the former definition.

30. This principle need not be confined to numerical examples. Thus, in *Intamin Ltd. v. Magnetar Technologies, Corp.*, the Federal Circuit held that where a dependent claim reads “[t]he braking device of claim 1 wherein said intermediary is non-magnetic,” the reference to an “intermediary” in claim 1 must include both magnetic and non-magnetic intermediaries. 483 F.3d 1328, 1335 (Fed. Cir. 2007). *But cf.* *PODS, Inc. v. Porta Stor, Inc.*, 484 F.3d 1359 (Fed. Cir. 2007) (finding that an element of one claim referring to a “carrier frame” required that the frame have four sides, even though a separate claim specifically identified a four-sided carrier frame, because the specification consistently referred to carrier frames as having four sides).

differentiated. The superfluity rationale that underlies claim differentiation makes the most sense in such cases, where interpreting the elements at issue to have the same meaning renders the two claims identical in scope and therefore redundant. However, where two claims each have more than one element that differs, there is less reason to apply the doctrine. In those cases, interpreting an element from one claim as having an identical meaning as an element in the second claim will not render the two claims identical in scope. To return to an example used above, two claims otherwise identical except for the use of the term “large widgets” in one claim and “sizeable widgets” in the other claim would indeed be superfluous if large meant the same thing as sizeable, though as I argued above, that is not necessarily a reason to construe them differently. But if one claim referred to “large green widgets” and the other to “sizeable widgets,” understanding “large” and “sizeable” to mean the same thing still leaves the two claims meaning different things, since only one claim requires that the widgets be green. The superfluity concern does not apply in that case.

Finally, courts should temper the application of the canon of claim differentiation by checking the results of their claim interpretation against the context and likely scope of the invention. If application of the canon of claim differentiation produces a result at odds with the purpose of the invention or the way it is described in the specification, that fact should raise red flags. Just as courts are reluctant to interpret a claim in a way that excludes the preferred embodiment, because doing so suggests that an interpretation was not intended by the patentee, courts should be reluctant to interpret a claim in a way that departs from the purpose or described scope of the invention. A failure to conduct such a reality check led to the odd result in *Phillips*, where the patent was construed to encompass embodiments of the invention that would not perform the patent’s intended function. Once again, the language of *Curtiss-Wright* is salutary and should give district courts guidance in applying this rule.<sup>31</sup>

The context-purpose test should not be absolute. To begin, the test requires the court to figure out the purpose of the invention, a difficult task given that applicants sometimes attempt to conceal an invention’s purpose in hopes of broadening their claim scope. Sometimes the only way to understand a claim without doing violence to the rules of grammar or syntax is to read the claim to include embodiments of the invention that likely

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31. *Curtiss-Wright*, 438 F.3d at 1381 (“[T]wo considerations generally govern this claim construction tool when applied to two independent claims: (1) claim differentiation takes on relevance in the context of a claim construction that would render additional, or different, language in another independent claim superfluous; and (2) claim differentiation ‘can not broaden claims beyond their correct scope.’”).

were not contemplated by the inventor. This will happen where a patent applicant has intentionally gamed the doctrine by putting the broadest numerical range of the invention in a nested dependent claim, for example. In those cases, the law offers one final backstop—invalidity of the claim under the enablement or written description doctrines.<sup>32</sup>

Under the enablement doctrine, a claim that is ultimately interpreted to cover an embodiment the patentee did not intend to cover when the application was filed will often be invalidated for failure to teach a person having ordinary skill in the art (PHOSITA) how to make and use the invention. A great example is *Liebel-Flarsheim v. Medrad, Inc.*<sup>33</sup> There, the Federal Circuit in an earlier 2004 appeal applied the doctrine of claim differentiation to conclude that an independent claim that required an “opening” in a medical device did not require a particular type of opening known as a pressure jacket.<sup>34</sup> On remand, the district court held that the claim as construed was not enabled, and in 2007 the Federal Circuit affirmed.<sup>35</sup> The patentee’s attempt to game the system using the doctrine of claim differentiation succeeded at the claim construction stage, but ultimately resulted in the claim being invalidated.

Sometimes, however, a claim may be enabled even though it was not contemplated by the patentee. In some cases, the PHOSITA could have made and used the broader claimed invention even though the patentee did not in fact think of it. Here enablement will not limit the broadening of claims, but the written description doctrine may step in to solve the problem. The written description doctrine requires the patentee to demonstrate that she was in fact in possession of the invention at the time of filing.<sup>36</sup> While written description cases outside the DNA context have generally involved patentees who changed their claims after filing to cover an embodiment that they did not possess as of the filing date, the doctrine has since been expanded to cover originally-filed claims outside of biotechnology,<sup>37</sup> and one could see the judicial expansion of the claim to cover scope unanticipated by the patentee as akin to the patentee’s improper broadening of claims by amendment, in both cases resulting in invalidity of the broader claim.

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32. 35 U.S.C. § 112, ¶ 1 (2000).

33. *Liebel-Flarsheim Co. v. Medrad, Inc.* (*Liebel-Flarsheim 2007*), 481 F.3d 1371, 1374-75 (Fed. Cir. 2007).

34. *Liebel-Flarsheim 2004*, 358 F.3d at 912.

35. *Liebel-Flarsheim 2007*, 481 F.3d at 1371.

36. *Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473 (Fed. Cir. 1998).

37. *See, e.g., Lizardtech, Inc. v. Earth Resource Mapping, Inc.*, 424 F.3d 1336 (Fed. Cir. 2005).

The application of the enablement or written description doctrines to solve problems created by applying claim differentiation should be a last resort. Both doctrines require the court to determine whether the patentee claims something beyond what she in fact possessed at the time of filing, a difficult task for the court. A better approach is to solve most of these problems by judicious application of the claim differentiation canon.

## V. CONCLUSION

Properly cabined, claim differentiation should not render claims invalid merely because the patentee did not possess the invention the court has now decided she claimed. Instead, it should result in narrower but valid claims, except in cases in which the patentee has strategically sought to expand those claims beyond what the patent's specification will support. A canon of claim construction that is not absolute, but sensitive to the context of the invention and the way in which the words in question interact, will help courts achieve the elusive goal of interpreting claims to give the patentee effective protection while discouraging gamesmanship and avoiding absurd results. I have offered several principles for applying the doctrine in such a context-sensitive manner. Recent Federal Circuit decisions suggest that the court is sensitive to the problem and mostly applies the doctrine appropriately, despite the aberration of *Phillips*. Hopefully, over time, district courts will apply the doctrine more judiciously as well.

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# GLOBALIZATION AND THE TECHNOLOGY STANDARDS GAME: BALANCING CONCERNS OF PROTECTIONISM AND INTELLECTUAL PROPERTY IN INTERNATIONAL STANDARDS

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*“Standards are fundamentally political and have nothing to do with technology.”<sup>1</sup>*

## I. INTRODUCTION

In an era of increasing globalization, protectionism in the form of nationally mandated technology standards cannot be the answer. To persuade countries to forgo such measures, however, there must be fairness in the international system for the preparation, adoption, and implementation of standards. In May 2003, China’s governmental standard-setting bodies approved the WLAN Authentication and Privacy Infrastructure (WAPI) security standard for wireless devices and decreed that by December of that year, it should be incorporated into all wireless devices sold or imported into China.<sup>2</sup> Due to incompatibility between the WAPI standard and existing international standards, this mandatory approach would have fractured the world market for wireless local area network (WLAN) products. In addition, western companies would be required to license WAPI technology from a handful of Chinese companies, under terms that might

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1. Lynnette Luna, *Reality Game*, MOBILE RADIO TECH., Jan. 2007, available at [http://mrtmag.com/mag/radio\\_reality\\_game](http://mrtmag.com/mag/radio_reality_game) (quoting Carl Cargill, chief standards officer for Sun Microsystems).

2. See *infra* Part IV.A for an explanation of the WAPI standard and these events.

have required the foreign companies to disclose details of their own proprietary technologies. China adopted this approach even though there was an existing and widely accepted international standard for WLAN communications known as the 802.11 standard. Under strong pressure from the highest levels of the United States government, the Chinese government later suspended its mandate. The Chinese then sought, unsuccessfully, to have the WAPI technology adopted as an international standard before the International Organization for Standardization (ISO). To this day, China continues to promote the WAPI standard by other means.

Standards for technology have become a significant factor in international trade. At a time when global information and communications technologies (“ICT”)<sup>3</sup> increasingly require compatible and harmonized standards to be fully effective, the role of standards is assuming increasing policy importance. This is particularly true as more countries recognize and act on the premise that standards can be leveraged to advance national economic interests. China’s demonstrated intention to promote domestic standards, expressing their concern that intellectual property (IP) and western dominance in standard-setting bodies hamper their adoption of international standards and thus their participation in international trade, has caused tension to arise between China and the United States. China’s actions over the last few years, seeking to set its own domestic standards instead of adopting existing international standards, shifts focus to the impact on international trade and the corresponding legal framework of the World Trade Organization (WTO).<sup>4</sup> While trade barriers of the past—high tariffs and quotas imposed on imports—have been greatly reduced or in some circumstances eliminated, less obvious impediments often referred to as non-tariff barriers (“NTBs”)<sup>5</sup> have in many cases replaced them.<sup>6</sup>

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3. For purposes of this article, information and communications technology (“ICT”) refers to computer hardware and software, semiconductors, telecommunications, and the internet. *See, e.g.*, Mark A. Lemley, *Ten Things to Do About Patent Holdup of Standards (And One Not To)*, 48 B.C. L. REV. 149-50 (2007).

4. *See infra* Part V (discussing the WTO and its rules concerning standards and technical barriers to trade).

5. Non-tariff barriers are restrictions imposed on imports but not in the usual forms of a tariff or quota. *See, e.g.*, AM. NAT’L STANDARDS INST., UNITED STATES STANDARDS STRATEGY 12 (2005) [hereinafter ANSI] (“As tariff barriers have been reduced, technical standards have become more prominent as potential barriers to market access for products and services.”).

6. A recent OECD Report states that “[t]he leading players in the field of international standards share the perception that trade liberalization has moved on from its earlier focus on tariffs, quotas, and related issues, and into the area of NTBs (non-tariffs barriers); that standardization forms a legitimate area of study in that context . . . .” Org. for Econ. Cooperation & Dev. [OECD], Working Party of the Trade Comm., *Regulatory*

NTBs have attracted increasing attention as complex new forms of trade protectionism, and one area ripe for the incursion of NTBs is ICT standards.

Standards can be leveraged legitimately to advance the objectives of economic development and national competitiveness. At the same time, however, national standards can be used to protect domestic industries from global competition.<sup>7</sup> The WTO's Agreement on Technical Barriers to Trade ("TBT Agreement")<sup>8</sup> recognizes the important contribution that international standards can make, but also cautions that standards should not be used to create unnecessary barriers.<sup>9</sup> As a means of harmonization, the TBT Agreement requires that, where relevant international standards exist and subject to certain exceptions, governments must use them as a basis for any mandatory national standards (referred to as "technical regulations" in the TBT Agreement).<sup>10</sup> The claim shared by a number of interested parties, including governments, against China is that it is focusing on home-grown standards, developed in a national standard-setting system that is insufficiently open and transparent, to the detriment of existing international standards. China has responded that the mandatory adoption of international standards comes at a significant cost, particularly for developing countries. It has complained of unfair treatment when seeking to participate in the international standards system, suggesting that IP rights create obstacles for them and other developing countries by hindering access to new technologies and imposing significant costs in the form of royalty payments.

In this context, it is important to consider concerns of protectionism, on the one hand, and fairness in the system for the preparation, adoption, and implementation of standards, on the other. To hold countries such as China accountable to adopt technology standards in a manner that complies with its international trade obligations, the existing system for inter-

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*Reform and International Standardization*, ¶ 1, TD/TC/WP(98)36/FINAL (Jan. 28, 1999).

7. The presence of multiple standards, or of a required national standard differing from existing international standards, can significantly increase costs for foreign firms, or severely limit their market access. The national standard may be strategically interposed to drive up costs for foreign companies or impede their ability to obtain required certification of their goods or services.

8. Agreement on Technical Barriers to Trade, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, Legal Instruments—Results of the Uruguay Round, available at [http://www.wto.org/english/docs\\_e/legal\\_e/17-tbt\\_e.htm](http://www.wto.org/english/docs_e/legal_e/17-tbt_e.htm) [hereinafter TBT Agreement].

9. *Id.* at preamble, ¶¶ 2, 4.

10. *Id.* at art. 2.4.

national standards should be open, accessible, and fair to all potential participants. I contend that, particularly in view of the demands of the ICT sector, meeting these objectives requires that IP issues be addressed in the trade and standards context. IP is central to the development of standards in the ICT industries. The more technical the content, the more likely that IP rights—most often in the form of patents—will be involved. Yet an uneasy tension exists between trade law obligations to use relevant international standards and the possibility that such adoption will entail payment of royalties to foreign IP owners. If the goal is to use international standards as an important means to overcome national regulatory barriers, then more consideration needs to be given to the role of IP as it relates to international standards and trade and, in particular, as an element to be factored into the framework of the WTO's TBT Agreement.

My aim in this Article is to explore the relationship between international standards, trade law, and IP. While there has been scholarly examination of standards in relation to the IP and antitrust issues, particularly from a U.S. perspective,<sup>11</sup> there has been much less attention paid to standards and their indeterminate nature as trade facilitators and indispensable elements of the ICT industry, or as potential measures of protectionism when applied inappropriately.<sup>12</sup> I focus, as a test case, on China's development of a proprietary encryption standard for WLAN communications—the WAPI standard. The WAPI case has recently caught the atten-

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11. See Mark A. Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90 CAL. L. REV. 1889 (2002); Michael A. Carrier, *Why Antitrust Should Defer to the Intellectual Property Rules of Standard-Setting Organizations: A Commentary on Teece & Sherry*, 87 MINN. L. REV. 2019 (2003); Patrick D. Curran, *Standard-Setting Organizations: Patents, Price Fixing, and Per Se Legality*, 70 U. CHI. L. REV. 983 (2003); Daniel J. Gifford, *Developing Models for a Coherent Treatment of Standard-Setting Issues Under Patent, Copyright, and Antitrust Laws*, 43 IDEA 331 (2003); Lemley, *supra* note 3; Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991 (2007); Kimberly A. Moore, *Worthless Patents*, 20 BERKELEY TECH. L.J. 1521, 1526 (2005); Janice M. Mueller, *Patenting Industry Standards*, 34 J. MARSHALL L. REV. 897 (2001); David J. Teece & Edward F. Sherry, *Standards Setting and Antitrust*, 87 MINN. L. REV. 1913 (2003); Kraig A. Jakobsen, Comment, *Revisiting Standard-Setting Organizations' Patent Policies*, 3 NW. J. TECH. & INTELL. PROP. 43 (2004); Pamela Samuelson, *Questioning Copyrights in Standards*, Berkeley Ctr. L. & Tech., Paper 22 (2006), <http://repositories.cdlib.org/bclt/lts/22>.

12. Jan M. McDonald, *Domestic Regulation, International Standards, and Technical Barriers to Trade*, 4 WORLD TRADE REV. 249 (2005). For a useful analysis of the TBT Agreement and its terms, see also Gabrielle Marceau & Joel P. Trachtman, *The Technical Barriers to Trade Agreement, the Sanitary and Phytosanitary Measures Agreement, and the General Agreement on Tariffs and Trade*, 36 J. WORLD TRADE 811 (2002).

tion of those studying standards, trade, and public policy.<sup>13</sup> It serves to illustrate standards' double-edged potential. It also highlights the IP dimension to international standards, identifying a source of real friction within the system. How do we balance the legitimate rights of IP owners to receive compensation against the interests of those countries and their constituents required to pursue harmonization by implementing international standards? For international standard setting in the ICT sector, the goal of promoting innovation must be squared with the goal of expanding international trade through harmonization.

My claim is that to balance and achieve these objectives, the legal recognition of international standards within the WTO regime should be revised to integrate a policy toward IP rights. Thoughtful rules governing IP rights have been developed by many national and international standard-setting bodies. I suggest that it is time to integrate these rules into the TBT Agreement framework. The WTO's Committee on Technical Barriers to Trade ("CTBT")<sup>14</sup> adopted, as a central feature of its second triennial review of the Agreement, the *Decision of the Committee on Principles for the Development of International Standards, Guides, and Recommendations with Relation to Articles 2, 5, and Annex 3 of the Agreement* ("CTBT Principles").<sup>15</sup> The CTBT Principles address a comprehensive array of issues underpinning fairness in international standard setting, including transparency, openness, impartiality and consensus, effectiveness and relevance, coherence, and measures to foster developing country participation. Yet the CTBT Principles, like the TBT Agreement itself, are silent on the issue of IP.

My proposal is that the CTBT Principles should be amended to address the treatment of IP rights (in particular patents) in international standard setting. Stated most broadly, the balance to be achieved is that standard-setting processes should respect the rights of IP owners to receive

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13. See Richard P. Suttmeier & Yao Xiangkui, *China's Post-WTO Technology Policy: Standards, Software, and the Changing Nature of Techno-Nationalism*, 7 NBR SPECIAL REPORTS (2004); Zia K. Cromer, Comment, *China's WAPI Policy: Security Measure or Trade Protectionism?*, 2005 DUKE L. & TECH. REV. 18 (2005).

14. The CTBT oversees operation of the TBT Agreement, with representatives from every WTO member country. It has responsibility for the ongoing triennial review process, and reviewing accession commitments under the TBT Agreement for new WTO members.

15. Committee on Technical Barriers to Trade, *Decision of the Committee on Principles for the Development of International Standards, Guides, and Recommendations with Relation to Articles 2, 5, and Annex 3 of the Agreement*, Annex 4, Second Triennial Review of the Operation and Implementation of the Agreement on Technical Barriers to Trade, G/TBT/9 (Nov. 13, 2000).

reasonable compensation while ensuring that those seeking to implement standards can make an informed choice during the standards development process and have access—on fair terms—to the IP rights incorporated in standards.<sup>16</sup>

In Part II, I set the stage with background on ICT standards, international standard setting, and international trade. I discuss how standards are developed, explaining the diversity in approaches between the United States, European Union (EU), and China. In Part III, I chronicle the recent strains between the United States and China caused by international standard setting and the public policy issues that are implicated. In Part IV, I focus on the WAPI case. I review China's aborted attempt to mandate WAPI as a national technical regulation, analyze the motivations behind it, and discuss China's strategy for standards and related IP issues. In Part V, I discuss the TBT Agreement, review China's WTO accession commitments, and analyze China's policies concerning the WAPI standard in order to assess whether they are consistent with WTO rules. Finally, in Part VI I look specifically at IP and international standards. I argue that the objectives of harmonization and fairness in international trade and standard setting require not only that countries refrain from violating existing terms of the TBT Agreement, but that the WTO expand its framework for that Agreement so that IP rights are properly addressed in the standards development process. These measures should be helpful in addressing concerns of countries with emerging economies, while reinforcing IP rules that are already well established in many standard-setting fora. A balanced policy governing IP rights will promote harmonization and strengthen international standards, while supporting the rights of IP owners to receive reasonable compensation.

## II. ICT STANDARDS AND DIVERSITY IN INTERNATIONAL STANDARD SETTING

There is no denying the importance of harmonized standards in an age of globalization. An OECD study in 1999 stated that “[t]he impact of standards on trade is so widespread that, on purely economic grounds, almost all [trade] sectors would justify attention; one estimate claims that up to 80% of trade (equivalent to around \$4 trillion annually) is affected by

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16. This balanced objective is similar to one stated among the “imperatives for action” in ANSI's *United States Standards Strategy*: “The standardization process must respect the rights of intellectual property owners while ensuring users have access to the intellectual property rights (IPR) incorporated in standards.” See *supra* note 5, at 5.

standards or associated technical regulations.”<sup>17</sup> To be sure, standards are “an integral part of the largely invisible infrastructure of the modern world that makes things work.”<sup>18</sup> They are particularly essential in making things work well together. In this Part, I provide background on standard setting, focusing on ICT standards, and an overview of the different approaches in the United States, China, and the EU. I highlight the potential for abuse that can arise in any of these systems, touching on concerns that support the need for some minimum harmonized principles governing IP rights in standard setting. I also provide background on how IP rights become important in the standard-setting process, resulting in pressures at the international level.

#### A. **Diverse Approaches for ICT Standard Setting in the U.S., China and EU**

A standard can be defined simply as “any set of technical specifications that either provides or is intended to provide a common design for a product or process.”<sup>19</sup> As an example, the Hypertext Transfer Protocol (HTTP) is an important standard in internet communications, establishing an international protocol that regulates the exchange of data (e.g., text and graphic files) between websites and browsers, thereby enabling internet users to access (or “surf”) content on the World Wide Web. Standards serve multiple purposes including innovation, efficiency, safety, quality, reliability, and interoperability among various complementary products and services.<sup>20</sup>

Technology standards are vital in a global economy that is increasingly dependent on ICT products and services. In many respects, the ICT sector is leading the way toward a deepening integration of the world market.<sup>21</sup> With the more powerful flow of ideas, information, technology,

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17. OECD, *supra* note 6, at ¶ 3.

18. Samuelson, *supra* note 11, at 1.

19. See Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, *supra* note 11, at 1896. In Part V, I discuss the definitions of “standard” and its counterpart, the “technical regulation,” under the TBT Agreement. See *infra* Section V.A.

20. ISO states that between 1947 and October 2007, it has published more than 15,000 international standards, ranging from standards for traditional activities, such as agriculture and construction through mechanical engineering to medical devices to the newest information technology developments, such as the digital coding of audiovisual signals for multimedia applications. See About ISO, <http://www.iso.org/iso/en/aboutiso/introduction/index.html#eleven> (last visited Dec. 7, 2007).

21. See, e.g., THOMAS FRIEDMAN, *THE WORLD IS FLAT: A BRIEF HISTORY OF THE TWENTY-FIRST CENTURY*, 76 (2005) (quoting Joel Cawley, head of IBM’s strategic planning unit, “Standards don’t eliminate innovation, they just allow you to focus it. They

finance, and commerce across borders, national governments are finding it increasingly difficult to regulate the ways in which these activities occur. A recent article by Andrew Updegrave, *ICT Standard Setting Today: A System Under Stress*, surveys some of the challenges facing the ICT sector and standard setting in the context of globalization.<sup>22</sup> Among them, the prevalence of connected networked environments, corresponding interoperability demands, short innovation cycles, and IP issues are significant.<sup>23</sup> ICT products and services are increasingly used in networked environments, and the need for interoperability (or compatibility) standards is extensive and growing.<sup>24</sup> The rate of ICT innovation has accelerated enormously, driven in significant part by shorter product life cycles as well as the global internet and its ability to disseminate code and information to an international audience.<sup>25</sup> Yet there are concerns that the standards-making process moves too slowly, especially in the ICT area.<sup>26</sup> The standard-setting system for ICT has failed to evolve sufficiently, instead remaining slow, expensive, and balkanized, based on a model stemming from when standards were designed primarily for large, industrial users.<sup>27</sup>

Unlike when a more limited number of government or non-governmental bodies at the national level played significant roles in standard setting, today many different types of standard-setting bodies proliferate. A first distinction can be made between institutional and de facto

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allow you to focus on where the real value lies, which is usually everything you can add above and around the standard.”).

22. Andrew Updegrave, *ICT Standard Setting Today: A System Under Stress*, CONSORTIUM STANDARDS BULL., Apr. 2007, <http://www.consortiuminfo.org/bulletins/apr07.php#feature>.

23. *Id.*

24. In the networked environment, interoperability standards by nature must be capable of use by many members of an industry and their consumers. Such standards ensure compatibility and are thus more likely to be exclusive than standards in other areas. See Lemley, *supra* note 11, at 1897. These interoperability standards can become extremely valuable, not by virtue of any intrinsic value, but due to network effects: the spread of the network itself and its increasing usefulness as more consumers join. *Id.* at 1896; see also JONATHAN E. NUECHTERLEIN AND PHILIP J. WEISER, DIGITAL CROSSROADS: AMERICAN TELECOMMUNICATIONS POLICY IN THE INTERNET AGE 4-10 (2005) (describing the network effect as it originally arose in the telecommunications industry).

25. Greg Papadopoulos, Presentation at Standardization and the Law: Developing the Golden Mean for Global Trade, Stanford University Program in Law, Science & Technology (Sept. 22, 2005) (unpublished slides, on file with author).

26. See *id.*; Carl Cargill & Sherrie Bolin, Standardization: A Failing Paradigm 8 (May 2000) (unpublished paper presented at the Standards and Public Policy Conference, Federal Reserve Bank of Chicago), available at [http://www.chicagofed.org/news\\_and\\_conferences/conferences\\_and\\_events/files/cargill.pdf](http://www.chicagofed.org/news_and_conferences/conferences_and_events/files/cargill.pdf). See also Updegrave, *supra* note 22.

27. Papadopoulos, *supra* note 25; see also Updegrave, *supra* note 22.

standards. Institutional standards are those defined and adopted by some form of standard-setting organization, whereas de facto standards are often based on proprietary designs that win a leading position in the market.<sup>28</sup> Many would suggest that for ICT standards, “most aspects of the modern networked world are controlled primarily by commercial forces” with little or no interference from laws or regulation.<sup>29</sup> Standards in this area are self-regulated in the sense that technologies become standards either through de facto dominance in the marketplace or voluntary consensus achieved in one of the many varied standard-setting bodies.

At the level of formally approved standards, this consensus can occur through accredited national or international standard-setting organizations (SSOs), unaccredited industry-based groups often referred to as “consortia,” or direct government involvement.<sup>30</sup> Standard setting can occur at the national, regional, or international levels. The international system for standards is complex, due in significant part to the diversity of approaches followed in different parts of the world for standards. The OECD, in its report on international standardization, observes that “[w]hat has emerged as most striking . . . is the diversity of [the numerous standards bodies’] structure and methods of operation.”<sup>31</sup> Much of the substantive standard-setting activity has historically taken place at the national level, which presents a mismatch to the needs of harmonization for global ICT standards. “Due to the historical predominance of domestic economic activity, national systems of standardization in advanced industrialized countries developed and solidified . . . long before institutionalized international cooperation in this realm became a major issue.”<sup>32</sup> These national systems carry significant “institutional legacies” that can operate in self-reinforcing ways<sup>33</sup> and interfere both with prospects of increased participation in standard-setting activity and with successfully shifting this activ-

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28. See WORLD TRADE ORGANIZATION, WORLD TRADE REPORT 2005—EXPLORING LINKS BETWEEN TRADE, STANDARDS AND THE WTO 75 (2005), available at [http://www.wto.org/english/res\\_e/booksp\\_e/anrep\\_e/world\\_trade\\_report05\\_e.pdf](http://www.wto.org/english/res_e/booksp_e/anrep_e/world_trade_report05_e.pdf).

29. See Andrew Updegrave, *ICT, Accessibility and Self-Regulation*, CONSORTIUM STANDARDS BULL., Feb. 1, 2007, <http://www.consortium.info.org/bulletins/feb07.php#feature>.

30. *Id.*

31. OECD, *supra* note 6, at ¶ 64.

32. Walter Mattli & Tim Büthe, *Setting International Standards: Technological Rationality or Primacy of Power?*, 56 WORLD POLITICS 1, 19 (2003) (arguing that “revolutionary technological changes” fueled by the explosive growth of ICT and “rapid economic integration at the regional and global levels” have “fundamentally altered this once placid world of standards and standards-developing organizations (‘SDOs’), triggering the growth of international or regional standards”).

33. See *id.*

ity to the international level.<sup>34</sup> A recent survey of U.S. and European businesses found that “vast majorities . . . on both sides of the Atlantic expect standardization to take place increasingly at the international level.”<sup>35</sup> However, at least for the survey’s U.S. respondents, less than half indicated they would welcome this shift.<sup>36</sup> Regardless of attitudes, an increasing amount of standard-setting activity is taking place at the international level.<sup>37</sup> One commentator emphasized that for “ICT in particular, the concept of national standard has become archaic.”<sup>38</sup>

The U.S. system for standard setting has been characterized by a decentralized, pluralistic, and market-based approach with a high degree of competition among numerous SSOs and consortia.<sup>39</sup> One set of commentators emphasize the high degree of disarray in the absence of a strong central coordinating agent.<sup>40</sup> The U.S. private-sector-based standards community includes approximately 300 trade associations, 130 professional and scientific societies, 40 general membership organizations, and more than 500 consortia, which together are responsible for some 49,000 standards.<sup>41</sup> Attempts to bring coherence to such a balkanized system, for example through the establishment of the American National Standards Institute (ANSI), have had limited success.<sup>42</sup> A consequence of this system is a plethora of narrowly focused and competing SSOs or consortia, resulting in an inconsistent and unpredictable approach on issues such as inclusiveness, transparency, and IP rights.<sup>43</sup> These groups may be open in their membership policies, or impose a more restrictive approach (thus creating potential problems of IP rights and access to the results of their

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34. To the extent that national standards activity is used as a device to protect domestic enterprises from competition from foreign firms, there is ample motivation to disregard international standards.

35. Mattli & Büthe, *supra* note 32, at 32.

36. *Id.* at 39. While 88% and 95% of U.S. and European firms, respectively, indicated they expect standards will increasingly be developed at the international level, only 43% of U.S. firms (contrasting with 83% of European firms) voiced agreement with the statement that “standards *should* be developed first and foremost at the international level.” *Id.*

37. *Id.* at 2.

38. Updegrove, *supra* note 22.

39. Mattli & Büthe, *supra* note 32, at 23.

40. *See id.* at 4-25.

41. *Id.* at 23; *see also* Updegrove, *supra* note 22.

42. Mattli & Büthe, *supra* note 32, at 24. ANSI is a private sector organization that serves a coordinating function and acts as a representative for the U.S. standard-setting community in international standards organizations.

43. Papadopoulos, *supra* note 25.

work).<sup>44</sup> Among the legal problems that can arise are issues of antitrust, unfair competition, or IP infringement.<sup>45</sup> In view of this fragmented approach and the U.S. government's *laissez faire* stance, it may be no surprise that the U.S. government would express apprehension toward a heavily centralized, government-led, top-down approach such as that taken by the Chinese.

The Standardization Administration of China (SAC), established in 2001, heads a complex and hierarchical bureaucracy which is responsible for approving and enacting standards in China.<sup>46</sup> The SAC has vice-ministerial status under authorization from China's State Council and is managed by the Administration for Quality Supervision, Inspection and Quarantine (AQSIQ). SAC works closely together with China's Ministry of Information Industry (MII), setting standards in fields such as electronics, telecommunications, radio, film, and television.<sup>47</sup> SAC has responsibility for the management and coordination of 260 technical committees and 422 subcommittees (with approximately 27,800 technical specialists), as well as for overseas standard setting for central government agencies.<sup>48</sup> The China Electronics Standardization Institute (CESI) plays an important role for the ICT industry.<sup>49</sup> One of China's key goals is to reduce the excessive diversity in local standards and harmonize these with national standards.<sup>50</sup> Companies and industrial associations are now playing a more active role in standard setting, raising questions about how they will interface with the Chinese government.<sup>51</sup>

China has made standard setting a core part of its national strategy to emerge as a world leader in science and technology by the year 2020.<sup>52</sup> Accordingly, China has adopted a long-term standards strategy with the launch of two standards programs in 2002—a technical standards devel-

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44. OECD, *supra* note 6, at ¶ 76.

45. See, e.g., Robert Pitofsky, Presentation at Antitrust, Technology, and Intellectual Property Conference, Berkeley Center for Law and Technology, Antitrust and Intellectual Property: Unresolved Issues at the Heart of the New Economy (Mar. 2, 2001); Curran, *supra* note 11.

46. See Brian J. DeLacey et al., Government Intervention in Standardization: The Case of WAPI 8 (Sept. 2006) (unpublished working paper, on file with author), available at <http://ssrn.com/abstract=930930>. SAC consists of volunteers from companies, standardizing bodies, and individuals engaged in standard setting. SAC serves as China's representative to most international standards organizations. *Id.*

47. *Id.*

48. See Suttmeier & Xiangkui, *supra* note 13, at 25.

49. *Id.* at 27.

50. DeLacey et al., *supra* note 46, at 8.

51. Suttmeier & Xiangkui, *supra* note 13, at 27.

52. DeLacey et al., *supra* note 46, at 9.

opment strategy, and the establishment of a national technical standards system—with strategic goals to be accomplished in three phases:

- Form a new voluntary technical standards system and enhance the market adaptability of technical standards by 2010;
- Complete and perfect the technical standards system and raise the level of Chinese technical standards development by 2020; and
- Ensure that Chinese technical standards hold a pre-eminent and prominent international status by 2050.<sup>53</sup>

While China has been upgrading its standard-setting infrastructure, concerns remain about difficulties faced by foreign stakeholders attempting to participate in Chinese standard-setting processes.<sup>54</sup> The process of preparing standards remains opaque, and foreign firms lack sufficient advance notice and opportunity to comment on new standards.<sup>55</sup> “To the extent that foreign companies are involved in the drafting of standards, their role is usually that of observer, with the Chinese side being especially reluctant to invite foreign participation in high-tech areas.”<sup>56</sup> There are also reports that China’s efforts to harmonize Chinese and international standards are weak.<sup>57</sup>

In Europe, there is strong recognition of the importance of standards for regional economic benefit. A paper by Walter Mattli and Tim Büthe observes that “[i]n stark contrast to the American system, standardization in Europe is centralized, coordinated, regulated, subsidized, and inclusive.”<sup>58</sup> European standard-setting bodies are part of a hierarchical infrastructure.<sup>59</sup> Each European country has a national SSO (e.g., the British

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53. Teresa Cendrowska, *Enabling US-Chinese Cooperation in Standards and Conformity Assessment*, ASTM STANDARDIZATION NEWS, Apr. 2005, [http://www.astm.org/cgi-bin/SoftCart.exe/SNEWS/APRIL\\_2005/cendrowska\\_apr05.html?E+mystore](http://www.astm.org/cgi-bin/SoftCart.exe/SNEWS/APRIL_2005/cendrowska_apr05.html?E+mystore) (referring to comments of Liu Fei, director of operations in the Beijing office of the Consortium for Standards Conformity and Assessment (CSCA). China has been identified by some commentators as the likely global technology standard setter of the twenty-first century.). See also Bob McDowell, *China Technology Standards?*, FORTUNE, Mar. 5, 2004, at 1; Peter Lewis, *China Sets the Standards*, CNN MONEY, Feb. 23, 2004, [http://money.cnn.com/magazines/fortune/fortune\\_archive\\_2004/02/23/36224/index.htm](http://money.cnn.com/magazines/fortune/fortune_archive_2004/02/23/36224/index.htm).

54. See DeLacey et al., *supra* note 46, at 9; Suttmeier & Xiangkui, *supra* note 13, at 26.

55. Suttmeier & Xiangkui, *supra* note 13, at 26.

56. *Id.*

57. *Id.*

58. See Mattli & Büthe, *supra* note 32, at 25.

59. *Id.* at 25.

Standards Institution) which adopts technical specifications and represents national interests at the European and international levels.<sup>60</sup> Most national SSOs are subject to government regulation that requires them to include a wide representation of interests and comply with comprehensive rules.<sup>61</sup> European governments offer significant subsidies in support of standard-setting work.<sup>62</sup> At the regional level, the EU's objectives for standards include promoting economic integration among Member countries.<sup>63</sup> The system includes a regional layer, with European standards bodies such as the European Committee for Standardization (CEN) and the European Committee for Electrotechnical Standardization (CENELEC), accompanied by Europe-wide regulation.<sup>64</sup> The European approach can be characterized as one of aggressive industrial policy with strategic public finance support.<sup>65</sup> Just as in the U.S., legal issues such as competition law concerns may arise from interactions among companies in standard-setting activities.<sup>66</sup> Raymond Kammer, director of the National Institute of Standards and Technology (NIST), described the European proactive approach in his testimony to the U.S. Congress: "Europe does have a strategy and it's running at full throttle . . . European governments and industries be-

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60. *Id.*

61. *Id.* European SSOs include among their membership a diverse constituency of experts, trade associations, consumer groups, scientific organizations, and public agencies. The number of national experts involved in standard-setting activities at any time is in the tens of thousands. *Id.*

62. *Id.*

63. The European Commission's 2001 Working Paper, *European Policy Principles on International Standardization*, highlights that "Europe has an interest in international standardization because of its potential to eliminate technical barriers to trade and to increase market access for all." European Commission, *European Policy Principles on International Standardization 4* (Working Paper No. SEC 1296, 2001).

64. *Id.* The 1998 Directive Laying Down Procedures for Providing Information in the Field of Technical Standards recognizes that standards policy and procedures for disseminating relevant information are important to the free movement of goods and services in the European Union. *See generally* Council Directive 98/34, 1998 O.J. (L 204) (EC).

65. *See* Mattli & Büthe, *supra* note 32, at 29.

66. *See generally* Maurits Dolmans, *Standards for Standards*, 26 *FORDHAM INT'L. L.J.* 163 (2002); Carter Eltzroth, *IPR Policy of the DVB Project: Pooling But Not Disclosing* (Nov. 19, 2006) (unpublished manuscript, on file with author). One particular example involved a challenge before the European Commission brought by MicroElectronica against Sun Microsystems. MicroElectronica asserted that Sun had failed to make a timely disclosure of an "essential patent" for a standard of the European Telecommunications Standards Institute (ETSI). An essential patent is one whose claims cover some of the technology or specifications integral to a standard, such that the patent must be licensed in order to use the standard without infringement. ETSI took corrective action, which involved a removal of Sun's declaration. *See* Eltzroth, *supra*, at 12-13.

lieve that they can create a competitive advantage in world markets by strongly influencing the content of international standards.”<sup>67</sup>

As the strategies outlined *supra* demonstrate, standards in the ICT sector, just as in other sectors of the economy, can create winners and losers in the marketplace while shaping national or regional competitiveness. The WTO recently devoted the World Trade Report 2005 to an examination of the links between trade, standards, and the WTO regime.<sup>68</sup> The Report emphasizes that standards are important to the ICT industries, as reflected in the high number of standards and degree of harmonization in this sector, particularly where network externalities are present.<sup>69</sup> The Report explains the concerns from a trade perspective, indicating “[w]here network externality effects are strong, compatibility standards can also be a source of market power.”<sup>70</sup> In the ICT sector, firms can garner an important, if not decisive, advantage when their standard is adopted as the de facto industry standard. This can be particularly evident for network industries as they “have a tendency to tipping—that is, when a certain technology has reached a critical mass it tends to dominate the whole market.”<sup>71</sup> Firms owning different technologies may engage in fierce competition with each other in order to persuade a sufficiently large number of consumers to choose their product.<sup>72</sup>

The 2005 World Trade Report explains how this standard-setting dynamic can play out in competition between countries:

To the extent that promoters of competing standards come from different countries and the winner can claim rents from the adoption of their standard, strategic trade policy considerations come into play. A government can try to tip the balance in favour of its national champion by mandating the use of the firm’s standard at home. This would be in the hope that an installed base of users would create a strong enough bandwagon effect to convince foreign suppliers to switch to the national firm’s standard in other markets.<sup>73</sup>

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67. See Eltzroth, *supra* note 66, at 12-13 (quoting *Hearing on International Standards: Technical Barriers to Trade Before the Subcomm. on Technology of the H. Comm. on Science*, 105th Cong. (1998) (statement of Raymond Kammer, Director, National Institute of Standards and Technology).)

68. See WORLD TRADE ORGANIZATION, *supra* note 28.

69. *Id.* at 61.

70. *Id.* at 41.

71. *Id.* at xxvi.

72. *Id.* at 36.

73. *Id.* at 41.

Government involvement—whether through regulation, preferential treatment to domestic firms, or measures that make it more difficult for foreign firms—can implicate the WTO trade rules. As the 2005 Report puts it, the WTO “deals with the rules of international trade and inevitably has to deal with the role of standards in international trade.”<sup>74</sup> Moreover, “[i]n a global system, coherence between multilateral trade rules and standard-setting policies is necessary in order to avoid conflicts among trading partners.”<sup>75</sup>

The development of standards using diverse approaches and by different types of organizations—whether governmental, quasi-governmental, or private—complicates the situation with respect to appropriate regulation at the international level. As a further complicating feature, standard-setting organizations operate in a more global context for the technology that is the subject of their standards processes. The question that arises is how, in the face of this diversity, can there be any common approach on fundamental issues for standard setting such as inclusion and transparency, let alone a common policy for IP rights? The OECD study mentioned *supra* suggests a partial solution, stating that “[t]o deal with [these] issues . . . , the players will be better equipped if they have accurate, transparent information about what goes on in the standardization field. In other words, transparency is a valid goal in its own right.”<sup>76</sup> All of this cautions that from an international perspective, international regulation should not place a straitjacket on these diverse systems for standards development. However, ignoring that the underlying issues (e.g., IP rights) can cause trade frictions is not adequate either.

## B. IP Rights in ICT Standards

IP rights matter in technology standard setting.<sup>77</sup> Scholars, the courts, and the media have recently paid considerable attention to this issue.<sup>78</sup> As one well-known scholar in this area puts it:

[O]ne central fact about the [ICT] sector . . . is the multiplicity of patents that developers must deal with. . . . There are so many IT

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74. WORLD TRADE ORGANIZATION, *supra* note 28, at xxv.

75. *Id.* at xxxvi.

76. OECD, *supra* note 6, at ¶ 82.

77. A fundamental right of IP owners is the right to exclude others, which has almost self-evident implications for technology standard setting. As one standards expert states, “[t]he need to deal with intellectual property rights . . . lies at the core of standard setting.” Andrew Updegrove, *Intellectual Property Rights and Standard Setting*, CONSORTIUM STANDARDS BULL., Mar. 2007, <http://www.consortiuminfo.org/bulletins/mar07.php#feature>.

78. *See* sources cited *supra* note 11.

patents because of the nature of these technologies and the ways in which they interact; it is almost always the case that a product in the IT field combines a number of different components and therefore a number of different patents.<sup>79</sup>

An ICT product can easily require that the rights to more than 100 patents be cleared to get the product to market.<sup>80</sup> As discussed *supra*, if one firm in the market can dominate through the creation of a de facto standard, or alternatively secure a patent which covers key aspects of the preferred standard, it can exert substantial leverage. At the extreme, if that firm secures critical control points in a network standard through proprietary IP claims, it can threaten to block implementations altogether unless royalties are paid.<sup>81</sup> These royalties can be substantial, especially if the network is large.

This situation is known as “patent holdup,” in which patent owners “capture not just the value of the inventive contribution that they have made—something they ought to be entitled to—but also some greater amount of money than their invention is worth.”<sup>82</sup> A number of factors enable this, including the threat of damages (including treble damages in the U.S.) or injunctions, or the fact that innovators have often already made irreversible investments that can drive up settlement values in the face of these IP claims.<sup>83</sup> In the standards context, not just one company but many in the industry may have made such investments—the risk is

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79. See Lemley, *supra* note 3, at 150.

80. *Id.* at 151.

81. See Papadopoulos, *supra* note 25.

82. Lemley, *supra* note 3, at 152.

83. *Id.* at 151-55. The patent holdup issue surfaced recently before the U.S. Supreme Court in a case involving whether to grant injunctive relief for patent infringement. In *eBay Inc. v. MercExchange, L.L.C.*, 126 S. Ct. 1837 (2006), the concurring opinion of Justices Kennedy, Stevens, Souter, and Breyer states:

An industry has developed in which firms use patents not as a basis for producing and selling goods but, instead, primarily for obtaining licensing fees . . . . For these firms, an injunction, and the potentially serious sanctions arising from its violation, can be employed as a bargaining tool to charge exorbitant fees to companies that seek to buy licenses to practice the patent . . . . When the patented invention is but a small component of the product the companies seek to produce and the threat of an injunction is employed simply for undue leverage in negotiations, legal damages may well be sufficient to compensate for the infringement and an injunction may not serve the public interest.

therefore that “patent owners can demand sums of money that are far out of proportion to the actual inventive contribution that they have made.”<sup>84</sup>

Standard-setting organizations need a set of rules governing IP rights to minimize (or avoid) these problems, reducing the risk that a completed standard will encounter IP-related obstacles while facilitating its broader implementation. A number of different approaches—some with wide and international acceptance—have been developed to address the issue of IP rights in standard setting.<sup>85</sup> To consider a more comprehensive approach, for example, Mark Lemley, in his recent article *Ten Things to Do About Patent Holdup of Standards (And One Not To)*, introduces a list of potentially helpful measures:

SSOs could get members to agree in advance of the standard to license patent rights on reasonable and nondiscriminatory (“RAND”) terms, bind SSO members to that RAND policy by license agreements, require patentees to specify the content of their RAND licenses *ex ante*, impose penalty defaults to force disclosure, and/or establish a step-down royalty rate procedure.<sup>86</sup>

Another commentator raises the question, perhaps somewhat dramatically: “Will eminent domain laws be extended to cover IPR, if that IPR is asserted to block or unduly tax the usage of essential, standards-based ICT services?”<sup>87</sup>

For purposes of international regulation, such advanced considerations may not yet be widely accepted in diverse international standard-setting systems, particularly where there may be important differences on the national level concerning treatment of certain IP rights such as patent rights.<sup>88</sup> However, as discussed in Part III *infra*, there can be no denying the frictions that can be generated, particularly at the international level, given the integral role of IP rights in technology standard setting. Despite the potential for friction, the TBT Agreement is silent on the issue of IP

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84. Lemley, *supra* note 3, at 154; *see also* Lemley, *supra* note 11, at 1893 (“SSOs increasingly encounter situations in which one or more companies claim to own proprietary rights that cover a proposed industry standard. This prevents the industry from adopting the standard without the permission of the IP owner or owners.”).

85. *See generally* Lemley, *supra* note 11.

86. Lemley, *supra* note 3, at 155.

87. Updegrave, *supra* note 22, at 8. This would amount to a compulsory license for IP embedded in standards.

88. For example, Andrew Updegrave states in a recent issue of the Consortium Standards Bulletin that “[i]t would be an extreme understatement to suggest that the technology industry has reached a state of clear consensus on what constitutes the ideal IPR policy.” Updegrave, *supra* note 77, at 24.

rights in international standard setting. For example, the obligation under the TBT Agreement to use relevant international standards as a basis for national standards<sup>89</sup> is not conditioned on whether a particular standard is encumbered by IP rights and therefore could be costly to implement. However, countries such as China may build up national resentment towards the need to pay royalties to foreign patent owners in order to manufacture products complying with international standards set elsewhere.

There is a way in which IP can be factored into the international standard-setting analysis. An overriding concern for standards development is to encourage the early disclosure of patented technology necessary for the implementation of a standard. In addition, if patents are found to be involved, it is equally important to obtain a statement of licensing position from the patent owner (i.e., whether or not the owner is willing to license the patented technology and on what terms) as early as possible in the standards development cycle. In Part VI I recommend that two basic principles—early disclosure of IP rights (patents) and declaration of position concerning willingness to license those rights—should be incorporated in the TBT Agreement framework of principles governing standards development. Early disclosure of IP rights and a declaration concerning licensing position will facilitate informed choices by standard-setting bodies, so that the impact of any IP rights on technology selection can be evaluated in advance. The standards body can choose to use a standard that may be encumbered by IP rights, or seek to move the standard in a direction where such IP rights will not be implicated. The relative simplicity of focusing on two important elements makes this approach suitable in the context of internationally diverse standard-setting systems, avoiding concerns of over-constraining regulation. Working in tandem with other principles for international standards in the TBT Agreement, such as openness, transparency, and non-discrimination, these two IP principles will strengthen international standards. They provide means by which countries can evaluate the IP position of a standard in advance (i.e., during its development), rather than object to the burden of IP rights after an international standard is already established.

### **III. TENSIONS BETWEEN THE UNITED STATES AND CHINA IN INTERNATIONAL STANDARDS**

Tensions have developed between China and the United States regarding trade and standards. One point of contention concerns, on the one hand, China's approach to standard setting, particularly for ICT goods,

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89. See *infra* note 320-21 and accompanying text.

and on the other, the role of IP rights in international standard setting. While the ICT industry increasingly demands harmonized standards to serve the imperatives of competition, interoperability, and efficiency, particularly in networked environments, China has signaled its intention to follow a different direction. By seeking to set its own domestic standards instead of relying on international standards, China not only creates tensions but also raises trade law issues under WTO rules. The Chinese have responded by contending that standards that incorporate proprietary IP rights are controlled mainly by developed countries, causing unfair competition and having a negative impact on international trade.

#### A. The United States' Views

China is an obvious choice for U.S. government attention, given its recent emergence as the world's fourth largest economy and its role as one of the largest trading partners with the U.S.<sup>90</sup> Although China often avers the position of a developing country in the international standards debate, China defies easy classification as developing or developed country. Twenty-five years ago, its borders, markets, and economy were largely closed to the world. With its accession to the WTO in December 2001, China assumed free trade obligations under the WTO agreements, including the TBT Agreement.<sup>91</sup>

The United States Trade Representative (USTR), in the last four annual reports to the U.S. Congress concerning China's compliance with WTO accession commitments, has raised continuing concern over China's forceful approach to promote domestic Chinese standards.<sup>92</sup> For example, in its 2006 Report, the USTR commented that "concern has grown over the past few years, as China is actively pursuing the development of unique requirements, despite the existence of well-established international standards, as a means for protecting domestic companies from com-

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90. Keith Bradsher, *Chinese Economy Grows to 4th Largest in the World*, N.Y. TIMES, Jan. 25, 2006. Statistics from mid-July 2007 indicate that China is on track to pass Germany in 2007 and become the world's third largest economy rated by Gross Domestic Product. See also *China Poised to Become Third-Largest Economy*, MARKET WATCH, July 15, 2007, <http://www.marketwatch.com/news/story/china-poised-pass-germany-worlds/story.aspx?guid=%7B9A653FE8-70DA-48F3-AE20-44C77B142A0C%7D>.

91. See *infra* Part V concerning China's accession to the WTO and related responsibilities.

92. See generally USTR China Affairs Home Page, [http://www.ustr.gov/World\\_Regions/North\\_Asia/China/Section\\_Index.html](http://www.ustr.gov/World_Regions/North_Asia/China/Section_Index.html) (last visited Dec. 19, 2007) (contains links to the USTR's annual reports to Congress for the years 2003-2006).

peting foreign standards and technologies.”<sup>93</sup> The 2006 Report refers to Chinese measures including “the continuing pursuit of unique national standards in many areas of high technology that could lead to the extraction of technology or intellectual property from foreign right holders.”<sup>94</sup> More generally, the 2006 Report states that:

China has continued to resort to industrial policies that limit market access for non-Chinese origin goods and foreign service providers. . . . In some cases, the objective of these policies seems to be to promote the development of Chinese industries that are higher up the economic value chain than the industries that make up China’s current labor-intensive base.<sup>95</sup>

Sizing up the state of affairs, the Report finds that “[t]he United States and China made little progress in resolving U.S. concerns regarding these industrial policies in 2006.”<sup>96</sup>

Various U.S. industries doing business abroad have also expressed anxiety over China’s resistance to international standards. In 2004, the U.S. Department of Commerce (DOC) prepared a report specifically addressing standards, which listed similar concerns. The DOC report was based on consultations with domestic industry, finding that “[i]nput from industry clearly showed significant concern with China and its development and promotion of domestic standards.”<sup>97</sup> In particular, the DOC report states that a 2004 U.S. General Accounting Office survey of American companies with a presence in China found that “standards and certification issues ranked *first* in importance on a list of specific China WTO implementation commitment areas, above customs procedures, tariffs, and intellectual property rights.”<sup>98</sup> The report observes that “[t]hese results suggest a growing awareness in the business community of standards as a key trade issue for U.S. exporters to China.”<sup>99</sup>

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93. USTR, 2006 REPORT TO CONGRESS ON CHINA’S WTO COMPLIANCE 47 (2006), available at [http://www.ustr.gov/assets/Document\\_Library/Reports\\_Publications/2006/asset\\_upload\\_file688\\_10223.pdf](http://www.ustr.gov/assets/Document_Library/Reports_Publications/2006/asset_upload_file688_10223.pdf).

94. *Id.* at 7.

95. *Id.*

96. *Id.*

97. U.S. DEPT. OF COMMERCE, STANDARDS & COMPETITIVENESS: COORDINATING FOR RESULTS, 19 (May 2004).

98. *Id.* (emphasis added).

99. *Id.* The DOC report does note, as one potential success in this area, that “China did reaffirm its commitment to technology neutrality for 3G telecommunications standards.” *Id.* Beginning in 2004, the U.S. telecommunications industry signaled concerns about the Chinese government’s “increasing interference” regarding the selection of 3G telecommunications standards. *Id.* at 48. Although publicly stating at the time that it

The views of U.S. industries have also been voiced through ANSI, which serves to coordinate and promote U.S. voluntary consensus standards and represents the U.S. in non-treaty regional and international standard-setting activities.<sup>100</sup> In testimony to Congress in May 2005, ANSI representative David Karmol stated that “[e]vents of the past few years indicate that stakeholders within [China] may have been considering a strategy of using national standards as trade barriers to shelter the nation’s growing industries.”<sup>101</sup> These comments align with views expressed in two papers published by ANSI in June 2004 and October 2005. In the first paper, ANSI reports that:

U.S. industry is facing challenges in countries (such as China) that appear to be (a) mandating conformance to nationalized standards developed in a closed process, and (b) devising and implementing related intellectual property policies that are not transparent to U.S. companies and in many cases run counter to international norms.<sup>102</sup>

ANSI refers to the WAPI case as an example of these practices, while cautioning that “[t]he importance of China’s standards activities is much broader than WAPI.”<sup>103</sup> Referring to the “pervasive nature of these activities” and their relation to IP, ANSI claims that China “appears to be re-

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would support technological neutrality with respect to the adoption of 3G standards, by the end of 2004 there was pressure from the Chinese government “to ensure a place for China’s home-grown 3G telecommunications standard.” *Id.* More recently in February 2006, China declared TD-SCDMA technology to be the national standard for 3G telecommunications, and concerns mounted again. The U.S. government raised the issue of technological neutrality at meetings with China in April 2006. *Id.* at 4, 48. At these meetings China re-stated a commitment to technological neutrality for 3G standards, and “agreed to issue licenses for all 3G standards in a technologically neutral manner that does not advantage one standard over others.” *Id.* at 48. The USTR 2006 Report indicates that the U.S. government will continue to monitor these developments and stand ready to re-engage China “to ensure that China’s regulators adhere to China’s . . . commitments.” *Id.*; see also USTR, THE U.S.-CHINA JOINT COMMISSION ON COMMERCE AND TRADE (JCCT) OUTCOMES ON U.S. REQUESTS (2006), available at [http://www.ustr.gov/assets/Document\\_Library/Fact\\_Sheets/2006/asset\\_upload\\_file91\\_9286.pdf](http://www.ustr.gov/assets/Document_Library/Fact_Sheets/2006/asset_upload_file91_9286.pdf).

100. See ANSI, *supra* note 5, at 4.

101. *Europe, China and the Use of Technical Standards as Trade Barriers: How Should the U.S. Respond?: Hearing before the Subcomm. On Environment, Technology & Standards of the H. Comm. on Science*, 110th Cong. 3 (2005) (statement of David Karmol, Vice Pres., Public Policy and Gov’t Aff., ANSI).

102. ANSI, INTELLECTUAL PROPERTY RIGHTS POLICIES IN STANDARDS DEVELOPMENT ORGANIZATIONS AND THE IMPACT ON TRADE ISSUES WITH THE PEOPLE’S REPUBLIC OF CHINA 2 (June 10, 2004).

103. *Id.* at 2-3.

viewing international standards and changing them through national adoption process, and then attempting to neutralize the impact of any patents [held by foreign owners].”<sup>104</sup> In the second report of October 2005, ANSI again highlights the WAPI case and explains a more general basis for concern: “As the world’s largest contract manufacturer, the standardization policies and practices of China have significant ramifications for American firms that wish to export to the PRC market or who wish to source manufacturing there.”<sup>105</sup> ANSI is concerned that Chinese standards may impede international trade by acting as protectionist devices creating barriers to the domestic Chinese market, and also by causing costly fragmentation in international markets.

In February 2006, United States Trade Representative Rob Portman announced the results of a comprehensive U.S. government review of China’s trade measures, the *Top-to-Bottom Review of US-China Trade Relations*.<sup>106</sup> Portman referred to China as “a mature trading partner” of the U.S. that has to “live up to its responsibilities.”<sup>107</sup> He emphasized that “Chinese exporters have benefited enormously from the openness of the US market—more than US exporters have benefited from China’s WTO

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104. *Id.* at 3, 5. A similar statement was made before the Trade Policy Staff Committee in September 2004 by the U.S. Information Technology Office (USITO), a non-governmental organization, as follows:

USITO is especially concerned about a tendency to use locally developed standards, in place of internationally recognized standards, and technical regulations to protect domestic industry from foreign competition, contrary to China’s accession commitments and to the requirements of the WTO [TBT Agreement]. The WAPI standard is a clear example of this, and our submission highlights similar efforts that are underway.

Mark Bohannon, Gen. Counsel & Senior Vice President, Software & Info. Indus. Ass’n, Prepared Statement of the U.S. Information Technology Office (USITO) (Sept. 23, 2004). USITO membership includes the American Electronics Association, Information Technology Industry Council, Semiconductor Industry Association, Software and Information Industry Association, and more than 50 companies and entities in the high tech sector operating in China. *Id.*

105. ANSI, GLOBAL APPROACH KEY TO FUTURE OF CHINESE STANDARDIZATION ACTIVITIES, CRITICAL ISSUE PAPERS 1 (2005).

106. USTR, U.S.-CHINA TRADE RELATIONS: ENTERING A NEW PHASE OF GREATER ACCOUNTABILITY AND ENFORCEMENT, TOP TO BOTTOM REVIEW (2006), available at [http://www.ustr.gov/assets/Document\\_Library/Reports\\_Publications/2006/asset\\_upload\\_file921\\_8938.pdf](http://www.ustr.gov/assets/Document_Library/Reports_Publications/2006/asset_upload_file921_8938.pdf).

107. Ambassador Rob Portman, Remarks at Press Conference Announcing USTR’s Top-to-Bottom Review (Feb. 14, 2006), available at [http://www.ustr.gov/assets/Document\\_Library/Transcripts/2006/February/asset\\_upload\\_file704\\_8947.pdf](http://www.ustr.gov/assets/Document_Library/Transcripts/2006/February/asset_upload_file704_8947.pdf).

accession.”<sup>108</sup> Regarding standards, the Top-to-Bottom Review finds that this is one of the areas causing “trade friction.”<sup>109</sup> He urged that improvements should be made to increase China’s participation in international standard-setting organizations and to ensure that Chinese standards are developed and implemented in accordance with WTO requirements.<sup>110</sup> Portman summed up the United States position as follows: “overall, our US-China trade relationship today lacks equity, durability and balance in the opportunities it provides.”<sup>111</sup>

## B. China’s Views

### 1. General Views on the Issue

A number of sources report on China’s views concerning standards, IP rights, and their relation to international trade. An April 2007 speech by Yi Xiaozhun, the vice-minister of China’s Ministry of Commerce, indicates China’s concerns. He stated that “[d]elayed or inadequate IPR disclosure, stringent IPR licensing conditions and expensive licensing fees run counter to fair competition, hinder the promotion and application of new technologies, obstruct the normal operation of international trade and impede the harmonious development of global economy and society.”<sup>112</sup> The vice-minister emphasized that “[d]eveloping countries are the worst hit by such problems which effectively hinders their greater participation in economic globalization.”<sup>113</sup> From China’s perspective, a primary concern is that standards vested with the public interest can be affected when “hidden” underlying patents give monopolistic licensing power, usually to companies in developed countries where most of the ownership of the world’s patents is located.<sup>114</sup> This “inappropriate convergence” between standards and IP rights causes problems.<sup>115</sup> The situation is exacerbated when industry experts participating in consortia “use monopoly power to push their interests in standard-setting.”<sup>116</sup> The vice-minister concludes that “China holds that in order to ensure smooth implementation of the

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108. Letter from Rob Portman, Ambassador, USTR, to Charles B. Rangel, Ranking Member, Comm. on Ways & Means, U.S. House of Representatives (Feb. 2006) (on file with author).

109. USTR, *supra* note 106, at 14-15.

110. *Id.* at 13-15.

111. Portman, *supra* note 107.

112. William New, *China Leads Developing Country Push for Balance in IP and Standards*, IP WATCH 1 (Apr. 24, 2007).

113. *Id.*

114. *Id.* at 2.

115. *Id.* at 1.

116. *Id.* at 2.

TBT Agreement, attention should be given on the one hand to the efficiency and quality of setting international standards, and on the other hand to the difficulties members face in adopting international standards.”<sup>117</sup>

Another Chinese commentator, Ni Guangnan, a fellow at the Chinese Academy of Engineering, stated at the same April conference that China plans a series of responsive measures “in order to help its companies which have been struggling with high royalty payments charged by patent-holders whose technologies were accepted in standards.”<sup>118</sup> “They will form their own patent pools, and will gain the support of international standards development organizations, and will participate in the drafting of standards favourable to China.”<sup>119</sup> China will also support open standards for critical areas and “ex ante RAND” terms in other areas, meaning the disclosure of IP rights and their related licensing terms on a reasonable and non-discriminatory basis before the establishment of a standard.<sup>120</sup>

The Chinese standard-setting organization for electronics, the China Electronic Standardization Institute (CESI), has expressed similar views on these issues. A 2003 article in the CESI newsletter, *Information Technology & Standardization*, details concerns and possible Chinese responses.<sup>121</sup> According to CESI, China has fallen victim to a new form of NTB referred to as an “IP centric technology barrier.”<sup>122</sup> Because countries such as the U.S. cannot compete with China on the cost of producing technology goods, CESI asserts that developed countries use complex barriers—based on the existing system of laws, treaties, regulations, and standards—to suppress the progress of developing countries.<sup>123</sup> First, the developed countries “wrote IP into [the] WTO rules,” so that they could “use

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117. *Id.* at 1. See also Baisheng An, Chinese Ministry of Commerce, Department of WTO Affairs, Speech at Stanford Law School: Exploring the Solution(s) for Intellectual Property Rights Protection in Standardization: A Two-Way Approach (Sept. 2005) (on file with author).

118. New, *supra* note 112, at 2.

119. *Id.*

120. *Id.* at 2-3.

121. Chinese Electronic Standards Institute, *Review on Technology Barriers Related with Intellectual Property*, INFO. TECH. & STANDARDIZATION, Sept. 2003, translated in Simmtester.com, Dec. 17, 2003, <http://simmtester.com/page/news/showpubnews.asp?title=Review+on+Technology+Barriers+Related+with+Intellectual+Property&num=103> [hereinafter CESI].

122. *Id.* at 2; see also Osama Hussain & Dennis Fernandez, *Strategic Intellectual Property and Emerging Standards for Entering the Chinese Market*, IPFRONTLINE, Mar. 17, 2005, at 2, [http://www.ipfrontline.com/downloads/fernandez\\_china.pdf](http://www.ipfrontline.com/downloads/fernandez_china.pdf) (analyzing the CESI article).

123. CESI, *supra* note 121, at 1-2.

WTO and TRIPS<sup>124</sup> to protect their intellectual property standards.”<sup>125</sup> Next, “[t]he developed countries deliberately include their IP technology in the process of standardization.”<sup>126</sup> When a country like China seeks to export technological goods incorporating such standards to a developed country, that country can “essentially block[] out importing goods legally.”<sup>127</sup> The developed countries have used “technological advancement and IP position to counter the price advantage of the developing countries.”<sup>128</sup> This situation creates the IP-centric technology barrier for Chinese goods. CESI’s position here reflects deep resentment of the choices confronting Chinese companies exporting technological goods. In many cases they must either pay royalties to a foreign IP owner or risk an enforcement action and therefore being blocked from the foreign market. CESI suggests that China should develop counter-strategies including (i) using the patent system to promote Chinese technological advancement, with support from the Chinese government; (ii) “vigorous[] support setting pioneer standards” from the Chinese government, and participation by companies in setting international standards; and (iii) taking full advantage of the TBT Agreement and SPS Agreement,<sup>129</sup> including using “exemptions within them to remove technical barriers imposed on us.”<sup>130</sup>

The Chinese government has developed a plan for standards and IP rights, reflecting a more general strategy in which China is building its future on home-grown innovation.<sup>131</sup> In February 2006, the Chinese government issued a high-level document which frames China’s innovation strategy, the State Council’s Guidelines on National Medium- and Long-Term Program on Science and Technological Development (2006-

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124. “TRIPS” refers to the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, Legal Instruments—Results of the Uruguay Round, 33 I.L.M. 81 (1994) [hereinafter TRIPS], available at [http://www.wto.org/english/docs\\_e/legal\\_e/27-trips\\_01\\_e.htm](http://www.wto.org/english/docs_e/legal_e/27-trips_01_e.htm).

125. CESI, *supra* note 121, at 3.

126. *Id.* at 2-3.

127. *Id.*

128. *Id.*

129. “SPS Agreement” refers to the WTO Agreement on Sanitary and Phytosanitary Measures, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, Legal Instruments—Results of the Uruguay Round, available at [http://www.wto.org/english/docs\\_e/legal\\_e/15sps\\_01\\_e.htm](http://www.wto.org/english/docs_e/legal_e/15sps_01_e.htm).

130. CESI, *supra* note 121, at 6.

131. Alan W. Wolff, *China’s Drive Toward Innovation*, ISSUES SCI. & TECH., Spring 2007, at 54.

2020).<sup>132</sup> This document calls for government to “actively take part in the formulation of international standards and drive the transferring of domestic technological standards to international standards.”<sup>133</sup> In view of the strong vestiges of a centralized command economy and pervasive government involvement in business as well as what one commentator terms a “singularity of purpose” on the part of the Chinese government, one should expect that government will diligently execute its strategy.<sup>134</sup>

## 2. *Arguments Before the WTO*

Recently, the Chinese government has begun to make its case at the WTO before the CTBT. In a formal communication submitted on May 23, 2005, the Chinese government stated:

China is of the view that, IPR issues in preparing and adopting international standards have become an obstacle for Members to adopt international standards and facilitate international trade. It is necessary for the WTO to consider negative impacts of this issue on multilateral trade and explore appropriate trade policies to resolve difficulties arising from this issue.<sup>135</sup>

The Chinese communication also referred to the fact that international standards bodies such as ISO, the International Electrotechnical Committee (IEC), and the International Telecommunication Union (ITU) have established policies to address the relationship between standards and IP rights.<sup>136</sup> China suggested, however, that, “limited by their functions and due to the complexity of the issue itself,” these organizations cannot resolve all the relevant difficulties.

China emphasized that the issue of IP rights in standardization is of close relevance to the TBT Agreement and has important development implications. In this regard, the communication referred specifically to the

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132. *Id.* at 55. See also Chinese Government Official Web Portal, China Issues S & T Development Guidelines, [http://www.gov.cn/english/2006-02/09/content\\_183426.htm](http://www.gov.cn/english/2006-02/09/content_183426.htm) (last visited Nov. 20, 2007).

133. Wolff, *supra* note 131, at 57. Another example is the recently promulgated Shanghai Municipal Government Intellectual Property Strategy, which calls for government to “actively promote the formulation and implementation of technical standards with self-owned intellectual property rights and translate that technological advantage into a marketplace advantage to maximize the benefits of intellectual property rights.” *Id.* at 56-57.

134. *Id.* at 54.

135. Communication from the People’s Republic of China on Intellectual Property Right (IPR) Issues in Standardization, G/TBT/W/251 (May 25, 2005), available at [http://sms.mofcom.gov.cn/table/0527\\_wto\\_en.doc](http://sms.mofcom.gov.cn/table/0527_wto_en.doc).

136. *Id.* at I.3.

obligation under Article 2.4 of the TBT Agreement to adopt relevant international standards as a basis for national mandatory standards. Although China's comments are somewhat opaque (perhaps intentionally so), the view that emerges is one of concern that the mandatory adoption of international standards is unfair if those standards are encumbered by IP rights, which could impose costs (in the form of royalties) on those using the standards. China continued by stating that it is necessary "to take into account the difficulties Members may encounter in the application of international standards."<sup>137</sup> China requested that the CTBT discuss these issues during its Triennial Review of the TBT Agreement, "so as to develop proper approaches and policies to promote the development and implementation of international standards as well as more effective implementation of the TBT Agreement."<sup>138</sup>

China's communication to the CTBT generated questions from other WTO member governments. At the June 2005 CTBT meeting, several countries including Brazil, Mexico, and Canada suggested that China should elaborate on the nature of the problem, clarify its proposal, and indicate what was expected of the Committee.<sup>139</sup> China then circulated an informal Q & A document, which attempted to address these questions.<sup>140</sup> The position paper acknowledges that:

It is legitimate for Intellectual Property Right (IPR) holders to make their claims under standardization. Meanwhile, considering standardization could magnify IPR claims and provide IPR holders with more license fees and competitive advantages, and recognizing standard's nature as public goods, excessive IPR claims in the context of standardization will have negative effects on public interests. Therefore, IPR claims under standardization should be given special attention.<sup>141</sup>

China indicated that it had put forward its proposal "based on the difficulties information and communication technology (ICT) industries have encountered in their development."<sup>142</sup> In particular, the "negative effect of excessive IPR claims on international standardization is especially serious

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137. *Id.* at II.9.

138. *Id.* at II.8.

139. See World Trade Organization, Committee on Technical Barriers to Trade, Minutes of Meeting of June 16-17, 2005, ¶¶ 100-06, G/TBT/M/36 (2005).

140. An Baisheng, Dept. for WTO Affairs, China Ministry of Commerce, Replies to Member Questions, *Chinese Submission on Intellectual Property Issues in Standardization*, appended to G/TBT/W/251 (May 2005).

141. *Id.* at 1.

142. *Id.* at 2.

in [the] global digital economy due to externality of standards in network industries.”<sup>143</sup> China urged that work which had already been done at ISO, IEC, and ITU concerning IP policies and standards would form a “good technical basis” for discussing the issue at the WTO.<sup>144</sup> The Chinese paper suggested that a useful starting point would be to focus on two areas concerning patents: transparency (i.e., disclosure of patent information) in standard setting, and elaborating on the RAND<sup>145</sup> licensing principle to define “reasonable” and “non-discriminatory.”<sup>146</sup>

The CTBT discussed China’s proposal more fully at its next meeting in November 2005, in connection with setting the agenda of work items to be included in the TBT Agreement’s fourth triennial review.<sup>147</sup> The U.S. representative stated that, even after having “consulted bilaterally with China, with a view to better understanding the relationship, if any, with the provisions of the TBT Agreement,” the U.S. still “could not see any such relationship.”<sup>148</sup> Other delegations sought further clarification of China’s proposal, questioned whether the CTBT was the proper forum to address the IP issues, or indicated that they were still studying the issues.<sup>149</sup> China acknowledged that the topic was complex and needed further clarification, and indicated it would provide further elaboration why it believed the topic was of close relevance to the TBT Agreement. The CTBT chairman concluded that there was no general agreement “at this point to consider the topic of intellectual property right issues in standardization as an element of the Fourth Triennial Review.”<sup>150</sup>

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143. *Id.*

144. *Id.* In answer to the question of whether these issues would be better addressed by WTO’s TRIPS Council, China acknowledged that there are key IP-related issues, but the TRIPS Agreement does not concentrate on issues concerning standards. China suggested that the CTBT and TRIPS Council could have parallel discussions, or even establish a Special Cross-Committee working group. The Chinese paper also referred to Article 40 of the TRIPS Agreement, which provides, inter alia, that “members agree that some licensing practices or conditions pertaining to intellectual property rights which restrain competition may have adverse effects on trade and may impede the transfer and dissemination of technology.” *Id.*

145. “RAND” is the acronym for “reasonable and non-discriminatory” licensing, a type of licensing used in standard-setting processes. In the normal case companies agree that, if they hold patents on any technologies which become “essential” to the standard, they will allow others implementing the standard to use those patents in return for reasonable licensing fees. See Lemley, *supra* note 11, at 1903-06, 1964-66.

146. Baisheng, *supra* note 140, at 3.

147. See World Trade Organization, Committee on Technical Barriers to Trade, Minutes of Meeting of November 2, 2005, ¶¶ 109-23, G/TBT/M/37 (Dec. 22, 2005).

148. *Id.* at ¶ 111.

149. *Id.* at ¶¶ 112-13, 120-21.

150. *Id.* at ¶ 123.

China has persisted in raising the issue of IP rights in standardization at the WTO. At a more recent CTBT meeting in March 2006, China provided additional background, emphasizing “that the international community was increasingly paying attention to IPR issues in standardization.”<sup>151</sup> China asserted that at both the government and company levels, “there existed a certain unwillingness to adopt international standards as the basis of national standards and technical regulations if there was no common rule to regulate IPRs in standardization.”<sup>152</sup> China referred again to ISO, IEC, and ITU, all of which had “recognized the impact of . . . IPR issues and had endeavoured to solve the problems” by formulating “basic principles for patent disclosure and licensing arrangements which were widely cited by other standards development organizations.”<sup>153</sup> In China’s view, these principles constituted a “sound technical basis and a roadmap” for the discussion in the WTO.<sup>154</sup> China cited examples of work being done on these issues by other national and inter-governmental organizations.<sup>155</sup> China argued that “it was important to strike a balance between IPR holders and standard implementers so as to create a win-win situation.”<sup>156</sup> In particular, “IPR issues in standardization did not mean that IPR holders would lose and the IPR users would gain: the real problem, currently, was that there were not adequate rules to respond to IPR issues in standardization in the international community, including in the WTO framework.”<sup>157</sup> In sum, China stated that the “subject was of great significance to the integrity of international standardization community and multilateral trade system and China was therefore of the belief that this issue needed to be carried forward within WTO.”<sup>158</sup>

In response, several delegations questioned whether China was raising the topic merely for discussion and information exchange, or wanted new guidelines or the establishment of new rules under the TBT Agreement.<sup>159</sup> The U.S. representative reiterated her delegation’s comments from the last meeting, but noted that China’s paper had “made an interesting statement that there were no WTO rules to address this issue.”<sup>160</sup> The U.S. wanted to

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151. World Trade Organization, Committee on Technical Barriers to Trade, Minutes of Meetings of March 15 & 17, ¶¶ 140-53, G/TBT/M/38 (May 23, 2006).

152. *Id.* at ¶ 145.

153. *Id.* at ¶ 142.

154. *Id.*

155. *See id.* at ¶ 143.

156. *Id.* at ¶ 144.

157. *Id.*

158. *Id.* at ¶ 146.

159. *See id.* at ¶¶ 147-49.

160. *Id.* at ¶ 149.

know whether China wanted new rules, which would change the nature of the discussion before the CTBT. China responded that the objective of raising the issue under the Triennial Review process was to have information exchange so as to familiarize WTO members with the issue.<sup>161</sup>

All of this discussion at the CTBT has been capped off by China's amended submission in November 2006: *Background Paper for Chinese Submission to WTO on Intellectual Property Right Issues in Standardization*.<sup>162</sup> In its last word on the subject, China makes many of the same points while continuing to build its case. It observes that companies holding IP rights make significant contributions in worldwide standard setting, and "[t]his is particularly true in high-tech sectors, where standardizations are often initiated and mainly advanced by those enterprises equipped with key and sophisticated proprietary technologies."<sup>163</sup> The paper refers to the WTO's World Trade Report 2005, which as noted *supra* devoted special attention to the links between trade, standards, and the WTO regime.<sup>164</sup> China argues that there is an obvious trend toward proprietary technology entering into standards. China reiterates that the integration of IP rights into standards can be problematic and may have a negative impact on standardization and international trade.<sup>165</sup> The paper provides several examples where problems with IP rights in standard setting, such as failure to disclose an essential patent or refusal to license technology, exerts a chill on legitimate standard-setting activity.<sup>166</sup> China asserts:

The real problem . . . now is that there are no sufficient rules to respond to IPR issues in standardization within [the] international community, including WTO framework. Without well-defined rule[s] to follow, inefficiency arises and disputes result to the detriments of both IPR holders and IPR users, who come from both developing and developed Members. While it is important to protect the rights and interests of IPR holders, it's equally significant that new international standards and advanced IPR technologies are applied as widely as possible in order to

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161. See *id.* at ¶ 150.

162. See generally *Background Paper for Chinese Submission to WTO, Intellectual Property Right Issues in Standardization*, G/TBT/W/251/Add., at 1 (Nov. 9, 2006) [hereinafter *Background Paper*].

163. *Id.* at ¶ 5.

164. See *supra* note 68 and accompanying text. The 2005 World Trade Report refers to a study finding "that sectors with a higher propensity for standardization . . . tend to be more patent-intensive and export intensive." WORLD TRADE ORGANIZATION, *supra* note 28, at 59.

165. See *Background Paper*, *supra* note 162, at ¶ 9.

166. See *id.* at ¶¶ 10-13.

enhance efficient, high quality production and to facilitate world trade to the interests of consumers worldwide.<sup>167</sup>

China's paper concludes short of requesting that the CTBT adopt any particular measures in the near term. Instead, it asks that WTO member countries, as well as international standard-setting bodies, provide the CTBT with information regarding practices and experience with IP policies in standardization.

#### IV. CHINA'S WAPI STANDARD

Part III illustrates significant differences between the priorities of China and the U.S. on international standard-setting issues. On the U.S. side, the concern is with China's promotion of domestic technology standards—developed in non-transparent national processes—as potential barriers to international trade. By contrast, the Chinese are focused on IP rights, their asserted control by Western companies, and the potential that such control will have a negative impact on international standard setting and trade. The WAPI case—China's mandate of an encryption standard for WLAN communications that would be applicable to domestic and imported equipment—presents a well-documented account<sup>168</sup> with implications for both countries' positions in this standards clash.

The WAPI case highlights how countries use standards to gain national competitive advantage. It illustrates China's nascent approach to the development of domestic standards, which can act as potential barriers to trade and threaten efforts at harmonization. It also demonstrates China's underlying motivations for promoting national standards, which are closely connected to the perceived unfairness and frictions created by foreign-owned IP rights. It signals not only the trade law complexity in this area, but also the important role that IP now plays in international standard setting for technology. Finally, it provides insight into the role of government in standard setting, with strategic measures by the Chinese and U.S. governments demonstrating that standards in the ICT sector implicate pub-

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167. *Id.* at ¶ 18.

168. See USTR, 2005 REPORT TO CONGRESS ON CHINA'S WTO COMPLIANCE 43-45 (2005), available at [http://www.ustr.gov/assets/Document\\_Library/Reports\\_Publications/2005/asset\\_upload\\_file293\\_8580.pdf](http://www.ustr.gov/assets/Document_Library/Reports_Publications/2005/asset_upload_file293_8580.pdf); see also Cromer, *supra* note 13; DeLacey et al., *supra* note 46; Andrew Updegrove, *Breaking Down Trade Barriers: Avoiding the China Syndrome*, CONSORTIUM STANDARDS BULL., May 2004, <http://consortiuminfo.org/bulletins/may04.php#trends>. Numerous additional stories about WAPI have appeared in the press and are cited *infra*.

lic policy issues, and that both governments recognize this point.<sup>169</sup> In this Part, I first review the WAPI case in Section A and then turn in Section B to discuss how it reflects key dimensions of China's emerging standards strategy.

### A. The WAPI Case

The Chinese WLAN standard, called GB15629.11-2003, is similar to the existing and widely accepted standard for WLAN communications developed by the Institute of Electrical and Electronics Engineers (IEEE), known as the 802.11 standard.<sup>170</sup> Both are compatibility standards designed to facilitate communication between wireless devices. Examples of ICT equipment that may use these technologies include PCs, laptops, routers, and handheld devices. After years of technical negotiations between members of industry in what has been called a bottom-up approach to standard setting, the IEEE first released the 802.11 standard in 1997.<sup>171</sup> The standard-setting process for the 802.11 standard has itself been called "a battleground for commercial groups vying to place their IP at the center of the 802.11 standard."<sup>172</sup> In 1999, ISO approved 802.11 as an international standard, published as ISO 8802.11:1999.<sup>173</sup> The broad-based support and rapid marketplace adoption of the 802.11 standard attested to its success, yet also shifted increasing concern toward security. Security was not a subject of particular focus in the early development and implementations of the 802.11 standard; in fact, security was originally purposefully

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169. The topic of public policy in standard setting is explored in a paper by DeLacey et al., *supra* note 46. The authors quote from a paper by Cabral Luis & Tobias Kretschner, *Standards Battles and Public Policy*, in STANDARDS AND PUBLIC POLICY (Shane Greenstein and Victor Stango eds., 2007), to make the point that "given the importance of network industries, it is surprising that little attention has been paid to public policy." DeLacey et al., *supra* note 46, at 2. The authors examine the WAPI case to draw lessons concerning government involvement in standard setting, noting that "the appropriate government role is important both for public policy and business strategy." *Id.*

170. See Sumner Lemon, *Controversy over Chinese WLAN Standard Deepens*, INFOWORLD, Dec. 10, 2003, [http://www.infoworld.com/article/03/12/10/HNchinese\\_controversy\\_1.html](http://www.infoworld.com/article/03/12/10/HNchinese_controversy_1.html).

171. See DeLacey et al., *supra* note 46, at 3, 5-6.

172. *Id.* at 7.

173. See Letter from Paul Nikolich, Chairman, Institute of Electrical and Electronics Engineers (IEEE), 802 Local and Metropolitan Area Network (LAN/MAN) Standards Committee, to Li Zhonghai, Chairman, Standardization Administration of China (SAC), and Wang Xudong, Minister, Ministry of Information Industry (MII) (Nov. 23, 2003), available at [http://ieee802.org/16/liaison/docs/L80216-03\\_19.pdf](http://ieee802.org/16/liaison/docs/L80216-03_19.pdf).

weak due to export restrictions by some governments.<sup>174</sup> However, due to generally acknowledged security problems with the 802.11 standard, the IEEE in May 2001 established a task force to improve the 802.11 standard's security, which rolled out the security-enhanced 802.11i specification in 2004.<sup>175</sup> China did not join the IEEE task force efforts to develop new security protocols that could be grafted onto the 802.11 standard. Instead, starting in 2001 with the support of the Chinese government in a top-down approach, the Chinese WLAN standard was developed to use a home-grown security protocol called WAPI, which stands for WLAN Authentication and Privacy Infrastructure.<sup>176</sup> The WAPI technology employs an encryption algorithm that China has considered to be a state secret, thereby making it difficult for third parties to assess the technology and develop confidence in its use.<sup>177</sup> The incorporation of this security technology makes the Chinese and IEEE standards incompatible for users.<sup>178</sup> This technical incompatibility effectively results in competition between the 802.11 and WAPI security standards.

In May 2003 the Chinese national standards bodies, SAC and MII, approved WAPI as a national standard and stipulated that by December of that year, all wireless devices sold or imported into China would need to incorporate WAPI technology.<sup>179</sup> When December 2003 arrived, China began to implement WAPI regulations, but permitted a transition period extending the deadline for compulsory compliance until June 1, 2004.<sup>180</sup> Conforming to this standard would have forced foreign equipment vendors to obtain rights to WAPI technology from one of a small group of Chinese companies selected by the Chinese government, each of which had access

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174. See BROADBAND WIRELESS EXCHANGE MAG., [http://www.bbwxchange.com/wireless\\_internet\\_access/802.11g\\_wireless\\_internet\\_access.asp](http://www.bbwxchange.com/wireless_internet_access/802.11g_wireless_internet_access.asp) (last visited Oct. 28, 2007). These restrictions were later relaxed.

175. See DeLacey et al., *supra* note 46, at 6-7, 13.

176. *Id.* at 3, 10-11 (giving a history of the development of WAPI technology, explaining China's top-down national approach to standards); see also Sumner Lemon, *Clouds Hang Low Over Chinese WLAN Standard*, INFOWORLD, Dec. 19, 2003, [http://www.infoworld.com/article/03/12/19/HNchinese wlan\\_1.html](http://www.infoworld.com/article/03/12/19/HNchinese wlan_1.html).

177. DeLacey et al., *supra* note 46, at 10. China's State Encryption and Management Committee (SEMC) has confirmed that the encryption technologies in WAPI have been implemented in accordance with Directive 237, a decree issued by China's State Council, the country's highest administrative body. See also Lemon, *supra* note 176. Directive 237 provides that scientific research and production of commercial encryption cipher products should be conducted under conditions of security and secrecy. *Id.*

178. DeLacey et al., *supra* note 46, at 10.

179. *Id.* at 11; see also Lemon, *supra* note 170.

180. See DeLacey et al., *supra* note 46, at 11; see also Lemon, *supra* note 170.

to the core WAPI encryption technology.<sup>181</sup> Various reports suggested that these Chinese companies, a number of which were competitors to the foreign equipment vendors, would be under no obligation to license the WAPI technology.<sup>182</sup> Thus, in addition to concerns over market access, there was also uneasiness about lack of access to relevant IP rights for WAPI and that the Chinese companies could, in turn, demand detailed access to the foreign companies' technology, raising issues about the protection of their IP rights.<sup>183</sup> With a large installed base of devices already using the 802.11 standard, there were also significant cost issues to be considered in any effort to switch over to WAPI technology.<sup>184</sup>

In the worst case, implementation of a mandatory Chinese WAPI standard and restrictive licensing requirements would have significantly changed a market that had previously been open to foreign companies, thereby creating a technical barrier to trade. Not only would it serve as a troubling precedent for standards in the ICT sector, but from a technical interoperability perspective, implementation of the national standard would undermine efforts to harmonize these standards globally. By March 2006 the installed base of IEEE 802.11-capable devices exceeded 200 million worldwide, whereas implementations of the WAPI standard were limited to China.<sup>185</sup> The mandatory WAPI standard would split the global market for wireless networking products in two: one based on the Chinese standard and the other based on the IEEE/ISO standard. This point was

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181. DeLacey et al., *supra* note 46, at 11; *see also* Lemon, *supra* note 170. In December 2003 the Chinese government released a list of Chinese companies designated as obligatory production partners of any foreign manufacturers or importers of WLAN technology. *See* Ann Rollins, Presentation at American National Standards Institute Annual Conference: Securing The Future of Wi-Fi: How China Made the Right Decision, slide 3 (Oct. 13, 2004) (on file with author).

182. *See* Lemon, *supra* note 170.

183. *Id.*; *see also* DeLacey et al., *supra* note 46, at 2; USTR, *supra* note 168, at 43; Suttmeier & Xiangkui, *supra* note 13, at 28. "At the time, there was concern that the initiative, which required outside companies to partner with licensed Chinese companies for access to the WAPI technology, would lead to price-gouging and possible theft of intellectual property." Peter Pollack, *China Reinigorates WAPI Push*, ARS TECHNICA, Mar. 9, 2006, <http://arstechnica.com/news.ars/post/20060309-6353.html>. The USTR 2006 Report notes similar concerns. Following the SAC's issuance of a draft measure—the Interim Regulations for National Standards Relating to Patents—public statements by Chinese government officials generated concerns that the final draft could require compulsory licensing of patented technologies that are used for national standards, or the sharing of patented technologies on a royalty-free basis in exchange for opportunity to participate in developing standards. USTR, *supra* note 93, at 49.

184. *See* DeLacey et al., *supra* note 46, at 12; *see also* Suttmeier & Xiangkui, *supra* note 13, at 28.

185. DeLacey et al., *supra* note 46, at 10-11, 24 ex. 6.

made in a November 2003 letter from Paul Nikolich, chairman of the IEEE 802 LAN/MAN Standards Committee to SAC Chairman, Li Zhonghai, and to China's Minister of Information Industry, Wang Xudong:

[W]e are concerned regarding the requirement to support the new WLAN Authentication and Privacy Infrastructure (WAPI) security protocol. We believe that globally-adopted standards provide great benefits both for manufacturers and users, and we have seen many examples of the successes of our standards. Therefore, we are always concerned by activities that limit their global use. We believe that mandatory implementation of the WAPI protocols would unnecessarily fracture the world market for WLAN products. We are concerned that mandatory use of the standard would prohibit the use of 802.11 standard products and thereby limit choice and increase costs to users.<sup>186</sup>

Nikolich's letter invited the Chinese to participate in the IEEE's 802 standards process, while acknowledging that "802.11 security is not optimal and [we] have been working to improve it through the 802.11i project."<sup>187</sup>

The industry and U.S. government reacted strongly to the Chinese WAPI initiative. Leading industry companies like Intel and Broadcom indicated they would not support WAPI.<sup>188</sup> The U.S. government, asserting the incompatibility of the WAPI standard with China's WTO commitments, repeatedly raised its concerns. In an unprecedented high-level letter of March 15, 2004 to China's Vice Premier, Zeng Peiyan, three high-level U.S. representatives—U.S. Trade Representative Robert B. Zoellick, Secretary of Commerce Donald I. Evans, and Secretary of State Colin L. Powell—stated the United States objection to the WAPI standard:

China would be the only country in the world mandating a specific encryption standard for general consumer use. Since this standard is unique to China, implementation will impose a significant new burden on both foreign and Chinese domestic suppliers. Furthermore, implementation of this standard will make Chinese products incompatible with internationally-accepted standards, isolating China from the larger world market. . . . We

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186. Letter of Paul Nikolich, *supra* note 173.

187. *Id.*

188. Sumner Lemon, *No Compromise on WAPI as Intel's Barrett Heads to China*, COMPUTERWORLD, Apr. 6, 2004, <http://www.computerworld.com/action/article.do?command=viewArticleBasic&articleId=91955>; Tony Smith, *China Tells Intel to Calm Down over Wi-Fi*, THE REGISTER, Mar. 12, 2004, [http://www.theregister.co.uk/2004/03/12/china\\_tells\\_intel\\_to\\_calm/](http://www.theregister.co.uk/2004/03/12/china_tells_intel_to_calm/).

are particularly concerned that the new rules would require foreign suppliers to enter into joint ventures with Chinese companies and transfer technology to them. Such compelled investment and technology transfer would appear to be inconsistent with China's WTO commitments.<sup>189</sup>

Vice President Dick Cheney raised the issue again in high-level meetings in April 2004. The U.S. was particularly concerned about the precedent set if China was permitted to enforce mandatory national standards in the high technology sector.<sup>190</sup>

In response to the industry and diplomatic pressures, the issue was seemingly resolved at a meeting of the US-China Joint Commission on Commerce and Trade (JCCT), a special government consultative body formed to address bilateral trade issues. In April 2004, at a JCCT meeting with China's Vice Premier Wu Yi chairing for the Chinese and Donald Evans and Robert Zoellick co-chairing for the U.S., it appeared that progress had been made. The Chinese delegation announced that it would indefinitely delay implementation of WAPI as a mandatory national wireless encryption standard.<sup>191</sup>

China, however, did not give up on its efforts to promote WAPI. In November 2004, China submitted the WAPI standard for consideration as an international standard before ISO.<sup>192</sup> At ISO, the WAPI standard found competition from the proposed security amendment to the 802.11 standard, known as 802.11i, which was also being submitted to ISO for approval as an ISO-recognized international standard.<sup>193</sup> During the ensuing period, there were claims by Chinese parties that China was receiving unfair treatment as it promoted WAPI for adoption as an international standard, through an anti-WAPI campaign that went well beyond the boundaries of normal ISO rules and procedures.<sup>194</sup> In February 2005, the Chinese

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189. The full text of the March 15, 2004 letter was published by BUSINESS WEEK at [http://www.businessweek.com/magazine/content/04\\_11/b3874018.htm](http://www.businessweek.com/magazine/content/04_11/b3874018.htm).

190. USTR, *supra* note 168, at 43.

191. *Id.* at 43; Trade Facts, The US-China JCCT: Outcomes on Major US Trade Concerns, [http://www.ustr.gov/Document\\_Library/Fact\\_Sheets/2004/The\\_US-China\\_JCCT\\_Outcomes\\_on\\_Major\\_US\\_Trade\\_Concerns.html](http://www.ustr.gov/Document_Library/Fact_Sheets/2004/The_US-China_JCCT_Outcomes_on_Major_US_Trade_Concerns.html) (last visited Dec. 6, 2007); *see also* Michael Kanellos, *China, U.S. Strike Trade Accord*, CNET NEWS.COM, Apr. 21, 2004, [http://www.news.com/China%2C-U.S.-strike-trade-accord/2100-7351\\_3-5197087.html](http://www.news.com/China%2C-U.S.-strike-trade-accord/2100-7351_3-5197087.html).

192. DeLacey et al., *supra* note 46, at 13.

193. *Id.* The IEEE's 802.11i protocol added new security enhancements and was submitted to ISO for consideration as an international standard at the same time.

194. *See* DeLacey et al., *supra* note 46, at 13-14; Tang Fuchun, *Call to Back WAPI Standard*, CHINA.ORG.CN, Apr. 15, 2005, <http://www.china.org.cn/english/2005/Apr/>

delegation withdrew from an ISO meeting in Frankfurt, Germany, alleging “unfair treatment” and that WAPI was blocked by “international monopoly forces.”<sup>195</sup> In July 2005 the SAC issued a WAPI Briefing paper, in which it emphasized “the importance of upholding the principles of fairness and procedural due process” as its proposal was considered before ISO.<sup>196</sup> Eventually, by fall 2005, the proposed competing security standards—WAPI and 802.11i—were both given fast-track consideration for voting in the relevant ISO committee.<sup>197</sup> In effect, ISO would vote to choose between the incompatible standards. Meanwhile, in January 2006, the Chinese government directed that all government purchases should give priority to products with WAPI-compatible technologies.<sup>198</sup> Leading up to the ISO vote in March 2006, Chinese sources emphasized that the WAPI technology was superior and claimed that the “IEEE’s anti-WAPI campaign has gone beyond normal standardization boundaries and violated many ISO rules and principles.”<sup>199</sup> On the eve of the ISO vote, a group of twenty-two Chinese companies, backed by the Chinese government, formed the WAPI Industry Alliance to promote the adoption of the security protocol, particularly in China’s domestic market.<sup>200</sup> However, serious concerns remained about WAPI. The IEEE prepared a summary document in which it laid out its claims in favor of fast-track adoption of

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125979.htm; *Amid Controversy, China Strongly Backs Home-Grown WLAN Security Technology in Competition with Intel*, PEOPLE’S DAILY ONLINE, Mar. 6, 2006, [http://english.peopledaily.com.cn/200603/06/eng20060306\\_248151.html](http://english.peopledaily.com.cn/200603/06/eng20060306_248151.html) [hereinafter *Amid Controversy*].

195. Liu Yan, *ISO Meetings Fail to Back WAPI Standard*, CHINA DAILY, Feb. 25, 2005, at 9, available at [http://www.chinadaily.com.cn/english/doc/2005-02/25/content\\_419204.htm](http://www.chinadaily.com.cn/english/doc/2005-02/25/content_419204.htm); see also DeLacey et al., *supra* note 46, at 14. There had been some hope that the WAPI and 802.11i security standards could be harmonized through cooperation in the relevant ISO committee, but this effort failed. Mike Clendenin, *WAPI Battle Exposes Technology Rifts with China*, EE TIMES, Mar. 17, 2006, <http://www.eetimes.com/showArticle.jhtml?articleID=183700631>.

196. STANDARDIZATION ADMINISTRATION OF CHINA, WAPI BRIEFING NO. 1, at 1 (2005).

197. DeLacey et al., *supra* note 46, at 14.

198. *Id.*; see also Jessica Wang, *Analysis International Says China’s WAPI Industrial Alliance Should Think in the Interest of the Whole Community*, EE TIMES, Jan. 24, 2006, [http://www.eetimes.com/press\\_releases/prnewswire/showPressRelease.jhtml?articleID=X422627&CompanyId=1](http://www.eetimes.com/press_releases/prnewswire/showPressRelease.jhtml?articleID=X422627&CompanyId=1); Posting of Andrew Updegrave to ConsortiumInfo.org Standards Blog, <http://www.consortiuminfo.org/standardsblog/> (Jan. 9, 2006, 10:43 PST);

199. See *Amid Controversy*, *supra* note 194.

200. Sumner Lemon, *WAPI Supporters Ready a Last Stand in China*, INFOWORLD, Mar. 8, 2006, [http://www.infoworld.com/article/06/03/08/76201\\_HNwapichina\\_1.html](http://www.infoworld.com/article/06/03/08/76201_HNwapichina_1.html); see also Pollack, *supra* note 183. The WAPI Industry Alliance has grown to include top Chinese computer and telecommunications companies.

the 802.11i proposal, while listing issues weighing against the WAPI proposal.<sup>201</sup>

In early March 2006, ISO members voted to reject the proposed WAPI standard and instead to adopt the IEEE's 802.11i security specification.<sup>202</sup> Reports suggest that members were particularly concerned about adopting WAPI as an international standard due to the continuing secrecy surrounding its undisclosed security algorithm, which created uncertainty and made assessment of the WAPI standard difficult.<sup>203</sup> Regardless of whether or not WAPI might have had technical advantages, members worried about incompatibility, a non-transparent standards development process, and lack of WAPI implementations in the marketplace.<sup>204</sup> A number of ISO members expressed the desire to harmonize the two proposals, but with the working assumption that the 802.11 standard would form the basis to which potentially useful elements of WAPI could be added.<sup>205</sup>

The Chinese responded vigorously to the rejection. The China Broadband Wireless IP Standard Group ("China BWIPS"), the official supporter of the WAPI standard and an organization authorized by the Chinese MII, accused those supporting the 802.11i security standard of "a lot of dirty tricks including deception, misinformation, confusion and reckless charging to lobby against WAPI."<sup>206</sup> China's official news service, Xinhua News Agency, announced that the Chinese government would continue to support WAPI, and that the rejection by ISO would not affect its domestic use in China.<sup>207</sup> Regarding harmonization, China would not agree to "the hypocritical proposal of forcing the seriously handicapped [802.]11i proposal into an international standard and then using WAPI's advanced

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201. See DeLacey et al., *supra* note 46, at 14, 24 ex. 6.

202. Stephen Lawson & Sumner Lemon, *ISO Rejects China's WAPI Security Protocol*, NETWORK WORLD, Mar. 13, 2006, <http://www.networkworld.com/news/2006/031306-china-wireless-security.html>. The proposal to adopt WAPI as a standard was defeated with 17 votes against and 8 in favor. The adoption of 802.11i was approved by 24 votes in favor and 3 against. See also DeLacey et al., *supra* note 46, at 14; Joe McDonald, *China Encryption System Rejected*, ASSOCIATED PRESS (Mar. 13, 2006).

203. Lawson & Lemon, *supra* note 202. By comparison, the relevant algorithms for the 802.11i security protocol are not held secretly.

204. See DeLacey et al., *supra* note 46, at 24 ex. 6.

205. *Id.* at 14-15.

206. Joe McDonald, *Encryption Rivals Accused of Dirty Tricks*, REDORBIT, Mar. 14, 2006, [http://www.redorbit.com/news/technology/428177/encryption\\_rivals\\_accused\\_of\\_dirty\\_tricks/index.html](http://www.redorbit.com/news/technology/428177/encryption_rivals_accused_of_dirty_tricks/index.html) (quoting press statement issued by Xinhua News Agency); see also *China Strongly Against 802.11i for Spreading Misinformation*, PEOPLE'S DAILY ONLINE, Mar. 20, 2006, [http://english.people.com.cn/200603/15/print20060315\\_250842.html](http://english.people.com.cn/200603/15/print20060315_250842.html).

207. Lawson & Lemon, *supra* note 202.

technology to fix 802.11i's security loopholes.”<sup>208</sup> China BWIPS and SAC made additional submissions, claiming ethical and procedural violations of the ISO fast-track process, and lodging an appeal requesting ISO to nullify its decision.<sup>209</sup> The Chinese government officially weighed in to support this appeal.<sup>210</sup> In June 2006, during a follow-up meeting in the Czech Republic hastily convened by ISO, the Chinese delegation walked out, asserting an “unfair atmosphere.”<sup>211</sup>

Since then, China has continued promoting WAPI both before ISO<sup>212</sup> and domestically, building upon the Chinese government's procurement and the development of a WAPI industry chain through the efforts of the WAPI Industry Alliance.<sup>213</sup> The vice-minister of China's MII recently used the signing ceremony for Intel's new integrated circuit manufacturing facility in Dalian, China to urge Intel to support WAPI.<sup>214</sup> China has made “public the WAPI algorithm so that foreign manufacturers can enter the wireless LAN market in China.”<sup>215</sup> However, Japan has protested that the manner in which this is planned to take place may have violated the TBT Agreement because Chinese authorities are planning to disclose the tech-

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208. DeLacey et al., *supra* note 46, at 15 (quoting *China to Appeal for Fair Position of Home-Grown Wireless Security Tech*, Xinhuanet, Mar. 13, 2006, [http://news3.xinhuanet.com/english/2006-03/14/content\\_4299901.htm](http://news3.xinhuanet.com/english/2006-03/14/content_4299901.htm)); see also Posting of Andrew Updegrove to ConsortiumInfo.org Standards Blog, <http://www.consortiuminfo.org/standardsblog/> (Mar. 16, 2006, 09:18 PST).

209. See DeLacey et al., *supra* note 46, at 4, 15; Natali T. Del Comte, *China Disputes Wi-Fi Security Proposal*, PC MAG., May 31, 2006; Chris Hawke, *China: U.S. is in Wireless 'Conspiracy'*, USA TODAY, May 29, 2006, [http://www.usatoday.com/tech/news/2006-05-29-china-encryption\\_x.htm](http://www.usatoday.com/tech/news/2006-05-29-china-encryption_x.htm).

210. *China—Update: Appeal Over ISO WAPI Decision Gets Government Backing*, WIRELESS ASIA/PACIFIC DAILY BULL., June 1, 2006.

211. Chris Hawke, *China Walks out of Encryption Meeting*, USA TODAY, June 10, 2006, [http://www.usatoday.com/tech/news/2006-06-11-china-encryption\\_x.htm](http://www.usatoday.com/tech/news/2006-06-11-china-encryption_x.htm). The SAC released a statement through the official Xinhua News Agency, that “[i]n this extremely unfair atmosphere, it is meaningless for the Chinese delegation to continue attending the meeting.” *Id.*; see also DeLacey et al., *supra* note 46, at 4.

212. One report states that China is “rallying several third-world countries in Africa and South America for votes in the ISO,” and has hosted summits for African and South American countries to discuss these issues. See Luna, *supra* note 1.

213. See *Chinese Firms Still Pushing WAPI*, SINOCAST CHINA IT WATCH, Oct. 26, 2006; *China to Roll Out WAPI Products Extensively in 2007*, CHINA TELECOM WKLY., Mar. 9, 2007; *Companies Throw Weight Behind WAPI*, CHINADAILY.COM.CN, May 23, 2007, [http://www.chinadaily.com.cn/bizchina/2007-05/23/content\\_878468.htm](http://www.chinadaily.com.cn/bizchina/2007-05/23/content_878468.htm).

214. *MIJ Official Urges Intel to Support WAPI*, CHINA TELECOM WKLY., Mar. 20, 2007.

215. Committee on Technical Barriers to Trade, *Transitional Review Mechanism in Connection with Paragraph 18 of the Protocol on the Accession of the People's Republic of China: Questions and Comments from Japan to China*, ¶¶ 25-27, G/TBT/W/270.

nical WAPI content to domestic firms six months before disclosing the same information to foreign firms.<sup>216</sup>

Despite protests from China, the failure of the proposed WAPI standard to achieve approval in the March 2006 ISO vote should not be considered merely the result of an aggressive opposition by the IEEE and other industry stakeholders. As noted *supra*, substantive concerns about the WAPI standard persisted, including the secrecy of the security algorithm; the incompatibility with existing wireless devices; the lack of WAPI implementations in the marketplace; a non-transparent Chinese standards development process in which non-Chinese parties were not permitted to participate; and the lack of transparency (or even understanding) concerning the IP policies governing access to the WAPI technology.<sup>217</sup> A recent detailed account of the WAPI case states, “[p]articipation in the [WAPI] standards process was closed and opaque, and when the two standards collided on the global standards stage, rather than engaging IEEE on questions surrounding technology differences between 802.11 and WAPI, WAPI supporters focused on issues of due process and attempted to discredit the IEEE’s process.”<sup>218</sup> Regarding IP rights, the study found that:

With WAPI . . . , there were considerable ambiguities surrounding the technology, with no access to relevant intellectual property. The only way to build the technology was to partner with one of 24 [Chinese] firms involved in promulgating the standard, but the nature of these partnerships was unclear, and outside firms worried about revealing related intellectual property in exchange.<sup>219</sup>

Citing WAPI as an example, the EU, in a submission to the CTBT, raised similar concerns about compulsory home-grown standards, lack of transparency, exclusion of European companies from Chinese standards development bodies, and certification difficulties.<sup>220</sup> The EU “stressed that a unilateral decision by China to adopt mandatory specific encryption re-

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216. *Id.*

217. See DeLacey et al., *supra* note 46, at 2-3, 15-16, 24 ex. 6.

218. *Id.* at 16.

219. *Id.* at 2.

220. Committee on Technical Barriers to Trade, *Communication from the European Union*, ¶¶ 8-14, G/TBT/W/272 (Oct. 17, 2006); see also Committee on Technical Barriers to Trade, *Fourth Annual Transitional Review Mandated in Paragraph 18 of the Protocol of Accession of the People’s Republic of China*, ¶¶ 3, 5, G/TBT/17 (Nov. 9, 2005).

quirements in an area where an international standard was being prepared would be inconsistent with Article 2.4 of the TBT Agreement.”<sup>221</sup>

As set forth *supra*, China has made public statements raising concerns about fairness in international standard setting, particularly with regard to Western control of standards and IP rights as an obstacle to harmonization and trade. The WAPI case shows, however, that China’s home-grown approach, involving a closed and opaque process with ambiguities on treatment of IP rights, may suffer from some of the same standard-setting “sins.” China’s general concerns about IP rights, and its particular protests about unfair treatment in the ISO fast-track process, appear to be at odds with its own unilateral standards development approach for the WAPI technology. One could say that China should practice what it has begun to preach.

The following table provides a side-by-side comparison of certain relevant standard-setting factors, as of March 2006, in relation to the WAPI and 802.11i proposals, drawing in part on points raised in an IEEE executive summary document:<sup>222</sup>

802.11i proposal	WAPI proposal
Broad disagreement about which technology is superior	
Developed in bottom-up standards development process with contributions from over 500 engineers in 30 countries	Developed in top-down standards development process with no contributions from firms outside China
Open and transparent standards development process	Closed and non-transparent standards development process
Reviewed by international cryptographic community	No review by international cryptographic community because underlying security algorithms were undisclosed
Open and fully specified standard	Proposed standard allegedly contained ambiguities and syntactic errors
Available to anyone for implementation, with licensing of relevant IP rights according to RAND	Beyond select group of Chinese firms, unclear if, and under what terms concerning IP rights, WAPI would be available to other domestic or foreign firms for implementation

221. Committee on Technical Barriers to Trade, *Minutes of the Meeting of June 7-9, 2006*, ¶ 64, G/TBT/M/39 (July 31, 2006).

222. DeLacey et al., *supra* note 46, at 24 ex. 6.

Certified interoperability of devices manufactured by over 500 companies	Limited certification to small group of Chinese firms
Backward compatibility with large installed base of pre-802.11i systems	No backward compatibility, and incompatible with planned enhancements of 802.11
Re-uses deployed authentication technologies	Does not allow for re-use of existing authentication technologies
Installed base of 802.11i-capable devices exceeds 200 million globally	Has no known commercial deployment. Attempts by non-Chinese companies to procure any version of a WAPI device have failed

### B. China's Motivation for WAPI and its Standards Strategy

In view of the discussion *supra*, it is apparent why China would be motivated to develop and implement its own WLAN security standard. Not only security matters, but also concerns for the promotion of economic and technological development, shape its standards strategy. China has repeatedly asserted that, despite its wide adoption, there were security deficiencies in the 802.11 standard.<sup>223</sup> The chairman of the IEEE 802.11 standards committee acknowledged that security was an issue, which in turn provided impetus for development of the 802.11i security amendment.<sup>224</sup> China indicated that these technical issues implicate national information security concerns as well, with the possible involvement of Chinese defense and national security interests in the development of WAPI.<sup>225</sup>

However, other reasons clearly drive China's approach on WAPI. Shen Changxiang, a member of the Chinese Academy of Engineering and the State Information Advisory Committee, states that "[t]he WAPI stan-

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223. See Fuchun, *supra* note 194; *Amid Controversy*, *supra* note 194; see also Updegrave, *supra* note 168.

224. See Letter of Paul Nikolich, *supra* note 173.

225. A Chinese representative stated in a CTBT meeting that "WAPI standards were developed to protect national information safety, and stressed that this was in line with the TBT Agreement." Committee on Technical Barriers to Trade, *Minutes of the Meeting of 7-9 June 2006*, ¶ 66, G/TBT/M/39 (July 31, 2006); see also Suttmeier & Xiangkui, *supra* note 1313, at 29.

dard concerns both national security and economic interests.”<sup>226</sup> Capturing more economic return seems to be an integral incentive.<sup>227</sup>

Another related incentive is promoting the growth of Chinese technology industries. One perspective emphasizes that “[n]ational pride and interest in promoting Chinese industry also plays an important role and reinforces the view that China is uneasy about the considerable influence which U.S. companies and government agencies have in international standard setting.”<sup>228</sup> Qin Zhuqiang, the WAPI Industry Alliance’s vice-secretary-general, also expressed views concerning the role of IP rights in relation to China’s WAPI stance: “The Chinese national policy is to develop self-owned IP and encourage innovation.”<sup>229</sup> Moreover, the WAPI case represents one of the first times China has proposed a standard involving Chinese patents in the networking area.<sup>230</sup> By contrast, implementation of various versions of the 802.11 standard could require licensing of IP rights from foreign owners.<sup>231</sup> Xu Guanhua, science minister of China’s Ministry of Science and Technology, has echoed this view, indicating in a speech in 2002 that, in relation to IP rights, China will pay much more attention to the development of its own technical standards in fields such as ICT and biotechnology.<sup>232</sup> Shen Changxiang states, “There have long been

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226. See Fuchun, *supra* note 194.

227. See DeLacey et al., *supra* note 46, at 10 (quoting from July 28, 2006 interview with Zhuqiang Qin).

228. Suttmeier & Xiangkui, *supra* note 13, at 29. One analyst adds that “China is becoming increasingly frustrated that they’ve been excluded from the standard-setting process,” and “[m]ost standards have been handed to them as a de facto [standard].” Elena Malykhina, *China Won’t Take Backseat on Standards for Long*, INFO. WEEK, June 5, 2006, at 28 (quoting George Koo, senior advisor of Chinese services group at Deloitte & Touche).

229. DeLacey et al., *supra* note 46, at 12.

230. See DeLacey et al., *supra* note 46, at 12.

231. *Id.* at 2, 16; see also Andrew Updegrave, *Deploying an Aggressive Standards Strategy Under the WTO*, CONSORTIUM STANDARDS BULL., Apr. 2005, <http://www.consortiuminfo.org/bulletins/apr05.php>. Indeed, in the U.S. there are disputes about payment of royalties under two versions of the 802.11 wireless standard. See Marguerite Reardon, *Wi-Fi Standards Face Patent Threat*, CNET NEWS.COM, Nov. 20, 2006, <http://www.news.com/2100-7351-6137372.html>. Australia’s national science agency, the Commonwealth Scientific and Industrial Research Organization (CSIRO), claims that it holds patent rights covering the widely used 802.11a and 802.11g standards. CSIRO disclosed its patent to the IEEE in 1997, when that standards body was working to improve the standard. At one point, the IEEE sent a letter to CSIRO acknowledging that part of the technology used in the new standards was covered by CSIRO’s patent and asking whether it wanted to license the technology to industry for free or charge a reasonable fee. CSIRO indicated that it would charge a fee for use of the technology. *Id.*

232. Suttmeier & Xiangkui, *supra* note 13, at 15-16.

worries that China's information industry relies too much on foreign countries for its core technology. Getting patents is important for the competitive ability of businesses, but industrial standards are key for the whole sector, and even to the nation . . . ."<sup>233</sup> Andrew Updegrave describes these strategic concerns in practical terms:

Some standards bear significant royalty loads, which can empower some parts of the world (e.g., the West) with significant trade advantages, because their vendors can sell high-margin, branded products, while nations in other regions (e.g., emerging countries) are relegated to the status of low-cost, low margin job shops supplying finished goods to the owners of the patents that underlie controlling standards, but unable to sell similar goods, at high margins, directly to end-users. Such advantages can tempt those with large markets and production capabilities (e.g., China) to create their own domestic standards, in order to level the economic playing field, notwithstanding the constraints on such behaviors contained in the [TBT Agreement].<sup>234</sup>

Thus, controlling industrial or technology standards can be central to obtaining a larger share of the potential economic and financial returns, even if there is a risk of impediments to existing trade. Producing goods to one's own standard means no need to pay royalties to a third-party domestic or foreign patent owner. Setting standards nationally generates potential access to technology at lower cost (i.e., without payment of foreign royalties), no matter what the intended purpose for use of the technology.

China undoubtedly understands the importance of standards for strategic and competitive advantage. While government and economic forces within China cannot be viewed as monolithic,<sup>235</sup> China's drive to create homegrown standards has nonetheless been aptly characterized as an attempt to control the "technological terms of its participation in the global economy."<sup>236</sup> A May 2004 report by Richard Suttmeier and Yao Xiangkui, *NBR Special Report: China's Post-WTO Technology Policy: Standards*,

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233. Fuchun, *supra* note 194.

234. See Updegrave, *supra* note 22.

235. See Philip Qu & Carl Polley, *The New Standard-Bearer*, IEEE SPECTRUM, Dec. 2005, at 52, available at <http://www.spectrum.ieee.org/print/2361>; see also Suttmeier & Xiangkui, *supra* note 13, at 6. Many Chinese firms have interests in the standards established by global multinational corporations rather than in those promoted by the Chinese government, giving rise to cross-cutting positions. *Id.*

236. *Setting Standards*, CHINA ECON. REV., June 2005, [http://www.chinaeconomicreview.com/cer/2005\\_06/Setting\\_standards.html](http://www.chinaeconomicreview.com/cer/2005_06/Setting_standards.html) (quoting Peter Suttmeier of the University of Oregon).

*Software, and the Changing Nature of Techno-Nationalism* (the “NBR Report”), examined China’s national standards strategy, concluding:

China has been actively developing a new technology policy based on the promotion of its own technical standards. These activities impinge upon business decisions and raise questions about China’s commitment to honor its World Trade Organization (WTO) obligations, and are thus attracting increasing attention from foreign business leaders and government officials. . . . We suggest that the standards strategy is best understood in terms of a “neo-techno-nationalism,” in which technological development in support of national economic and security interests is pursued through leveraging the opportunities presented by globalization for national advantage.<sup>237</sup>

The NBR Report advises that there are “complex motivations” behind China’s standards strategies. With respect to standards and IP rights held by foreign owners, it elaborates a Chinese viewpoint:

[China’s] participation in the global economy is largely defined by its role in international production networks established by others. These networks employ technical standards and technological architectures set by the multinational corporations (MNCs), which are able to capture value from their control over standards and intellectual property. Thus, while China’s *absolute* gains have been significant, it remains more than a little dissatisfied with the *relative* gains it realizes in comparison with international technology leaders—often seeing itself, for instance, in a

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237. Suttmeier & Xiangkui, *supra* note 13, at 3. The NBR Report was sponsored by the National Bureau of Asian Research, and builds on the views of authors such as Sangbae Kim and Jeffrey Hart, who have stated:

[T]echnological competition in the global information industries—the leading sector in the contemporary global political economy—is currently moving beyond competition over technological innovation per se. The technological winner is now the one who manages to control de facto market standards while at the same time protecting intellectual property rights.

*Id.* at 17 (quoting Sangbae Kim & Jeffrey Hart, *The Global Political Economy of Wintelism: A New Mode of Power and Governance in the Global Computer Industry*, in INFORMATION TECHNOLOGIES AND GLOBAL POLITICS 143, 143 (James Rosenau & J.P. Singh, eds., 2002)).

“patent trap” that requires it to pay substantial royalties to others out of the sales of its manufacturers.<sup>238</sup>

China’s long-term intention thus appears to be clear: to move up the economic value chain through a strategic focus on standards. The NBR Report suggests that this strategy will depend upon mediating between the extremes of “narrow techno-nationalism,” such as single-minded support for Chinese-based standards that may cause friction and resentment from existing trading partners, and “techno-globalism,” which is insensitive to national economic and security interests.<sup>239</sup> If China goes too far in either direction, its strategy on standards will not be as effective.

My analysis of the WAPI case and China’s interventions before the CTBT shows that China’s standards strategy has multiple dimensions. The discussion in this Article has identified at least four tracks on which China relies:

- (i) Emphasize the development and promotion of indigenous national standards, such as WAPI, using China’s domestic market to increase their use and acceptance;
- (ii) Use the leverage associated with the desire by foreign companies for a presence in the Chinese domestic market, or participation in Chinese standards development activities, to negotiate more favorable terms for access to foreign IP and technology;
- (iii) Test the waters of international standard setting, such as promoting WAPI for recognition as an international standard before ISO; and
- (iv) Move for change within the framework of the TBT Agreement before the CTBT, claiming unfairness in international standard setting and seeking more detailed rules governing IP in connection with international standards.

China’s submissions to the CTBT, reviewed *supra* in Part III, are consistent with these views and underscore concerns, in particular, about the relationship between IP rights and international standards. China has sought to bring increasing attention to the links between standards, trade, and IP, slowly building a foundation for change. At the same time, it has

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238. *Id.* at 3-4. The NBR Report gives the example of Chinese-made DVD players (China now makes approximately 90% of the world’s DVD players), which were impounded at European ports in 2002 because Chinese manufacturers had allegedly not paid for the patents used. *Id.* at 11. The demand was for US\$20 per unit royalty on DVD players carrying a sales price of US\$90. *Id.*

239. Suttmeier & Xiangkui, *supra* note 13, at 17.

actively promoted domestically developed standards both domestically and internationally, as demonstrated in the WAPI case, to foster further technological and economic development. In the short to medium term, Chinese companies—involved as manufacturers in global production networks—must be aware of standards in various export markets and cannot avoid using many existing international standards needed for the goods they produce.<sup>240</sup> It is thus no surprise that China is pressing for increased attention to IP issues which it perceives as obstacles to trade. Success in this area could pave the way for lower costs, greater compatibility, and increased exports. In Part VI *infra*, I focus on China's fourth track, agreeing with its position to the extent that policies governing IP rights in international standard setting should be incorporated into the TBT Agreement framework.

China could possibly return to a mandatory approach for WAPI or other similar technologies, particularly being quite unfamiliar with the WTO disciplines, the participatory processes at ISO, and the potential incursion into its domestic regulatory autonomy. However, this would not necessarily serve China's interests as it seeks to deepen its integration into the international economy. More likely, as China's economic power grows and it becomes more adept at playing the standards game, it will hold increasing leverage and find new means for pressing its concerns. Thus far, however, China's entreaties before the WTO to adopt new policies concerning IP and standards have been undercut by its handling of the WAPI standard. In the next Part, I examine the legal question of whether China's WAPI policy is consistent with its WTO obligations, especially under the terms of the TBT Agreement.

## V. ANALYZING THE WAPI CASE UNDER WTO RULES

While academics have extensively examined standards in relation to IP and antitrust issues,<sup>241</sup> they have focused much less on standards and their double-edged roles as harmonizing mechanisms to facilitate trade or as problematic NTBs. The WAPI case has now provided a useful example for studying ICT standards and international trade.<sup>242</sup> As mentioned *supra*, the WTO in its World Trade Report 2005 chose as its annual policy fea-

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240. See Qu & Polley, *supra* note 235, at 52. More than forty percent of China's standards across all industries mirror international standards. *Id.* The USTR 2006 Report notes that the Chinese supervisory standards agency, AQSIQ, has since China's accession to the WTO issued rules designed to facilitate China's adoption of international standards. USTR, *supra* note 93, at 46.

241. See sources cited *supra* note 11.

242. See Suttmeier & Xiangkui, *supra* note 13, at 27-31; Cromer, *supra* note 13.

ture an examination of the links between standards, international trade, and the WTO regime, thereby illustrating the increasing attention to these issues at the international level.<sup>243</sup> The WTO's former Director-General, Supachai Panitchpakdi, highlighted in his foreword that standards are essential for facilitating well-functioning markets where technical compatibility is important—such as networked environments. He emphasized, moreover, that “a stable and mutually supportive relationship between standards regimes and international trade rules is central to the effective functioning of the trading system.”<sup>244</sup> Yet he also admonished that “the design and operation of standards must also be such as to avoid the misappropriation or capture of public policy in these areas to construct unwarranted obstacles to competition and trade.”<sup>245</sup> This WTO view of standards reflects their dual nature from a trade perspective—as trade facilitators and an indispensable element in the modern economy, yet when applied inappropriately as a device of protectionism. Governments, too, increasingly recognize that standards are valid strategic tools to foster the competitiveness of their industries, but they can also face temptation to cross the line and use them for protectionism.

I endeavor in this Part to build on the contributions noted *supra*, providing an analysis of relevant WTO trade obligations and their application to the WAPI case, while considering counterarguments that have been, or could have been, raised by the Chinese government. In this sense, the WAPI case also serves to illustrate standards' indeterminate nature as trade facilitators and harmonizing elements in the ICT industry, on the one hand, or as potential measures of protectionism when applied inappropriately, on the other. While the Chinese government has taken active steps to promote the use of technology standards developed within China, this by itself is not necessarily problematic from a trade perspective. The EU, as discussed *supra*, has for years taken an approach to standard setting that is proactive, centralized, and subsidized.<sup>246</sup> However, some of the Chinese government measures used to promote WAPI, including its initial (but later suspended) mandate that all wireless devices sold or imported into China must be WAPI-compliant, can be viewed as protectionism, raising concerns in relation to WTO obligations. In Section A, I provide background on the TBT Agreement and, in Section B, China's WTO accession

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243. See *supra* text accompanying note 68.

244. Supachai Panitchpakdi, *Foreword* to WORLD TRADE ORGANIZATION, *supra* note 28, at iii.

245. *Id.*

246. See Walter Mattli & Tim Büthe, *supra* note 32, at 10-11, 25.

commitments. I then analyze in Section C whether China's WAPI policy has been consistent with WTO rules.

### A. The WTO and TBT Agreement

Established on January 1, 1995 in Geneva, the WTO represents the logical capstone of post-World War II efforts by governments to remove barriers impeding international trade. The history of the developments leading up to the WTO has been extensively documented.<sup>247</sup> Building on the foundations of the General Agreement on Tariffs and Trade (GATT), which existed provisionally for 47 years yet nevertheless achieved global success in reducing the old-line trade barriers of tariffs and quotas,<sup>248</sup> the WTO incorporates a package of multilateral agreements which respond to the increasingly complex devices, such as NTBs, that can be used to protect domestic interests and inhibit competition from imports.<sup>249</sup> These NTBs have been called "the crucial terrain of trade policy today," becoming "significantly more important" as tariffs have been substantially reduced under more than four decades of the GATT regime.<sup>250</sup>

NTBs first became a priority for negotiations during the Tokyo Round in the 1970s. The negotiations for reducing NTBs were complex, and the Round resulted in nine different special agreements on non-tariff measures, which were called "codes" because they involved reasonably concrete obligations.<sup>251</sup> Among these limited membership codes, the Agreement on Technical Barriers to Trade, signed in April 1979 (the "Standards Code"), proved to be one of the most successful, with forty-seven governments (more than any other code) eventually signing it.<sup>252</sup> Some fifteen

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247. See generally JOHN H. JACKSON, *THE WORLD TRADE ORGANIZATION: CONSTITUTION AND JURISPRUDENCE* (1998); *THE WORLD TRADE ORGANIZATION: LAW, PRACTICE, AND POLICY* (Mitsuo Matsushita, Thomas H. Schoenbaum & Petros C. Mavroidis eds., 2d ed. 2006); *THE GATT URUGUAY ROUND: A NEGOTIATING HISTORY* (Terence P. Stewart ed., 1999); *WORLD TRADE ORGANIZATION, GUIDE TO THE URUGUAY ROUND AGREEMENTS* (1999).

248. Since the creation of GATT it has been estimated that the average tariff rate of industrialized countries has been reduced from 40% to 4%. See USTR, *supra* note 106, at 7.

249. Eight rounds of multilateral trade negotiations under the GATT system have served to greatly reduce tariffs and other barriers to trade. See Jackson, *supra* note 247, at 20; Matsushita et al., *supra* note 247, at 5.

250. Jackson, *supra* note 247, at 21. Professor Jackson continues on this point: "Many domestic producer interests would begin turning to a variety of non-tariff barriers (more than a thousand) as a way to minimize the competition from imports, since tariffs would no longer provide that type of protection."

251. *Id.* at 21.

252. *WORLD TRADE ORGANIZATION, GUIDE TO THE URUGUAY ROUND AGREEMENTS, supra* note 247, at 71.

years later, the Uruguay Round of negotiations focused on these codes as part of the multilateral agreement establishing the WTO itself. "A major advance of the Uruguay Round result and the WTO is to bring these updated 'side agreements' into the core of the WTO/GATT legal structures, although a number of difficult legal questions about the relationships of these various texts to each other and to the GATT still exist."<sup>253</sup> The new TBT Agreement emerging from the Uruguay Round, unlike its predecessor the Standards Code, is fully integrated into the WTO system, with its provisions binding all WTO members and any disputes arising under it governed by the WTO's dispute settlement rules.<sup>254</sup>

The broad purposes of the TBT Agreement are set forth in its Preamble, including:

- (i) Encouraging international standards and conformity assessment systems, in recognition of "the important contribution that international standards and conformity assessment systems can make . . . by improving efficiency of production and facilitating the conduct of international trade;" and
- (ii) Ensuring that technical regulations and standards . . . and procedures for assessment of conformity with technical regulations and standards, do not create unnecessary obstacles to international trade.<sup>255</sup>

The Preamble states that WTO members should nevertheless be entitled to take measures to protect national security and the environment, to ensure quality of exports and prevent deceptive practices, and to protect human, animal, or plant life or health, so long as these measures are not discriminatory or disguised restrictions on trade.<sup>256</sup> The Preamble recognizes the contribution which international standards can make to the transfer of technology from developed to developing countries, while acknowledging that developing countries may encounter difficulties and require assistance in the development and application of technical regulations, standards, and procedures for conformity assessment.<sup>257</sup>

The TBT Agreement is concerned with standards and technical regulations—only measures that fall within the scope of the definitions of a

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253. Jackson, *supra* note 247, at 22.

254. WORLD TRADE ORGANIZATION, GUIDE TO THE URUGUAY ROUND AGREEMENTS, *supra* note 247, at 71.

255. TBT Agreement, *supra* note 8, at preamble, Art. 5.1.2.

256. *Id.* at ¶¶ 6-7.

257. *Id.* at ¶¶ 8-9.

standard or technical regulation are subject to the Agreement's disciplines.<sup>258</sup> The TBT Agreement defines "standard" as a "[d]ocument approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for products or related processes and production methods, *with which compliance is not mandatory.*"<sup>259</sup> When the specification is intended to be voluntary in application, the term "standard" is used, whereas specifications with regulatory force (i.e., where compliance is mandatory) are referred to as "technical regulations."<sup>260</sup> "Most of the principles applied by the TBT Agreement to technical regulations also apply to voluntary standards which are covered by the Code of Good Practice for the Preparation, Adoption and Application of Standards (Annex 3 of the Agreement)."<sup>261</sup> Thus, while the principles for the preparation and adoption of technical regulations and standards are the same, the former are normally issued by a governmental body and require mandatory compliance, while the latter are developed by various standard-setting bodies for voluntary adoption.

The structure of the TBT Agreement covers three sets of activities, carried on at several different levels.<sup>262</sup> The first set involves WTO member responsibilities for the preparation, adoption, and application of *technical regulations*, with Article 2 specifying responsibilities for central governments and Article 3 specifying responsibilities for local government and non-governmental bodies within their territories.<sup>263</sup> The second set of activities concerns responsibilities for the preparation, adoption, and implementation of *standards* by "standardizing bodies" and is covered in Article 4, with relevant guiding principles set forth in Annex 3 in a Code of Good Practice.<sup>264</sup> The third set covers *conformity assessment procedures*—that is, confirming and certifying that technical regulations and standards have been complied with.<sup>265</sup> Across these three sets of activities, the TBT Agreement applies the basic GATT 1994 principles of non-

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258. McDonald, *supra* note 12, at 252.

259. TBT Agreement, *supra* note 8, at Annex 1 (Terms and Their Definitions for the Purpose of This Agreement), ¶ 2 (emphasis added).

260. *Id.* at ¶ 1; see also OECD, *supra* note 6, at ¶ 2.

261. WORLD TRADE ORGANIZATION, *supra* note 28, at 131.

262. WORLD TRADE ORGANIZATION, GUIDE TO THE URUGUAY ROUND AGREEMENTS, *supra* note 247, at 73.

263. TBT Agreement, *supra* note 8, at arts. 2, 3.

264. *Id.* at Annex 3 (Code of Good Practice for the Preparation, Adoption and Application of Standards).

265. WORLD TRADE ORGANIZATION, GUIDE TO THE URUGUAY ROUND AGREEMENTS, *supra* note 247, at 73. With respect to conformity assessment procedures, Articles 5 and 6 pertain to central government bodies, Articles 7 and 8 cover local and non-governmental bodies respectively, and Article 9 is for international and regional systems.

discrimination, transparency, and consultation, while introducing the TBT Agreement's special emphasis on harmonization and member countries' duty to avoid creating unnecessary obstacles to international trade.<sup>266</sup>

In view of the responsibilities concerning use of international standards, it is noteworthy that this term is not defined in the TBT Agreement or Annex I, although the CTBT Principles improve on this situation by defining characteristics that should be integral to the process of developing an international standard.<sup>267</sup> The Agreement and its annexes are also silent on the issue of IP.

## B. China's Accession Commitments

Prior to China's accession to the WTO, China and interested WTO members negotiated bilaterally concerning China's market access commitments and concessions, including, for example, the tariffs that would apply on imports of industrial and agricultural goods, and the commitments China would make to open up its market to foreign companies.<sup>268</sup> These trade-liberalizing concessions and commitments were consolidated into China's Goods and Services Schedules, which apply to all WTO members.<sup>269</sup> In addition, the WTO Working Group Party (composed of all WTO members) engaged in multilateral negotiations with China concerning the rules that would govern trade with China. These commitments are set forth in China's Protocol of Accession<sup>270</sup> and in an accompanying Report of the Working Party ("Working Party Report").<sup>271</sup> The Working Party Report records a number of the key commitments by China concerning standards, in response to concerns raised by Working Party members:

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266. As the WTO dispute settlement Appellate Body has found: "We observe that, although the *TBT Agreement* is intended to 'further the objectives of GATT 1994,' it does so through a specialized legal regime that applies solely to a limited class of measures. For these measures, the *TBT Agreement* imposes obligations on Members that seem to be *different* from, and *additional* to, the obligations imposed on Members under the GATT 1994." Appellate Body Report, *European Communities—Measures Affecting Asbestos and Asbestos-Containing Products*, ¶ 80 WT/DS135/AB/R (adopted Apr. 5, 2001) [hereinafter *EC-Asbestos*].

267. See *infra* Section V.C.4.

268. USTR, *supra* note 93, at 11.

269. *Id.*

270. World Trade Organization, *Protocol on the Accession of the People's Republic of China*, ¶ 7.2, WT/L/432 (Nov. 23, 2001), available at <http://docsonline.wto.org/imrd/directdoc.asp?DDFDdocuments/t/WT/L/432.doc>.

271. World Trade Organization, *Report of the Working Party of the Accession of China*, WT/MIN(01)/3 (Nov. 10, 2001), available at [http://www.wto.org/english/thewto\\_e/acc\\_e/wp\\_acc\\_china\\_e.doc](http://www.wto.org/english/thewto_e/acc_e/wp_acc_china_e.doc).

- Questions were raised about the opportunity for public consultation and comment on proposed Chinese standards, technical regulations, and conformity assessment procedures. China confirmed that, upon accession, its procedures would clearly indicate minimum timeframes for allowing public comment and that comments would be given due consideration regardless of origin.<sup>272</sup>
- Members requested information on China's plans for using international standards as a basis for new Chinese standards, as well as details on Chinese plans to review existing standards so as to harmonize them with international standards.<sup>273</sup> China responded that it is a member of ISO, IEC, and ITU, and actively participates in the development of relevant international standards. Within four months of accession, China would notify acceptance of the TBT Agreement's Code of Good Practice. In addition, the representative of China stated that China has a clear policy to periodically review existing standards, among other reasons, to harmonize them with relevant international standards where appropriate.<sup>274</sup> The working party took note of these commitments.<sup>275</sup>
- "Some members of the Working Party also expressed concern that China did not use relevant and available international standards as the basis for some of its existing technical regulations."<sup>276</sup> The Chinese representative said that China's active adoption of international standards as the basis for technical regulations was a basic policy for accelerating its industrial modernization and promoting economic growth. As a result of China's efforts, the use of international standards as the basis for technical regulations has increased from 12% to 40% and China planned to increase this by a further 10% in the next five years.<sup>277</sup> China would provide relevant notifications concerning its progress as provided under the TBT Agreement, and the members again noted these commitments.<sup>278</sup>
- Members raised concerns that Chinese provisions for technical regulations and conformity assessment did not adequately address fundamental obligations such as transparency, non-discrimination,

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272. *Id.* at ¶ 178.

273. *Id.* at ¶ 179.

274. *Id.* at ¶ 180.

275. *Id.*

276. *Id.* at ¶ 183.

277. *Id.* at ¶ 184.

278. *Id.*

national treatment, and avoidance of unnecessary barriers to trade.<sup>279</sup> The Chinese representative responded that to eliminate unnecessary barriers to trade, China would not maintain multiple or duplicative conformity assessment procedures, nor would it impose requirements exclusively on imported products.<sup>280</sup>

WTO members formally approved China's accession to the WTO, and China later joined, in 2001.<sup>281</sup> In the Protocol of Accession, China agreed that in implementing the core national treatment obligation of Article III of GATT 1994, it would eliminate non-tariff measures that cannot be justified under the WTO agreement.<sup>282</sup> China also agreed that it would comply with the TBT Agreement, bringing all technical regulations, standards, and conformity assessment procedures into conformity.<sup>283</sup>

In the negotiations leading up to the Protocol of Accession, the parties had initially intended to include specific language confirming China's responsibilities to use relevant international standards as a basis for China's technical regulations, standards, and conformity assessment procedures, in accordance with Article 2 of the TBT Agreement. The draft text provided as follows:

China's standards, technical regulations and conformity assessment procedures shall be based[, *to the maximum extent possible,*] on relevant international standards, where they exist, except where use of different standards, technical regulations and conformity assessment procedures are justified to the TBT Committee pursuant to Article 2.4 of the TBT Agreement as necessary to fulfill: the legitimate objective of national security; prevention of deceptive practices; or protection of human health or safety, animal or plant life or health, or the environment. Any such standards, technical regulations and conformity assessment procedures shall be administered so as not to create unnecessary barriers to trade.<sup>284</sup>

China had insisted on inclusion of the phrase "to the maximum extent possible" noted in the brackets. The issue was part of a more general discussion regarding China's claim to be a developing country, and thus its

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279. *Id.* at ¶ 189.

280. *Id.* at ¶ 192.

281. USTR, *supra* note 93, at 11.

282. World Trade Organization, *supra* note 270, at ¶ 7.2.

283. *Id.* at ¶¶ 13.2, 13.4(a).

284. See Ichiro Araki, *China and the Agreement on Technical Barriers to Trade* 8 (RIETI Discussion Paper Series 02-E-008, 2002) (quoting paragraph 15 of the draft Protocol) (alteration in original).

entitlement to “special and differential treatment” under Article 12 of the TBT Agreement.<sup>285</sup> The parties could not agree, and the Working Party sought an explicit commitment by China that it would not invoke Article 12.<sup>286</sup> China would not agree to this demand. In the end, it became futile for the Working Party to pursue mutually acceptable language. The final Protocol says nothing about specific responsibilities to use international standards, but only (as indicated *supra*) that China will comply with the TBT Agreement. The Protocol is also silent on whether China is entitled to recourse as a developing country.<sup>287</sup>

In light of China’s aggressive push behind the WAPI standard and its openly stated concerns about IP rights as an obstacle to following international standards, the Working Party Report and Protocol negotiations are revealing, signaling that China and the WTO Working Party members may have anticipated that these issues would soon arise to create tensions.

### C. Analysis of the WAPI Case

Four areas under the TBT Agreement are especially relevant for analyzing the WAPI case: according national treatment to foreign producers; avoiding measures that constitute unnecessary obstacles to trade; using relevant international standards; and adhering to the CTBT Principles for the Development of International Standards. Each of these areas, comprising part of the rules and principles to which China agreed on accession to the WTO, should guide the standards development and implementation process for WTO members.

#### 1. National Treatment (Non-Discrimination)

The national treatment obligation, providing that foreign products must receive treatment no less favorable than that given to similar domestic products, can often be a source of dispute among nations.<sup>288</sup> In some cases, domestic measures will overreach or be shaped to unnecessarily restrain imports, while in other cases legitimate policy goals, including those listed in the general exceptions of GATT Article XX,<sup>289</sup> will relieve a

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285. *Id.* at 10.

286. *Id.* at 11.

287. *Id.*

288. JOHN JACKSON, THE WORLD TRADING SYSTEM: LAW AND POLICY OF INTERNATIONAL ECONOMIC RELATIONS 189 (1989).

289. GATT Article XX lists general exceptions to the non-discrimination principle, including measures necessary to protect public morals or human, animal, or plant life or health. Such measures should not be applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries, or a disguised restriction on international trade. *Id.*

measure from being inconsistent with GATT obligations.<sup>290</sup> The temptation of governments to shape regulatory measures so as to favor domestic products can be great.<sup>291</sup> For these reasons, it was important that China agreed in the Protocol of Accession that, in implementing the core GATT Article III national treatment obligation, it would eliminate non-tariff measures that cannot be justified under the provisions of the WTO agreement.<sup>292</sup>

The TBT Agreement synthesizes the GATT national treatment (Article III) and most-favored-nation (Article I) principles into a single non-discrimination obligation in Article 2.1 concerning technical regulations.<sup>293</sup> Article 2.1 provides as follows:

Members shall ensure that in respect of technical regulations, products imported from the territory of any Member shall be accorded treatment no less favourable than that accorded to like products of national origin and to like products originating in any other country.<sup>294</sup>

The WTO dispute settlement Appellate Body has analyzed similar language in GATT Article III:4<sup>295</sup> concerning national treatment and determined that, for a violation to be established, three elements must be satisfied:

- The foreign and domestic products at issue must be “like products;”
- The measure at issue must be a law, regulation, or requirement (under the TBT Agreement a technical regulation) “affecting” the internal sale or use of the foreign products; and

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290. *Id.* at 189-90.

291. *Id.* at 190.

292. *See supra* note 282 and accompanying text.

293. McDonald, *supra* note 12, at 257.

294. TBT Agreement, *supra* note 8, at art. 2.1. The non-discrimination principle is also stated for standards and conformity assessment in Article 5 & Annex 3 (Code of Good Practice), ¶ D. *See also* WORLD TRADE ORGANIZATION, GUIDE TO THE URUGUAY ROUND AGREEMENTS, *supra* note 247, at 73.

295. Article III:4 of GATT 1994 provides in relevant part that: “[t]he products of the territory of any contracting party imported into the territory of any other contracting party shall be accorded treatment no less favorable than that accorded to like products of national origin in respect of all laws, regulations and requirements affecting their internal sale, offering for sale, purchase, transportation, distribution or use.”

- The foreign products must be accorded “less favourable” treatment than the like domestic product.<sup>296</sup>

The WTO Appellate Body in *EC-Asbestos*, analyzing the TBT Agreement and GATT Article III:4, found that, with regard to “like products,” a determination of “likeness” in this context is “fundamentally, a determination about the nature and extent of a competitive relationship between and among products.”<sup>297</sup> This reading would allow for a relatively “broad product scope” for issues of “likeness.”<sup>298</sup> The analysis should be made on a case-by-case basis, and the Appellate Body has developed a set of four criteria for analyzing “likeness”: (i) the properties, nature, and quality of the products; (ii) the end uses of the products; (iii) consumers’ tastes and habits with respect to the products; and (iv) the tariff classification of the products.<sup>299</sup> Applying these factors and the overarching concept of “competitive relationship” to a comparison of wireless products incorporating the WAPI encryption standard and the 802.11i standard, it is apparent that they have similar physical properties and virtually identical end uses (although there is debate about which technology is superior), would likely be considered comparable if not perfect substitutes from the consumer perspective, would be classified under the same tariff classification, and thus could be considered market rivals. They should be considered like products.

Considering the second element of the WTO Appellate Body’s test, the Chinese policy mandating incorporation of the WAPI technology would certainly have had an “effect” on the internal sale or use of foreign wireless equipment incorporating the 802.11i standard—it would have banned such foreign equipment. The Appellate Body held that, to determine whether foreign products are treated “less favourably” than domestic products, the third element of its test, it should “examin[e] whether the measure modifies the *conditions of competition* in the relevant market to the detriment of imported products.”<sup>300</sup> It is self-evident that a ban on the import or sale of 802.11i products would result in their “less favourable” treatment than domestic WAPI products.

Therefore, in simple terms, any effort to prevent sale of equipment using the 802.11i standard while mandating WAPI could be viewed as a violation of the national treatment principle, found in both GATT III:4 and in

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296. Appellate Body Report, *Korea—Measures Affecting Imports of Fresh, Chilled and Frozen Beef*, ¶ 133, WT/DS169/AB/R (Dec. 11, 2000) [hereinafter *Korea-Beef*].

297. *EC-Asbestos*, *supra* note 266, at ¶ 99.

298. *Id.* at ¶ 100.

299. *Id.* at ¶ 101.

300. *Korea-Beef*, *supra* note 296, at ¶ 137.

Article 2.1 of the TBT Agreement. Even with the indefinite suspension of the mandatory WAPI approach, if access to WAPI becomes a practical necessity in the Chinese market, conditioning WAPI's use on restrictive licensing arrangements with Chinese companies could also violate national treatment obligations. As noted *supra*, however, more recent reports suggest that China has planned to disclose and license the technical WAPI content to both domestic and foreign firms. Japan has claimed, however, that the domestic Chinese firms would be given access to the technology six months before foreign firms.<sup>301</sup> This priority access for domestic firms, creating delay for foreign firms that could cause detriment to their ability to compete in the Chinese market, would also create national treatment problems. To be consistent with its obligations under the TBT Agreement and GATT Article III, the Chinese government must be careful to structure its government-sanctioned standards development and implementation strategies so as not cross the line toward favoring domestic firms.

## 2. *Unnecessary Obstacle to International Trade*

A second point to be considered is whether, under Article 2.2 of the TBT Agreement, China's WAPI policy would create an unnecessary obstacle to trade, or otherwise be more trade-restrictive than necessary to fulfill any legitimate objective. The TBT Agreement provides in Article 2.2 that WTO member countries must ensure that technical regulations are not prepared, adopted, or applied with a view to or with the effect of creating unnecessary obstacles to international trade. For this purpose, technical regulations must not be more trade-restrictive than necessary to achieve a legitimate objective, taking into account the risks non-fulfillment of that objective would create. Such legitimate objectives are, *inter alia*, national security requirements, the prevention of deceptive practices, protection of human health or safety, animal or plant life or health, or the environment. In assessing such risks, relevant elements of consideration are available scientific and technical information, related processing technology, or intended end uses of products.<sup>302</sup> This provision incorporates and restates a number of the general exceptions under GATT Articles XX and XXI.<sup>303</sup>

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301. See *supra* note 216 and accompanying text.

302. TBT Agreement, *supra* note 8, at art. 2.2. The same principle is stated for standards and conformity assessment. See *id.* at arts. 3.1, 3.4, 4.1, 5.1.2, 8.1, 9.2 & Annex 3 (Code of Good Practice), ¶ E.

303. Article XXI of GATT 1994 creates a security exception to the national treatment requirement, providing in pertinent part that nothing in the GATT shall be construed "to prevent any contracting party from taking any action which it considers necessary for the protection of its essential security interests."

China could contend that even if its WAPI policy gives potential grounds for a national treatment violation, the policy is excused as necessary to fulfill a legitimate objective, such as implementing national information security requirements. China has repeatedly asserted security deficiencies in the existing 802.11 standard, and invoked national information security in support of its WAPI policy.<sup>304</sup> China's formal position has been that when international standards cannot fulfill such a legitimate objective, a WTO member has the right to adopt its own standards.<sup>305</sup> China may lack trust in Western-designed security technologies, precisely because their claim is that this technology as incorporated into wireless communications may be used to advance their own national security purposes. Why would they trust Western technology for sensitive national security purposes? Thus, it could be quite difficult to second-guess a country's invocation of national security concerns, particularly regarding standards that relate to information security at a time when global terrorism has been on the rise.<sup>306</sup>

On the other hand, given that the 802.11i security protocol—approved in the ISO March 2006 fast-track vote—was developed to improve the security of wireless devices, it may be more difficult for China to justify that its approach falls within the national security exception. Would the 802.11i technology satisfy not only commercially motivated security concerns but also those relating to government use? If a dispute were to devolve into a technical comparison of the two technologies, Article 2.2 has set forth elements of consideration for assessing risks, which noted *supra* include scientific and technical information, related processing technology, or intended end uses of products.<sup>307</sup> Moreover, even if the security concerns are legitimate, why does this mean that a national WAPI standard must be mandated for *all* uses (e.g., commercial), not just for governmental applications?

In this respect, the TBT Agreement's directive that technical regulations shall not be more trade-restrictive than *necessary* to fulfill a legitimate objective suggests China's compulsory approach was overbroad to the extent it embraced both commercial and governmental security applications.<sup>308</sup> The Appellate Body has said the word "necessary" should be

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304. See Committee on Technical Barriers to Trade, *Minutes of Meeting of June 7-9, 2006*, ¶ 66, G/TBT/M/39 (July 31, 2006).

305. Committee on Technical Barriers to Trade, *Minutes of Meeting of November 2, 2005*, ¶ 64, G/TBT/M/37 (Dec. 22, 2005).

306. Cromer, *supra* note 13, at ¶ 23.

307. See *supra* note 302 and accompanying text.

308. *Id.*

interpreted as closer to the meaning of “indispensable,” rather than merely “making a contribution” to some objective.<sup>309</sup> To determine whether a measure is “necessary” involves weighing a series of factors, including the importance of the interest at stake, how well the challenged measure contributes to the ends pursued, and what effect the measure has on trade.<sup>310</sup> Also relevant is whether there exists an alternative that is consistent with WTO obligations.

In the WAPI case, more narrowly tailored means, such as requiring WAPI for use by the Chinese government itself, could have been used to meet national security objectives, while minimizing the disruptive impact on trade in existing commercial wireless products. In addition, any restrictive licensing practices for WAPI technology could be grounds for an independent claim that the manner in which China has chosen to implement its WAPI policy violates Article 2.2.<sup>311</sup> China would have to justify such licensing practices as not more trade-restrictive than necessary to fulfill legitimate objectives. Finally, China’s unilateral action in developing the WAPI standard, characterized by the EU as an exclusionary and non-transparent standard-setting process,<sup>312</sup> is also damaging to its case.<sup>313</sup> In a similar set of circumstances, the United States was found to violate WTO obligations in the *Shrimp Turtle* case due in large part to the unilateral approach the United States used to impose a standard, rather than negotiate with its trade partners, in pursuing a solution to the problem of sea turtle conservation.<sup>314</sup>

One other point is that factors such as national economic advantage, IP rights, and related issues of payment of foreign royalties are not listed among possible “legitimate objectives” that would justify the WAPI policy or China’s derogation from the national treatment principle. Under WTO rules, China has no basis for asserting that IP issues, which it claims have become an obstacle to trade, provide grounds for mandating a national WAPI technical regulation (particularly one developed in a closed and exclusionary process). In this respect, I contend that IP rights should not be grounds for departure from an existing international standard, but should instead be a factor to consider in determining whether a standard should achieve international recognition in the first place. In sum, China’s

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309. See *Korea-Beef*, *supra* note 296, at ¶ 161.

310. *Id.* at ¶¶ 163-64. See also Cromer, *supra* note 13, at ¶ 21.

311. *Id.* at ¶ 15.

312. See *supra* note 208 and accompanying text.

313. Cromer, *supra* note 13, at ¶ 21.

314. See Panel Report, *United States—Import Prohibition on Certain Shrimp and Shrimp Products*, ¶ 166, WT/DS58/AB/R (May 15, 1998).

approach on WAPI raises valid yet complex concerns about whether its measures should be viewed as creating an unnecessary obstacle to trade, or as merely no more trade-restrictive than necessary to meet China's legitimate national information security objectives.

### 3. *Use of Relevant International Standards*

This Section considers whether China's refusal to follow the wireless 802.11 standard is a violation of the TBT Agreement's obligation to use relevant international standards. First, background is provided on the TBT Agreement obligations in this regard. Next, the analysis requires that we consider whether WAPI should be viewed as a "technical regulation" or "standard" under the TBT Agreement. The focus then shifts to the 802.11 specification to determine whether it can be considered a "relevant international standard" that could have been effectively used to fulfill China's legitimate regulatory objectives.

The TBT Agreement emphasizes harmonization of standards as a means to prevent their use for protectionist motives, to remove unnecessary obstacles to trade, and to facilitate trade by creating conditions for economies of scale.<sup>315</sup> The Agreement thus contains a number of provisions to encourage harmonization of technical regulations, standards, and conformity assessment procedures. It "accomplishes this by requiring countries to follow international technical standards where they exist, and by justifying deviations from those standards in certain circumstances."<sup>316</sup> While WTO members are free to decline to adopt any standard at all in a given instance,<sup>317</sup> when they do so they should use relevant international standards as a basis for their technical regulations and national standards, except when an international standard would be ineffective for achieving

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315. McDonald, *supra* note 12, at 270.

316. Cromer, *supra* note 13, at ¶ 9.

317. McDonald, *supra* note 12, at 260. Jan McDonald comments that:

Members that have technical regulations in place may have to modify them to fit international standards, while other Members are free to ignore international measures and to keep domestic standards low or non-existent. Indeed, it appears that a Member that has declined to adopt any standard, even the relevant international standard, is still free to challenge the technical regulation of another Member that is more restrictive than the international standard.

*Id.* McDonald argues that this approach "fuels the risk of regulatory stagnation, if not a race towards the bottom, since high-standards countries will be loathe to raise their standards even higher when others are not required to introduce even the basic minima." *Id.* at 261.

the legitimate objectives pursued.<sup>318</sup> The TBT Agreement extends this responsibility to central and local governments and non-governmental bodies, albeit with different levels of required adherence.<sup>319</sup>

Article 2.4 of the TBT agreement provides that:

Where *technical regulations* are required and relevant international standards exist or their completion is imminent, Members *shall* use them, or the relevant parts of them, *as a basis* for their technical regulations except when such international standards or the relevant parts would be ineffective or inappropriate means for the fulfillment of the legitimate objectives pursued, for instance because of fundamental climatic or geographical factors or fundamental technological problems.<sup>320</sup>

Article 2.4 can be taken to mean that “where an international standard exists, and that standard would be effective in accomplishing a government’s legitimate regulatory objectives, the international standard *must* be used” when the government acts by implementing a technical regulation to achieve its ends.<sup>321</sup> For standards, the Code of Good Practice imposes a similar obligation on member nations as to their central government standardizing bodies.<sup>322</sup> As an incentive for compliance, the Agreement creates the rebuttable presumption that technical regulations prepared in accordance with relevant international standards will not be considered to create an unnecessary obstacle to trade.<sup>323</sup> Finally, the TBT Agreement

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318. TBT Agreement, *supra* note 8, at arts. 2.4, 4, & Annex 3, ¶ F.

319. *Id.* at arts. 2.4, 3.1 & 4.1 & Annex 3, ¶ F. Central governments are required to (“shall”) use relevant international standards except as provided in the TBT Agreement, whereas for local government and non-governmental bodies within their territories, WTO members “shall take such *reasonable measures as may be available to them* to ensure compliance” with the duty to use international standards. *Id.* at art. 3.1 (emphasis added).

320. *Id.* at art. 2.4 (emphasis added).

321. Cromer, *supra* note 13, at ¶ 12 (emphasis added).

322. TBT Agreement, *supra* note 8, at art. 4 & Annex 3, ¶ F. WTO “[m]embers *shall* ensure that their central government standardizing bodies comply with the Code of Good Practice,” which provides in paragraph F, similarly, that where relevant international standards exist (or their completion is imminent), standardizing bodies *shall* use them as a basis for the *standards* they develop, subject to terms virtually identical to those in Article 2.4 above. *Id.* (emphasis added). As noted with technical regulations, WTO members are also required to “take reasonable measures as may be available to them to ensure” that their local government and non-governmental bodies comply with these terms, including accepting and complying with the Code of Good Practice. *Id.* at arts. 3.1 & 4.1.

323. *Id.* at art. 2.5. Article 2.5 provides in relevant part that “[w]henver a technical regulation is prepared, adopted or applied for one of the legitimate objectives explicitly mentioned in paragraph 2, *and is in accordance with relevant international standards*, it

creates a duty on WTO members to participate in international standard-setting activities, within the limits of their resources.<sup>324</sup>

In a dispute over non-compliance with the TBT Agreement's obligations to use international standards as a basis for either technical regulations or standards, the burden of proof would fall on the complaining party. That party would bear the burden of proving that (i) the international standard had not been used as a basis for the national technical regulation or standard; and (ii) the international standard is effective and appropriate to fulfill the legitimate objective pursued by the national authorities through the regulation or standard.<sup>325</sup>

Accordingly, to assess whether China complies with its WTO commitments to use relevant international standards, this two-part inquiry can actually be detailed into four elements to be considered. First, as a threshold question, we consider whether the WAPI standard is a "technical regulation" or "standard" under the TBT Agreement. Second, we evaluate whether the 802.11 specification is a relevant "international standard." Third, we then assess whether the Chinese government used the 802.11 standard as a basis for the WAPI standard or technical regulation. Fourth, we consider whether the 802.11 standard is effective and appropriate to fulfill the legitimate objective pursued by the national authorities.

#### a) Definition of Technical Regulation or Standard

A first step is to consider whether China's WAPI standard falls within the definitions of "technical regulation" or "standard" under the TBT Agreement. Annex 1 defines a "technical regulation" as a "document which lays down product characteristics or their related processes and production methods, including the applicable administrative provisions, with which compliance is mandatory."<sup>326</sup> The Appellate Body interpreted the definition of "technical regulation" in the *EC-Asbestos* case,<sup>327</sup> and then applied it in the *European Communities—Trade Description of Sardines* ("*EC-Sardines*") case.<sup>328</sup> There are three criteria to be satisfied:

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shall be rebuttably presumed not to create an unnecessary obstacle to international trade." (emphasis added).

324. *Id.* at art. 2.6 & Annex 3, ¶ G.

325. Report of the Appellate Body, *European Communities—Trade Description of Sardines*, ¶¶ 275, 282, WT/DS231/AB/R (Sept. 26, 2001) [hereinafter *EC-Sardines*]; see also McDonald, *supra* note 12, at 263.

326. An explanatory note indicates, as noted *supra*, that the essential difference between a technical regulation and a standard is that standards are voluntary while technical regulations are mandatory. TBT Agreement, *supra* note 8, at Annex 1, ¶¶ 1-2.

327. *EC-Asbestos*, *supra* note 266, at ¶¶ 59-75.

328. *EC-Sardines*, *supra* note 325, at ¶ 176.

- The regulation must apply to an identifiable product or group of products;
- The regulation must lay down one or more characteristics of the product; and
- Compliance with the product characteristics must be mandatory.<sup>329</sup>

China's WAPI standard falls within these criteria. It applied to an identifiable group of products: devices using WLAN technologies. The regulation laid down a characteristic of that product group: they must incorporate the WAPI wireless encryption technology. And as initially announced, compliance with WAPI was mandatory (although China later decided to indefinitely delay implementation of its policy).

A similar line of reasoning could be applied to determine that, even if compliance with WAPI is not mandatory (and therefore we are not concerned with a technical regulation), it should nevertheless fall within the definition of a "standard" in Annex 1 of the TBT Agreement.<sup>330</sup> If so, then the requirements of the Code of Good Practice would apply, which like Article 2.4 stipulates that where relevant international *standards* exist, standardizing bodies must use them as a basis for the standards they develop.<sup>331</sup> Either way, whether WAPI is implemented as a technical regulation or developed as a voluntary standard, a duty to follow international standards may arise.

b) Is the 802.11 Standard a "Relevant International Standard"?

We next consider whether the 802.11 standard is an "international standard" within the meaning of Art 2.4 of the TBT Agreement and, if so, whether it is "relevant." As noted *supra*, the TBT Agreement and its annexes do not define the term "international standard." However, "to help clarify the concept of international standards for purposes of the TBT Agreement," the CTBT established the CTBT Principles as part of its second triennial review.<sup>332</sup> The CTBT provided in its Decision adopting the Principles that they "should be observed" when international standards, guides, and recommendations are developed "to ensure transparency, openness, impartiality and consensus, effectiveness and relevance, coher-

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329. *Id.*

330. TBT Agreement, *supra* note 8, at Annex 1, ¶ 2.

331. *Id.* at Annex 3, ¶ F.

332. WORLD TRADE ORGANIZATION, *supra* note 28, at 155.

ence, and to address the concerns of developing countries.”<sup>333</sup> They are intended “to improve the quality of international standards and to ensure effective application of the Agreement.”<sup>334</sup> Jan McDonald has put it another way: the CTBT has “formulated criteria by which to determine whether an international standard can be used for [TBT Agreement] compliance.”<sup>335</sup> The logical end of his stance would appear to be that if a standard does not comply with the CTBT Principles, it should not be considered an international standard for purposes of Article 2.4 or Annex 3.

The Appellate Body in the *EC-Sardines* case was not willing to go that far in its analysis. There, the EU argued that the standard in issue, Codex Stan 94,<sup>336</sup> should not be considered a “relevant international standard” because it was not adopted by consensus.<sup>337</sup> The CTBT Principles include “consensus” as one of the principles to be observed in international standard setting.<sup>338</sup> However, the Appellate Body, without reference to the CTBT Principles, found that “in our view, the European Communities’ contention is essentially related to whether Codex Stan 94 meets the definition of a ‘standard’ in Annex 1.2 of the *TBT Agreement*.”<sup>339</sup> As noted *supra*, the TBT Agreement defines “standard” as a “[d]ocument approved by a recognized body, that provides . . . rules, guidelines or characteristics for products or related processes and production methods.”<sup>340</sup> Reviewing this definition, the Appellate Body concluded that “[t]he issue before us . . . is one of approval,”<sup>341</sup> determining that the definition does not require approval by consensus, but rather a standard must only be approved by a “recognized body.”<sup>342</sup> Under the Appellate Body’s reasoning, the 802.11

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333. Committee on Technical Barriers to Trade, *Decision of the Committee on Principles for the Development of International Standards, Guides, and Recommendations with Relation to Articles 2, 5 and Annex 3 of the Agreement*, *supra* note 15, at ¶ 1.

334. *Id.*

335. McDonald, *supra* note 12, at 268.

336. In 1978 (and in 1995) the Codex Alimentarius Commission adopted a worldwide standard for canned sardines and sardine-type products: Codex Stan 94-1981, Rev. 1-1995 (“Codex Stan 94”). McDonald, *supra* note 12, at 258.

337. *EC-Sardines*, *supra* note 325, at ¶ 219.

338. Paragraph 8 of the CTBT Principles provides in relevant part that “[c]onsensus procedures should be established that seek to take into account the views of all parties concerned and to reconcile any conflicting arguments.” Committee on Technical Barriers to Trade, *supra* note 15, at ¶ 8.

339. *EC-Sardines*, *supra* note 325, at ¶ 220.

340. TBT Agreement, *supra* note 8, at Annex 1, ¶ 2.

341. *EC-Sardines*, *supra* note 325, at ¶ 221.

342. *EC-Sardines*, *supra* note 325, at ¶ 227. The Appellate Body also observed that specific guidance on this issue was provided in the explanatory note for the definition of “standard.” The last two sentences of the explanatory note state: “Standards prepared by the international standardization community are based on consensus. The Agreement

standard is an “international standard.” Despite China’s unwillingness to accept the 802.11i wireless standard, ISO has approved it as an international standard.<sup>343</sup> ISO is a “recognized body” within the international standards community.<sup>344</sup>

The Appellate Body in *EC-Sardines* also discussed what it means to be a “relevant” international standard: to be relevant, the international standard must “bear upon, relate to, or be pertinent to” the national standard in question.<sup>345</sup> Despite their technical incompatibility, the similar uses, technology, and market for the 802.11 international standard and the WAPI standard weigh strongly in favor of finding the international 802.11 standard to be relevant. Thus, in the context of Appellate Body rulings, the 802.11 specification can be considered a relevant international standard.

c) Was the International Standard Used as a Basis for the Technical Regulation or Standard?

This leads to an analysis of the final harmonizing element of Article 2.4: that the international standard (or relevant parts of it) must be used “as a basis” for the technical regulation or standard.<sup>346</sup> Under this rule, China should have used the existing 802.11 international standard as a basis for the development of its technical regulation and national standard.

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covers also documents that are not based on consensus.” TBT Agreement, *supra* note 8, at Annex 1, ¶ 2.

343. Before ISO the standard is known as ISO IEC 8802-11.

344. This term, “recognized body,” is not defined in the TBT Agreement. However, the Agreement does define “international body or system” as a “[b]ody or system whose membership is open to the relevant bodies of at least all [WTO] Members.” On a related point, the United States has protested in submissions before the CTBT that China’s view of “international standards” is too narrow: “We note that implementation documents associated with China’s Law on Standards limit its definition of ‘international standards’ to standards issued by the International Organization for Standardization (ISO), International Electrotechnical Commission (IEC), and International Telecommunication Union (ITU) and other organizations recognized and publicized by ISO.” See Committee on Technical Barriers to Trade, *Transitional Review Mechanism Pursuant to Section 18 of the Protocol on the Accession of the People’s Republic of China: Questions and Comments from the United States to China*, ¶ 6, G/TBT/W/271 (Oct. 16, 2006). The U.S. states that “we remain concerned that China may be unnecessarily restricting itself to the use of standards from certain identified bodies.” *Id.*; see also ANSI, *supra* note 102, at 3.

345. *EC-Sardines*, *supra* note 325, at ¶¶ 228-32.

346. The meaning of the phrase “as a basis for” was also addressed in *EC-Sardines*. There, the Appellate Body, upon reviewing several dictionary definitions and its prior decision in *EC-Hormones*, reasoned that while “based on” does not mean the same thing as “conform to,” nevertheless, “there must be a very strong and very close relationship between two things” such that the international standard is the “principal constituent,” “fundamental principle,” or “determining principle” of the national measure. *Id.* at ¶¶ 242, 245; see also McDonald, *supra* note 12, at 262.

However, neither China nor any other interested party has made a claim that the 802.11 standard was the principal constituent or a determining principle of WAPI, or that they otherwise have a very strong and close relationship. Instead, they are widely viewed as incompatible. Therefore, unless China were to disclose technical information showing that WAPI is, in fact, based on the 802.11 standard, it would appear that this element of Article 2.4 is not satisfied.

d) Was the International Standard an Ineffective or Inappropriate Means for the Fulfillment of the Legitimate Objectives Pursued?

Finally, under Article 2.4 (for technical regulations) and the Code of Good Practice (for standards), a country may depart from the use of an existing international standard when it “would be *an ineffective or inappropriate means for the fulfillment of the legitimate objectives pursued*.”<sup>347</sup> This exception should be read in view of the analysis under Article 2.2 *supra*, which discussed “legitimate objectives” such as human health and safety or national security requirements, and specified that technical regulations must not be more trade-restrictive than necessary to fulfill these objectives. In a dispute, as stated *supra*, the complaining party would initially have the burden of proof. Given that the terms “ineffective” and “inappropriate” have different meanings, and it is conceptually possible that a measure be effective but inappropriate, or appropriate but ineffective, the complaining party would have the burden of showing that the international standard in question is both effective and appropriate.<sup>348</sup> A WTO member contesting China’s failure to follow the international 802.11 wireless standard would thus have to make a *prima facie* showing that this international standard would be both effective and appropriate to meet China’s legitimate objectives, such as national information security. Perhaps the complainant would argue that the rest of the world believes the 802.11 standard is sufficiently secure, even in relation to certain sensitive applications such as military use,<sup>349</sup> and there would be a comparative technical investigation into the two technologies accompanied by expert advice.<sup>350</sup>

Practically, however, I agree with Jan McDonald that “[a]lthough the burden of proof falls initially on the complaining party to adduce evidence

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347. TBT Agreement, *supra* note 8, at art. 2.4 & Annex 3 (Code of Good Practice), ¶ F (emphasis added).

348. *EC-Sardines*, *supra* note 325, at ¶ 289.

349. *See Cromer*, *supra* note 13, at ¶ 14.

350. *See TBT Agreement*, *supra* note 8, at Annex 2.

of effectiveness and appropriateness, as a practical matter the Member defending its technical regulations will ultimately have to demonstrate the inadequacy of international standards.”<sup>351</sup> The Chinese have maintained that the 802.11 security technology is inferior, and therefore does not meet their security objectives. If the 802.11 standard incorporates the 802.11i security protocol preliminarily approved by ISO, this could undercut a claim by China that the 802.11 international standard is an “ineffective or inappropriate means.” As noted, the improved security brought about for WLANs using the 802.11i protocol may be sufficient to meet China’s national security objectives, or at least be effective and appropriate for use in commercial and other daily applications in China. Moreover, if the Chinese government argues that it has not implemented a “technical regulation” but merely that its standardizing body has developed WAPI as a “standard,” still the Code of Good Practice stipulates that the existing international standard should be used “as a basis for the standard it develops.” China will need to explain why it did not use the 802.11 standard as the basis for developing its own WAPI standard to address security deficiencies.

#### 4. *CTBT Principles*

As noted in the Introduction,<sup>352</sup> the CTBT Principles were adopted as a central feature of the second triennial review of the TBT Agreement to address an array of issues underpinning fairness in international standard setting. As such, they provide guidance for the standard-setting process and, in particular, address the process qualities important for international standards development.

In order to improve the quality of international standards and to ensure the effective application of the Agreement, the Committee agreed that there was a need to develop principles concerning transparency, openness, impartiality and consensus, relevance and effectiveness, coherence and developing countries’ interests that would clarify and strengthen the concept of international standards under the Agreement and contribute to the advancement of its objectives.<sup>353</sup>

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351. McDonald, *supra* note 12, at 265.

352. See *supra* text accompanying notes 14-15.

353. Committee on Technical Barriers to Trade, *Second Triennial Review of the Operation and Implementation of the Agreement on Technical Barriers to Trade*, ¶ 20, G/TBT/9 (Nov. 13, 2000). See also Committee on Technical Barriers to Trade, *supra* note 15.

In view of the Committee's declared purpose, the CTBT Principles can be viewed as a useful mechanism within the WTO to encourage improved standard setting in areas where changes may be needed to respond to new issues.

Accordingly, it is useful to assess China's development and adoption of the WAPI security standard under the CTBT Principles. With respect to the first principle, transparency, the Principles provide that all essential information regarding work programs, proposals for standards, and final results should be easily accessible "to at least all interested parties in the territories of at least all WTO Members."<sup>354</sup> This contrasts with comments noted *supra* regarding the non-transparent Chinese process for development of the WAPI technology.<sup>355</sup> The CTBT Principles also enunciate on openness and impartiality. For openness, the Principles provide that "[m]embership of an international standardizing body should be open on a non-discriminatory basis to relevant bodies of at least all WTO Members," and this openness should involve participation at the policy development level and every other stage of standards development.<sup>356</sup> China's closed approach for the WAPI technology would not meet this threshold. Regarding impartiality, the emphasis of the Principles is on providing "meaningful opportunities to contribute to the elaboration of an international standard so that the standard development process will not give privilege to, or favour the interests of, a particular supplier/s, country/ies or region/s."<sup>357</sup> While China has maintained that it has confronted unfairness in Western standard-setting bodies, this would not in my view justify its approach taken for WAPI, which does not meet this principle of impartiality.

"Consensus," as used in the Principles, refers to procedures that should be established to take into account the views of all parties concerned and to reconcile any conflicting arguments.<sup>358</sup> An open standards development process is the first element necessary to enable interested parties to voice their views, and then procedures would be needed to resolve any conflicts. The author has no information about the procedures that might have been in place for those who were permitted to participate in the development of the WAPI standard so as to properly assess the consensus issue in the WAPI case. The Principles also refer to "effectiveness and relevance," which are explained as preferred characteristics of international standards: they should "respond to regulatory and market needs, as well as scientific

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354. *Id.* at ¶ 3.

355. *See supra* notes 203-04 and accompanying text.

356. Committee on Technical Barriers to Trade, *supra* note 15, at ¶ 6.

357. *Id.* at ¶ 8.

358. *Id.*

and technological developments,” but should not “distort the global market, have adverse effects on fair competition, or stifle innovation and technological development.”<sup>359</sup> Further, whenever possible, international standards should be performance-based rather than based on design or descriptive characteristics.<sup>360</sup> These statements reflect some of the same concerns that were addressed in Article 2.4 of the TBT Agreement. The Principles recognize the need for effective new standards in response to technological developments as well as emerging regulatory and market requirements, but also recognize that they should be developed and implemented in a manner that avoids unfair competition or distorting the global market. With respect to the WAPI case, a more open and international process for development of the standard, similar to the processes employed by the IEEE, would have provided not only improved understanding for those who did not participate (and possibly valuable contributions to the advancement of the technology), but a legitimizing basis for the standard.

Finally, with respect to “coherence,” the CTBT Principles provide that “it is important that international standardizing bodies avoid duplication of, or overlap with, the work of other international standardizing bodies. In this respect, cooperation and coordination with other relevant international bodies is essential.”<sup>361</sup> This principle speaks to the need for cooperation, which did not take place, between the Chinese standard-setting authorities and the IEEE. Both were working at approximately the same time to develop improved security for WLAN communications, and despite the IEEE’s invitation, the Chinese did not choose to collaborate.<sup>362</sup>

The CTBT Principles do refer to the “development dimension,” recognizing that constraints on developing countries to participate effectively should be taken into account in the standards development process.<sup>363</sup> More specifically, “[t]angible ways of facilitating developing countries’ participation in international standards development should be sought.”<sup>364</sup> While there is debate about whether China should be viewed as a developing or developed country for purposes of its role and responsibilities under WTO disciplines, the focus under this part of the Principles is on improving developing countries’ participation in international activities, not granting them grounds for an exception to use discriminatory standards development processes at home. To the extent that the standards develop-

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359. *Id.* at ¶ 10.

360. *Id.*

361. *Id.* at ¶ 12.

362. *See supra* note 176 and accompanying text.

363. *Id.* at ¶ 13.

364. *Id.*

ment process for the WAPI technology was closed to foreign parties, or that use of WAPI in the Chinese market would have been mandatory, these measures would not be justified under the development dimension to the CTBT Principles.

In sum, the Chinese approach for the development of WAPI would not satisfy a number of the CTBT Principles. A benign view of these circumstances is that China's emerging standards strategy<sup>365</sup> reflects a sound understanding of the advantages that can accompany a proactive policy, but a less than complete comprehension of the important standards development process characteristics needed to comply with the TBT Agreement and its ancillary instruments, and to achieve international legitimacy and acceptance for its standards. While Chinese authorities may be learning from their experience with the WAPI case in this regard, they are also gaining in their appreciation of the important role that IP can play in international standard setting, which I will discuss in the following Part.

## VI. INTELLECTUAL PROPERTY AND INTERNATIONAL STANDARDS: A RECOMMENDATION

The analysis of the WTO obligations for standards and their application to the WAPI case illustrates the complexity of determining whether a country's standard-setting measures cross the line toward protectionism. The analysis *supra* focused on whether the manner in which China implemented its WAPI policy was discriminatory or more trade-restrictive than necessary, and whether China's refusal to use the existing international 802.11 standard as a basis for its national measures was inconsistent with its responsibilities under the TBT Agreement. While China asserted national information security grounds to justify its WAPI policy, there is evidence to suggest that other motivations played an important role in its unilateral approach. China has raised concerns about IP rights in standardization, suggesting that they stand as an obstacle to economic development and international trade. Yet there is no place in the current TBT Agreement framework in which to consider these issues. Chinese authorities have referred to holdups caused by IP rights as a reason behind their approach to developing the WAPI standard; however, although their point concerning IP merits attention, their concern does not justify the standard-setting methods they used to develop and implement WAPI.

In this Part, I return to the question raised in the Introduction: given that IP rights are a source of friction for standardization and trade, how do we balance the legitimate rights of IP owners to receive reasonable com-

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365. See *supra* Section IV.B.

compensation against the interests of those seeking (or required) to achieve harmonization by implementing international standards? And how do we do this in an international context with diverse standard-setting systems? My recommendation is that a policy for IP rights should be integrated into the TBT Agreement framework, providing support for the concept of international standards and the corresponding rules in the TBT Agreement, while advancing objectives of harmonization and fairness. These rules will reinforce the legitimacy of international standards and underpin existing TBT Agreement requirements, such as Article 2.4's obligation to use relevant international standards as the basis for national technical regulations and standards.

#### **A. Integrating IP into International Trade Law for Standards**

The TBT Agreement is silent on the issue of IP rights in international standard setting. In this sense, there is a "disconnect" between TBT Agreement responsibilities to use international standards and the IP rights that are embedded in those standards, particularly in the ICT sector. When one thinks of trade law and IP, the natural focus is on the WTO's Agreement on Trade-Related Aspects of Intellectual Property (TRIPS Agreement).<sup>366</sup> The TRIPS Agreement codifies Member countries' obligations to protect and enforce IP rights within their territories. The TRIPS Agreement, however, does not address standards issues.<sup>367</sup> While the obligation to use relevant international standards as a basis for standards arises under the TBT Agreement, the Agreement does not consider whether a particular standard is encumbered by IP rights and therefore could be costly to implement. It would cause great concern if China could assert that its obligation to use relevant international standards is subject to considering the IP

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366. See TRIPS, *supra* note 124.

367. *Id.* Article 40 of the TRIPS Agreement does address licensing practices and therefore could have some relevance for standard setting where IP issues arise. It provides in relevant part as follows:

1. Members agree that some licensing practices or conditions pertaining to intellectual property rights which restrain competition may have adverse effects on trade and may impede the transfer and dissemination of technology.
2. Nothing in this Agreement shall prevent Members from specifying in their legislation licensing practices or conditions that may in particular cases constitute an abuse of intellectual property rights having an adverse effect on competition in the relevant market. As provided above, a Member may adopt, consistently with other provisions of this Agreement, appropriate measure to prevent or control such practices. . . .

*Id.* at art. 40, available at [http://www.wto.org/english/tratop\\_e/trips\\_e/t\\_agm3d\\_e.htm](http://www.wto.org/english/tratop_e/trips_e/t_agm3d_e.htm).

position of the particular international standard in question. The assertion that IP rights per se provide a legal basis for rejecting the use of an international standard has no foundation in the WTO legal regime.<sup>368</sup> Nor is this a position I support, even though access to standards encumbered by IP rights may involve costs.

However, there is another way in which IP can be factored into the analysis. The TBT Agreement has much to say about how standards and technical regulations should be “prepared, adopted and applied.”<sup>369</sup> This is at the core of Articles 2 through 4 of the Agreement, the Code of Good Practice, and the CTBT Principles. How the standards development process deals with IP issues could inform the assessment of whether a standard should achieve recognition as an international standard, such that the TBT Agreement disciplines for international standards should apply. If the standards process is carried out properly—that is, in accordance with those relevant principles in the TBT Agreement, Code of Good Practice, and CTBT Principles (amended to include a policy on IP rights)—it becomes much more difficult to challenge the legitimacy of an international standard, on IP rights or other grounds.<sup>370</sup>

This Article has discussed at length three of the fundamental disciplines established in the TBT Agreement and Code of Good Practice: non-discrimination, avoidance of creating unnecessary obstacles to trade, and duties to follow relevant international standards. The CTBT Principles, also reviewed, contribute to this foundation by elaborating on certain other aspects of the standards development process, including norms of transparency, openness, impartiality and consensus, effectiveness and relevance, coherence, and addressing issues of concern for developing countries. Today, the rationale behind the adoption of the CTBT Principles applies with equal force to the integration of a policy on IP rights, preferably

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368. Article 12 provides, as an independent ground, that developing countries should be accorded “differential and more favourable treatment” taking into account “the special development, financial and trade needs of developing country Members.” See TBT Agreement, *supra* note 8, at arts. 12.1-12.4.

369. Reference to the preparation, adoption, and application of technical regulations and standards is made throughout the TBT Agreement, *supra* note 8.

370. For example, one can ask, what would be the consequences if a standard was not adopted through a transparent, open, and impartial process? The obligation to adopt the international standard becomes more problematic, as in the case of the WAPI standard. A WTO member country could potentially claim exclusion from the standard-setting process as a basis initially for voting against international recognition, or later possibly as a reason for refusing to follow an international standard. Similarly, failure to follow certain rules concerning IP rights, such as timely disclosure of patents, might provide a basis for questioning the legitimacy of a proposed international standard.

as an amendment to the Principles. The Principles were established—in the absence of a definition—to clarify and strengthen the concept of the international standard.<sup>371</sup> According to the CTBT report accompanying the adoption of the Principles, WTO members were concerned that difficulties might be encountered in relation to the use of certain international standards, and related trade problems could arise.<sup>372</sup> In particular, “[a]dverse trade effects might arise from standards emanating from international bodies as defined in the Agreement which had no procedures for soliciting input from a wide range of interests.”<sup>373</sup> The Committee was also aware of the diversity of standards bodies and different approaches for standard setting, yet observed that “the obligation under the Agreement for Members to use international standards was the same.”<sup>374</sup> In view of these considerations, the CTBT elaborated principles of general application, which underpin methods to achieve fairness in international standards development. Similarly, in view of trade tensions related to IP rights in international standards, in particular, when the adoption of such IP-encumbered standards may be obligatory, there is need for a principled approach concerning the handling of IP rights during the standards development process. If IP rights are dealt with in a proper manner during the development of an international standard, this will aid the standard’s eventual legitimacy and acceptance.

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371. There is debate about what constitutes an international standard. While the term is not defined in the TBT Agreement, an international standard is defined by the ISO as “a standard that is adopted by an international standardizing/standards organization,” and an “international standards organization” is “one whose membership is open to the relevant national body from every country.” See ISO Guide 2, ch. 3.2.1.1. The President of the American Society for Testing and Materials (ASTM), an influential American standards body, offered a different definition of international standard, focusing on the importance of the process, as well as global acceptance and use by industry. He considered:

. . . a true international standard [to be] a standard that . . . [is] developed by a standardisation body . . . that is open to all interested parties regardless of national origin . . . has a demonstrated track record of global acceptance and use by the affected industries or regulatory bodies of various nations . . . is non-discriminatory by providing equal treatment . . . without favouring one company or nation over another.

OECD, *supra* note 6, at 35 (quoting ASTM Standardization News (Dec. 1997)). This statement tracks some of the principles in the CTBT Principles. My position, like the OECD, is to avoid adopting a narrow definition, and instead focus on the process for standard setting as an important element.

372. Committee on Technical Barriers to Trade, *supra* note 15, at ¶ 18.

373. *Id.* at ¶ 20.

374. *Id.* at ¶ 19.

With this international standards framework in mind, and taking into consideration the international trade tensions concerning IP rights, particularly in the ICT sector, the gap in dealing with IP rights becomes clear, and the need for action becomes persuasive. My recommendation is that two basic principles—early disclosure of IP rights (e.g., patent rights) and declaration of position concerning willingness to license those rights—should form a part of the CTBT Principles governing the standards development cycle. If China had properly dealt with these issues in the WAPI case, just as it now calls for increased attention to IP rights before the CTBT, this would have been one important dimension to facilitate an improved understanding and acceptance of their WAPI technology.

## B. Rules for IP Rights in International Standards

This Article has already discussed how IP rights factor prominently into standard setting.<sup>375</sup> Standard-setting organizations need rules governing IP rights to reduce the risk that a finished standard will encounter IP-related obstacles, and to reduce possible tensions. My challenge here is not to focus on the most progressive IP policies that may have relevance for standards. Instead, I want to concentrate on the recently announced unified IP policy of three prominent international standard-setting bodies, the IEC, ISO, and ITU. These organizations joined together to form the World Standards Cooperation (WSC) in 2001, with aims of promoting “international consensus-based standardization worldwide” and undertaking initiatives to resolve issues regarding cooperation in the technical work of the organizations.<sup>376</sup> In March 2007, they announced the adoption of a harmonized approach to address the inclusion of IP rights (patents) in standards.<sup>377</sup> Their unified policy, the *Common Patent Policy for ITU-T/ITU-R/ISO/IEC* (“Common Patent Policy”),<sup>378</sup> draws on two elements that have been present in their IP policies and the policies of many other standards organizations for many years: (i) obtaining early disclosure of IP

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375. See *supra* Section II.B.

376. ISO, *World Standards Cooperation for the Information Society*, ISO BULL., Comment (Oct. 2003).

377. See Press Release, Int’l Telecom. Union, IEC, ISO, ITU Agree on Common Patent Policy (Mar. 23, 2007) (on file with author), available at <http://www.itu.int/> [hereinafter ITU Press Release].

378. See Common Patent Policy for ITU-T/ITU-R/ISO/IEC, <http://www.itu.int/ITU-T/dbase/patent-policy.html> (last visited Dec. 7, 2007) [hereinafter Common Patent Policy]. The IEC, ISO, and ITU also jointly adopted Guidelines for the Implementation of the Common Patent Policy and a Patent Statement and License Declaration Form, [http://www.itu.int/dms\\_pub/itu-t/oth/04/04/T04040000010002PDFE.pdf](http://www.itu.int/dms_pub/itu-t/oth/04/04/T04040000010002PDFE.pdf) (last visited Dec. 7, 2007) [hereinafter Guidelines], which are intended to clarify and facilitate implementation of the Common Patent Policy.

(patent) rights, and (ii) obtaining an early declaration of the IP owner's position concerning willingness to license its IP rights.

The IEC, ISO, and ITU developed the Common Patent Policy to further their objective of ensuring the compatibility and accessibility of standards on a worldwide basis without undue constraints.<sup>379</sup> The Policy strongly encourages the disclosure of patented technology necessary for the implementation of a standard before the standardization process is completed. In particular, "any party participating in the work of ITU, ISO, or IEC should, *from the outset*, draw [their] attention . . . to any known patent or any known pending application, either their own or of other organizations."<sup>380</sup> The Guidelines to the Common Patent Policy explain that the words "from the outset" imply that the disclosure should occur as early as possible during the development cycle for the relevant standard, taking into account that early drafts of a particular standard might be too vague to make this possible.<sup>381</sup> When disclosing their own patents, an IP holder should use a special form, the Patent Statement and Licensing Declaration Form. This Form states in part that the "Patent Holder believes that it holds granted and/or pending applications for patents, the use of which would be required to implement [the relevant standard]."<sup>382</sup> As to any doubts about the duty of care involved, the Guidelines provide that the "information should be provided in good faith and on a best efforts basis, but there is no requirement for patent searches."<sup>383</sup> Early disclosure facilitates an informed choice by organization members, based on technical and commercial considerations, of the technologies to be used in the standard.

The second aspect of the Common Patent Policy requires a holder of patents relevant to the standard to make a licensing declaration in relation to its disclosure of patent rights. It can choose from among three basic alternatives. The patent holder can declare that it is:

- (i) willing to negotiate licenses free of charge with other parties on a non-discriminatory basis on reasonable terms and conditions;
- (ii) willing to negotiate licenses with other parties on a non-discriminatory basis on reasonable terms and conditions; or

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379. *Id.*

380. *Id.* at ¶ 1 (emphasis added).

381. Guidelines, *supra* note 378, at 3.

382. *Id.* at 11. A communication drawing attention to a third-party patent will trigger the IEC, ISO, or ITU to send the Declaration Form to that third party.

383. *Id.*

- (iii) unwilling to comply with the terms of paragraphs (i) or (ii), and in such case, the standard in question shall not include provisions dependent on the patent.<sup>384</sup>

The patent holder uses the same Declaration Form intended for disclosure to declare its position concerning licensing.<sup>385</sup> The statement of licensing position would thus be made as early as possible in the standards development cycle, and the Form would remain in force as long as it has not been replaced (e.g., in case of obvious errors). The words “free of charge” in paragraph (i) do not mean that the patent holder waives all of its rights with respect to an essential patent, but only that the holder will not seek monetary compensation as part of the licensing arrangement.<sup>386</sup> The declaration of paragraph (ii) to negotiate licenses on “a non-discriminatory basis on reasonable terms and conditions” closely matches the well-established “reasonable and non-discriminatory terms” (RAND) approach for standards licensing. The RAND rule has been considered “the majority rule” among standards bodies that have a patent policy.<sup>387</sup> The Common Patent Policy has no requirement of compulsory licensing: such a stance lacks wide international acceptance, would radically undermine incentives to participate in standard-setting activities, and would likely face significant legal difficulties in the U.S. and EU under antitrust and competition law.<sup>388</sup> The Policy makes it clear that if a patent holder chooses not to make its patent available for licensing, the standard in question must not include specifications dependent on that patent. Finally, the Policy indicates that specific licensing negotiations are left to the concerned parties (as these may differ from case to case) to perform outside ITU, ISO, and IEC.<sup>389</sup>

The ITU’s press release for the Common Patent Policy states that the three organizations “have aligned their policies which allow commercial entities to contribute the fruits of their research and development (R&D) activity and at the same time know that that their intellectual property rights are respected.”<sup>390</sup> Referring to the balance achieved, a “solid patent policy provides crucial investment protection while also opening up intel-

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384. Common Patent Policy, *supra* note 378, at ¶ 2.

385. Common Patent Policy, *supra* note 378, at Annex 2.

386. *Id.*

387. Lemley, *supra* note 11, at 1906.

388. *See id.* at 1944.

389. Common Patent Policy, *supra* note 378, at ¶¶ 2.1, 2.2.

390. ITU Press Release, *supra* note 377.

lectual property resources for broad implementation across the industry.”<sup>391</sup>

My recommendation is that the Common Patent Policy’s two basic principles—early disclosure of IP rights and declaration of position concerning licensing of those rights—should be integrated into the CTBT Principles as part of their guidelines for the preparation, adoption, and application of international standards. Making these changes will not undermine the interests of those seeking reasonable compensation for their IP rights. Furthermore, early disclosure of IP rights and a declaration concerning licensing position will facilitate informed choices by standard-setting bodies. IP rights will be properly disclosed along with any attached conditions pertinent to licensing. Those involved in standard setting will be able to evaluate all relevant commercial and technical considerations. The relative simplicity of focusing on these two important elements makes this approach suitable in the context of internationally diverse standard setting systems, avoiding concerns of over-constraining regulation. This approach advances the accessibility and harmonization of standards.

China has already recognized the work of the IEC, ISO, and ITU, referring favorably to their efforts to formulate basic principles for patent disclosure and licensing arrangements. China has stated that these principles would constitute a “sound technical basis and a roadmap” for the discussion in WTO.<sup>392</sup> This approach will address concerns that the Chinese government expressed before the CTBT, where they highlighted the trend toward proprietary technology entering into standards and the negative impact that IP rights can have on standardization and international trade. The Chinese suggested that a useful starting point would be to focus on two areas concerning patents: transparency (disclosure of patent information) and elaborating on the RAND principle.<sup>393</sup> Using the Common Patent Policy focuses the discussion on these two factors, addressing a gap in the current WTO standards framework. A policy on IP rights will advance the objectives of harmonization and fairness by dealing with a core issue of the standards development cycle, one that has generated resentment among trading partners.

### C. Proposal for Amendment of CTBT Principles

The CTBT Principles should be amended to add a new paragraph G, such as the following draft text:

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391. *Id.*

392. *See supra* note 144 and accompanying text.

393. *See supra* note 145-46 and accompanying text.

“G. Intellectual Property Rights

14. Intellectual property rights can often be implicated in international standardization activity, particularly in the area of high technology. To encourage the accessibility and harmonization of international standards without undue constraints, the incentives for innovation provided by intellectual property rights should work together with making intellectual property resources available for broad implementation. In order to achieve this balance, standardizing bodies of WTO members should adopt policies to address intellectual property rights (in particular, patents) to encourage the early disclosure of any patent that may relate to standard(s) under development and a statement by any concerned patent holder as to its licensing position.

15. Accordingly, the intellectual property policy should, at a minimum, include requirements that:

- any party participating in the work of an international standardizing body should, from the outset, draw attention to any known patent or any known pending application, whether its own or belonging to other organizations, that may relate to the standard(s) under development. This disclosure should occur as early as possible during the development cycle for the relevant standard, taking into account that early drafts for particular standards might be too vague to make this possible.
- A patent holder who has disclosed a patent under the terms above should make a licensing declaration, choosing from among the following three alternatives. The patent holder is:
  - (i) willing to negotiate licenses free of charge with other parties on a non-discriminatory basis on reasonable terms and conditions;
  - (ii) willing to negotiate licenses with other parties on a non-discriminatory basis on reasonable terms and conditions; or
  - (iii) unwilling to comply with the terms of paragraphs (i) or (ii), and in such case, the standard in question shall not include provisions dependent on the patent.

16. Information should be provided in good faith and on a best efforts basis.”

This policy approach would strongly encourage the disclosure of patented technology necessary for the implementation of a standard before the standardization process is completed. Early disclosure of IP rights and

a declaration concerning licensing position will facilitate informed choices by standard-setting bodies, so that the impact of any IP rights on technology selection can be evaluated in advance, thereby advancing the accessibility and harmonization of standards. The standards body can make a choice to use a standard that may be encumbered by IP rights, or seek to move the standard in a direction where such IP rights will not be implicated.

The new policy would thus send a strong signal to standard-setting organizations that do not already have such rules in place to address IP rights. At the same time, it would also send a message to countries like China, reinforcing their need to participate more fully in global standard-setting activities, rather than object regarding the burden of IP rights in existing international standards. By providing China with incentive to become involved in the standards-setting process so that it could state potential objections (concerning IP rights or other matters) during the development cycle, the new policy would change the calculus that led China to develop and mandate the WAPI standard unilaterally, in a manner that potentially violated TBT Agreement obligations.

## VII. CONCLUSION

China's WAPI standard provides a test case for ICT standards and their relationship to the international trade regime. It serves to highlight that ICT standards are extremely important for competitive advantage and market access, and that both private sector and government entities are well aware of the stakes involved. It illustrates standards' indeterminate nature as trade facilitators and indispensable elements of the ICT industry, on the one hand, and as potential measures of protectionism when applied inappropriately, on the other. With the WTO framework of rules and commitments behind it, the U.S. pressed its concerns upon China, and China decided to forbear from mandating the WAPI standard. Diplomatic efforts brought a truce well before there was any attempt to bring this matter into the more formal WTO dispute settlement system. To this extent, such a high-tech NTB standards case remains to be tested.

The WAPI case also teaches about the integral role that IP rights have played in technology standard setting, and the frictions that can be generated at the international level. ICT technologies are heavily laden with IP rights, particularly patents. Countries such as China build up national resentment for the need to pay royalties to foreign patent owners. However, while China has referred to IP rights as a motivation for the approach it took in the WAPI case, China has not gone so far as to propose abolishing

these payments or the system that gives rise to them. Instead, it has urged the CTBT to consider these issues in relation to the TBT Agreement and international standard setting. To the extent that we can integrate certain rules regarding IP rights into the TBT Agreement framework as a means for supporting the legitimacy of international standards—such as proper disclosure of IP rights and a declaration concerning willingness to license of such rights—I would agree with the Chinese position. This would close a gap in the current WTO architecture. The TBT Agreement, its Code of Good Practice, and the CTBT Principles foster fairness, transparency, and inclusiveness in standard setting, but say nothing about IP rights, which has become an “elephant in the room.” This omission should be addressed so that TBT Agreement requirements to use relevant international standards are not questioned on grounds related to IP rights. A system which requires the adoption of relevant international standards rests upon the legitimacy of the international standards themselves. An appropriate policy for dealing with IP rights in the standards development process is an important element to support this legitimacy, particularly for standards in the ICT sector.

# AGAINST CYBERPROPERTY

*Michael A. Carrier<sup>†</sup> & Greg Lastowka<sup>‡‡</sup>*

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## I. INTRODUCTION

Cyberproperty. Repeated enough, it may seem natural. Even inevitable. It is not.

Cyberproperty describes a legal regime in which owners of network-connected chattels have absolute rights to exclude others from electronic interaction with their equipment. The concept of cyberproperty has been applied to prevent electronic “trespasses” to web and e-mail servers. Property, however, is not the appropriate model for such settings.

Property instead is the hook that drags cyberspace into an abyss of overprotection and overreaching. Even worse, the version of property imported into cyberproperty is absolute and limitless—in short, a caricature of its true self. While scholars have examined one element of this link in debating whether the concept of “cyberspace” is an appropriate metaphor for websites and e-mail servers, they have neglected to analyze the property foundations of cyberproperty.

In this Article, we uncover these links, at last addressing cyberproperty through the lens of property law: Why do we have property? Does it serve its intended purposes? What are its limits? What are its dangers? And how does each of these questions apply to cyberproperty?

In answering these questions, we find that none of the philosophical rationales for traditional property support the existence of cyberproperty. There is no tragedy of the commons, no need for incentives. There are no Lockean labor justifications. There are no Hegelian personhood rationalizations. Just as ominous, we conclude that the concept of cyberproperty is dangerous, unlimited, and unnecessary.

Part II of this Article sketches an overview of cyberproperty. It discusses scholars’ varying perspectives on cyberspace as the relevant analogy for the internet and explains that courts have been less hesitant in facilitating cyberproperty’s expansion. Because cyberproperty is based on property, Part III turns to traditional philosophical justifications of property law. It explores property’s rationales, successes, dangers, and limits, and concludes that property is moderately successful in achieving its goals and that numerous limits cabin its dangers.

Part IV then explains why none of property’s three primary justifications—Locke’s labor theory, Hegel’s personhood rationale, and utilitarianism—support cyberproperty. It also reveals the concept’s significant dangers and lack of limits. Finally, Part V envisions a world without cyberproperty. It finds that statutory alternatives supplant the need for the concept, notably legislation regarding electronic invasion, spam, copyright, and (potential) database protection. It also shows that such regimes are

more narrowly targeted and less likely to quash competition and speech than cyberproperty.

## II. CYBERPROPERTY

Court cases and legal scholars both played a role in the emergence of cyberproperty. Courts first provided new exclusionary powers for the owners of digital equipment. Scholars then advocated strong ownership rights in intangible internet resources, such as the processing power of web servers. As cyberproperty doctrine has developed, the two trends have built on each other: courts that discover new cyberproperty rights are applauded by scholars who use the decisions to advocate even greater expansions of the concept.

### A. The Scholarly Debate

Scholars have used the term cyberproperty to signify “a right to exclude others from access to network-connected resources.”<sup>1</sup> The concept naturally builds on conceptions of property. Although scholars have debated the appropriateness of notions of “cyberspace” in the regulation of the internet, they have neglected the foundations of “property” that animate the development of cyberproperty. For example, they have ignored the important, albeit implicit, role that possession and exclusion play in cyberproperty. This role quickly becomes apparent by reviewing the positions of the two camps that comprise the cyberproperty literature: the “proponents” and the “opponents.”<sup>2</sup>

Proponents mix a Chicago School-type faith in property, privatization, and markets with metaphorical claims about the similarities between real property and cyberproperty. The Clinton Administration fired one of the first salvos along these lines in its 1995 “White Paper.”<sup>3</sup> This document advocated the extension of stronger intellectual property rights to cyber-

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1. R. Polk Wagner, *On Software Regulation*, 78 S. CAL. L. REV. 457, 496 (2005). See also Patricia L. Bellia, *Defending Cyberproperty*, 79 N.Y.U. L. REV. 2164, 2169 (2004) (defining the term to embrace a network resource owner’s right to “set the terms of access to the resource”).

2. See, e.g., Carol M. Rose, *The Several Futures of Property: Of Cyberspace and Folk Tales, Emission Trades and Ecosystems*, 83 MINN. L. REV. 129, 146-50 (1998) (describing the cyberspace schools of “not enough property” and “too much property”).

3. BRUCE A. LEHMAN & RONALD H. BROWN, U.S. PATENT AND TRADEMARK OFFICE, *INTELLECTUAL PROPERTY AND THE NATIONAL INFORMATION INFRASTRUCTURE* (1995), available at <http://www.uspto.gov/web/offices/com/doc/ipnii>.

space and concluded that such protection was necessary to “provide[] the stimulus for creativity” to produce expressive works.<sup>4</sup>

Judge Frank Easterbrook was an early advocate of cyberproperty. In an address to legal scholars, he advocated the creation of new cyberspace-based “property rights, where now there are none . . . to make bargains possible.”<sup>5</sup> Trotter Hardy similarly argued for the extension of real property trespass rules to cyberspace because of low transaction and boundary-monitoring costs.<sup>6</sup> And Richard Epstein contended that “the rules that govern ordinary space provide a good template to understand what is at stake in cyberspace.”<sup>7</sup> Cybertrespass rules, Epstein continued, are justified because “unauthorized entry has long been regarded as a per se violation under ordinary trespass principles.”<sup>8</sup>

Demonstrating property’s possession and exclusion features, proponents argue that the owner of network-connected digital computing equipment should have an absolute right to prevent other network users from making electronic contact with the chattel.<sup>9</sup> As discussed further below, the scope of this right generally exceeds the right to exclude found in traditional property laws.<sup>10</sup>

Cyberproperty’s opponents, though they have not applied property’s justifications to cyberproperty, attack the adoption of a spatial metaphor for the internet. Mark Lemley criticizes the metaphor of “cyberspace as place” by revealing differences between the physical and online world, such as the multiple presence of data and the public good nature of internet content.<sup>11</sup> Dan Hunter claims that the metaphor “is leading us to a tragedy of the digital anticommons . . . [with] millions of splintered rights in cyberspace . . . destroying the commons-like character of the Internet.”<sup>12</sup> And Julie Cohen contends that the cyberspace debate has been

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4. *Id.* at 14.

5. Frank H. Easterbrook, *Cyberspace and the Law of the Horse*, 1996 U. CHI. LEGAL F. 207, 212 (1996).

6. Trotter Hardy, *Property (and Copyright) in Cyberspace*, 1996 U. CHI. LEGAL F. 217, 236-58 (1996).

7. Richard A. Epstein, *Intellectual Property: Old Boundaries and New Frontiers*, 76 IND. L.J. 803, 818 (2001).

8. Richard A. Epstein, *Intel v. Hamidi: The Role of Self-Help in Cyberspace?*, 1 J.L. ECON. & POL’Y 147, 157 (2005).

9. *See, e.g.*, Bellia, *supra* note 1, at 2169.

10. *See infra* Part IV.

11. Mark A. Lemley, *Place and Cyberspace*, 91 CALIF. L. REV. 521, 525-26 (2003).

12. Dan Hunter, *Cyberspace as Place and the Tragedy of the Digital Anticommons*, 91 CALIF. L. REV. 439, 442-44 (2003).

overly simplistic, often failing to consider postmodernist theories that treat space and place as flexible social constructions.<sup>13</sup>

Proponents and opponents also disagree about the applicability in cyberspace of “trespass to chattels” (TTC), one of the key doctrinal tenets of cyberproperty. The Restatement (Second) of Torts defines TTC as the intentional dispossession of, use of, or interference with another’s tangible personal property.<sup>14</sup> A TTC claim requires a showing of interference that is “harmful to the possessor’s . . . interest in the physical condition, quality, or value of the chattel” or deprivation of “use of the chattel for a substantial time.”<sup>15</sup> A plaintiff alleging a claim of trespass to land, in contrast, need not show harm.<sup>16</sup>

Proponents of cyberproperty argue that TTC rules should “carry over to cyberspace without missing a beat.”<sup>17</sup> The damages to plaintiffs in cyberproperty lawsuits are, allegedly, not nominal because plaintiffs have filed suit. Such action makes sense only if “the expected recovery of suit” exceeds litigation costs.<sup>18</sup>

But the losses feared by plaintiffs in such cases may have no relation to the chattel. Proponents would allow plaintiffs to claim unrelated damages, such as the loss of goodwill and employee distraction, that are a consequence of the claimed cybertrespass.<sup>19</sup> Even a plaintiff’s inability to estimate damages is claimed to “offer[] yet an additional reason to award injunctive relief.”<sup>20</sup>

Opponents, in contrast, lament the courts’ “mixing . . . the requirements of trespass to real property and trespass to chattels, mutating them into a new tort that bears only some surface resemblance to traditional causes of action.”<sup>21</sup> They note that in many cases, owners of equipment

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13. Julie E. Cohen, *Cyberspace as/and Space*, 107 COLUM. L. REV. 210 (2007). For another critique, see Maureen A. O’Rourke, *Property Rights and Competition on the Internet: In Search of an Appropriate Analogy*, 16 BERKELEY TECH. L. J. 561, 590-91 (2001) (contending that cyberproperty raises copyright preemption issues).

14. RESTATEMENT (SECOND) OF TORTS §§ 217, 218 (1965); see generally Dan L. Burk, *The Trouble with Trespass*, 4 J. SMALL & EMERGING BUS. L. 27, 28 (2000).

15. RESTATEMENT (SECOND) OF TORTS § 218 cmt. e; W. PAGE KEETON ET AL., PROSSER & KEETON ON TORTS § 14, at 85-86 (5th ed. 1984).

16. W. PAGE KEETON ET AL., *supra* note 15, § 14, at 87.

17. Richard A. Epstein, *Cybertrespass*, 70 U. CHI. L. REV. 73, 81 (2003).

18. *Id.*

19. *Id.* at 81-82.

20. *Id.* at 82.

21. O’Rourke, *supra* note 13, at 595-96. See also Burk, *supra* note 14, at 33 (criticizing courts’ “revers[al of] several hundred years of legal evolution, collapsing the separate doctrines of trespass to land and trespass to chattels . . . into their single common law progenitor, the action for trespass”).

“were not . . . dispossessed of its use by the passage of electrons through the equipment in exactly the way [it] was designed to carry them.”<sup>22</sup> And they criticize courts’ shifting notions of the precise identity of the chattel that has been trespassed against, which has included not only the physical computer, but also its bandwidth, capacity, processing power, and network, many of which are not “actually chattels at all.”<sup>23</sup>

## B. The Cases

The robust debate about cyberproperty’s expansion found in the literature is seldom seen in judicial decisions. As this section will show, courts have expanded cyberproperty to cover an increasingly expansive array of activities involving computers.

Courts initially gave life to cyberproperty in response to the new threats posed to digital information networks.<sup>24</sup> In the first case relying on the concept, *Thrifty-Tel, Inc. v. Bezenek*,<sup>25</sup> two young hackers attempted (unsuccessfully) to obtain free long distance service by accessing a telephone company’s servers without authorization.<sup>26</sup> The plaintiff, a small telephone company, sued the boys’ parents, claiming that the hacking attempt constituted civil conversion (misappropriation) of the value of its switching network.<sup>27</sup> The trial court agreed and awarded roughly \$50,000 in damages and attorney’s fees.<sup>28</sup>

The California Court of Appeal, affirming on different grounds, concluded that, under state law, a plaintiff could not succeed on a conversion claim for intangible property.<sup>29</sup> Instead, the court decided the case according to the TTC doctrine. It acknowledged the injury requirement and found such harm where the switching network was so overburdened that it could not be used by subscribers.<sup>30</sup> In a puzzling footnote, however, the court cited property cases distinguishing between trespass and nuisance and concluded that “the electronic signals generated by the . . . boys’ activities were sufficiently tangible to support a trespass cause of action.”<sup>31</sup>

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22. *Id.* at 34.

23. Hunter, *supra* note 12, at 486.

24. *E.g.*, *Intel Corp. v. Hamidi*, 94 Cal. App. 4th 325, 329 (Ct. App. 2001) (justifying cyberproperty because “[t]he common law adapts to human endeavor”).

25. 46 Cal. App. 4th 1559 (Ct. App. 1996).

26. *Id.* at 1564.

27. *Id.*

28. *Id.* at 1565.

29. *Id.*

30. *Id.* at 1564.

31. *Id.* at 1566 n.6.

Though just a footnote, the court's statement opened the floodgates to judicial adoption of cyberproperty. Communications service providers began filing cases against "spammers" who had sent massive numbers of unsolicited e-mail messages to private parties, claiming that such contact disrupted their business. And courts seized on the *Thrifty-Tel* footnote to punish such activity without even considering whether plaintiffs alleged damage to the chattel.<sup>32</sup>

The court in *CompuServe v. Cyber Promotions*,<sup>33</sup> for example, found the requisite physical tangibility for TTC in "[e]lectronic signals . . . sent by computer."<sup>34</sup> Because spam e-mail "demand[s] the disk space and drain[s] the processing power of . . . computer equipment," it prevents the resources from being available for CompuServe subscribers.<sup>35</sup> "Even though [the computer system was] not physically damaged by defendants' conduct," the court concluded, "the value of that equipment to CompuServe is diminished."<sup>36</sup>

Courts after *CompuServe* presumed that spamming practices caused a type of economic "damage" that was actionable pursuant to TTC and gave e-mail server owners absolute rights to block unauthorized electronic contact.<sup>37</sup> Soon enough, courts expanded the right of electronic inviolability to other categories of servers in justifying injunctions that prohibited access to information posted on websites.

In *eBay v. Bidder's Edge*,<sup>38</sup> for example, the online auction site eBay sued Bidder's Edge, an "auction aggregator" that captured eBay's auction data and provided it to the public.<sup>39</sup> eBay claimed that, even though the defendant's queries did not significantly affect the ability of its web servers to operate, the queries constituted a TTC because eBay had not authorized Bidder's Edge to access the information.<sup>40</sup> The court issued an injunc-

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32. *E.g.*, *Hotmail Corp. v. Van\$ Money Pie Inc.*, 47 U.S.P.Q.2d 1020, 1025 (N.D. Cal. 1998); *CompuServe Inc. v. Cyber Promotions, Inc.*, 962 F. Supp. 1015, 1021-22 (S.D. Ohio 1997). For other cases allowing a trespass theory without damage to a physical chattel, see *Am. Online, Inc. v. Nat'l Health Care Disc., Inc.*, 121 F. Supp. 2d 1255, 1279-80 (N.D. Iowa 2000); *Am. Online, Inc. v. LCGM, Inc.*, 46 F. Supp. 2d 444, 451-52 (E.D. Va. 1998); *Am. Online, Inc. v. IMS*, 24 F. Supp. 2d 548, 550-52 (E.D. Va. 1998); *Cyber Promotions, Inc. v. Am. Online, Inc.*, 948 F. Supp. 436, 447 (E.D. Pa. 1996).

33. 962 F. Supp. 1015, 1021, 1022 (S.D. Ohio 1997).

34. *Id.* at 1021, 1022.

35. *Id.* at 1022.

36. *Id.*

37. See *Bellia*, *supra* note 1, at 2178-81.

38. 100 F. Supp. 2d 1058 (N.D. Cal. 2000).

39. *Id.* at 1061-62.

40. *Id.* at 1071.

tion prohibiting Bidder's Edge from accessing eBay's webpages.<sup>41</sup> One of the court's primary concerns was the potential impairment of eBay's computers if other companies began to aggregate eBay's auction data.<sup>42</sup>

Cyberproperty reached its apex in *Oyster Software, Inc. v. Forms Processing, Inc.*<sup>43</sup> The plaintiff in that case alleged a TTC claim merely because the defendant had accessed its website and copied information from the site without authorization. Even though the plaintiff failed to allege any damage to its computer equipment, the court, relying on *eBay*, denied summary judgment for the defendant because it had engaged in unauthorized use of plaintiff's computer.<sup>44</sup>

The march toward absolute cyberproperty rights slowed with the California Supreme Court's decision in *Intel v. Hamidi*.<sup>45</sup> In that case, the defendant, Ken Hamidi, was a former employee of Intel who co-founded an organization called FACE-Intel ("Former and Current Employees of Intel"), which criticized the company's employment practices.<sup>46</sup> Between 1996 and 1998, Hamidi, on behalf of the organization, sent six e-mails critical of the company to more than 30,000 Intel employees.<sup>47</sup>

Intel sued Hamidi, claiming that, even though its chattels were not damaged, it had suffered harm from lost employee productivity and the time it had spent trying to block his messages.<sup>48</sup> The district court, in an action affirmed by the appellate court, issued a permanent injunction that prohibited Hamidi from "sending unsolicited e-mail to addresses on Intel's computer systems."<sup>49</sup>

In a 4-3 decision, the California Supreme Court reversed. The majority concluded that actual damage or impairment to the chattel was a requirement for a TTC claim.<sup>50</sup> The court, however, refused to overrule the *CompuServe* line of cases, explaining that the spamming activities in those cases "overburdened the ISP's own computers and made the entire computer system harder to use for recipients."<sup>51</sup>

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41. *Id.* at 1073.

42. *Id.* at 1066.

43. No. C-00-0724 JCS, 2001 WL 1736382 (N.D. Cal. Dec. 6, 2001).

44. *Id.* at \*13.

45. 30 Cal. 4th 1342, 1347 (Cal. 2003).

46. *Id.* at 1348.

47. *Id.*

48. *Id.*

49. *Id.* at 1350.

50. *Id.* at 1347.

51. *Id.*

Even though *Hamidi* slowed the march toward an unencumbered cyberproperty regime, the court singled out only *Oyster Software* as inconsistent with California doctrine.<sup>52</sup> The other underpinnings of the doctrine thus remain in place. To this day, courts utilize cyberproperty's expanded version of TTC as a powerful tool for web and e-mail server owners.<sup>53</sup> In fact, with its absolute rights and lack of limits, cyberproperty has now surpassed property in the scope and power of the rights it grants to owner-plaintiffs.

### III. PROPERTY

The foundation of cyberproperty jurisprudence is the law of conventional property. Cyberproperty reflexively adopts property characteristics such as possession and exclusion. But to determine whether such linkage makes sense, we need to ask foundational questions: Why do we have property? Does it achieve its goals? What are its dangers? What are its limits? These questions are the focus of Part III, which examines the three most important justifications for property: the labor theory, the personhood rationale, and utilitarianism.<sup>54</sup>

#### A. Purposes

##### 1. *The Labor Theory*

The labor theory is commonly attributed to John Locke. Locke famously stated that “every man has a property in his own person” and thus is entitled to whatever he “removes out of the state [of] nature” and “mixe[s] his labour with.”<sup>55</sup> But Locke restricted the application of the theory to contexts in which “there is enough, and as good left in common for others.”<sup>56</sup> He also limited the laborer to “[a]s much as any one can make use of to any advantage of life before it spoils.”<sup>57</sup>

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52. *Id.* at 1357 n.5.

53. *See, e.g.,* *Sotelo v. DirectRevenue, LLC*, 384 F. Supp. 2d 1219 (N.D. Ill. 2005).

54. The three rationales implicate additional approaches such as natural rights (labor) and liberty, identity, and privacy (personhood). *See* JOHN LOCKE, *TWO TREATISES OF GOVERNMENT* ¶ 27 (Peter Laslett ed., 2d ed., Cambridge Univ. Press 1967) (1690) (proffering a natural rights explanation based on labor); F. Gregory Lastowka & Dan Hunter, *The Laws of the Virtual Worlds*, 92 CALIF. L. REV. 1, 44 (2004) (using personhood theory to link property and human rights); Carol M. Rose, *Left Brain, Right Brain and History in the New Law and Economics of Property*, 79 OR. L. REV. 479, 484 (2000) (noting the “powerful libertarian appeal” of property).

55. LOCKE, *supra* note 54, ¶ 27 (emphasis omitted).

56. *Id.*

57. *Id.*

Locke granted property protection only where “labor makes for the greatest part of the value of [the asset].”<sup>58</sup> He assumed that human intervention would constitute most of the item’s value: “[I]f we will rightly estimate things as they come to our use, and cast up the several expenses about them—what in them is purely owing to nature, and what to labour—we shall find that in most of them ninety-nine hundredths are wholly to be put on the account of labour.”<sup>59</sup>

## 2. *The Personhood Theory*

The personhood theory is generally traced to Georg Hegel. The centerpiece of Hegelian theory is the primacy of free will. For Hegel, the will and the world are engaged in a process of mutual interrelation and unfolding. In particular, the will has an effect on the world by forming, marking, and possessing things, thereby creating “property.”<sup>60</sup> This process is inevitable, as “[a] person has as his substantive end the right of putting his will into any and every thing and thereby making it his . . . .”<sup>61</sup>

Margaret Radin and others have built upon Hegelian theory in articulating contemporary personhood justifications for property rights.<sup>62</sup> Radin has employed the personhood rationale to challenge law and economics theories that support a regime of “universal commodification.”<sup>63</sup> She has explained that persons must differentiate themselves from their physical environment while also maintaining relationships with it.<sup>64</sup> The distinction between fungible and personal property is crucial, with the strength of the entitlement increasing as the object becomes more central to one’s personhood.<sup>65</sup> Fungible objects are “wholly interchangeable with money,”<sup>66</sup> while homes and wedding rings may be so personal that “a government that must respect persons ought not to take [them].”<sup>67</sup>

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58. JOHN LOCKE, TREATISE OF CIVIL GOVERNMENT AND A LETTER CONCERNING TOLERATION ¶ 42 (Charles L. Sherman ed., 1979) (1689).

59. *Id.* ¶ 40.

60. GEORG WILHELM FRIEDRICH HEGEL, PHILOSOPHY OF RIGHT ¶¶ 47-71 (T.M. Knox trans., Oxford Univ. Press 1967) (1821).

61. *Id.* ¶ 44.

62. See, e.g., MARGARET JANE RADIN, CONTESTED COMMODITIES (1996); Justin Hughes, *The Philosophy of Intellectual Property*, 77 GEO. L.J. 287, 330-351 (1988); George H. Taylor & Michael J. Madison, *Metaphor, Objects, and Commodities*, 54 CLEV. ST. L. REV. 141, 145-157 (2006).

63. RADIN, *supra* note 62, at 5.

64. Margaret Jane Radin, *Property and Personhood*, 34 STAN. L. REV. 957, 977 (1982).

65. *Id.* at 987.

66. *Id.*

67. *Id.* at 1005.

### 3. *Utilitarianism*

The third—and currently most important—justification for property is utilitarianism. Property law has long been viewed as serving two main utilitarian purposes: providing incentives for the development of land and materials, and preventing the depletion of finite resources.<sup>68</sup> Both rationales encourage socially productive behavior by ensuring that owners internalize the effects of their activity.

The first rationale involves providing incentives so that workers can appropriate the results of their labor.<sup>69</sup> The right to exclude helps to create such an incentive by ensuring that “free riders” cannot enjoy the fruits of laborers’ work.<sup>70</sup> Property also creates incentives by identifying those who have claims to particular resources and ensuring that they can cultivate these resources.<sup>71</sup>

The second rationale, related to scarcity, has arisen in discussions of the “tragedy of the commons.” Garrett Hardin told the story of a pasture open to all, upon which herdsmen let their cattle graze.<sup>72</sup> Herdsmen had an incentive to put as many cattle as possible on the commons because they were able to appropriate the entire gain from the cattle they added but suffered only a fraction of the loss from overgrazing. The herdsmen therefore added continually more cattle to the commons, leading to the “destination of ruin.”<sup>73</sup>

Hardin’s recounting of the tragedy of the commons naturally inspired a search for solutions, the most popular of which is privatization. Harold Demsetz provided the most famous exposition, explaining that rights to exclude create incentives for owners to efficiently utilize resources and to internalize many of the costs of communal ownership, such as transaction

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68. Michael A. Carrier, *Cabining Intellectual Property Through a Property Paradigm*, 54 DUKE L.J. 1, 26 (2004).

69. RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 32 (6th ed. 2003); Carol Rose, *The Comedy of the Commons: Custom, Commerce, and Inherently Public Property*, 53 U. CHI. L. REV. 711, 711 (1986).

70. E.g., POSNER, *supra* note 69, at 32.

71. CAROL M. ROSE, *Economic Claims and the Challenges of New Property*, in *PROPERTY IN QUESTION* 275, 276-77 (Caroline Humphrey & Katherine Verdery eds., 2004).

72. Garrett Hardin, *The Tragedy of the Commons*, 162 SCI. 1243, 1244 (1968).

73. *Id.*

costs.<sup>74</sup> Others have emphasized the role of privatization in reducing enforcement and monitoring costs.<sup>75</sup>

## B. Success?

Does the real-world institution of property support these theoretical frameworks? For starters, property law is moderately consistent with the labor and personhood theories. Private property rewards an owner's labor, though there are many inputs to property other than labor and laborers are often isolated from the objects they produce. Likewise, property strengthens owners' personal connection to their land in some, though not all, cases. For the most significant and easily measurable goal, utilitarianism, the evidence is mixed.<sup>76</sup> Property stands on more solid ground in providing incentives for development than in preventing resource depletion.

The story of property and development is visible all around us. The institution of private property, embedded as it is in American society (and as it has been from colonial times), has constituted the core of landownership and development in this country. Even though but-for causation is difficult to trace precisely, the right to exclude has accompanied the robust development of land. The right also has ameliorated the dangers of free riding and has offered a predictable foundation for society and the economy.<sup>77</sup>

The scarcity axis provides more empirical, albeit mixed, evidence of the effect of the right to exclude. Privatization has appeared to be successful in helping to prevent a tragedy of the commons in industries subject to overuse.<sup>78</sup> Many commons, however, are made up of resources to which

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74. Harold Demsetz, *Toward a Theory of Property Rights*, 57 AM. ECON. REV. 347, 356 (1967).

75. E.g., Steven N.S. Cheung, *The Structure of a Contract and the Theory of a Non-Exclusive Resource*, 13 J.L. & ECON. 49, 52-53 (1970); Robert C. Ellickson, *Property in Land*, 102 YALE L.J. 1315, 1327 (1993).

76. The difficulty of measuring owners' labor and personhood interests precludes definitive assessments of property's success in fulfilling these goals.

77. For examples of studies supporting the importance of exclusionary rights, see Terry L. Anderson & P.J. Hill, *The Evolution of Property Rights: A Study of the American West*, 18 J.L. & ECON. 163, 165-78 (1975) (analyzing land, livestock, and water in the Great Plains); Ellickson, *supra* note 75, at 1335-41 (examining pioneer settlements in Jamestown, Plymouth, and Salt Lake City).

78. Evidence is provided by studies of a Maine lobster fishery, oyster industries in Maryland and Virginia, and a British Columbia halibut fishery. Richard J. Agnello & Lawrence P. Donnelley, *Property Rights and Efficiency in the Oyster Industry*, 18 J.L. & ECON. 521, 522 (1975) (oyster industry); R. Quentin Grafton et al., *Private Property and Economic Efficiency: A Study of a Common-Pool Resource*, 43 J.L. & ECON. 679, 709 (2000) (halibut fishery); James A. Wilson, *A Test of the Tragedy of the Commons*, in

the right to exclude cannot easily be applied. For example, it is difficult and prohibitively costly to demarcate air, water, and wild animal stocks clearly or to carve them into finite bundles.

Despite evidence that exclusion can solve potential commons tragedies, in many cases it is not necessary (at least to the extent posited by the traditional story). This lack of necessity comes in two forms. First, certain depletable commons (such as fisheries, groundwater, and the earth's atmosphere) are inherently prone to tragedy, making it difficult for exclusion or any other regime to prevent a tragic outcome.<sup>79</sup> Second, many commons problems have been solved under regimes in which legal rights of exclusion have not played the predominant role. For example, some small, close-knit communities have developed norms that help govern the use of scarce resources,<sup>80</sup> and others have developed internal rules to govern the management of resources held in common.<sup>81</sup>

In short, the labor, personhood, and utilitarian justifications provide moderate, but not complete, support for property law.

### C. Dangers of and Limits to Property

Property holders often view the regime's exclusionary rights as absolute in nature.<sup>82</sup> A person's home is her castle. The right to exclude is sacrosanct and unquestionable. Such, at least, is the rhetoric of property. But a look beyond the rhetoric reveals that a far more nuanced scheme has emerged in practice. For while the rights to exclude, use, and transfer are central to property law, they are far from absolute. Rather, they are cabined by an array of limits that promote important public policies.

Many of the drawbacks of property's exclusionary rights have been avoided by the widespread use of limits. Eminent domain precludes landowners from holding out and preventing the government from using land it needs to effectuate certain public policies. Easements allow landlocked

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MANAGING THE COMMONS, at 96, 96-97 (Garrett Hardin & John Baden eds., 1977) (lobster fishery).

79. Barton H. Thompson, Jr., *Tragically Difficult: The Obstacles to Governing the Commons*, 30 ENVTL L. 241, 247-62 (2000).

80. Robert Ellickson famously traced these rituals in the cattle industry in Shasta County, California, uncovering norms that held livestock owners responsible for their animals' actions and that trumped formal laws. ROBERT C. ELICKSON, *ORDER WITHOUT LAW: HOW NEIGHBORS SETTLE DISPUTES* 52-64 (1991).

81. The leading scholar investigating such communities, Elinor Ostrom, offered examples that included the Alanya fishery, several Japanese villages, and Huerta irrigation institutions. ELINOR OSTROM, *GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION* 18-21, 61-82 (1990).

82. Carrier, *supra* note 68, at 10, n.13 (providing examples).

owners to access their land and connect to public roads. Courts refuse to enforce racial covenants and other covenants contrary to public policy. Zoning laws prevent egregiously incompatible uses of land. The numerous limits that courts and legislatures have imposed mollify some of the potential dangers of property rights.

These limits notwithstanding, several dangers still underlie property law. One danger involves distributional consequences. Privatizing property can generate and magnify inequalities in wealth between owners and non-owners. This inequality is significant and, in recent years, has appeared to be growing.<sup>83</sup>

A second danger of property rights is a concept called “the tragedy of the anticommons.” Michael Heller defined the anticommons as “a property regime in which multiple owners hold effective rights of exclusion in a scarce resource,”<sup>84</sup> citing examples of Moscow storefronts, where the ability of multiple parties (such as owners, users, and regulators) to exercise exclusionary rights led to underuse of traditional stores and extensive use of metal kiosks in front of the stores.<sup>85</sup>

A third danger is that property systems can cause a significant divergence between individual and societal goals. For example, private property encourages a farmer to develop her land and use it in the most economically productive manner. But the most efficient individual use may not provide the ideal societal use. If the farmer maximized her crop yield through over-irrigation, chemical fertilizers, and pesticides, for example, downstream uses could be adversely and significantly affected. Just because each property owner “improves” her property in accord with her own best interest does not mean that society as a whole benefits.

Although property has had these effects, its limits have otherwise averted many other dangerous consequences. In fact, there are at least fifty limits to property rights.<sup>86</sup> The right to exclude, for example, is restricted by

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83. See, e.g., Elliott M. Abramson, *Ruskin's Insights for the Law: A Humanist's Intimations to Technique*, 43 U. PITT. L. REV. 403, 435 (1982); Florence Wagman Roisman, *Teaching Important Property Concepts: Teaching About Inequality, Race, and Property*, 46 ST. LOUIS L.J. 665, 665-66 & n.4 (2002).

84. Michael A. Heller, *The Tragedy of the Anticommons: Property in the Transition from Marx to Markets*, 111 HARV. L. REV. 621, 668 (1998).

85. *Id.* at 633-37; see also *id.* at 679-87 (discussing examples such as the poor performance of privatized state enterprises and the rebuilding of Japan after the 1994 Kobe earthquake).

86. Carrier, *supra* note 68, at 54-81.

*Easements*, which allow the use of others' land for various purposes,<sup>87</sup>

*Imminent necessity*, which privileges entry onto another's land to save lives or property or to avoid other serious harm,<sup>88</sup>

The *public trust* doctrine, which provides access rights over private property to reach beaches or public waters,<sup>89</sup> and

The law of *encroachments*, which prevents courts from issuing injunctions when parts of buildings intrude onto others' lands.<sup>90</sup>

Similarly, the right to transfer is restricted by

*Adverse possession*, which forces a transfer from the landowner to the possessor when certain requirements are met,<sup>91</sup>

The invalidation of *total restraints on alienation*, which prevent the transfer of property interests,<sup>92</sup>

*Eminent domain*, by which landowners must transfer their interests to the government,<sup>93</sup> and

*Antidiscrimination statutes* such as the Fair Housing Act, which prohibits a person from refusing to sell or rent a dwelling on the grounds of "race, color, religion, sex, familial status, or national origin."<sup>94</sup>

Finally, the right to use is limited by

*Zoning ordinances*, which divide land into residential, commercial, and industrial districts and allow only certain uses in each district,<sup>95</sup>

The law of *nuisance*, which prevents a substantial and unreasonable interference with another's use or enjoyment of land,<sup>96</sup>

*Constructive takings*, in which government restrictions interfere with land use so much that the land is effectively "taken" from owners,<sup>97</sup> and

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87. 2 DAVID A. THOMAS, THOMPSON ON REAL PROPERTY § 60.02(a), at 391 (1994).

88. RESTATEMENT (SECOND) OF TORTS § 197 (1977).

89. 9 RICHARD R. POWELL, POWELL ON REAL PROPERTY, § 64A.04[3][g], at 64A-42 (2000).

90. Carrier, *supra* note 68, at 73-74.

91. *Id.* at 58-59.

92. 14 POWELL, *supra* note 89, § 77.02, at 77-7 to 77-8.

93. Kelo v. City of New London, 545 U.S. 469, 476-77 (2005).

94. Civil Rights Act of 1968 (Title VIII), 42 U.S.C. § 3604(a) (2000).

95. 12 POWELL, *supra* note 89, § 79C.01, at 79C-7.

96. *Id.* § 64.02[2], [3], at 64-10 to 64-11.

97. 13 POWELL, *supra* note 89, § 79F.05, at 79F.

*Government regulations* such as safety, fire, health, and building codes; clean air and water acts; growth control ordinances; and historic protection zones.<sup>98</sup>

Conventional property's exclusionary rights thus are cabined by an expansive array of limits. There is no such thing as absolute property. This reality, though undisputed in the realm of property, has been forgotten in the formulation of cyberproperty.

#### IV. AGAINST CYBERPROPERTY

Cyberproperty differs from conventional property according to every element described in Part III. First, cyberproperty is not justified within the frameworks of Locke's labor theory, Hegel's personhood rationale, or general utilitarian justifications. Second, it presents significant dangers for competition and expression. Third, it lacks limits.

##### A. Labor Theory

Cyberproperty proponents have invoked Locke's labor theory to justify the concept. Richard Epstein states that "[f]irms and individuals invest substantial amounts of capital and effort to create servers and websites . . . ." <sup>99</sup> Similarly, Patricia Bellia explains that "the law must provide sufficient protection of a network resource owner's investments . . . to generate appropriate incentives for productive activities." <sup>100</sup>

But for three independent reasons addressed in the following discussion, the labor theory does not support cyberproperty. First, the chattel owner is entitled only to the incremental value of her contribution to the network, not the total value created by the network itself. Second, in the network context, cyberproperty does not leave "enough and as good" for others. Third, cyberproperty creates a form of social waste that violates Locke's "spoilage" principle. <sup>101</sup>

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98. WILLIAM B. STOEBUCK & DALE A. WHITMAN, *THE LAW OF PROPERTY* § 9.1, at 518 (3d ed. 2000).

99. Epstein, *supra* note 17, at 79.

100. Bellia, *supra* note 1, at 2191.

101. At a minimum, Locke's concern for the public's right to a commons supports limits on any type of property right. Steven J. Horowitz, *Rethinking Lockean Copyright and Fair Use*, 10 DEAKIN L. REV. 209, 216 (2005).

### 1. *Incremental Value*

The first reason that labor theory does not support cyberproperty is that a laborer contributing to a collaborative venture is entitled to receive only the incremental value of the resulting product.<sup>102</sup> Locke himself anticipated that his theory would apply only when labor was responsible for “the greatest part of the value” of the asset.<sup>103</sup>

Robert Nozick provided the most famous illustration of this principle. He asked: “If I own a can of tomato juice and spill it in the sea so that its molecules . . . mingle evenly throughout the sea, do I thereby come to own the sea . . . ?”<sup>104</sup> Obviously not. The total value of an asset often is vastly greater than the value added by any single laborer.

The notion of incremental value takes on particular significance in the context of communications systems with “network effects.” Network effects occur in markets in which a participant benefits from an increase in the number of other participants in the system.<sup>105</sup> A telephone or e-mail system, for example, becomes more valuable as the number of people connected to it increases.<sup>106</sup>

Networks feature positive feedback. The more popular a computer operating system becomes, for example, the more applications will be written for it. As application layers are added to the underlying system platform, the system becomes more popular, leading to even more applications being written, and so on.<sup>107</sup>

In a similar vein, networks tend to exhibit “generativity”—a “capacity to produce unprompted change driven by large, varied, and uncoordinated audiences”—in proportion to their scale.<sup>108</sup> A common and distributed language of computer code will produce more “generative” value than a cacophony of competing and incompatible software systems. The earliest version of the internet, the ARPANET, was created to overcome the prob-

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102. See, e.g., Edwin C. Hettinger, *Justifying Intellectual Property*, 18 PHIL. & PUB. AFFAIRS 31, 37 (1989).

103. LOCKE, *supra* note 54, at 28.

104. ROBERT NOZICK, ANARCHY, STATE, AND UTOPIA 175 (1974).

105. Michael A. Carrier, *Unraveling the Patent-Antitrust Paradox*, 150 U. PA. L. REV. 761, 822-23 (2002); David S. Evans & Richard Schmalensee, *A Guide to the Antitrust Economics of Networks*, 1996 ANTITRUST 36, 36.

106. Carrier, *supra* note 105, at 822-23.

107. *Id.*

108. Jonathan L. Zittrain, *The Generative Internet*, 119 HARV. L. REV. 1974, 1980 (2006).

lem posed by separate fiefdoms of computer code.<sup>109</sup> The TCP/IP protocol allows internet users to communicate with each other regardless of the hardware or software they use.<sup>110</sup> Today, of course, the ubiquity and dominance of the internet network—used by more than one billion users for communication, commerce, entertainment, and myriad other applications—is beyond question.<sup>111</sup>

Given the internet's vast network effects, the value of the system far exceeds the value of any individual investment in a single server or website. Intel's e-mail server may have provided some benefits as an internal communication system "unplugged" from the internet. But the *primary* value of the server flowed from the internet.<sup>112</sup> eBay's auction system has similarly benefited from "the easy and ubiquitous access to its auction service made possible by the open standards of the internet."<sup>113</sup>

For that reason, even if a chattel owner were to have a Lockean claim over a networked component as a stand-alone object, she cannot claim the value of the entire networked system. Network effects, not individual owners, are primarily responsible for the system's value.

## 2. *Enough and As Good*

The labor theory also does not support cyberproperty because of the violation of Locke's proviso that "there is enough, and as good left in common for others."<sup>114</sup>

The proviso may have been satisfied by the acorns and apples upon which Locke focused. A laborer in Locke's era could satisfy her needs while still leaving enough similar items for others.

A company's servers, in contrast, are unique assets in the context of the internet as a communications system. If a cyberproperty regime allows the owner of a communicative system to reap the benefits of the network while denying those benefits to others, it does not leave the networked

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109. KATIE HAFNER & MATTHEW LYON, *WHERE WIZARDS STAY UP LATE: THE ORIGINS OF THE INTERNET* 39-46 (1996).

110. TCP/IP stands for Transmission Control Protocol/Internet Protocol. Bob Kahn and Vint Cerf formulated TCP/IP in 1973 to bolster network robustness and reliability. *Id.* at 226-27.

111. World Internet Usage Statistics News and Population Stats, Internet Usage Statistics—The Big Picture, <http://www.internetworldstats.com/stats.htm> (last visited Oct. 3, 2006).

112. *Intel Corp. v. Hamidi*, 30 Cal. 4th 1342, 1359 (Cal. 2003) ("Intel connected its e-mail system to the Internet and permitted its employees to make use of this connection both for business and, to a reasonable extent, for their own purposes.").

113. Burk, *supra* note 14, at 51-52.

114. See LOCKE, *supra* note 58, ¶ 27, and accompanying text.

commons with “enough and as good” for others. Illustrations of two prototypical cyberproperty cases demonstrate the point.

In the *Hamidi* case, the lower court’s injunction precluded the former employee from communicating by e-mail with any Intel employees at their Intel addresses. The California appellate court stated that Hamidi did not need access to Intel’s server because “Hamidi is free to send mail—‘e’ or otherwise—to the homes of Intel employees.”<sup>115</sup> Of course, this prohibition has a significant effect by barring Hamidi from access to Intel’s unique network. In the context of communicative chattels, Intel’s appropriation of its e-mail nodes fails to leave “enough and as good” for Hamidi.

Similarly, in *eBay*, the company sought to exclude competitors from access to its server. eBay, of course, has enjoyed remarkable success from its auction network, which has drawn online customers from around the world and has benefited from vast network effects. But eBay’s exclusion of others from its price data does not leave “enough and as good” for competitors or the public. This conclusion is bolstered given the company’s powerful market position in online auctions and the “natural monopoly” characteristics of such sites.<sup>116</sup> In short, eBay’s exclusion of Bidder’s Edge violated the proviso by appropriating all the auction price data flowing from the external users of its system, the merchants.

In allowing network owners to exclude others from non-fungible, network-derived resources, cyberproperty violates Locke’s “enough and as good” proviso.

### 3. Spoilage

The final reason the Locke labor theory does not support cyberproperty is that it violates the requirement that the laborer is limited to “[a]s much as any one can make use of to any advantage of life before it spoils.”<sup>117</sup>

With the creation of trading and capital markets, the spoilage principle applies less directly today than at the time Locke wrote. And obviously, networked computers are different from apples and acorns in that they do not physically decay. But to the extent the spoilage principle is still relevant, it would prevent owners of socially valuable technology or informa-

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115. Intel Corp. v. Hamidi, 94 Cal. App. 4th at 343.

116. Given the benefits of aggregating all buyers and sellers at one site, the optimal number of auction sites would appear to be one.

117. LOCKE, *supra* note 54, ¶ 27.

tion from refusing to use the resources so that they effectively are wasted.<sup>118</sup>

Cyberproperty regimes generally encourage social waste. The very premise of the regime is that a chattel owner should be able to enjoin non-damaging public access to computing resources and information. Cyberproperty thus curtails network effects and generativity by giving chattel owners the right to stifle valuable public uses of network-connected resources. Locke's prohibition against spoilage thus provides the final reason that the labor theory does not support cyberproperty.

## B. Personhood Theory

Personhood theory, in either its Hegelian or contemporary form, also does not support cyberproperty.

Like any inanimate object, networked electronic equipment could be subject to Hegel's application of the human will. But no characteristic of this equipment suggests special treatment that would remove the item from the realm of general property law.

This lack of unique treatment is crucial given Hegel's conservative approach to existing law. Hegel supported existing property doctrines on account of their careful balance of rights and limits. Because he believed that property should reflect a contemporaneous engagement between a will and a thing, Hegel endorsed the doctrine of prescription, by which trespassers received title to land after using it for a period of time.<sup>119</sup> He appreciated copyright's limited rights and duration, as well as its utilitarian framework, which "advance[d] the sciences and arts" by enabling creators "to benefit from the protection of their property."<sup>120</sup> Hegel even approved of state-endorsed commons ownership regimes.<sup>121</sup>

Each of these forms of property rights reflected careful balances between property owners and others. For that reason, the absolute ownership rights envisioned by cyberproperty proponents today would not find support in Hegel's views on property law. Such rights diverge from the standard legal analysis of chattel property without offering any basis for unique treatment.

Contemporary personhood theories also do not justify special treatment for digital equipment. Such theories emphasize chattel property that

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118. Hettinger, *supra* note 102, at 45 (noting that the charging of fees for intellectual products prevents "certain beneficial uses," which "is clearly wasteful, since everyone could use and benefit from intellectual objects concurrently").

119. HEGEL, *supra* note 60, ¶ 64.

120. *Id.* ¶¶ 64, 69.

121. *Id.* ¶ 46.

is non-fungible and intimately entwined with a person's identity. Networked digital machinery does not satisfy such criteria. Computers and servers function as fungible office equipment, much like staplers and pencils. Digital equipment is purchased at arm's length and not created or shaped by the will of the ultimate owner. Web servers and personal computers are often alienated, abandoned, or shelved when a new model comes along.

Nor is heightened protection needed for the information contained in the chattels. Much of the information present on computers has no connection to personhood. The price data in *eBay* and the metatags in *Oyster Software*, for example, are hardly embodiments of some artistic soul. Even the forms of information that may be personal and intimate—such as e-mail correspondence—already are protected by privacy laws.<sup>122</sup> The non-rivalrous nature of information reveals another difference with property: in contrast to tangible chattels like wedding rings, personal information is not removed from its owner when accessed by others.

The identity of the holder of the cyberproperty right reveals yet another incongruity with the personhood theory. Cyberproperty gives chattel-owning plaintiffs rights even if they did not produce personal information. But in the online setting, the individuals with the strongest personal connections to information tend not to be the legal owners of the computing equipment on which the information resides.<sup>123</sup>

Given the above, it is not surprising that cyberproperty claims have *never* been asserted by individuals seeking to protect online personhood interests. Instead, the claims are brought by profit-centered private firms, such as Intel, eBay, Oyster Software, and Ticketmaster.<sup>124</sup> These companies are motivated to protect their customers' personhood and privacy only

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122. *E.g.*, Electronic Communications Privacy Act of 1986 (ECPA), Pub. L. No. 99-508, 100 Stat. 1848 (codified as amended at 18 U.S.C. §§ 2701-2709, 2711-2712 (2000)). *See generally* Pamela Samuelson, *Privacy As Intellectual Property?*, 52 STAN. L. REV. 1125 (2000) (contending that IP laws should not protect privacy rights).

123. A similar case is presented by "avatars," the technological agents of individuals in electronic environments. The owners of the chattels that constitute virtual worlds differ from the legal owners of the avatars that inhabit those worlds. Lastowka & Hunter, *supra* note 54, at 48-49.

124. *See, e.g.*, *Oyster Software, Inc. v. Forms Processing, Inc.*, No. C-00-0724 JCS, 2001 WL 1736382 (N.D. Cal. Dec. 6, 2001); *eBay, Inc. v. Bidder's Edge, Inc.*, 100 F. Supp. 2d 1058 (N.D. Cal. 2000); *Ticketmaster.com v. Tickets.com*, No. CV99-7654-HLH, 2000 U.S. Dist. LEXIS 12987 (C.D. Cal. Aug. 10, 2000); *Intel Corp. v. Hamidi*, 30 Cal. 4th 1342 (Cal. 2003).

when it aligns with their economic interests.<sup>125</sup> In particular, the companies use cyberproperty to exclude critical voices or prevent competitors from gaining access to information and communication resources.<sup>126</sup> Such motivations have nothing to do with personhood theories of property.

In short, Hegelian theory does not support cyberproperty. The theory offers no basis for treating cyberproperty as a unique form of property exempt from the ordinary and balanced rules governing chattels. Contemporary personhood theory similarly does not justify special solicitude for computing equipment and the information contained therein.

### C. Utilitarianism

The final justification also does not support cyberproperty. In particular, neither of the two utilitarian rationales for conventional property rights—providing incentives for development and preventing the depletion of finite resources—justifies cyberproperty.

#### 1. Incentives

Cyberproperty is not needed to provide incentives to generate value online. Experience has proven as much: the internet has grown and thrived without relying on a regime of cyberproperty.

No evidence has ever been adduced to link increased production to cyberproperty. The internet was built as a network of networks with information being shared between open nodes.<sup>127</sup> By contrast, “walled garden” models, in which proprietary zones have been segregated from the greater internet, have failed to lead to creativity and innovation. If anything, it is the most heavily “propertized” regimes that have not been capable of long-term survival in the networked ecosystem.<sup>128</sup>

The World Wide Web has thrived as an information commons without strong property rights.<sup>129</sup> The Web is a type of “commons”: the default

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125. To offer just one example, AOL, Microsoft, and Yahoo readily complied with recent government subpoenas seeking disclosure of personal information disclosed in user search engine queries. *Gonzales v. Google*, 234 F.R.D. 674, 679 (N.D. Cal. 2006). Google resisted the subpoena, but not because individuals had personal rights to the information revealed in the queries. Rather, it feared that disclosure would be burdensome and harmful to its business reputation. *Id.* at 683-84.

126. See, e.g., Margaret Jane Radin, *A Comment on Information Propertization and its Legal Milieu*, 54 CLEV. ST. L. REV. 23, 37 (2006) (lamenting lionization of property rules at expense of competition and free speech).

127. HAFNER & LYON, *supra* note 109.

128. See Zittrain, *supra* note 108, at 1992.

129. See David G. Post, *His Napster's Voice*, 20 TEMP. ENVTL. L. & TECH. J. 35, 43 (2001).

presumption is that all files available on any server worldwide can be accessed instantly at the request of any other computer. Some of the most important innovations in networked computing have flowed from the architecture of open, generative systems.<sup>130</sup> Successful internet companies like Google have built business models based on universal access to the vast information on the Web, profiting from the positive externalities generated by this “comedy of the commons.”<sup>131</sup>

In addition to not providing necessary incentives, cyberproperty has been supplanted by other regimes. As described in more detail in Part V,<sup>132</sup> copyright protects much of the information that appears on websites. Copyright owners thus already receive strong exclusionary rights for many of the words and images that appear on websites. This system generally encourages owners “to improve the site” while allowing others to build on such information “[to] produc[e] yet more works of authorship.”<sup>133</sup>

Technological mechanisms such as password-protected databases and online services provide another affordable, effective regime minimizing the need for cyberproperty’s incentives.<sup>134</sup> Web-based e-mail systems, online banking systems, commercial databases, and an array of other software systems successfully use password systems to limit access to authorized account holders.<sup>135</sup> If anything, such a private regime may be overly effective in trumping law’s public ordering.<sup>136</sup>

In short, even if cyberproperty could spur the development of the internet, robust technological and intellectual property regimes would be more effective, and less dangerous, in achieving this goal.

## 2. *Tragedy of the Commons*

Related to cyberproperty’s futility in creating incentives is its uselessness in preventing a “tragedy of the commons.” Proponents contend that cyberproperty is needed to prevent such a tragedy in cyberspace.<sup>137</sup> But

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130. See Zittrain, *supra* note 108, at 1980.

131. Rose, *supra* note 71. For a discussion of the incentives fueling the production of Internet information resources, see Greg Lastowka, *Digital Attribution*, 87 B.U. L. REV. 41 (2007).

132. See *infra* Part V.C.

133. O’Rourke, *supra* note 13, at 592.

134. See generally BRUCE SCHNEIER, *SECRETS & LIES* 59-81 (2000) (discussing societal demands for information security).

135. See *id.*

136. LAWRENCE LESSIG, *CODE AND OTHER LAWS OF CYBERSPACE* (1999); Margaret Jane Radin, *Regulation by Contract, Regulation by Machine*, 160 J. INSTITUTIONAL & THEORETICAL ECON. 142 (2004).

137. *E.g.*, Epstein, *supra* note 17, at 74.

they ignore property's mixed record on this score<sup>138</sup> in plunging into an unabashed defense of a private right to electronic inviolability.<sup>139</sup>

Cyberproperty proponents' confidence that the doctrine is necessary to prevent a tragedy of the commons is unfounded. There is no evidence that cyberproperty's absence would create a tragedy of the commons. The fears of depletion and overuse of server bandwidth and processing power are overstated. The internet has existed and thrived for many years without having confronted any serious and systemic bandwidth crises.

Even a server "crash" resembles a commons comedy more than tragedy. Web servers sometimes crash when publicly available information draws excessive "viral" word-of-mouth traffic that stresses the processing resources to the point of software failure.<sup>140</sup> At first glance, this may appear to present an example of a bandwidth tragedy of the commons. But when viewed in the appropriate context of internet business models and provider incentives, the influx of traffic is more naturally considered a business opportunity, not a burden. In nearly every conceivable case, the potential benefits reaped by the host through advertising and promotion exceed the costs of acquiring additional bandwidth.<sup>141</sup> In fact, for very popular information, sites are often eager to host surplus traffic in exchange for obtaining advertising revenues.<sup>142</sup> There is no legitimate concern that information with social value will disappear from the internet due to a "server crash" crisis.

The cases show that cyberproperty plaintiffs almost never allege overuse of resources or bandwidth.<sup>143</sup> In the *eBay* case, for example, Bidder's Edge's web crawlers represented "between 1.11% and 1.53% of the total load on eBay's listing servers."<sup>144</sup> The court conceded that eBay did not "allege[] any specific incremental damages due to [Bidder's Edge] activ-

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138. See *supra* notes 78-81 and accompanying text.

139. See, e.g., Epstein, *supra* note 8, at 164 ("[T]he creation of any commons will chill the incentive to invest."); Joshua A.T. Fairfield, *Virtual Property*, 85 B.U. L. REV. 1047, 1065-67 (2005) (applying Demsetzian theory to virtual property claims).

140. See Wikipedia, *Slashdot Effect*, [http://en.wikipedia.org/wiki/Slashdot\\_effect](http://en.wikipedia.org/wiki/Slashdot_effect) (last modified Nov. 17, 2007).

141. For a discussion of the economic rationale of "free" content production, see Lastowka, *supra* note 131.

142. Many leading Web companies, such as Yahoo!, Microsoft, and Google, offer free hosting services that are subsidized by advertising revenue and designed to encourage the posting of various forms of content. See, e.g., <http://www.flickr.com> (photos); <http://www.blogger.com> (blogs).

143. The one exception is the case of "spam," discussed below. See *infra* Part V.A.

144. *eBay, Inc. v. Bidder's Edge, Inc.*, 100 F. Supp. 2d 1058, 1064 (N.D. Cal. 2000).

ity”<sup>145</sup> and found that an eBay witness was not “aware of any complaints from eBay users about slowdowns that were caused by aggregators.”<sup>146</sup> Instead, the “harm” stemmed from the deprivation of eBay’s ability “to use [a] portion of its personal property for its own purposes.”<sup>147</sup>

Similarly, in *Register.com v. Verio*,<sup>148</sup> the plaintiff could offer only “imprecise” evidence of harm to its computer system, as it was unable “to directly measure the amount by which its systems capacity was reduced.”<sup>149</sup> The court nonetheless concluded that “evidence of mere possessory interference is sufficient to demonstrate the quantum of harm necessary to establish a claim for trespass to chattels.”<sup>150</sup>

Yet again, in *Oyster Software*,<sup>151</sup> the plaintiff “presented no evidence that the use of [defendant’s] robot interfered with the basic function of [its] computer system.”<sup>152</sup> In fact, the plaintiff conceded that the robots “placed a ‘negligible’ load” on its system.<sup>153</sup> The court nonetheless concluded that the plaintiff made out a successful TTC claim “simply because the defendant’s conduct amounted to ‘use’ of Plaintiff’s computer.”<sup>154</sup>

Finally, in the *Hamidi* case,<sup>155</sup> the defendant sent six e-mails over the course of two years.<sup>156</sup> The court found that there was “no actual or threatened damage to Intel’s computer hardware or software” and “no interference with its ordinary and intended operation.”<sup>157</sup> In particular, “Intel presented no evidence [that] its system was slowed or otherwise impaired by the burden of delivering Hamidi’s electronic messages.”<sup>158</sup>

In sum, utilitarianism provides just as little support for cyberproperty as do Lockean and Hegelian theories.

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145. *Id.* at 1063.

146. *Id.* at 1063 n.4.

147. *Id.* at 1071.

148. 126 F. Supp. 2d 238 (S.D.N.Y. 2000).

149. *Id.* at 250.

150. *Id.* The company’s vice president of technology estimated that “Verio’s searching of Register.com’s WHOIS database . . . resulted in a [diminution] of 2.3% of Register.com’s system resources.” *Id.* at 249. This estimation was “thoroughly undercut” during discovery. *Id.*

151. *Oyster Software, Inc. v. Forms Processing, Inc.*, No. C-00-0724 JCS, 2001 WL 1736382 (N.D. Cal. Dec. 6, 2001).

152. *Id.* at \*13.

153. *Id.*

154. *Id.*

155. *Intel Corp. v. Hamidi*, 30 Cal. 4th 1342 (Cal. 2003).

156. *Id.* at 1346.

157. *Id.* at 1353.

158. *Id.* at 1353.

## D. Dangers

In addition to a lack of support, cyberproperty poses significant threats.

First, the concept takes aim at the open nature of the internet, which has led to flourishing and exponential growth. Expansive exclusionary rights and the walling off of sections of the internet threaten the system's beneficial network effects. Restricting legal rights to access publicly available information on the Web will inevitably dampen the pace of technological innovation. It is instructive that one of the earliest legal threats to Google, occurring when the company was a Stanford research project, came from website owners' claims that Google's indexing of their sites constituted a cybertrespass.<sup>159</sup>

Second, cyberproperty threatens speech. Under the guise of protecting "property," the concept gives website and server owners the ability to quash unwelcome speech. In the *Hamidi* case, Intel blocked Hamidi's e-mails to company employees not because they had a significant effect on its equipment but because the company did not appreciate the critical nature of the communications.

Such action flouts core free speech principles. Property law limits rights to exclude where landowners open their property to the public but threaten to cut off speech. In *Robins v. Pruneyard Shopping Center*,<sup>160</sup> for example, high school students sought to obtain support for a campaign against a United Nations anti-Zionist resolution by soliciting signatures for a petition and talking to shoppers.<sup>161</sup> The California Supreme Court, in a ruling affirmed by the U.S. Supreme Court, held that the state constitution "protect[s] speech and petitioning, reasonably exercised, in shopping centers even when the centers are privately owned."<sup>162</sup> "The more an owner," the U.S. Supreme Court explained, "opens up his property for use by the

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159. JOHN BATTELLE, *THE SEARCH* 78-79 (2005); DAVID A. VISE & MARK MALSEED, *THE GOOGLE STORY* 56-57 (2005).

160. 447 U.S. 74 (1980).

161. *Id.* at 77.

162. *Robins v. Pruneyard Shopping Ctr.*, 23 Cal. 3d 899, 347 (Cal. 1979). For another example, see *N.J. Coalition Against War in the Middle East v. J.M.B. Realty Corp.*, 650 A.2d 757, 776 (N.J. 1994) (upholding right to distribute leaflets at shopping center because free speech interest outweighed mall operators' private property interests in light of "the practically unlimited permitted public uses found and encouraged on the[] property").

public . . . the more . . . his rights become circumscribed by the statutory and constitutional rights of those who use it.”<sup>163</sup>

Free speech limits on property owners’ rights are an important element of First Amendment protections. This principle has never been applied in the cyberproperty context. Courts have focused on an owner’s ability to exclude others from its server. But they have not accepted plaintiffs’ arguments that speech directed to a web or e-mail server should be protected by the First Amendment.<sup>164</sup>

Third, cyberproperty threatens competition. Competition is essential to the economy, resulting in lower prices, improved quality, and innovation. In order to increase innovation incentives, intellectual property (IP) protection sometimes limits competition. But IP, at least in theory, is subject to important duration, scope, and subject matter limits.<sup>165</sup> The public domain of unprotected materials ensures a robust competitive market benefiting consumers.

Cyberproperty threatens to tear apart this delicate balance. The right to block unwanted visitors that courts grant to website owners is not limited in duration, scope, or subject matter. The *eBay* court, for example, gave eBay an absolute right to exclude competitors from accessing its website even though the information gathered was not protected under IP doctrines and consumers would have benefited from the aggregation of information.<sup>166</sup> Such excessive protection tends to limit choice and raise prices for consumers.

### E. No Limits

Cyberproperty’s dangers are magnified by a lack of limits. Limits are at the core of property, with at least fifty limits restricting property owners’ rights to exclude, use, and transfer.<sup>167</sup> These limits do not apply to cyberproperty.

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163. *Marsh v. Alabama*, 326 U.S. 501, 506 (1946) (considering a “company town” that resembled a typical town except that it was owned by a company).

164. *See, e.g., Cyber Promotions, Inc. v. America Online, Inc.*, 948 F. Supp. 436 (E.D. Pa. 1996) (finding no First Amendment right to send e-mail to AOL because AOL is not a state actor); *see generally* Dawn C. Nunziato, *The Death of the Public Forum in Cyberspace*, 20 BERKELEY TECH. L.J. 1115, 1171 (2005) (concluding that “the death of public places in cyberspace brings with it the erosion of important First Amendment values”). For the sole contrary example, *see Intel Corp. v. Hamidi*, 30 Cal. 4th 1342, 1363-64 (Cal. 2003) (concluding, in dicta, that Hamidi’s e-mails to Intel were subject to First Amendment protection).

165. *Carrier*, *supra* note 68, at 13-24.

166. *eBay v. Bidder’s Edge*, 100 F. Supp. 2d 1058, 1061-62 (N.D. Cal. 2000).

167. *Id.* at 52-80.

Limits in property law serve several important purposes. Some, such as imminent necessity, eminent domain, and takings, restrict rights for purposes of necessity.<sup>168</sup> Others, such as easements, the invalidation of alienation restraints, and adverse possession, encourage development.<sup>169</sup> And others, such as antidiscrimination statutes, nuisance, and the law of encroachments, promote equity.<sup>170</sup>

Computer networks are complex and relational communication systems. If the “sole and despotic dominion” of Lord Blackstone does not apply to the sacrosanct and spatially secluded family home,<sup>171</sup> it certainly does not apply to networks in cyberspace. The need for careful balances and flexible evolutionary structures is paramount in the context of the internet.

But courts applying the cyberproperty concept have not imposed any limits on its scope. They focus obsessively on an owner’s right to exclude, never considering other public policies implicated by property.<sup>172</sup> The prohibition on “use” and electronic contact provides owners of network-connected computers with a caricature of absolute rights. While exclusionary rights are important, traditional property law recognizes that limits also are important. Cyberproperty does not.

If the Lockean, Hegelian, or utilitarian theories provided support for cyberproperty, then a more nuanced regime might be appropriate. If that were the case, it is conceivable that cyberproperty could, like property, adopt limits, which would minimize its dangers. But because the philosophical justifications provide *no* support for cyberproperty, limits would not be appropriate. Limits—no matter how well they blunt cyberproperty’s many potential dangers—cannot justify a wholly unnecessary regime. It is preferable to abandon cyberproperty. As the next Part shows, such a course is further justified by the existence of alternative regimes.

## V. THE END OF CYBERPROPERTY

Part IV showed that cyberproperty (1) is not supported by property’s rationales, (2) threatens significant dangers, and (3) lacks effective limits. Such conclusions provide strong support for abandoning the concept. In

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168. See *supra* Part III.C.

169. Carrier, *supra* note 68, at 54-65.

170. *Id.* at 73-80.

171. Robert P. Burns, *Blackstone’s Theory of the “Absolute” Rights of Property*, 54 U. CIN. L. REV. 67, 75 (1985).

172. See, e.g., *Intel Corp. v. Hamidi*, 30 Cal. 4th 1342, 1375 (Cal. 2003) (Brown, J., dissenting) (“Regardless of whether property is real or personal, it is beyond dispute that an individual has the right to have his personal property free from interference.”)

fact, because various federal statutes now serve cyberproperty's goals, its jettisoning would have no deleterious effect.

In this Part, we discuss four statutory regimes that supplant the need for cyberproperty: electronic invasion, spam, copyright, and (potential) database protection legislation.

### A. Electronic Invasion

Proponents justify cyberproperty by emphasizing its role in preventing unauthorized electronic invasion. They build on Blackstone's concept of "sole and despotic dominion" and an absolute right to exclude others from one's property.<sup>173</sup>

Some internet-connected servers, to be sure, store personal and confidential information behind technological barriers. Like locks or fences, these barriers impede public access while providing notice that the information is not open to view. Anyone who has used a password to access an account, ordered a product on Amazon.com, or used a proprietary database such as Westlaw appreciates such exclusionary technologies. Yet, like their real counterparts, exclusionary technologies can be broken.

This failure, however, does not justify the regime of cyberproperty. In the past two decades, federal and state legislatures have enacted comprehensive statutes prohibiting various forms of "unauthorized access" to private computer systems.<sup>174</sup> The most important such statute is the federal Computer Fraud and Abuse Act (CFAA), which criminalizes unauthorized access to most computer systems and which requires civil plaintiffs to show at least \$5,000 in damages.<sup>175</sup>

The CFAA targets an array of potential harms, including espionage, access to health care records, the transmission of destructive programs, and trafficking in password keys.<sup>176</sup> It also specifies various remedies and

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173. *E.g.*, Epstein, *supra* note 8, at 163; David McGowan, *Website Access: The Case for Consent*, 35 LOY. U. CHI. L.J. 341, 359 (2003).

174. *See generally* Patricia L. Bellia, *Chasing Bits Across Borders*, 2001 U. CHI. LEGAL F. 35, 88 n.160 (noting that all fifty states have passed a version of a computer crime statute). For one example, see N.J. Stat. § 2C:20-25 (criminalizing the accessing of computer databases and equipment without authorization).

175. 18 U.S.C. § 1030 (Supp. V 2005). Suit is also authorized where there are threats to public safety or physical injury. 18 U.S.C. § 1030(g).

176. 18 U.S.C. § 1030(a)(1) (espionage); § 1030(a)(5)(B) (health care); § 1030(a)(5)(A)(i) (damage via transmission of code); § 1030(a)(6) (password trafficking).

penalties.<sup>177</sup> Since the early 1990s, courts have regularly applied the statute in criminal and civil suits where electronic invasions have disrupted the functioning of systems or permitted individuals to obtain access to personal data.<sup>178</sup>

To be sure, the CFAA is a broad statute, with expansive interpretations of “unauthorized access” that potentially reach every network-connected computer engaged in “interstate commerce or foreign communication.”<sup>179</sup> Some commentators even treat the CFAA as a federal statute mirroring cyberproperty.<sup>180</sup>

But at least the CFAA focuses more directly than cyberproperty on what legislatures consider wrongful acts of electronic invasion. This very concern was the reason for a congressional statute, evincing a social purpose lacking for cyberproperty. And continued interest has been shown through multiple judicial interpretations of, and congressional amendments to, the statute in the past two decades.

Given the CFAA’s existence, the only apparent reason that plaintiffs have relied on cyberproperty is to substitute its blunt and unbounded regime for the CFAA’s complex statutory scheme. In the *eBay*, *Oyster Software*, and *Ticketmaster* cases,<sup>181</sup> for example, the plaintiffs sought to obtain absolute proprietary rights in publicly available information, an explosive weapon not found in the CFAA’s arsenal.

In particular, cyberproperty courts have found defendants liable for non-damaging acts of accessing data posted on publicly accessible web servers.<sup>182</sup> The plaintiffs in *eBay* and *Oyster Software* sought such protection and successfully used cyberproperty to prevent competitors from accessing data available to any potential customer with an internet browser.

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177. 18 U.S.C. § 1030(a) (providing remedies according to defendant’s conduct and intentions); § 1030(c) (calibrating punishment with reference to defendant’s mental state and the statutory provisions).

178. *See, e.g.*, *U.S. v. Mitra*, 405 F.3d 492 (7th Cir. 2005); *Theofel v. Farey-Jones*, 341 F.3d 978 (9th Cir. 2003).

179. *Shurgard Storage Ctrs., Inc. v. Safeguard Self-Storage, Inc.*, 119 F. Supp. 2d 1121, 1124-25 (W.D. Wash. 2000). *See generally* Orin Kerr, *Cybercrime’s Scope: Interpreting “Access” and “Authorization” in Computer Misuse Statutes*, 78 N.Y.U. L. REV. 1596 (2003) (explaining interpretations that confuse contractual terms with technological protections).

180. *E.g.*, *Wagner, supra* note 1, 498; *Hunter, supra* note 12, at 483.

181. *Oyster Software, Inc. v. Forms Processing, Inc.*, No. C-00-0724 JCS, 2001 WL 1736382 (N.D. Cal. Dec. 6, 2001); *eBay, Inc. v. Bidder’s Edge, Inc.*, 100 F. Supp. 2d 1058 (N.D. Cal. 2000); *Ticketmaster.com v. Tickets.com*, No. CV99-7654-HLH, 2000 U.S. Dist. LEXIS 12987 (C.D. Cal. Aug. 10, 2000);

182. *See generally* Jane K. Winn, *Crafting a License to Know From a Privilege to Access*, 79 WASH. L. REV. 285 (2004).

In short, the CFAA's scope, statutory detail, and history minimize the need for cyberproperty to prevent electronic invasion.

## B. Spam

Courts initially applied cyberproperty to target a second concern: "spam," or unsolicited commercial e-mail. They enjoined the distribution of spam to computing equipment owners, readily citing *Thrifty-Tel's* assertion that "electronic signals . . . [a]re sufficiently tangible to support a trespass cause of action."<sup>183</sup>

In the late 1990s, cyberproperty in fact was one of the few available doctrines on which plaintiffs could rely in seeking to block spam. Even cases that did not directly involve spam featured lengthy discussions about the problems it caused.<sup>184</sup> Cyberproperty proponents justified the new legal regime by seizing on the difficulties engendered by spam.<sup>185</sup>

But any need for a cyberproperty solution to spam was substantially reduced with the enactment in 2003 of a federal anti-spam statute, the CAN-SPAM Act.<sup>186</sup> This Act creates "opt-out" regimes for commercial e-mail solicitations, mandates labeling requirements for such messages (designed to facilitate mail filtering), and imposes significant fines on those who fail to comply with its requirements.<sup>187</sup> As an effort to address the problem of spam, the legislation is superior to cyberproperty because it is more narrowly targeted and calls for less analytic gymnastics by not requiring plaintiffs to demonstrate damage to the receiving equipment.

To be sure, the CAN-SPAM Act has been criticized and has not been wholly effective in stemming the tide of spam.<sup>188</sup> Like much of the internet, e-mail technology follows a default rule that transfers all packets received by an intermediary computer without discrimination. The vast majority of e-mail spam in the United States is sent by parties who are in open violation of the statute and who theoretically are subject to massive fines.<sup>189</sup> Yet by using international networks of hijacked computers and

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183. *See supra* note 32.

184. *Intel Corp. v. Hamidi*, 30 Cal. 4th at 1353, 1380 n.7, 1390 n.3.

185. *E.g.*, Epstein, *supra* note 17, at 79; McGowan, *supra* note 173.

186. Controlling the Assault of Non-Solicited Pornography and Marketing Act of 2003, 15 U.S.C. §§ 7701-7713 (Supp. 2004) [hereinafter "CAN-SPAM Act"].

187. *Id.*

188. *E.g.*, Tom Zeller Jr., *Law Barring Junk E-Mail Allows a Flood Instead*, N.Y. TIMES, Feb. 1, 2005, at A1 (noting that spam constitutes at least eighty percent of all e-mail, a figure higher than before the CAN-SPAM Act took effect).

189. *See id.* ("Any spammer worth his salt is not going to follow CAN SPAM . . . because it would be filtered out immediately."); D. Firestone & S. Hansel, *Senate Votes To Crack Down on Some Spam*, N.Y. TIMES, Oct. 23, 2003, at C1 (providing comment of

questionable business networks of spammer-friendly and spammer-indifferent partners, spamming persists despite the requirements of the CAN-SPAM Act.<sup>190</sup>

At the dawn of the 21st century, only inconsistent state statutes addressed spam.<sup>191</sup> At that time, cyberproperty may have been justified as a tool providing a legal claim against spammers. But the passage of the CAN-SPAM Act renders cyberproperty unnecessary.

Any future solution to spam will require not a bloated common law doctrine but a combination of technological innovation and more effective law enforcement techniques. Yet even a technological solution does not appear to be forthcoming.<sup>192</sup> The first party to market such a solution stands to reap substantial rewards, but several feasible plans have not moved forward because the relevant parties have been unable to cooperate.<sup>193</sup>

In short, the over-expansive, blunt cyberproperty doctrine offers no benefit not provided by the narrowly targeted CAN-SPAM Act. While technological innovation and law enforcement might ultimately solve the spam problem, courts and legislatures will not.<sup>194</sup> Cyberproperty, in other words, is not the answer. Its jettisoning would not even be noticed.

### C. Copyright

The desire to protect the proprietary value of information appearing on websites is another rationale invoked by cyberproperty proponents.<sup>195</sup>

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then-FTC chair Timothy Muris: “Most spam is already so clearly illegitimate that the senders are no more likely to comply with new regulations than with the laws they now ignore”).

190. Brad Stone, *Spam Doubles, Finding New Ways to Deliver Itself*, N.Y. TIMES, Dec. 6, 2006, at A1.

191. David E. Sorkin, *Spam Legislation in the United States*, 22 J. MARSHALL J. COMPUTER & INFO. L. 3, 4 (2003) (noting that the thirty-six states that enacted spam legislation between 1997 and 2003 offer different disclosure requirements, “opt-out” procedures, geographic reach, and enforcement methods).

192. To be sure, filtering mechanisms have reduced the effect of spam on individual users.

193. Ariana Eunjung Cha, *Alliance Raised Hope in Fight Against Spam*, WASH. POST, July 3, 2005, at A01 (describing failure of effort to introduce authentication because of Microsoft’s patent claims on the technology).

194. For one innovative proposal, see Theodore C. Loder et al., *An Economic Response to Unsolicited Communication*, BERKELEY ELECTRONIC J. ECON. ANALYSIS & POL’Y, Issue 1 2006 (advocating the creation of a reputation capital market for e-mail communication systems that does not filter messages based on content), available at <http://www.bepress.com/bejeap/advances/vol6/iss1/art2/>.

195. Epstein, *supra* note 17, at 84.

Claimed proprietary rights to information played an important role in the *eBay*, *Ticketmaster*, and *Register.com* cases.<sup>196</sup>

But a proprietary interest in the type of expression appearing on websites is exactly the focus of the copyright laws. Copyright protects “original works of authorship fixed in any tangible medium of expression.”<sup>197</sup> It gives its owners powerful exclusive rights, including the rights to reproduce, distribute, display, and prepare derivative works.<sup>198</sup> If the website expression is sufficiently original, its owner has strong rights to exclude others.

Copyright’s rationale is that the incentive provided by exclusive rights is necessary to increase the amount and quality of expressive works in society.<sup>199</sup> Like all IP laws, copyright strives to attain a balance between promoting initial creation through exclusive rights and subsequent creation through a robust public domain.

In recent years, this balance has shifted significantly in the direction of protection.<sup>200</sup> But at least balance is built into the structure of copyright, as articulated by Congress and interpreted by the courts. The “fair use” defense, for example, privileges uses by educators, commentators, and parodists that otherwise would infringe exclusive rights.<sup>201</sup> Copyright also is limited by a finite duration and a lack of protection for ideas, facts, and useful elements.<sup>202</sup>

Cyberproperty does not even attempt to engage in balance or tradeoffs. Information on websites is protected simply because it is present on a computer and the computer owner has a right to prohibit access to the underlying chattel.<sup>203</sup> Without even considering the need for incentives, cy-

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196. *eBay, Inc. v. Bidder’s Edge, Inc.*, 100 F. Supp. 2d 1058, 1064 (N.D. Cal. 2000); *Register.com, Inc. v. Verio, Inc.*, 126 F. Supp. 2d 238, 251 (S.D.N.Y. 2000); *Ticketmaster.com v. Tickets.com*, No. CV99-7654-HLH, 2000 U.S. Dist. LEXIS 12987 (C.D. Cal. Aug. 10, 2000).

197. 17 U.S.C. § 102 (2000).

198. 17 U.S.C. § 106 (2005 Supp. V).

199. *See, e.g., Fogerty v. Fantasy, Inc.*, 510 U.S. 517, 524 (1994) (“The primary objective of the Copyright Act is to encourage the production of original literary, artistic, and musical expression for the good of the public.”).

200. *See, e.g., Carrier, supra* note 68, at 13-16.

201. 17 U.S.C. § 107 (2000). *See generally* Radin, *supra* note 126, at 30 (distinguishing copyright from cyberproperty by pointing to its built-in limits, which address “free speech . . . and competitive concerns”).

202. *Baker v. Selden*, 101 U.S. 99 (1879) (ideas); *Brandir Int’l, Inc. v. Cascade Pacific Lumber Co.*, 834 F.2d 1142 (2d Cir. 1987) (useful articles); *Miller v. Universal Studios*, 650 F.2d 1365 (5th Cir. 1981) (facts).

203. *Oyster Software, Inc. v. Forms Processing, Inc.*, No. C-00-0724 JCS, 2001 WL 1736382, at \*11-13 (N.D. Cal. Dec. 6, 2001).

berproperty permits chattel owners to unilaterally dictate the terms of access to unoriginal, public information.<sup>204</sup> And courts enforcing these rights do not consider countervailing policies.

Why, given the power of copyright rights, do plaintiffs rely on cyberproperty? Most likely because the information they seek to protect is not copyrightable subject matter. In fact, what they advocate is more akin to database protection.

#### D. Database Protection

Cyberproperty proponents contend that some data on web servers are valuable information products that require labor and should be proprietary. Cyberproperty rights allow database builders to exclude others from servers containing data, thereby—allegedly—providing incentives to create online databases.

But such an argument is not offered on a blank slate. In 1991, the Supreme Court, in *Feist Publications v. Rural Telephone Service*,<sup>205</sup> held that copyright's originality requirement was not satisfied by the listing of names and numbers in the white pages of a phonebook.<sup>206</sup> Although the requirement was low, some minimum amount of creativity was required. Databases lack the requisite creative spark and do not receive copyright protection.

Since *Feist*, there has been considerable debate about whether Congress should enact a statute protecting databases.<sup>207</sup> Scholars have disagreed about the constitutionality of such legislation.<sup>208</sup> They also have contended that incentives to create such works are not necessary.<sup>209</sup> No scholars appear to have argued that database protection is needed to pro-

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204. *E.g., id.*

205. 499 U.S. 340 (1991).

206. *Id.* at 363-64.

207. *See, e.g.,* Yochai Benkler, *Constitutional Bounds of Database Protection: The Role of Judicial Review in the Creation and Definition of Private Rights in Information*, 15 BERKELEY TECH. L.J. 535, 551 (2000); Justin Hughes, *How Extra-Copyright Protection Of Databases Can Be Constitutional*, 28 DAYTON L. REV. 159 (2002); J.H. Reichman & Pamela Samuelson, *Intellectual Property Rights in Data?*, 50 VAND. L. REV. 51, 113-36 (1997).

208. *Compare* Benkler, *supra* note 207, at 551 (questioning constitutionality) with Thomas B. Nachbar, *Intellectual Property And Constitutional Norms*, 104 COLUM. L. REV. 272, 361 (2004) (supporting constitutionality).

209. Benkler, *supra* note 207, at 593.

vide incentives, but some have asserted that protection is necessary to balance the existing regime of “extra-copyright” laws and technologies.<sup>210</sup>

Congress has considered database protection legislation on several occasions.<sup>211</sup> But opposition has been raised each time, and such legislation has never been enacted.

The danger of cyberproperty is that it could achieve the result desired by database protection proponents while circumventing the political process. Companies like eBay or Register.com that receive an absolute right to condition the terms of access to data contained on a web server perform an end-run around the contentious debates in which the legislature has been actively engaged.<sup>212</sup>

In short, the information on websites either satisfies the requirements of copyrightability, in which case cyberproperty is not needed, or does not satisfy the requirements of copyright and should not be protected. The opposition to proposed database legislation reveals what happens when absolute rights in non-copyrightable information are considered directly. Cyberproperty offers a similarly absolute regime. It is only through its camouflage in property fatigues that it has emerged unscathed from the line of fire.

Spam legislation, electronic invasion statutes, and the copyright regime serve the same social purposes as cyberproperty. They do so with more nuance, balance, and concern for countervailing policies than cyberproperty does. The blocking of database legislation shows what happens when absolute, unnuanced regimes are exposed. Cyberproperty can no longer hide behind its property façade. And given the overlapping statutory schemes, cyberproperty proponents can no longer reasonably contend that it is necessary.

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210. *E.g.*, Jane C. Ginsburg, *Copyright, Common Law, and Sui Generis Protection of Databases in the United States and Abroad*, 66 U. CIN. L. REV. 151, 152 (1997).

211. *See, e.g.*, Consumer Access to Information Act of 2004, H.R. 3872, 108th Cong. (2004); Database and Collections of Information Misappropriation Act, H.R. 3261, 108th Cong. (2003); Collections of Information Antipiracy Act, H.R. 354, 106th Cong. (1999); Collections of Information Antipiracy Act, H.R. 2652, 105th Cong. (1998); Database Investment and Intellectual Property Antipiracy Act of 1996, H.R. 3531, 104th Cong. (1996).

212. *See eBay, Inc. v. Bidder's Edge, Inc.*, 100 F. Supp. 2d 1058, 1064 (N.D. Cal. 2000); *Register.com, Inc. v. Verio, Inc.*, 126 F. Supp. 2d 238, 251 (S.D.N.Y. 2000). *Cf. ProCD, Inc. v. Zeidenberg*, 86 F.3d 1447 (7th Cir. 1996) (upholding “shrinkwrap” license that protected database).

## VI. CONCLUSION

Cyberproperty is built on the property paradigm. Scholars have debated this connection in discussing the propriety of cyberspace as the relevant analogy for the internet. But they have otherwise neglected to explicitly link the concept with property. Courts have enthusiastically adopted cyberproperty, applying it in numerous contexts to address concerns relating to spam, data aggregation, and unauthorized website access. But they have applied an absolute version of property—one at odds with its true self.

An analysis of property law demonstrates the limits and the competing public policies that are nowhere to be found in cyberproperty. Even more important, *none* of the primary theories supporting property—Locke's labor theory, Hegel's personhood rationale, and utilitarianism—justify cyberproperty.

The need for cyberproperty today is less than it has ever been. Narrowly focused statutes covering spam, electronic invasion, and copyright now address cyberproperty's concerns. In the meantime, the concept runs roughshod over nuanced statutory compromises while reducing competition and stifling freedom of expression.

The creation of cyberproperty was a mistake. Its harms far exceed its benefits. As time passes, it grows increasingly unsupported and dangerous. It is time to fix this mistake. It is time to abandon cyberproperty.

# THE PROFITS OF INFRINGEMENT: RICHARD POSNER V. LEARNED HAND

*By Stephen E. Margolis<sup>†</sup>*

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## I. INTRODUCTION

As critics consider strengthening or weakening copyright, the focus has been on the duration and scope of copyright protection, while the remedies available to owners of infringed copyrights receive little attention. Arguably, however, the right is in the remedy. If infringement warranted only a slap on the wrist, copyright protection would offer little benefit to authors and could hardly constitute the impediment to progress that some critics allege. Alternatively, if owners of infringed copyrights are made into life's lottery winners, then producers of creative works will give owners of existing copyrights very wide berths.

Litigation concerning trademark and copyright infringement typically involves calculations of the monetary awards available under the associated statutes. Yet a basic issue concerning how these awards are calculated remains unresolved. The federal courts of appeals do not agree on how awards in these cases should be computed. Even within circuits, district courts sometimes differ on the rules that can determine an infringer's monetary liability. The different rules can lead to order-of-magnitude differences in liability.

Both copyright and trademark law provide remedies that allow a successful plaintiff to capture the defendant's profits from an infringement in addition to damages and other remedies. However, neither statute elaborates on the definition of profits, except to allocate burdens of proof regarding revenues and expenses. In particular, neither statute says anything about which expenses are to be deducted from revenues to obtain an accounting of profits.

Though case law has filled this definitional gap, the courts of appeals still disagree about which costs are deductible. The disagreements concern fixed costs. Some courts apply what is called a full absorption rule, which allows defendants to deduct an allocation of fixed costs. Other courts apply an incremental rule, which does not allow deduction of fixed costs.

This Article considers economic explanations and legal foundations for the two distinct rules that are present in the case law of copyright and trademark infringement. I will argue that the full absorption rule, as developed in the Second Circuit, particularly by Judge Learned Hand,<sup>1</sup> comes closer to providing a measure of economic profits than the incremental rule, as applied in the Seventh Circuit and articulated particularly by Judge Richard Posner.<sup>2</sup> The Article does not propose a new or different rule, but instead shows that elementary economic principles are consistent with the rule that Judge Hand presented in *Sheldon*,<sup>3</sup> a rule that may otherwise seem to contradict standard economic teachings.

The next Part addresses cost concepts in two ways: first, by providing the conventional terminology and concepts of cost that are used in economics and accounting and second, by providing empirical evidence that the choice of legal rules is important. Part III provides the foundations in law and economics for this discussion, first considering the copyright and trademark statutes in detail, then applying some simple economic reasoning to illuminate the alternative rules. Part IV documents the appearance of each of the alternative rules, both in appellate case law and in legal commentaries. Part V makes the case that economic reasoning supports the full absorption rule. I argue that this rule offers a defensible approximation for the incremental opportunity cost of the infringing activity, which is the correct economic concept of cost for the purpose of determining the profits of infringement. Some approximation, rather than exact measurement, is inevitable because accounting information does not capture directly the values of alternative opportunities displaced by the infringement. Part VI returns to the case law, discussing how the full absorption rule as articulated in *Sheldon* actually works, given accounting practices, to capture an appropriate measure of profits.

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1. *Sheldon v. Metro-Goldwyn Pictures Corp. (Sheldon I)*, 106 F.2d 45 (2d Cir. 1939), *aff'd*, 309 U.S. 390 (1940). For an example of inconsistent application of these rules within a circuit, compare *Hamil Am., Inc. v. SGS Studio, Inc.*, 1998 WL 19991 (S.D.N.Y. Jan. 21, 1998) with *Hamil Am., Inc. v. GFI*, 193 F.3d 92 (2d Cir. 1999). The district court applied the incremental rule, departing from *Sheldon*. The Court of Appeals for the Second Circuit reversed and reaffirmed that *Sheldon* establishes the rule for the circuit.

2. *Taylor v. Meirick*, 712 F.2d 1112 (7th Cir. 1983).

3. Unless otherwise indicated, all references to *Sheldon* in the text refer to *Sheldon*

## II. COST CATEGORIES AND WHY THEY MATTER

Direct costs are the costs of materials and labor that are intimately associated with production of a unit of output. For example, for a hamburger restaurant, the cost of the beef patty, the bun, the pickle, and the wages of the cook would all constitute direct costs. Businesses also have various kinds of indirect costs, which are also called overhead costs. Some overhead costs do vary with the level of activity in the business. In our restaurant example, the wages of the waiters, the bus boys, the dishwashers, and the cashiers would be examples of such costs. Accountants call these variable overheads. Economists group together both direct costs and variable overheads, referring to them as variable costs. Finally, there are indirect costs that may be deemed fixed with respect to output, at least under some restricting assumptions.<sup>4</sup> In our restaurant example, such costs are associated with the restaurant manager, the building, and the menus. Economists call such costs fixed costs; accountants call them fixed overheads.

Courts that apply a full absorption rule allow defendants to deduct an “appropriate” share<sup>5</sup> of the firm’s overhead. Application of this rule results in what is sometimes called “fully allocated costs.” In this context, the distinction between fixed and variable overhead is of no consequence since both types are deductible. In contrast, courts that apply an incremental rule disallow deductions for some or all overhead costs. The logic of the incremental rule<sup>6</sup> dictates that variable overheads, a component of what economists call variable costs, should be allowed, and that fixed overheads (fixed costs) should be disallowed. However, in practice courts sometimes lump together and treat both types of overhead—fixed and variable—as if they are the same and disallow both under an incremental rule.

On the face of it, the incremental rule seems to embody the language and logic of economics. But I will argue that the incremental rule, as implemented, excludes relevant economic costs from the profits calculation. In contrast, the full absorption rule incorporates a defensible proxy for the

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4. Such things are conveniently called fixed costs, but that label requires some restriction about the decision horizon. These costs are not fixed for the restaurant operator who today is planning a restaurant that will open next year.

5. What is “appropriate” is not entirely straightforward. Typically, courts that allow a deduction for overheads allow the defendant to allocate overheads in proportion to revenues. For example, if infringing sales constitute ten percent of the firm’s sales, the firm is permitted to allocate ten percent of its total overhead to the infringing activity. For more, see *infra* Section IV.A.1.

6. See *infra* Section IV.A.2. However, the economic principle is that the benefits of an action are the incremental benefits of the action, less the incremental costs. Clearly, deduction of additional overhead expenses that result from an infringement is consistent with this principle.

infringer's opportunity costs of using fixed factors in the infringing activities.

The way we count these costs is no mere quibble. Overheads—fixed and variable—are often a large share of a firm's total cost and typically are many times larger than a firm's net income. Consequently, a rule that prevents an infringer from deducting overheads can increase his liability for an infringing activity severalfold.

Let's look at the scale of what is at stake. A firm's income statement typically reports the costs that the firm regards as its direct costs under costs of goods sold.<sup>7</sup> All other costs are reported under expenses, and for legal proceedings and many other purposes, these expenses are usually called overheads. Revenue minus costs of goods sold is called gross profit; revenue minus costs of goods sold and expenses is called net operating income. It is not at all unusual for a firm to have a very substantial gross profit but a negligible, or even negative, net operating income. For example, it would not be unusual for a firm to show gross profits of 60 or 70% of sales revenue, but a net operating income of only 5 or 6%. Analogously, an infringer might easily show profits of infringement equal to 5 or 6% of infringing sales if all overheads were deductible, versus 60 or 70% of infringing sales if no deduction of overheads were permitted.

Aggregate IRS data on corporate income and expenses provide some corroboration of these claims. IRS data for 2002 for all firms that are classified in manufacturing (NAICS Sector 31-33)<sup>8</sup> show that total receipts less the costs of goods sold is 36% of total receipts.<sup>9</sup> For manufacturing firms, accounting practices typically locate all of the direct materials and labor costs in costs of goods sold. Remaining costs are called deductions on a tax return<sup>10</sup> and are sometimes called overheads in other (non-tax ac-

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7. Or costs of sales. Costs of goods sold on statements of operations are not generally identical to direct costs. In manufacturing, for example, costs of goods sold typically includes allocated factory overheads.

8. OFFICE OF MGMT. & BUDGET, EXECUTIVE OFFICE OF THE PRESIDENT, NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM (2002). This system categorizes economic activities into industries. The NAICS codes replace the more familiar Standard Industrial Classification (SIC) codes.

9. INTERNAL REVENUE SERVICE, 2002 RETURNS OF ACTIVE CORPORATIONS tbl.6 (2002), available at <http://www.irs.gov/pub/irs-soi/02co06nr.xls>. The figure of 36% of total receipts is obtained as follows: (Total receipts (5,257,106,442) – Costs of goods sold (3,353,642,529)) / Total receipts (5,257,106,442).

10. Tax accounting and cost or managerial accounting are distinct practices, and the terms direct cost and overhead have no exact counterpart in the grouping that shows up in a tax return. In manufacturing, costs of goods sold will often capture almost all that can be associated with the factory floor. This typically will include direct materials and direct

counting) contexts. Regardless of terminology, this margin—a gross profit—gives a rough indication of the magnitude of profits that a court might award if it disallows any deduction of overheads in determining an infringer's "profits."

In contrast, in the same IRS data, total receipts less total deductions is approximately 1.5% of total receipts.<sup>11</sup> This is a margin on all costs, or net operating income, which of course includes all overheads. The twenty-four-fold difference between these two margins, 36% and 1.5%, offers a very rough idea about the stakes involved in a court's decision regarding whether to allow the infringer to deduct overheads as a cost of the infringing production.

Why do the IRS data offer only a very rough idea? First, the IRS data for manufacturing reflect a massive aggregation—the sums of tax return entries for all corporations classified as manufacturing.<sup>12</sup> Individual firms will differ enormously. Second, the costs of goods sold may imbed some fixed costs.<sup>13</sup> In litigation, a plaintiff's economics expert may attempt to identify components of costs of goods sold that are fixed and claim, accordingly, that these costs should be excluded from the costs of infringement.

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labor. It may also include an allocation of plant costs, which for other purposes may be treated as fixed costs or overheads by economists and accountants.

11. See INTERNAL REVENUE SERVICE, *supra* note 9. The figure of 1.5% of total receipts is obtained as follows: (Total receipts (5,257,106,442) – Total deductions (5,178,748,932)) / Total receipts (5,257,106,442).

12. One might raise a concern that while the IRS data for manufacturing reflects much of the caseload in manufacturing industries, it does not reflect copyright industries as well. To find information on copyright infringers, we might more appropriately look to the information sector (NAICS Sector 51), which includes many of the industries in which copyright is particularly important: newspaper, periodical, and book publishing, directory publishing, software publishing, broadcasting, sound recording, motion picture and video production, news syndicates, libraries and archives, broadcasting, and data processing, among others. Again using the IRS data, for the aggregate of tax returns for corporations in the information sector, the margin on the cost of goods sold (receipts minus costs of goods sold as a percentage of receipts) is 77% in 2002. The margin on all costs, including overhead costs, is -4% for the same period. Here the difference between an incremental rule and a full absorption rule is more extreme. A firm would show negative profits under a fully allocated cost rule, but owe 77% of revenues under an incremental cost rule. See INTERNAL REVENUE SERVICE, *supra* note 9.

13. Furthermore, "book" and "tax" net income are known to differ, with book income often, but not always, exceeding tax income. See GEORGE A. PLESKO & NINA L. SHUMOFSKY, RECONCILING CORPORATION BOOK AND TAX NET INCOME, TAX YEARS 1995-2001, IRS STATISTICS OF INCOME WINTER 2004-5 BULLETIN, PUBLICATION 103. These differences would affect the exact numbers used *supra*, but not the implication of the order of magnitude in the comparisons shown.

These caveats aside, it is possible to take the example one step further to see how the alternative rules would play out in litigation, assuming a hypothetical firm with cost and revenue relationships that reflect the IRS data. Suppose an infringing product is 5% of a firm's sales. Under a rule that allows no deduction of overhead costs, and assuming that gross margins of the firm are, as in the IRS data, 36% of revenue, the legally determined profits of the infringement would constitute 120% of the entire net operating income of the firm.<sup>14</sup>

The IRS data and accompanying illustration do not make a case for crediting the infringer for his overheads. An unprofitable firm can undertake a profitable infringement. The point of these illustrations is merely to put the issue into perspective, to show that the choice of rules, though perhaps obscure, is not trivial.

There are several advantages to settling this issue. First, the unsettled nature of the courts' treatment exposes commercial activity to additional risk. Second, it makes litigation outcomes more uncertain, thus reducing the likelihood of settlement.<sup>15</sup> Finally, if one of these rules is correct, then the continued use of the other in some courts results in either too much litigation or too little, and too much precaution against infringement or too little. If, for example, the courts were to decide systematically to credit overhead, awards to successful plaintiffs would be much smaller, which would reduce both the incentive to litigate and the incentive to take precautions against infringement.

### III. LAW AND ECONOMICS I: STATUTES AND PRINCIPLES

This Part provides foundations in both law and economics, first presenting the relevant sections of the copyright and trademark statutes, then exploring two economic matters—the rationale for a profits remedy and the actual workings of the two legal rules in the context of a multi-product firm.

#### A. Copyright

The Copyright Act of 1976 specifies that the owner of an infringed copyright "is entitled to recover the actual damages suffered by him or her

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14. See INTERNAL REVENUE SERVICE, *supra* note 9. In manufacturing (NAICS Sector 31-33), firms earned gross margins of 36%. An award of 36% applied to 5% of total revenues would be 1.8% of total revenues ( $.05 \times .36 = .018$ ). Because the firm's net operating income is 1.5% of its total revenues, as in the IRS data, the award would constitute 120% of the firm's net operating income ( $1.8/1.5 = 1.2$ ).

15. George L. Priest & Benjamin Klein, *The Selection of Disputes for Litigation*, 13 J. LEGAL STUD. 1, 16 (1984).

as a result of the infringement and any profits of the infringer that are attributable to the infringement and are not taken into account in computing the actual damages.”<sup>16</sup> As an alternative, the plaintiff can elect to receive statutory damages of up to \$30,000 “as the court considers just.”<sup>17</sup> Further, in cases where infringement is determined to be willful, the court can award statutory damages of up to \$150,000 per infringement.<sup>18</sup> In instances where the infringer can prove that he “was not aware and had no reason to believe that his or her acts constituted an infringement of copyright, the court in its discretion may reduce the award of statutory damages to a sum of not less than \$200.”<sup>19</sup>

The statute does not define profits. The only instruction it provides regarding computation of profits is this: “[i]n establishing the infringer’s profits, the copyright owner is required to present proof only of the infringer’s gross revenue, and the infringer is required to prove his or her deductible expenses and the elements of profit attributable to factors other than the copyrighted work.”<sup>20</sup>

The availability of statutory damages, over which judges have discretion, assures that the available remedies provide some deterrence and some incentive for litigation even in instances where damages are absent or difficult to establish and profits are absent or very small. Where infringement is willful, greater discretion regarding statutory damages introduces a punitive element.<sup>21</sup> But the availability of statutory damages does not entirely decouple awards from actual damages and infringer’s profits. In important instances, the infringer’s profits will exceed the limits on statutory damages. Furthermore, where infringement has not been found to be willful, courts sometimes will scale statutory damages with reference to actual damages and infringer’s profits.<sup>22</sup>

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16. 17 U.S.C. § 504(b) (2000).

17. 17 U.S.C. § 504(c) (Supp. IV 2004).

18. *Id.*

19. *Id.*

20. *Id.*

21. *Id.* Willfulness has a particular meaning in this context, requiring more than merely conscious copying, but instead that the infringer was aware that the copying was an infringement or acted in reckless disregard of the possibility that it was. *See Fitzgerald Publ’g Co. v. Baylor Publ’g Co.*, 807 F.2d 1110, 1115 (2d Cir. 1986), *cited in* *Hamil Am., Inc. v. GFI*, 193 F.3d 92, 97 (2d Cir. 1999).

22. *See* *Boz Scaggs Music v. KND Corp.*, 491 F. Supp. 908, 914-15 (D. Conn. 1980) (linking statutory damages to information on defendant’s gains from infringement); *cf.* *Yurman Design, Inc. v. Paj, Inc.*, 262 F.3d 101, 113 (2d Cir. 2001) (rejecting the defendant’s claim that the statutory damages found should bear some relationship to profits on the grounds that the infringement was willful).

A related consideration, known as apportionment, is readily distinguishable from the problem of overheads that is the focus of this Article. I mention it here solely to avoid possible confusion. The statute allows the infringer to claim credit for “elements of profit attributable to factors other than the copyrighted work.”<sup>23</sup> Such factors may, of course, include other intellectual property. That is, the defendant can apportion the profit among various contributing elements. The standard example is a music album containing twelve songs, where only one of them infringes. If these other songs were understood to be equally important to the profitability of the entire album, the owner of the infringed copyright would be entitled to only one-twelfth of the profits.<sup>24</sup>

## B. Trademark

The recovery provisions of the Trademark Act of 1946 (Lanham Act) read in part:

[T]he plaintiff . . . shall be entitled . . . to recover (1) defendant’s profits, (2) any damages sustained by the plaintiff, and (3) the costs of the action. The court shall assess such damages and profits or cause the same to be assessed under its direction. In assessing profits the plaintiff shall be required to prove defendant’s sales only; defendant must prove all elements of cost or deduction claimed.<sup>25</sup>

These provisions closely parallel the recovery provisions of the Copyright Act. Under either Act, the plaintiff can recover damages and the defendant’s profits. There are, however, differences. The recovery provisions of the Lanham Act give the court somewhat greater discretion. Under that Act, where the court finds that the recovery based on profits is either inadequate or excessive, it can award any amount that it finds “to be just, according to the circumstances of the case.”<sup>26</sup> The court also has discretion to award up to three times the actual damages. The award arrived at

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23. 17 U.S.C. § 504(b) (2000).

24. For an example of such a consideration, see *ABKCO Music, Inc. v. Harrison’s Music*, 508 F. Supp. 798, 801 (S.D.N.Y. 1981). There were several dimensions to the apportionment. The standard mechanical rights royalty rates would have provided a proportionate allocation of those revenues. However, the court accepted an argument that the infringed song contributed a disproportionately large share to the album’s popularity and allocated revenues accordingly.

25. 15 U.S.C. § 1117(a) (Supp. IV 2004).

26. *Id.*

through these measures “shall constitute compensation and not a penalty.”<sup>27</sup>

Punitive measures are nevertheless available. The Act provides for treble damages “unless the court finds extenuating circumstances” for intentional use of a registered trademark or designation.<sup>28</sup> Like the Copyright Act, the Lanham Act provides for statutory damages. The owner of a registered trademark can elect statutory damages of up to \$100,000 per type of good sold, as the court considers just, or up to \$1,000,000 where the infringement is found to be willful.<sup>29</sup>

### C. Why Profits?

One could make a pretty good case for ignoring this question. After all, the statutes clearly allow the plaintiff to claim the infringer’s profits. With that, the question of what the defendant gained from the infringing act stands on its own. The task left to the economist is to inform the investigation of what the defendant has gained.

Nevertheless, there is an economic question. If there is no foundation for profits as a remedy, we can not expect to gain much from getting profits right. Further, in many areas of the law, damages to the plaintiff, rather than profits of the defendant, are deemed to be the efficient remedy. Specifically, in contract and in many tort claims, including patent infringement, damages suffice. Why should copyright and trademark be different? An interest in economic efficiency favors damages remedies because they prompt efficient precautions against the potential harm. Remedies that are more generous to victims will induce potential tortfeasors to take incremental precautions that have costs that are greater than the expected harm, where expected harm is the damage done multiplied by the probability that the harm occurs. Such precautions are inefficient; they cost more than they are worth.

A difference between copyright and trademark infringement on the one hand and some other torts, including patent infringement, on the other is that copyright and trademark infringement are typically, at least to a degree, deliberate acts. In most cases, copyright infringement requires an act of actual copying—something that is unlikely to occur by accident. Trademark infringement often involves actual copying, and even when it does not, it is readily avoided where trademarks are registered. In both situa-

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27. *Id.*

28. 15 U.S.C. § 1117(b) (Supp. IV 2004). The statute actually refers to the “use of a counterfeit mark,” where a counterfeit mark is defined elsewhere in the statute, as, essentially, a counterfeit of a mark that is registered with the Patent and Trademark Office.

29. 15 U.S.C. § 1117(c) (Supp. IV 2004).

tions, inadvertent infringement is possible, but unlikely. Under these conditions, there need not be much concern for excessive precaution. In such a circumstance, it is efficient to emphasize deterrence as it imposes little cost and avoids the burdens imposed on the legal system to correct such deliberate acts.

But if deterrence offers benefits in excess of the costs it imposes, why stop at profits? Why not have remedies that offer arbitrarily large awards to owners of infringed copyrights and trademarks in order to assure deterrence? A partial answer is that we do. As noted in the sections *supra*, both statutes include punitive measures that provide remedies in excess of defendant's profits under certain circumstances. But extreme penalties in order to deter are not without costs. A potential for extraordinary awards would make life hazardous for people engaged in activities that might inadvertently intrude on others intellectual property. Inadvertent infringement is not impossible. It is just rare.<sup>30</sup>

#### **D. Profits under Full Absorption and Incremental Cost Rules**

As mentioned *supra* in the introduction, court cases and textbook discussions refer to full absorption methods or fully allocated costs, contrasting that with an incremental method or incremental costs.<sup>31</sup> Fully allocated costs of an activity include all of the direct costs of the activity, plus any other variable costs, plus (and this is the key) an appropriate allocation of the fixed costs of the enterprise in which the activity takes place. In contrast, incremental costs of an activity include only the additional costs that arise as a consequence of the activity. These can be called the variable costs, and in important instances, they are the very same cost items that we would normally identify as variable costs in economic analysis. That is, they are cost items that change readily with the level of output.<sup>32</sup>

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30. Inadvertent infringement can happen. For example, inadvertent copying of music from memory does happen and is actionable. *ABKCO Music, Inc. v. Harrisongs Music, Ltd.*, 944 F.2d 971, 975 (2d Cir. 1991). Other inadvertent infringement can result from misunderstanding or disagreement about whether a work was created as a work for hire, or whether a license agreement covers a particular use. *Frank Music Corp. v. Metro-Goldwyn-Mayer, Inc.*, 772 F.2d 505, 511-12 (9th Cir. 1985). An author might create a derivative work with a mistaken understanding that the use is permitted as parody or criticism. *Rogers v. Koons*, 960 F.2d 301, 309-10 (2d Cir. 1992). A person or firm may make copies under the mistaken belief that the copying constitutes fair use. *Princeton Univ. Press v. Mich. Document Servs.*, 99 F.3d 1381, 1385-87 (6th Cir. 1996).

31. *See, e.g., Warner Bros., Inc. v. Gay Toys, Inc.*, 598 F. Supp. 424, 428 (S.D.N.Y. 1984).

32. In some instances, however, the incremental costs properly include expenditures on fixed costs that are incurred if and only if the activity is undertaken. For example, special tools that are used only to make an infringing item might have costs that do not vary

The distinction between full absorption and incremental cost becomes important when a definable activity is less than the whole of an enterprise. If, for example, an enterprise came into being for the sole purpose of selling hotdogs on the Fourth of July and then liquidated its assets on July 5th, fully allocated costs and incremental costs would be identical. Profits, under either definition, would equal all of the revenues from hotdog sales, less all of the expenditures, plus any revenues from liquidation. If this hypothetical holiday hotdog vendor were to have infringed the Snoopy's trademark in its short-lived business, choosing a profits definition would not present a problem. But a difficulty arises if the enterprise sells both infringing hotdogs and noninfringing hamburgers. Certain costs can be directly associated with the hotdogs—the hotdogs and buns themselves, the labor involved with cooking the hotdogs, the labor involved with serving them—but other costs are general costs of the enterprise that are not associated uniquely with either of the two products. An example of such a cost would be the rent on the handcart. The cart is not used up or used in its entirety by either product. Expenditure on the handcart also does not change with the sale of either product.

Each of the definitions of cost has some intuitive appeal as a basis for the remedy for infringement. The incremental profit of selling the hotdogs, as opposed to selling only the hamburgers (and thus keeping everything else the same), is the difference between the hotdog revenues and the costs that arise as a consequence of selling the hotdogs—the extra, or incremental, cost of the hotdogs. It is probably safe to say that this is the concept of the cost of the infringement that comes to mind first for economists. It mimics the marginal revenue-marginal cost comparison that is inherent in so much of what economics teaches.<sup>33</sup> The fixed costs, we would argue, are irrelevant to the choice of the number of hotdogs to sell and further would be irrelevant to the choice of whether to sell hotdogs or not, provided that the hamburger business was already in place.

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with the amount of infringing output, but that nevertheless constitute an additional cost that is a consequence of the infringement. Such costs are properly deductible under either rule. This is consistent with the standard definition of incremental costs. *See, e.g.,* SIDNEY DAVIDSON ET AL., *MANAGERIAL ACCOUNTING: AN INTRODUCTION TO CONCEPTS, METHODS AND USES* 901 (9th ed. 2005), which defines incremental cost as follows: "Incremental costs will be incurred (or saved) if a decision is made to go ahead (or stop) some activity, but not otherwise." On the next page, fully absorbed costs are distinguished from variable costs as follows: "Fully absorbed costs refer to costs where fixed costs have been allocated to units or departments as required by generally accepted accounting principles. Variable costs, in contrast, may be more relevant for making decisions, such as setting prices." *Id.* at 902.

33. For an extensive discussion of this point, *see infra* Section V.C.

Still, many laypersons, accountants, and business people are inclined to account for those other costs. One proffered defense of full cost allocation is that all costs have to be “accounted for somewhere.” Even though business people will often be alert to their margins on variable costs, they also want to have some reading on whether a product line is profitable when “fully burdened.”<sup>34</sup> After all, if each of the products of a multi-product firm shows positive margins on variable costs, but the sum of all those margins is inadequate to cover fixed costs, the firm as a whole will be unprofitable, notwithstanding the consistently encouraging news that we get by computing profits on variable costs one product at a time.

A reasonable approach to profit, therefore, is to look at a product as a portion of an enterprise, allocating the costs that cannot be readily associated with individual products in proportion to the share of the business that each product represents. Although the “in proportion” is not uncontroversial, common allocation methods involve allocating fixed costs to individual products in proportion to their shares of direct costs or total revenues.

Economists typically reject such reasoning about cost where the purpose of the cost calculation is to inform a decision about whether to undertake an additional activity or to determine the optimal level of activity. The economic dictum is that the activity is worth undertaking if the incremental gains are greater than the incremental costs, properly defined. Further, the gain from the undertaking (the profit) is the difference between the two. Economists are correct about this, and everyone else is wrong. This, however, is only true when we confine the issue to the tidy problem in which the choice is simple—this activity or nothing—with all incremental costs and benefits readily understood and quantified.

Both the words of the copyright statute and standard teachings of economics would seem to come down on the side of an incremental approach to calculating profits. The statute speaks of “any profits of the infringer that are attributable to the infringement.”<sup>35</sup> The costs that arise as a consequence of infringement—the incremental costs—are the costs that are “attributable to the infringement.” The logic of efficient deterrence, as explored *supra*, also imposes an incremental definition.<sup>36</sup> The potential infringer will be deterred from infringement if the expected penalty is disgorgement of exactly what he gains from infringement. That gain would be the incremental revenues that he would receive from the infringement,

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34. Fully burdened cost is another synonym for fully allocated cost. Allocated fixed cost is sometimes referred to as allocated burden.

35. 17 U.S.C. § 504(b) (2000).

36. See *supra* Section III.C.

less the incremental costs. A substantial body of economic thought and a substantial portion of instruction in economics make exactly this point.

Unfortunately, however, as is often the case for economic principles, what is very simple and clear in a world of useful but restrictive assumptions becomes complicated when we move to actual practice. For the issue at hand, infringement litigation, the complication arises because of features of real business activities that are difficult or impossible for people outside the business to observe. Much of the burden of the rest of this Article is to establish that while the principle underpinning a correct profits measure is incremental revenues minus incremental costs, economic reasoning offers a compelling argument for using full absorption costs as the basis, or at least the starting point, for determining profits in infringement. At the heart of this argument is proper attention to opportunity cost, the concept of cost that underpins all of economics.

#### IV. CASE LAW AND COMMENTARY

Both case law and commentaries by legal scholars have addressed the use of full absorption and incremental methods of determining profits. This Part shows that both methods have clear precedent in case law, and both are reflected, though perhaps less clearly, in expert commentaries.

##### A. Cases

In case law on intellectual property infringement, there are actually two splits. First, some circuits allow defendants to allocate a share of their overheads to their costs in computing profits, and some circuits do not. Second, among the circuits that do allow defendants to allocate a share of overhead costs, some deny that credit to defendants whose infringement is willful. The concern of this Article is almost entirely with the first of these splits, though the issue of willfulness will be considered briefly *infra*. This second split is noted here to avoid potential confusion.

The leading circuit on the side of the incremental method—allowing only variable costs—is the Seventh Circuit.<sup>37</sup> The leading circuits on the side of full absorption—allowing deduction of fixed and variable overheads—are the Second<sup>38</sup> and Ninth<sup>39</sup> Circuits. This is an older line of cases than those that support the incremental method, originating in the

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37. *Taylor v. Meirick*, 712 F.2d 1112 (7th Cir. 1983).

38. *Sheldon I*, 106 F.2d at 45.

39. *Kamar Int'l, Inc. v. Russ Berrie & Co.*, 752 F.2d 1326 (9th Cir. 1984).

Second Circuit and surviving review by the Supreme Court.<sup>40</sup> Full absorption is also favored in the leading copyright treatise, although more recent commentaries suggest that the weight of scholarship, if not legal precedent, favors an incremental approach.<sup>41</sup>

### 1. Full Absorption

In *Sheldon v. Metro-Goldwyn Pictures*,<sup>42</sup> the Second Circuit Court of Appeals deals directly with the conflict between an incremental rule and a rule that allows an allocation of overheads: “Next is a challenge [by the plaintiff] to any allowance for ‘overhead’ at all, on the theory that the defendants did not show that it had been increased by the production of the infringing picture.”<sup>43</sup> In response to this challenge, Learned Hand writes what is often called the *Sheldon* rule:<sup>44</sup> “[o]verhead’ which does not assist in the production of the infringement should not be credited to the infringer; that which does, should be; it is a question of fact in all cases.”<sup>45</sup>

Hand does not provide his own justification for the rule, but instead relies on *Levin Bros. v. Davis Manufacturing*,<sup>46</sup> an Eighth Circuit patent case, saying only, “The correct rule upon this point is stated in *Levin . . .*”<sup>47</sup> before offering his rule as the substance of *Levin*. The preamble to Hand’s statement of the rule makes it clear that the challenged overheads include fixed costs—that is, those that had not been shown to be “increased by the production of the infringing picture.”<sup>48</sup> Thus the costs that can be deducted under the rule are not limited to variable overhead, but also include the costs of fixed assets, such as fixed facilities that can be said to “assist” in the infringing activity.

Assets that would not “assist” would be, for example, those owned by the infringer but involved in an unrelated line of business. Consequently, the *Sheldon* rule is not a simple full absorption rule because it conditions deductibility on having some relationship to the infringing activity. However, elsewhere Judge Hand cautions that requiring a detailed inquiry into

40. *Sheldon v. Metro-Goldwyn Pictures Corp. (Sheldon II)*, 309 U.S. 390 (1940). See *infra* text accompanying note 42.

41. See *infra* Section IV.B.

42. *Sheldon I*, 106 F.2d at 45.

43. *Id.* at 54.

44. For example, *Warner Bros., Inc. v. Gay Toys, Inc.*, 598 F. Supp. 424 (S.D.N.Y. 1984) refers to the “*Sheldon* rule.” Apparently the “Hand rule” was taken.

45. *Sheldon I*, 106 F.2d at 54.

46. 72 F.2d 163 (8th Cir. 1934). Prior to the 1952 act, the owner of an infringed patent could be awarded defendant’s profits.

47. *Sheldon I*, 106 F.2d at 54 (citation omitted).

48. *Id.*

the involvement of each asset that the firm owns would be an "impossible" endeavor and acknowledges the practical need for allocating cost according to proportionate shares of entire categories of related costs.<sup>49</sup>

*Sheldon* reached the Supreme Court,<sup>50</sup> which concerned itself primarily with the issue of apportionment and affirmed the court of appeals. The Supreme Court did not discuss overheads explicitly but did explicitly affirm the lower court's finding of fact on this issue: "Petitioners [plaintiff] also complain of deductions in the computation of the net profits. These contentions involve questions of fact which have been determined below upon the evidence and we find no ground for disturbing the court's conclusions."<sup>51</sup>

In *Neal v. Thomas Organ Co.*,<sup>52</sup> a district court in the Ninth Circuit allows the defendant to deduct overheads, credited as a portion of infringing sales equal to the ratio of overheads to sales for the firm as a whole. The court's support for this action is along the lines of the "all costs must be accounted for somewhere" argument discussed *supra*.<sup>53</sup> Without citing any authority, the court states, "[i]t is common knowledge that any business has indirect costs and this per cent should apply in the selling and handling of the [infringing goods] by defendant the same as it would apply in the handling of any other items."<sup>54</sup> (In *Neal*, the court uses the term "indirect costs" rather than "overheads.") In essence, the court's argument is that overhead should be deducted (or applied) as a cost in calculating the profits of infringement because it is deducted in profit calculations for other purposes.

In *Kamar International, Inc. v. Russ Berrie & Co.*,<sup>55</sup> a frequently cited Ninth Circuit case, the court of appeals offers the justification for allocating overheads in *Neal*, and then adopts the *Sheldon* rule.<sup>56</sup> The *Kamar* court thus allows a proportionate allocation of overheads but only after

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49. *Id.* at 52. Hand writes:

[T]o make a perfect allocation one would have to examine what part of the time of all the employees whose pay went into the 'overhead' was given to each picture; and so of the other expenses. That was obviously impossible . . . . The master's solution [using the cost of production of each picture] appears to us as nearly right as was practically possible.

*Id.*

50. *Sheldon II*, 309 U.S. at 390.

51. *Id.* at 409.

52. 241 F. Supp. 1020, 1022 (C.D. Cal. 1965).

53. See *supra* text accompanying note 34.

54. *Neal*, 241 F. Supp. at 1022.

55. 752 F.2d 1326 (9th Cir. 1984).

56. *Id.* at 1332.

confronting some of the controversies that are at issue in this Article. That court rejects a lower court position that overheads should be excluded if the infringing sales were only a small percentage of the infringer's total sales:

The real question, as we see it, is whether any of the overhead expenses *were caused* by the production or sale of the infringing goods, not the proportionate amount of sales of the goods in relation to total sales. Because of the varying situations which may arise and the lack of needed flexibility in an arbitrary standard, we decline to adopt a legal rule disallowing all overhead deductions merely because the sales of the infringing goods constitute a small percentage of total sales.<sup>57</sup>

That statement leans toward an incremental rule. The court leans just a bit further, questioning whether overhead costs should be allowed when they are not caused by the infringement, before offering a further justification for the *Sheldon* rule:

On the other hand, such [an incremental] rule might create perverse incentives for a copyright owner to delay enforcing his rights and instead allow a diversified infringer to produce and sell infringing goods. If the copyright owner currently uses his fixed overhead to capacity, he would obtain by lawsuit net profits greater than he could have earned.<sup>58</sup>

In effect, absent allocation of the defendant's overheads, the copyright owner would be using the infringer's capacity rent free. The court's argument is different from but closely related to the argument in favor of a full absorption approach presented in this Article.

The *Kamar* court acknowledges that the Seventh Circuit allows deduction of overheads only if they are increased with the infringing activity and acknowledges that other courts have adopted equivalent rules. It then, however, concludes that the goals of deterrence and compensation "can best be achieved by allowing a deduction for overhead only when the infringer can demonstrate it was of actual assistance in the production, distribution or sale of the infringing product."<sup>59</sup>

*Kamar* was followed shortly in the Ninth Circuit by *Frank Music Corp. v. Metro-Goldwyn-Mayer, Inc.*,<sup>60</sup> which also adopts the *Sheldon*

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57. *Id.* (emphasis added).

58. *Id.*

59. *Id.*

60. 772 F.2d 505 (9th Cir. 1985).

rule. In *Frank*, the issue relating to allocation of overheads was evidentiary. The defendant had allocated overheads to various products by cost categories in proportion to revenues, and the district court had approved this method of allocation. The court of appeals found that the lower court's finding was not clearly erroneous and also acknowledged that the practicalities of accounting dictate that overheads will necessarily be addressed in broad categories rather than as individual items. However, the court ruled that the defendant is obligated to demonstrate, "at least in general terms," that the overhead items being allocated "contributed to the production of the infringing work,"<sup>61</sup> thus reflecting that element of the *Sheldon* rule. *Frank* is cited often for several propositions, one of which is this further articulation of the assignment of the burden of proof.

One additional Second Circuit case of note is *Hamil America v. GFI*,<sup>62</sup> which explicitly rejects a lower court decision that required the defendant to calculate profits using an incremental approach. *Hamil* draws on *Sheldon* in detail, concluding that *Sheldon* "contemplates a two step procedure for deducting overhead expenses from an infringer's profits."<sup>63</sup> The steps identify the expense categories that are actually "implicated" in the infringing production, and then develop a "fair, accurate and practical method" of allocating the associated expenses.<sup>64</sup>

Thus we have the Second and Ninth Circuits, as well as some others,<sup>65</sup> adopting a rule that allocates overhead expenses by category and without regard to whether the expense varies with the level of output. The rule articulated in *Sheldon* is not exactly full absorption, since expenses in categories that did not "assist in the production of the infringement"<sup>66</sup> are excluded from the cost of the infringement. And some courts have wavered in applying *Sheldon* as an approximate full absorption rule,<sup>67</sup> interpreting

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61. *Id.* at 516.

62. 193 F.3d 92 (2d Cir. 1999).

63. *Id.* at 105.

64. *Id.*

65. Including the Sixth Circuit, *Schnadig Corp. v. Gaines Mfg. Co., Inc.*, 620 F.2d 1166 (6th Cir. 1980), and the Eighth Circuit, *Levin Bros. v. Davis Mfg.*, 72 F.2d 163 (8th Cir. 1934).

66. *Sheldon I*, 106 F.2d at 54.

67. In *Banff Ltd. v. Express, Inc.*, 921 F. Supp. 1065 (S.D.N.Y. 1995), a jury accepted the plaintiffs' experts' calculations, which excluded overheads that were not "sensitive" to output. The court did not rule that the jury's finding was contrary to law, ruling "[t]he incremental approach is consistent with the Second Circuit's command that 'overhead' which does not assist in the production of the infringement should not be credited to the infringer; that which does, should be." *Id.* at 1070 (quoting *Sheldon I*, 106 F.2d at 54). Other courts have also been confused by the language in *Sheldon*. See, e.g., *In re*

“assist in the production” to mean that the expense category must vary with output. In economic terms, this is a clear error, and it is inconsistent with the application in *Sheldon* and other cases.<sup>68</sup> A productive asset can assist in production without its cost changing. To take a simple example, if a knitting operation occupies space in a factory building, the building can readily be said to “assist,” yet the rent on the factory is unaffected by the use of the space. The treatment of the factory expense under *Sheldon* and an incremental rule are clearly distinct: *Sheldon* would allocate a portion of the factory expense; an incremental rule, as it is usually stated, would not.

As noted in the introduction to this Part, courts applying either a simple full absorption rule or the *Sheldon* “actual assistance” rule have sometimes conditioned deduction of overheads on findings regarding willfulness.<sup>69</sup> Some courts have held that willful infringement precludes an allocation of overheads.<sup>70</sup> Others have suggested that overheads should receive particularly careful scrutiny where the infringement is willful. For example, in *Sheldon*, the court held that because the infringement was

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Indep. Serv. Orgs. Antitrust Litig., 23 F. Supp. 2d 1242, 1251 (D. Kan. 1998) (decided by a district court in the Tenth Circuit).

68. In *Sheldon I*, Judge Hand addresses overheads broadly, with no attention to whether production of the infringing motion picture had any effect on expenditures. He specifically addresses “supervising staff and organization, which had to be maintained if the business was to go on at all.” *Sheldon I*, 106 F.2d at 54. Further, he specifically addresses, and allows deductions for, “continuities scrapped” and “completed pictures never exhibited,” treating such “breakage” as an inevitable cost of doing business. *Id.* See also *Warner Bros., Inc. v. Gay Toys, Inc.*, 598 F. Supp. 424, 429 (S.D.N.Y. 1984), in which the court rejects plaintiffs’ claim, with discussion and citation, that *Sheldon I* supports the incremental approach.

69. In copyright, willfulness requires more than just conscious copying. For infringement to be willful, the infringer must have known that the copied article was under copyright and that their action was an infringement. Infringers have been found non-willful where they clearly copied but had reason to believe that their copying was covered by a license agreement, *Frank Music Corp. v. Metro-Goldwyn-Mayer, Inc.*, 772 F.2d 505, 515 (9th Cir. 1985), or where they believed that their copying fell under fair use, *Princeton Univ. Press v. Mich. Document Servs.*, 99 F.3d 1381, 1392 (6th Cir. 1996). In trademark infringement, any monetary recovery requires either registration of the infringed mark, 15 U.S.C. § 1117 (2000); a misrepresentation or use of any “word, term, name, or device,” that is likely to cause confusion, 15 U.S.C. § 1125(a) (2000); bad faith, 15 U.S.C. § 1125(d) (2000); or willful dilution, 15 U.S.C. § 1125(c) (2000). In short, any monetary recovery requires some awareness, willfulness, or bad faith.

70. See *Saxon v. Blann*, 968 F.2d. 676, 681 (8th Cir. 1992) (“Overhead may not be deducted from gross revenues to arrive at profits when an infringement was deliberate or willful.”). Other courts have set forth a more nuanced rule, giving the court discretion where infringement is willful. See *Kamar Int’l, Inc. v. Russ Berrie & Co.*, 752 F.2d 1326, 1331 (9th Cir. 1984).

willful, only “bought and paid for” overhead items could be deducted.<sup>71</sup> Still other courts reject any link between willfulness and deductibility. In *ZZ Top v. Chrysler Corp.*, the court stated that nothing in the statute supported a rule disallowing deduction of overhead where infringement is willful.<sup>72</sup> The court notes that because disallowing an overhead deduction would take away more than just profits from the defendant, the defendant would therefore suffer punishment.<sup>73</sup> Noting that there are explicit punitive measures for willful infringement in the copyright statute<sup>74</sup>, the court refused to incorporate an additional punitive element by adjusting the profits measure.

## 2. Incremental Approach

The key opinion in support of an incremental approach is *Taylor v. Meirick*,<sup>75</sup> a copyright case in the Seventh Circuit. In ruling to disallow credit for certain fixed costs, Judge Richard Posner writes, (referring to the defendant):

His ‘gross profits’ were real profits in the only sense relevant to damages calculation—they were his residual income after all costs necessary to generate the income were subtracted. Costs that would be incurred anyway [in the absence of the infringement] should not be subtracted [from revenues to obtain defendant’s profits] because by definition they cannot be avoided by curtailing the profit-making [infringing] activity. This principle is well established in the treatment of overhead costs in calculating damages for breach of contract. See FARNSWORTH, CONTRACTS 854-55 (1982).<sup>76</sup>

Note that Posner does not cite any copyright or trademark case or any other authority in this ruling. Nevertheless, his ruling is a clear statement of the economic reasoning supporting an incremental rule, and it reflects

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71. *Sheldon I*, 106 F.2d at 51. Overheads that would not be “bought and paid for” presumably include assets of the firm’s own creation, like its reputation and know-how. *Id.* These items are typically accounted for as the firm’s “goodwill.” *Id.* Hand’s illustration is “the currency which [the plagiarist’s] reputation may have given to the combined project.” *Id.*

72. *ZZ Top v. Chrysler Corp.*, 70 F. Supp. 2d 1167, 1168 (W.D. Wash. 1999).

73. *Id.*

74. *Id.* (“Where Congress intended to punish willful infringement by authorizing different remedies depending on the infringer’s culpability, it clearly knew how to do so. See 17 U.S.C. § 504(c) (authorizing a five fold increase in statutory damages if defendant’s conduct was willful).”).

75. 712 F.2d 1112 (7th Cir. 1983).

76. *Id.* at 1121.

accepted teaching in economics. Indeed, a fundamental teaching in economics is that the gain from an action is the incremental benefit less the incremental cost. This is always true. The hard part in theory is defining cost and benefit correctly. The hard part in practice is observing them.

In a subsequent Seventh Circuit case, *Roulo v. Russ Berrie & Co.*, the court adopts an incremental rule without comment or citation, specifically adopting a variable-costs-only interpretation: “[The defendant’s witness] improperly deducted certain administrative expenses without demonstrating they were variable costs. Fixed costs are not deducted from the profit calculation.”<sup>77</sup>

Courts within the Tenth Circuit have cited *Taylor* and *Roulo* when adopting an explicit incremental rule.<sup>78</sup> Elsewhere, however, at least one court has explicitly refused to adopt *Taylor*.<sup>79</sup>

## B. Commentaries

Nimmer<sup>80</sup> covers overheads only briefly. He does not distinguish between the *Sheldon* rule, which allows credit for fixed overheads if they contribute to the infringing production, and the *Taylor* rule, which allows credit only for costs that are increased with the infringing activity. He cites the two-step process in *Hamil*, noting that the “defendant has the burden of proving that each item of general expense contributed to the production of the infringing items,”<sup>81</sup> which echoes *Sheldon* (although he cites *Taylor* for this).<sup>82</sup> As *Sheldon* notes, requiring that an input “assist[s] in the production of the infringement” is not the same as requiring that an input constitute a cost that would not be incurred in the absence of the infringement (as in the *Taylor* rule).<sup>83</sup> The first requirement allows allocation of the costs of fixed factors; the second does not. In Nimmer’s discussion, however, the two alternative rules seem to merge. On the other hand, in citing a recent district court ruling in the Second Circuit, Nimmer does report that “[o]ne court favors the full absorption method, which permits the de-

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77. 886 F.2d 931, 941 (7th Cir. 1989).

78. *In re Indep. Serv. Orgs. Antitrust Litig.*, 23 F. Supp. 2d, 1242, 1251 (D. Kan. 1998).

79. *Allen-Myland, Inc. v. IBM Corp.*, 770 F. Supp. 1014, 1025 (E.D. Pa. 1991).

80. MELVILLE B. NIMMER & DAVID NIMMER, *NIMMER ON COPYRIGHT* § 14-03(c) (1977). This is the primary treatise on copyright.

81. *Id.* at § 14-03(c)(3).

82. *Id.* at § 14-03(c)(3) n.152.

83. *Sheldon I*, 106 F.2d 45 at 54; *Taylor v. Meirick*, 712 F.2d 1112, 1121 (7th Cir. 1983).

fendant to deduct all overhead expenses in the same percentage as the sales of the infringing goods bears to its total sales.”<sup>84</sup>

Most commentators do not treat cost issues very thoroughly, but an exception is a paper on monetary relief in trademark by James Koelemay.<sup>85</sup> He observes that there is little in the case literature regarding the methods for computing profits or the basis for choosing one method over another.<sup>86</sup> Koelemay identifies three rules (rather than the two discussed here): a pure incremental rule as in *Taylor*, an assist-in-production rule as in *Sheldon*, and a pure full absorption rule.<sup>87</sup>

Koelemay offers support for an incremental rule, which he calls the “differential cost or marginal cost rule” on the basis that it provides the largest awards to plaintiffs and is “consistent with modern business school management theory, which holds that transactions are profitable if they yield a positive contribution to overhead.”<sup>88</sup> He is correct that management courses, particularly in managerial economics, teach that decisions should be based on a comparison of marginal (or incremental) benefits and marginal costs. The problem is the applicability of this framework to litigation. The thrust of the argument that appears *infra*<sup>89</sup> is that the highly conditioned decisions that are considered in managerial economics textbooks, or for that matter are made in actual business decisions, are quite

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84. NIMMER, *supra* note 80, at § 14-03(c) (citing *New Line Cinema Corp. v. Russ Berrie & Co.*, 161 F. Supp. 2d 293, 303 (S.D.N.Y. 2001)).

85. James M. Koelemay, Jr., *A Practical Guide to Monetary Relief in Trademark Infringement Cases*, 85 TRADEMARK REP. 263 (1995).

86. *Id.* at 287-88.

87. Even adopting Koelemay’s three rules, there are still two types of rule: those that allocate some overheads and those that do not. Moreover, *Sheldon I* and its precursor, *Levin Bros. v. Davis Mfg. Co.*, 72 F.2d 163 (8th Cir. 1934), are cited by most courts that allow any allocation of overhead and are at all explicit about the foundations for that treatment. For example, in *Wolfe v. National Lead Co.*, 272 F.2d 867, 871 (9th Cir. 1959), a case Koelemay cites as a full absorption case, all of the infringer’s production was paint production, some of which was infringing, some not, so there really could be no assisting and non-assisting overhead items. See Koelemay, *supra* note 85, at 289 n.130. The court states no explicit explanation for a full absorption rule, other than a lack of detail in the infringer’s records. *Wolfe*, 272 F.2d at 872. The Ninth Circuit rule appears to be captured in *Frank Music Corp. v. Metro-Goldwyn-Mayer, Inc.*, 772 F.2d 505, 516 (9th Cir. 1985) (citing *Sheldon I*, 106 F.2d at 54), which explicitly states the assist-in-production rule. Koelemay also cites *Schnadig Corp. v. Gaines Mfg. Co., Inc.*, 620 F.2d 1166, 1171-75 (6th Cir. 1980) as applying a full absorption rule. Koelemay, *supra* note 85, at 289 n.130. *Schnadig* allocates only two-thirds of overhead, excluding one third on a basis that echoes the assist-in-production rule. *Schnadig*, 620 F.2d at 1175.

88. Koelemay, *supra* note 85, at 288.

89. See *infra* Section V.C.

different from the consideration of profit that must be undertaken in litigation.

And finally, in a *Practicing Law Institute Handbook* entry, Crittenden and Pak note that “[p]erhaps the most debated issue of deductibility is whether defendants cannot deduct various types of overhead.”<sup>90</sup> Amen.

## V. OPPORTUNITY COST, ACCOUNTING COST, AND CAPACITY

The introduction to this Article promises to show that elementary economic principles are consistent with the rule presented in *Sheldon*. This Part takes up that task. First, I present two basic teachings of economics: actions are properly evaluated by comparing incremental benefits with incremental costs, and all costs are opportunity costs. Next, I show that a full absorption rule provides a defensible proxy for opportunity cost, which is a core claim of this Article. I further elaborate on this claim by showing that the evaluation problem presented in management decision-making is different from the evaluation problem presented in litigation, primarily because the information available is unavoidably different. Finally, I offer some comments on capacity constraints and connect these arguments back to arguments that appear in case law.

### A. Incremental Opportunity Cost

The underlying economic principle articulated in *Taylor* is correct: The profits of infringement are the incremental revenues less the incremental costs. The gain from any action is the incremental benefits of the action less the incremental costs. For most business decision problems, we substitute the firm’s revenues for “benefits.” This is not a completely innocent substitution, however, since a firm might enjoy additional benefits from infringement, such as enhanced reputation or reduced costs. Those benefits clearly are as legitimate a component of profits as revenues, and indeed if they can be demonstrated satisfactorily and quantified on some reasonable basis, they are properly incorporated in an award of profits.

That leaves us with the problem of cost. In economics, the fundamental concept of cost is opportunity cost. The opportunity cost of any action is the value of things forgone as a result of the action. Opportunity cost follows immediately from the basic economic concept of scarcity. There is

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90. John W. Crittenden & Eugene M. Pak, *Monetary Relief Under Lanham Act Section 35*, in *LITIGATING COPYRIGHT, TRADEMARK AND UNFAIR COMPETITION CASES FOR THE EXPERIENCED PRACTITIONER* 393, 412 (1998).

no cost in economics that is not an opportunity cost. If nothing of value is forgone as a result of some action, that action does not have any cost.<sup>91</sup>

Given the economic definition of cost, the correct incremental rule is this: The profits of an action are the incremental revenues and other benefits, less the incremental opportunity costs, where the incremental opportunity costs are constructed to include all of the increases in explicit costs, plus any additional opportunity costs that are not reflected in the changes in explicit costs. These additional opportunity costs are the values of any actions that are forgone as a result of the chosen action and commonly will be the values of activities that would otherwise occur in fixed facilities or be undertaken by an unchanging supervisory staff.<sup>92</sup>

The problem with implementing this incremental rule arises when economists' concept of incremental opportunity cost encounters accountants' actual data. While incremental profit is what we are after, it will not, in general, be computed correctly by counting as costs only those accounting cost items that can be observed to change with the level of output—that is, only those accounting cost items that are changed as a result of an infringement.

Consider some simple examples. Suppose an infringement directly uses labor and materials. Each of these will be fully captured in the accounting records as part of the total expenditures for these categories. Suppose that there are no other explicit variable costs that show in the accounting records. Suppose further that the infringing activity uses a wing in a building that houses a number of unrelated activities. Finally, suppose that the building is leased as a whole for a set period of time with no possibility of subleasing any portion of the building. If the infringer has no expected alternative future use for the wing that is used for the infringing

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91. Some elementary treatments of the economics of decision-making sometimes treat opportunity cost as a distinct category of cost, as in, there's labor cost, materials costs, rent, phone, insurance, and don't forget opportunity cost. This treatment is incorrect. Each of these items is an opportunity cost. The opportunity cost of one hundred dollars spent on labor is one hundred dollars that cannot be spent on something else. Because the cost of labor occurs as an expenditure, we recognize it as a cost directly without explicitly considering the value forgone. The "special" opportunity costs in the statement are merely the cost items that do not appear as explicit expenditures. But these costs are not differentiated; they are all opportunity costs.

92. There is a general problem that the values of forgone opportunities are often difficult to observe for outsiders, and particularly for outsiders after the fact. The value of the forgone activity is unseen. Nevertheless, economizing decision makers will properly consider these costs. In much of what follows, the concern is with identifying an appropriate proxy for opportunity cost in light of our inability to observe opportunity cost directly.

activity, then the explicit labor and materials costs capture the full costs of the infringement. But the assumption that there is “no expected alternative future use” is a severe restriction. While firms occasionally do find themselves with excess capacity, it is an error to make excess capacity a default assumption. To do so abandons the more fundamental assumption that firms maximize profits. Why would a firm acquire and maintain capacity that it does not expect to use? Undoubtedly firms do sometimes find themselves with excess capacity, but in those cases we expect that they will make efforts to develop new outlets for their products, find new products, or sell (rent) off their excess capacity. As is elaborated below, we should not expect that firms accept excess capacity for the long term.

Note further that in this instance, the simplified textbook economic model, though useful for establishing important general principles, is misleading. The standard textbook model of the firm typically specifies one product per firm.<sup>93</sup> Such a model does in fact yield an implication of excess capacity in equilibrium under certain assumed market structures, particularly what is known as monopolistic competition. However, this implication does not survive generalization to multi-product firms, even where such firms have a degree of monopoly power.<sup>94</sup>

As elaborated *supra*,<sup>95</sup> there is no conflict between the incremental cost rule and the full absorption rule for a single-product infringer. The conflict between the rules arises only in the case of a multiproduct firm. For contemporary multiproduct firms, managing a regular turnover of product lines is an essential part of business. It is not reasonable to assume that the norm is for firms to be in a condition of chronic excess capacity that is manageable only by an episode of infringement. Yet ignoring the value of alternative uses of fixed facilities is to make precisely that assumption.

## **B. An Economic Defense of an Accounting Practice**

One might well ask whether the allocated accounting costs of fixed facilities, or unchanging supervisory staff, or any other fixed factor, might

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93. HAROLD DEMSETZ, *ECONOMIC, LEGAL AND POLITICAL DIMENSIONS OF COMPETITION* 9-10 (1982).

94. See Stephen E. Margolis, *Monopolistic Competition and Multiproduct Brand Names*, 62 J. BUS. 199 (1989). That paper shows that when common costs are shared by multiple product lines, the excess capacity implication of the Chamberlin monopolistic competition model does not apply. More simply, where a firm can produce more than one output, if downward-sloping demand limits the firm's output below cost-minimizing levels, it can add either other differentiated goods or generic goods to exploit any unused capacity.

95. See *supra* Section III.D.

capture the opportunity costs of their use in infringing production. The answer, disappointingly but not surprisingly, is "only imperfectly." Although there is an economic basis for expecting that on average the accounting costs of fixed facilities will approximate opportunity costs, the approximation is only that. It should hold on average but need not be close at any particular moment. On the other hand, allocating the accounting costs of these facilities<sup>96</sup> does provide a better approximation of the opportunity costs of their use than we get by assuming they are always equal to zero, which is what occurs when we apply a variable-factors-only approach to calculating incremental cost.

A profit-maximizing firm will employ each productive input at a level such that the value of the marginal product of the input is equal to its price. Use of inputs that are completely variable even in the short run should tend toward this level, even as demand or input prices fluctuate. After all, these variable inputs are variable precisely because they are purchased in the market period after period. For these inputs, then, opportunity cost equals or at least closely approximates their prices at all times.

The inputs that most concern us here are those that are fixed in the short run. For example, some assets, like buildings or certain kinds of specialized equipment, simply cannot be acquired quickly or resold readily without substantial losses. Personnel who are specialized or who must acquire substantial firm-specific skills to perform their jobs may be costly to recruit and train and are therefore not hired or fired in response to short-run fluctuations. People and things may also have to be purchased in significant "lumps." Certain kinds of plants or equipment are efficient only on a large scale. Analogously, people may be ineffective, or at least inefficient, if they are employed for less than full time or less than a long time.

Nevertheless, these fixed factors of production are subject to maximization principles. In times of high demand, they may have marginal products that are greater than their prices; in times of low demand, they may have marginal products that are less than their prices. Yet maximization principles dictate that that on average, such inputs yield products that, at the margin, are worth their cost.

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96. The exact accounting cost of durable facilities is not a simple matter either. Where these facilities are leased, the accounting costs are simple enough, and they will be an appropriate allocation of the periodic lease payment. Such payments are generally fixed, at least for some period of time, and are likely to be recognized as unvarying in litigation. For assets that are owned, the economic user cost of capital is the firm's opportunity cost of capital and depreciation. Accounting practice will recognize the costs of durable fixed facilities (for example, buildings) as depreciation and, in some cases, interest payments on associated debt.

If, in a particular firm, some fixed factor is persistently worth more than it costs, the firm will increase its profits by increasing its use of that factor. Alternatively—and this is what matters for our cost allocation problem—if a fixed factor regularly yields a marginal product that is worth less than the price of the factor, the firm will increase its profits by decreasing its employment of that factor. There are various avenues for adjustment, such as depreciation without replacement, personnel attrition, or sale or rental of properties. The required marginal equalities are not put right instantly or continuously, as might be approximately the case for freely variable inputs. This does not, however, mean that the use of so-called fixed inputs is tethered permanently away from optimal levels.

What this means is that the accountants are on to something. The implication of the foregoing is that the opportunity cost of incremental uses of inputs that are fixed in the short run will be, on average, about equal to their market prices. Because we can rely on persistent profit-maximizing behavior, the accounting costs of these inputs are a defensible proxy for the values forgone by their use. That is to say, their price is a proxy for the expected opportunity cost of their use in production. This is the economic defense for the full absorption rule.

But even if we accept that accounting cost is an appropriate proxy for opportunity cost, we are left with the question of why we would adopt a proxy at all rather than the real thing. There are at least two answers. First, a proportional allocation of fixed overheads avoids the Herculean task of identifying each unit of each input that is used in the infringing activity and the next step of determining the value of the forgone alternative use of that specific input on each specific occasion that it was used. Such a task is difficult enough, but necessary, for the actual decision makers at the time that decisions are made. It will be much more difficult for outsiders making an evaluation well after the fact. Some courts have commented on the use of proportional allocation rules or other approximations, endorsing them as necessary sacrifices of detail in favor of feasibility.<sup>97</sup>

Second, the opportunity cost of using a fixed factor is typically unobservable. Such a cost is the value of the thing forgone. It is not just unmeasured; it is unseen. For the courts to attempt to measure the value of specific forgone activities would move litigants into a world of stark speculation. The full absorption rule relies instead on the expectation that

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97. See *Sheldon I*, 106 F.2d at 54; see also *Kamar Int'l, Inc. v. Russ Berrie & Co.*, 752 F.2d 1326, 1333 (9th Cir. 1984) (citing *Sheldon I*, 106 F.2d at 54); *Hamil Am., Inc. v. GFI*, 193 F.3d 92, 105 (2d Cir. 1999) (“Once a sufficient nexus is shown between a category of overhead and the production or sale of the infringing product, a court need not scrutinize for inclusion or exclusion particular items within the overhead category.”).

a firm's optimizing behavior adjusts the use of fixed inputs so that they are, at the margin, worth their cost. That is to say, economic theory holds that a profit-maximizing firm adjusts the presence of fixed factors so that the opportunity cost of using them (something that we cannot observe) is equal—only approximately and only on average—to the cost of these inputs (which is observable).

### C. Reconciling Full Absorption with Management Theory

As noted *supra*, Koelemay reports that the incremental rule is “consistent with modern business school management theory.”<sup>98</sup> He is right that business schools teach incremental reasoning; it is taught in both managerial economics courses and in accounting as contribution analysis.<sup>99</sup> Further, Koelemay's suggestion that the incremental rule is in line with contemporary thinking is not off target. Explicit endorsement of the incremental rule in case law is a relatively recent phenomenon.

Furthermore, economists are not misguided in teaching students to make decisions by comparing the incremental costs of an action with the incremental benefits. The difference between the two is the gain that is obtained as a consequence of the action being considered. That much is fundamental and correct. But there is a problem with drawing a legal rule from this decision-making principle in economics, namely, that the comparisons that are contemplated in teaching exercises are always highly conditioned—based on assumptions that would be specific to a situation at a particular firm and at a particular time. The basic logic of incrementalism remains correct as we consider a firm's profits from an infringement. But the problem with applying this logic in litigation is that the conditioning assumptions generally do not hold, seldom hold for long, and typically pertain to conditions that cannot be observed by outsiders.

A simple and representative teaching example illustrates the problem:<sup>100</sup>

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98. See *supra* text accompanying note 88.

99. Evidence of incremental thinking can be found in virtually any economics textbook. For a clear exposition of the basic ideas, see STEVEN LANDSBURG, PRICE THEORY AND APPLICATIONS ch. 5 (2004). It is widely taught in managerial economics classes, including my own. My teaching on this is in an expository essay. See generally Stephen E. Margolis, *Cost Concepts for Managerial Decision Making* (2000), <http://www4.ncsu.edu/~margolis/COST%20CONCEPTS.doc>.

100. This problem is a simplification of a question I have used on an examination in an MBA course in managerial economics. Its basic structure is common. See generally EVAN J. DOUGLAS, MANAGERIAL ECONOMICS: ANALYSIS AND STRATEGY 303-06 (4th ed. 1992), but in particular question 7-3.

Newton Electronics sells set-top boxes to cable television operators. Newton has been selling 350,000 boxes a year in transactions that do not involve any long term contracts. They expect that they would continue to sell to their regular customers at this rate. They sell these boxes for \$80. Newton's costs of making 350,000 of these units are as follows.

Fixed Overhead	\$16,100,000
Variable Overhead	1,750,000
Direct Labor	2,800,000
Direct Materials	4,200,000

Variable costs are constant up to capacity, which is 500,000 units.

A potential new customer, Minnowvision, has offered to buy 100,000 boxes at \$55 per box. Should Newton take this offer?

For the current output, the average total cost (that is, the total of all the items shown divided by the current output) is \$71. To get the correct answer, the student is required to consider the incremental costs, not the average cost, and to notice that the fixed overhead is not a variable cost. The average variable cost, equal to the sum of the bottom three cost items divided by 350,000, is only \$25. There is money to be made by selling these boxes at \$55.

When examples like this are presented in class to MBA students, the most sophisticated ones recognize the game we are playing and come quickly to the answer that the question is designed to elicit. But other smart (and perhaps more experienced) students are unsettled by the assumptions implicit in the question. Would these "new" sales displace sales that the firm was already making? Why doesn't the firm try to solicit other business at \$80 or something less before they accept \$55? How does the firm know that their current customers won't want more boxes than they have been buying? Is there any likelihood that some other cable television provider will come along with a better offer? And so on.

These are reasonable questions, and they are the questions that should occur to real managers making real decisions. In fact, when students do not raise these objections to the question as stated, I usually prompt them with something like this: "Suppose you really were the manager facing this decision. What concerns would you have? What possibilities would you actually take into account?" Freed from the artifice of the problem, they come up with all of the appropriate additional concerns. Recognizing the necessarily contrived nature of teaching examples constructed to teach incremental comparison, our teaching examples usually include a statement like this: "Assume that nothing else is affected by this decision."

This is not to say that basic incremental logic is incorrect or inappropriate for management courses. In fact, managers should consider specific situations in detail and compare incremental gains with incremental costs. The manager of our hypothetical electronics plant probably would understand that her average cost is \$71 at the current output. But she would be ill served if that were the only cost number she kept in her head. If her only accounting information were based on the full absorption model—average total cost—she would turn down this business, which in important instances would be a mistake. But a real manager would also consider what options she would be giving up by accepting this business. That is a part of real business decision making, and one that will generally be invisible to the court.

In examples like the one shown *supra*, with their explicit restrictions, incremental reasoning leads to profit maximizing and socially efficient decisions. But for managers to decide correctly, they must engage in hypothetical deductive reasoning: If I make these assumptions about my future opportunities, what is the consequence of a particular action? This reasoning is the discrete echo of what we do when we evaluate a partial derivative, or equivalently, when we consider marginal revenue and marginal cost. These are appropriate intellectual steps for making decisions, but the incremental profit that results is an intellectual construct, the result of particular assumptions that the manager chooses to make. It cannot be observed simply by looking at accounting data.

This argument would seem to deny the possibility of any reasonable measurement of incremental profits. Indeed it is one more argument against expecting an exact measure. But measurement in litigation will have to rely on some appropriate proxy for the opportunity cost of fixed factors, and a defensible approximation is available—allocation of fixed costs. While this proxy cannot perfectly recover the opportunity costs associated with the use of fixed factors in a particular instance, it provides a better approximation than ignoring them altogether.

#### **D. A Brief Comment on Capacity**

The economic argument for the use of full absorption rests on the understanding that where there are fixed factors of production, a commercial activity occurs at a cost of giving up other valuable activities. That understanding raises the issue of capacity.

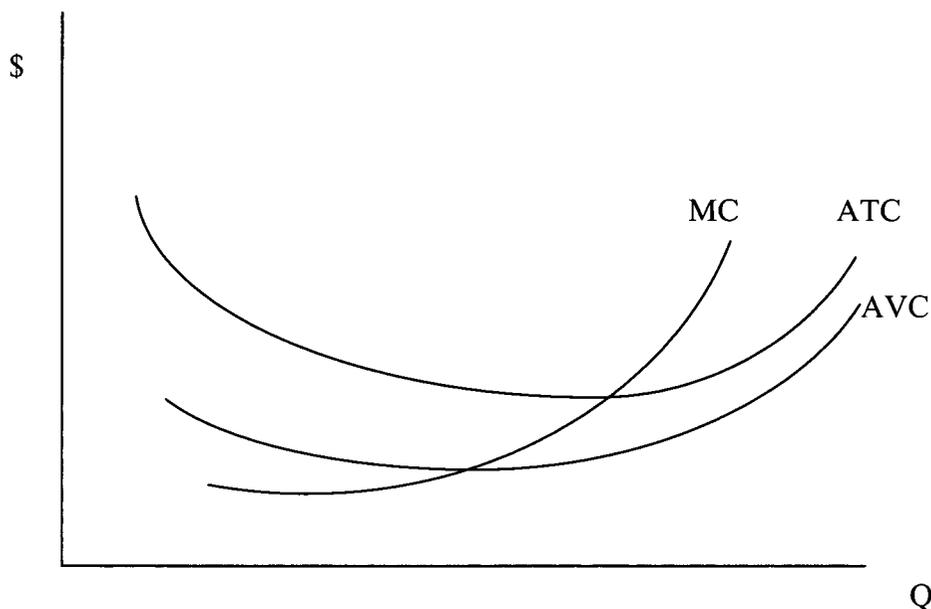


Figure 1: Short Run Cost Curves

Figure 1 is a completely conventional representation of a firm's short-run cost curves, as found in most any microeconomics textbook. In the diagram, the upward-sloping marginal cost curve (MC) illustrates the influence of a fixed factor. At low outputs, additional units of output are available at low cost; that is, marginal cost is small. At some point, however, the capacity constraint begins to bind. Because the fixed factor or factors become "crowded" at sufficiently large levels of output, it becomes more difficult to produce additional units, which is to say that marginal cost rises. At high levels of output, relative to the range shown, the marginal cost curve becomes quite steep, indicating that additional units of output are produced with considerable difficulty as the limitations imposed by fixed factors become severe.

The other two curves are average variable cost (AVC) and average total cost (ATC). These are "dragged around" by marginal cost. As marginal cost becomes high enough, the average cost of the entire output is increased by additional units of output.

One notion of capacity, and the common meaning of the word, is an absolute limit. The capacity of a pickle jar is reached when it is not possible to stuff another pickle into the jar no matter how hard you try. Similarly, we could consider the capacity of a manufacturing facility to be the level of output at which not a single additional unit of output could be produced at any cost. That notion of capacity, however, is not particularly

useful because expansion of output would be called off well before such a limit is reached. As that theoretical absolute limit is approached, the cost of additional output would become prohibitive.

A definition of capacity that economists use in many contexts is the quantity at which average total cost is minimized. Certainly it is possible to obtain more units beyond that point, but output beyond that point increases the average cost of output. This "capacity" of a facility is consistent with the idea of design capacity—the intended level of operation. Economists use the phrase "excess capacity" to describe the situation in which output is below the level of output that minimizes average total cost. For outputs larger than that, we speak of insufficient capacity. In full competitive equilibrium, price is forced down to the minimum possible ATC. Producing units of output beyond the quantity that minimizes ATC is not profitable at that equilibrium price. Thus the market confirms this meaning of capacity.

What all this shows is that while it is generally possible to produce additional output, there are nevertheless limitations imposed by fixed inputs. These limitations are experienced as elevated costs. The potential error here is that we might observe the possibility of squeezing out additional output and erroneously draw the conclusion that the capacity constraint does not bind and that there are no opportunity costs of using fixed facilities. Yes, it will be possible to produce one more unit of output, or perhaps many more units of output, but where the firm is at "capacity," as economists use the term, producing that additional unit will be costly and often unprofitable. In the diagram, notice that at capacity, as defined here, marginal cost is equal to the average of all costs (ATC) and not the average of variable costs. That is, we can calculate the *incremental cost* of output correctly only if we include fixed costs. Conversely, the tempting expedient of computing marginal cost as the average of variable costs is correct only where the firm is operating well below capacity, where again capacity means output at which average cost is minimized, not the absolute theoretical maximum output.

### **E. Case Law: Another Look**

The opportunity cost perspective is not always ignored in case law. The opinion of the Sixth Circuit Court of Appeals in *Schnadig Corp. v. Gaines Manufacturing Co., Inc.*<sup>101</sup> articulates an incremental view with specific consideration of whether fixed facilities had alternative uses. This

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101. See *Schnadig Corp. v. Gaines Mfg. Co., Inc.*, 620 F.2d 1166, 1171-76 (6th Cir. 1980).

design patent case reached the court of appeals on the issue, among other things, of allocating fixed costs in determining the infringer's profits.<sup>102</sup> The parties had agreed to the amount that they considered fixed cost, and the district court had allowed approximately two-thirds of fixed costs to be counted in the profits calculation. The plaintiff objected to any deduction of fixed costs.

The *Schnadig* court, with enviable brevity, sums up the status of this controversy in both law and economics: "Neither case law nor logic provides a clear rule for the proper treatment of fixed expense in computing an award of profits."<sup>103</sup> The court provides admirably clear statements in support of each of the two approaches and then offers this resolution:

The ideal approach to resolving the conflicting considerations present here would be to ascertain whether without the infringement the defendant could have employed the facilities which were devoted to the infringing production in a manner which would have covered the fixed costs at issue. If no alternative use were available, the fixed costs sought to be allocated against the profits from the infringement would have been borne by the defendant's non-infringing production, and a recovery of these costs would in effect reduce the cost of his other production, resulting in a net gain from the infringement.<sup>104</sup>

The court also recognizes the impracticality of implementing this "ideal" approach fully: "[W]e recognize that it will be difficult for the parties to show and the judge to determine what might have been."<sup>105</sup> The parties in the case had not addressed the issue of alternatives, but the court ultimately finds support for the district court's allocation of a substantial portion of the fixed costs in the fact that the defendant generally managed to keep its facilities busy: "[T]he record indicates that Gaines' business was quite successful and growing rapidly during the period in question."<sup>106</sup>

The definition of "profit" in design patent infringement was a matter of first impression in the Sixth Circuit,<sup>107</sup> but the *Schnadig* court did draw

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102. Owners of design patents can be awarded the profits of an infringer. 35 U.S.C. § 289 (2000). In this regard, design patents are like copyright and unlike utility patents.

103. *Schnadig*, 620 F.2d at 1172.

104. *Id.*

105. *Id.*

106. *Id.*

107. *Id.* at 1168.

on *Levin*,<sup>108</sup> a patent case in the Eighth Circuit, noting that prior to 1946 a patentee could recover an infringer's profits. Against the plaintiff's appeal that all overhead be disallowed, the *Levin* court affirms the lower court in allowing an allocation of some overhead costs, those costs that had a direct connection to the manufacture and sale of the infringing goods:

It often happens that overhead expenses are applicable to and should be spread over the entire business but where a business is established and in operation and another line is taken on without an increase in overhead expenses it is just to the patentee that the actual situation be applied and none of such overhead be charged as an expense of the added line except as it participated in manufacture or sale of the infringing article.<sup>109</sup>

After noting with approval that the statute has "gone quite far to take away from [the] infringer every vestige of gain through his wrongful act," the *Levin* court then cautions:

On the other hand, this theory of not allowing overhead where it has not been increased is of narrow application and not to be extended for it is manifest that every item of expense which should properly be included in the manufacture and sale of the infringing article should be so included in ascertaining the real profit thereon.<sup>110</sup>

Thus, *Levin* sets the table for both the "assists in the production" rule in *Sheldon* and the opportunity-cost-based reasoning in *Schnadig*.

By limiting deductibility to those overhead categories that "assist in production," Judge Hand's departure in *Sheldon* from a full absorption rule is a nod in the direction of an incremental opportunity cost rule. Where overhead items have no association with the production of the infringing goods, it is reasonable to think that there is no opportunity forgone with regard to limitations imposed by that fixed input. But that explanation can be pushed too far. Typically, the available accounting data presents cost information for broad aggregates of inputs, and the courts have generally stopped short of an input-by-input inquiry into the production process. Thus the accuracy contributed by the "assist in production" rule is limited by the aggregation imposed by the accounting practices of the infringer.

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108. See *Schnadig*, 620 F.2d at 1172-73 (discussing *Levin Bros. v. Davis Mfg. Co.*, 72 F.2d 163 (8th Cir. 1934)).

109. *Levin*, 72 F.2d at 166.

110. *Id.*

## VI. LAW AND ECONOMICS II: *SHELDON* AS AN INCREMENTAL OPPORTUNITY COST RULE

The claim of the previous Part is that the full absorption rule articulated in *Sheldon*, which calls for allocation of the costs of overheads that are involved in infringing production, is grounded as an incremental rule that uses the accounting costs of fixed inputs as a proxy for the opportunity cost of using those inputs in an infringing activity. Thus, the full absorption rule (or near full absorption rule) more properly reflects the economic logic of an incremental rule than the variable-costs-only incremental alternative. Moreover, this understanding of the *Sheldon* rule is anticipated in *Levin*, its precursor, and further developed in *Schnadig*.

This understanding of *Sheldon* prompts several questions. First, what does this rule actually do? That is, in what sense does it capture the defendant's gain from infringement? Second, if we are to understand the *Sheldon* rule as a satisfactory proxy for profit, how does it fall short of an exact measure, and why should we be satisfied with it? And third, are there further implications for the treatment of overheads that follow from this understanding?

### A. What Does *Sheldon* Do?

A simple answer to this question is that the *Sheldon* rule captures a share of the accounting profits of the firm, in proportion to the share of the infringing activity of the firm's overall activity and adjusted for the advantage conferred by the infringed property. The details behind this simple answer, which are not so simple, follow in this Section.

It is tempting to suppose that a full absorption rule necessarily yields a profit rate (profits/revenues) for the infringing activity that is identical to the profit rate for the business unit as a whole. After all, if all costs are allocated to products in proportion to sales, then costs as a percentage of sales will be uniform across products, and therefore, so will profits. This will not be the case, however, so long as the direct costs of a product can be determined (as is often the case) and the infringed copyright or trademark actually protects something that is valuable.

Where the creative contribution that is protected by copyright actually adds something to the value of the product, the direct costs that are associated with the product will typically be a smaller share of the price of the product than the corresponding share for the firm's generic production. That is, the contribution of intellectual property will be manifest as an increased willingness to pay for the protected item as compared to the firm's unprotected or generic goods of equivalent cost. An additional use of the intellectual property itself does not add to direct costs. Therefore, goods

that embody valuable intellectual property will have margins on variable costs that are greater than the margins on variable costs of unprotected goods. Thus, even when the overhead "loads" are added to cost, protected goods will show greater profit margins.

Taking a very simple example, suppose that in a particular firm overheads are 80% of direct costs. Further, suppose that for unprotected goods that the firm produces, direct costs constitute 50% of revenues, while the equivalent figure for protected goods is 25%. (Equivalently, the price of unprotected goods is twice the direct cost per unit, while the price of protected goods is four times the direct cost per unit.) In such a case, the accounting profit for unprotected goods would be 10%, while the accounting profit for protected goods would be 55%.<sup>111</sup> In this example, the recovery available to the plaintiff under a full absorption rule, absent any specific punitive measures, would be 55% of the revenues from the infringing product.<sup>112</sup>

Notice that in this simple illustration, the apparent contribution of the intellectual property is 45% of revenues, which is the difference between the profitability of generic production (10%) and the protected production (55%). What happens then, even with the full absorption rule, which I have argued is approximately an opportunity cost rule, is that the plaintiff captures both the contribution of the intellectual property and the margin ordinarily offered by the firm's unprotected or generic production.

Is the 55% profit? By one definition, it would certainly be accounting profit—profits under a full absorption rule. Notice, however, that even this measure, which reduces profits in comparison to the incremental method by allowing a deduction for overheads, is greater than the stipulated contribution of the intellectual property, 45%. Is there any foundation, either in law or in economics, for using this measure of profits as the basis for a monetary award?

Further, what is the source of the difference between this profit, as measured under a full absorption rule, and the contribution of the intellec-

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111. Elaborating, for generic production, costs as percent of revenue are 50% (direct costs) plus 40% (overhead), equaling 90% of revenue. By the assumption above, overhead is calculated as 80% of 50%, which is 40%. For protected production, costs as a percent of revenue are 25% (direct costs) plus 20% (overhead), equaling 45% of revenue. By the assumption above, overhead is calculated as 80% of 25%, which is 20%. Accounting profits as a fraction of revenues are thus 10% and 55% for generic and protected production respectively.

112. Under an incremental rule, the defendant's profits would be 75% of revenues; the 55% computed under the full absorption rule, plus the 20% of overhead that would be excluded.

tual property? It is, of course (and becoming almost completely circular), the margin that the firm earns on its generic production. But why do these profits appear in the accounting even after all of the overheads have been “absorbed”?

The answer is that this return—the 10%—is the return to attributes of the firm that are valuable and that are not recognized in the firm’s accounting. These could be common assets that the firm owns—equity in buildings or equipment, for example—that add value to the firm’s output. Even in competition, the returns to these assets are not forced to zero since other firms must also acquire the services of these types of assets. We would not consider the returns to these assets to be economic profits, but they are accounting profits. In full competitive equilibrium, these are the normal returns to investment.

But these accounting profits can also reflect other things about the firm that allow it to earn accounting profits. The firm could own other intellectual property, or enjoy some degree of monopoly power by virtue of unique capabilities that are not readily imitated. The firm might have simply assembled a group of employees that are particularly effective at working together, or have developed ways of doing business that provide cost advantages. These are all attributes of the firm that are advantages in the obvious sense that the firm is better off with them than without them. If it were possible to identify each of these attributes and to account for their contributions to profits as the returns to those assets, we would account for all of the firm’s accounting profits as returns to assets, not as “profits.”<sup>113</sup> It is in this sense that Harold Demsetz, in another context, argues that what we calculate as profits is a result of what we exclude, either by choice, necessity, or omission, from explicit accounting.<sup>114</sup>

This perspective would lead us to interpret profits due to infringement as the contribution of the intellectual property (the 45% in the numerical example *supra*, and not the 55%). Everything else that the plaintiff would

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113. Interestingly, in the standard pedagogy of perfect competition in introductory economics classes, accounting profits are explained as normal returns on investment. Further, if a firm in competition differs from the marginal firm in ways that yield greater accounting profit, the extra profits are explained as returns on the firm’s unique assets, so that the zero-profit result can be maintained. But typically this reasoning is not usually extended to apply outside perfect competition, although it applies just as well. An important exception is Demsetz, see *infra* note 114.

114. HAROLD DEMSETZ, TWO SYSTEMS OF BELIEF ABOUT MONOPOLY IN INDUSTRIAL CONCENTRATION: THE NEW LEARNING 164-84 (1974). Demsetz discusses profits across industries in this paper, arguing that our election to interpret differences in profits as differences in monopoly power is essentially arbitrary.

claim (the additional 10%) is really a return to other assets that the defendant owns.

It could be argued, then, that if we are taking full account of opportunity costs, we should make the additional assumption that in the absence of the infringement, the defendant would undertake some alternative activity in its place that would be of similar scale and just as profitable as his other noninfringing production. That assumption would recognize that there are assets of the firm that are not explicitly accounted for that also have opportunity costs. The defendant would keep the 10%.

But this is not what the law does. Consider again the simple case where an enterprise comes into existence for the sole purpose of infringement, produces as its only output an infringing good, leases all its capital goods, and then goes out of business, so that all costs are incremental to the infringement and no issues of overhead are raised. In that case, an "accounting of the profits" would yield all of the accounting profits to the plaintiff. The entire existence of the firm is the infringement, and the entire proceeds of the firm would likely be awarded to the intellectual property owner. The defendant would not be allowed to retain the earnings that might have been available in some similar but noninfringing entrepreneurial activity. Further, the law distinguishes in places between damages, which are often treated as the reasonable royalty that is unpaid as a result of the infringement, and the profits of infringement. Can the claim that *Sheldon* is an incremental opportunity cost rule be reconciled with the exclusion of some opportunity costs? That question is taken up in the next Section.

### **B. Russ Berrie's<sup>115</sup> Sense of Style: Reconciling *Sheldon* with the Exclusion of Some Opportunity Costs**

Suppose a firm produces a variety of goods, each involving some creative element, and that for most of its production, the firm applies its own creative capability. Perhaps by tradition and experience, the firm can produce goods that reflect a style or feel or tone or sense of humor that the public recognizes and values. Such a capability would be an asset that could earn revenues that are consistently above the sum of all of its accounting costs. Now suppose the firm infringes, copying a good produced

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115. It could have been Willie, and Waylon and Russ. For those who may be unfamiliar with Mr. Berrie, he is something of an intellectual property outlaw, a modern day Robin Hood bringing low priced toys, gift items, and greeting cards to the frugal and less advantaged. Unfortunately, several of Mr. Berrie's well-intended efforts trespassed on others' trademarks and copyrights. See *Roulo v. Russ Berrie & Co.*, 886 F.2d 931 (7th Cir. 1989); *Kamar Int'l, Inc. v. Russ Berrie & Co.*, 752 F.2d 1326 (9th Cir. 1984).

by another firm, or at least appropriating a creative vision developed elsewhere. Is there any basis for assuming that the firm's customary contribution to its products is present in the infringed products? Or in other words, is there any basis for splitting the profits between the contribution of the infringed property and the contribution of the firm's own special attributes? Perhaps the firm brought its usual sense of style, or entrepreneurial insight, or market savvy, to the infringing activity, but perhaps not. Perhaps instead the firm infringed because it was fresh out of ideas, tired and jetlagged from a trip to China.<sup>116</sup> There is no reliable way to separate the two components. The intangible contributions of the firm and the contribution of the intellectual property have been mixed and cannot be reliably separated. Accordingly, measurement problems are one justification for including the intangible contributions of the firm in profits under the *Sheldon* rule. Judge Hand provides another justification in *Sheldon*:

Indeed a constructive trustee, who consciously misappropriates the property of another, is often refused allowance even of his actual expenses (Restatement of Restitution Sec. 158d) and although this harsh rule, which would charge the defendants with the whole gross receipts, has been softened, a plagiarist may not charge for his labor in exploiting what he has taken. A fortiori he should not be allowed for the currency which his reputation may have given to the combined product.<sup>117</sup>

A key phrase here is "A plagiarist may not charge for his labor." The ordinary returns to the unpriced attributes of the firm—the missing 10% in the numerical example—are the normal earnings of the plagiarizing firm. While we do not think of these returns as a charge for the firm's labor, they are the returns to what the firm owns, the returns to the property that the firm constitutes. These are the earnings of the plagiarist, returns to the "property" that has been mixed, by the action of the infringer, with the property of the copyright owner.

Other aspects of the quoted passage are also germane. The infringer becomes a constructive trustee, who has, by mixing his property with that of an unwilling copyright owner, placed his own property at risk. The value of the contribution of the property of the infringer is not explicitly

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116. In *New Line Cinema Corp. v. Russ Berrie & Co.*, 161 F. Supp. 2d 293 (S.D.N.Y. 2001), Mr. Berrie's account of his shopping trips to China are entertaining and quoted at length in the court's opinion. Although his account conveys an atmosphere of some rush and chaos on these trips, there is nothing in the record about being jetlagged or tired.

117. *Sheldon I*, 106 F.2d at 51. This passage is cited frequently. See *Kamar*, 752 F.2d at 1331; *ZZ Top v. Chrysler Corp.*, 70 F. Supp. 2d 1167, 1169 (W.D. Wash. 1999).

accounted for, and is perhaps unmeasurable. Awarding the entire margin to the infringed party—the 55% in the example *supra*—is consistent with the general principle that one who carelessly or deliberately mixes his property with another's will give up the benefit of the doubt when the property is separated. Again in *Sheldon*: “the defendants must be content to accept much of the embarrassment resulting from mingling the plaintiffs' property with their own.”<sup>118</sup>

Just before the passage cited *supra*, Judge Hand writes: “On the other hand, the defendants may not count the effect of their standing and reputation in the industry; perhaps the most important factor of all, after the [movie] stars.”<sup>119</sup> And then, regarding deductible costs, he writes, “It follows that they [the defendants] can be credited only such factors as they bought and paid for; the actors, the scenery, the producers, the directors and the general overhead.”<sup>120</sup> Clearly, the court is distinguishing between the costs that can be accounted for as expenditures—including expenditures on overheads—and those that cannot.

The *Sheldon* rule does award the plaintiff a slice of the defendant's profits; the contribution of the intellectual property and a proportionate share of the overall profit of the firm. In that regard, it does manage to provide, for the multiproduct, multi-period enterprise, a measure of profits that is congruent to the measured profits of a single-product, single-period enterprise that comes into existence to produce the infringing goods and leases any necessary capital goods. There is no reason to think that the former should be treated more harshly than the latter in an infringement action.

### C. Exceptions

This Article does not propose a new rule but rather offers an economic explanation of the *Sheldon* rule—a rule that on the surface might seem to run contrary to economic reasoning. But the opportunity cost justification for allocating overheads does suggest certain exceptions to a full absorption rule. These would include instances in which the infringement replaces the firm's own creative workers, and instances in which excess capacity can be established. Further, the inclination to disallow overhead deductions where the infringement is willful can be shown to be consistent with an opportunity cost justification for allowing deductions of overheads. Interestingly, some of these exceptions will conform to *Sheldon*'s instruction that “‘Overhead’ which does not assist in the production of the

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118. *Sheldon I*, 106 F.2d at 51.

119. *Id.* at 50.

120. *Id.* at 51.

infringement should not be credited to the infringer; that which does should be; it is a question of fact in all cases.”<sup>121</sup>

Some firms that deal primarily in goods that embody intellectual property will have employees and even entire divisions that produce intellectual properties. For example, a firm that produces software products will have employees who develop the software. The wages and support expenses for these employees are likely to appear as research and development expense, which is treated as overhead. Where a software firm copies software that another firm has developed, and consequently avoids using its own development staff, there are no lost opportunities in software development. In this circumstance, it would not be proper to allocate the costs of the software development staff, and the “does not assist” provision of the *Sheldon* rule would appropriately exclude any allocation of the cost of the development staff.

Of course, in real cases, the facts may not be so tidy. The software staff, which customarily designs entire products, might be involved with the infringing production, but only to integrate it with the infringer’s other products. In such a case, the *Sheldon* rule might lead the court to allow a full allocation of the cost of software development, yet the contributions (and hence the opportunity costs) of the software development staff would be disproportionately small. Similar examples can be constructed: an infringing movie production company might employ scriptwriters for its noninfringing movies; an infringing toy manufacturer might employ toy designers to make noninfringing toys; an infringing map publisher might employ cartographers; or an infringing newspaper publisher might employ reporters. In short, the costs of the “creative works department” of a firm that has infringed a creative work should be subject to particular scrutiny.

As noted *supra*, some courts disallow the allocation of overheads where the infringement is found to be willful. But there is nothing inherent in generally accepted accounting principles that would suggest that profits should be defined differently when the principals are behaving badly. Accordingly, it would seem that the practice of many courts of disallowing overheads in the presence of willfulness can only be interpreted as punitive. Given that the profits measure is not supposed to constitute punishment, and that there are explicit punitive measures available to the court, the linking of willfulness and overheads seems to sneak in an extra layer of punishment.

In contrast, the opportunity cost explanation does provide some justification for not allowing willful infringers to deduct overhead. As discussed

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121. *Id.* at 54.

*supra*,<sup>122</sup> willfulness is not merely conscious copying, but copying in the face of clear and credible notification that the copying is infringement. That an infringer would infringe even in the face of clear notice suggests that the returns to the infringement are significantly different from the returns available in the firm's next best alternative. In such a case, willfulness suggests that the firm had no feasible alternative that would make use of its fixed facilities. Or, to view this from the opposite side, a firm that has good alternative opportunities, so that the infringing production does not offer significantly larger returns, would be quick to switch to noninfringing production in the face of clear evidence that their production will lead to legal liability. By this argument, we would expect that a conventional accounting of profits, which would allocate all overheads, might understate the actual advantages of infringement. This provides some justification for excluding overheads, or at least subjecting them to greater scrutiny, where infringement has been decidedly willful.

In *Sheldon*, the court does find willfulness, but nevertheless allows a fairly extensive allocation of overheads. Still, the *Sheldon* court does limit deductions to "only such factors that were bought and paid for" in light of its finding of willfulness.<sup>123</sup>

Finally, the opportunity cost explanation suggests that the issue of capacity is a factual matter. The opportunity cost justification of the *Sheldon* rule imbeds a presumption that use of a firm's facilities has an opportunity cost. This is a rebuttable presumption. If a firm is chronically operating below capacity, the court might properly decline to allocate overheads. If, for example, the infringement is the basis for reopening long-shuttered facilities, the costs associated with those facilities might well be excluded.

## VII. CONCLUSION

In a successful infringement action, the owner of an infringed trademark or copyright is entitled to the defendant's profits. The corresponding statutes do not define profits, but a reasonable interpretation of the language of the law as well as economic reasoning supports the view that profits should be defined and computed to be the gain from infringing.

The gain from infringing is the incremental revenue less the incremental cost. That language has, in some courts, been taken to support a rule that allows deductions only for costs associated with variable inputs. The argument presented here is that such a legal rule is a misconstruction of the economic notion of incremental cost. Infringing production that

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122. See *supra* text accompanying note 69.

123. *Sheldon I*, 106 F.2d at 51.

uses fixed facilities will typically impose costs in the form of lost opportunities for other profitable production. While explicit consideration of the values of those lost opportunities would be highly speculative and ultimately infeasible, profit-seeking behavior will imply that, on average, the marginal values of fixed facilities will be equal to their costs. This creates a presumption in favor of allocating the costs of fixed facilities. This contrasts with an incremental rule that bars all accounting cost items that are not altered by the infringing activity.

Defining the cost of infringement as incremental opportunity cost reconciles a full absorption rule with economists' incrementalism. This reasoning is also anticipated in some of the precedents for a full absorption rule, most notably in *Sheldon* and *Levin*, and most explicitly in *Schnadig*.

The treatment of overheads matters. Overheads are typically a large share of total cost. Disallowing overheads can easily increase calculated profits by an order of magnitude. An incremental rule therefore may routinely result in much larger awards to infringed parties than a full absorption rule. The possibility of larger awards will result in more litigation, more precaution against inadvertent infringement, and greater business risk. Risk-averse fair-users may be deterred by even a very remote possibility that their use would be deemed unfair. Absent a common view on the allocation of overheads, the unsettled nature of the legal rules also increases the uncertainty of outcomes in litigation, discouraging settlement.

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# THE NEVER-WAS-NEUTRAL NET AND WHY INFORMED END USERS CAN END THE NET NEUTRALITY DEBATES

*By Douglas A. Hass<sup>†</sup>*

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† Director of Business Development, ImageStream Internet Solutions, Inc.; J.D. Candidate, 2008, Indiana University School of Law—Bloomington. Thank you to BethAnn Whelchel for inspiring this idea, Mike Ott for his thoughts on my proposed remedy, and the many industry friends who helped jog my memory about ancient internet history. Special thanks to Professors Joshua Fairfield at Washington & Lee, Kevin Collins at Indiana, and Brett Frischmann at Loyola for their invaluable input and suggestions. An early draft of this paper was presented at the 2007 Telecommunications Policy Research Conference (TPRC). All errors and oversights are solely attributable to the author.

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*[M]essages received from any individual, company, or corporation, or from any telegraph lines connecting with this line at either of its termini, shall be impartially transmitted in the order of their reception, excepting that the dispatches of the government shall have priority . . . .<sup>1</sup>*

—*Pacific Telegraph Act of 1860*

## I. INTRODUCTION

As each generation of the telecommunications market has reached critical mass, regulators have joined the debate and taken special note of network neutrality concerns. The internet service market has proven no different. Internet service providers and their customers have debated the concepts of net neutrality, tiered access, and limited “unlimited” services since the beginning of the era of dial-up bulletin board systems. However, the legal and regulatory communities joined this generation’s debate in earnest only after the Supreme Court’s decision in *National Cable & Telecommunications Ass’n v. Brand X Internet Services*<sup>2</sup> empowered the Federal Communications Commission (FCC) to create regulatory structures to

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1. Pacific Telegraph Act of 1860 § 3, 12 Stat. 41, 42. In other words: network neutrality (except when we decree otherwise). This Act represents quite possibly the first attempt to tamper with a telecommunications market under the rubric of neutrality.

2. 545 U.S. 967 (2005).

govern telephony, broadband internet services, and cable television as necessary.

Proponents of net neutrality regulation generally argue that internet access providers threaten the innovative, largely regulation-free internet, and that government action is necessary to prevent the destruction of the global network's benefits. Opponents tend to argue that regulations would ruin innovation, fail in practice, or be doomed in principle. While commentators have alternately argued for or against the nebulous "net neutrality" concept, the vast majority have done so from theoretical perspectives rather than technical ones. As a result, the debates have discussed nonexistent "end-to-end" network models,<sup>3</sup> discussed purely theoretical monopoly-controlled networks,<sup>4</sup> or made economic arguments about whether non-neutrality or government intervention causes the most "harm" to internet consumers.<sup>5</sup>

Relatively few treatments come from technical perspectives that explain the history of non-neutrality on the internet or the enduring power of end users and technological innovation. This Article does not attempt to answer every question or address every point in the net neutrality debate. Such an ambitious undertaking would require a series of books, not a journal article. Instead, this Article refocuses the net neutrality debate on end users rather than networks. By analyzing internet history, testing monopolist theories against real-world internet markets, and exploring important economic arguments, this Article attempts to illuminate the value of a uniform disclosure solution that protects network and content provider innovation yet leaves significant power in the hands of consumers.

Commentators on both sides of the net neutrality debate simultaneously raise valid points while misapplying or misconstruing other, more critical ones. On the side of ex post regulation, Professor Christopher Yoo's recent economic analysis<sup>6</sup> provides an excellent foundation for this Article. While this Article agrees with Professor Yoo's analysis that net neutrality requirements are increasingly irrelevant in a competitive, dy-

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3. See Lawrence Lessig, *The Architecture of Innovation*, 51 DUKE L.J. 1783, 1789 (2002) ("First articulated by network architects Jerome Saltzer, David Reed, and David Clark, [end-to-end] says to build the network so that intelligence rests in the ends . . . . The fundamental feature of this network design was neutrality among packets.")

4. See Barbara van Schewick, *Towards an Economic Framework for Network Neutrality Regulation*, 5 J. ON TELECOMM. & HIGH TECH. L. 329 (2007).

5. See Christopher S. Yoo, *Network Neutrality and the Economics of Congestion*, 94 GEO. L.J. 1847 (2006). Nearly all of these treatments take a uniformly U.S.-centric view of internet networks, an enforcement problem that is outside the scope of this discussion.

6. *Id.*

dynamic last mile provider market,<sup>7</sup> it also probes some of Yoo's misconceptions that lead him to a solution that differs only slightly from those on the side of proactive net neutrality regulation. On the side of preemptory regulation, Dr. Barbara van Schewick uses theoretical economic analysis that—by her own admission—does not reflect past or current internet access markets to justify regulatory intervention.<sup>8</sup> This Article will discuss why vertical foreclosure theory has failed in fact online, and introduce potential alternative explanations.

Legislators and administrative agencies have no way to predict future technologies or their impacts. Net neutrality legislation as envisioned by Professor Lawrence Lessig, Professor Tim Wu, Dr. van Schewick, and others ignores the history of consumer power, which suggests that it will continue to foster innovation and prevent access provider harms. Further, asking Congress or the FCC to regulate network architecture practices to prevent any “specific harm[s] to competition,”<sup>9</sup> as Professor Yoo advocates, or even enforcing antitrust law principles, as others have suggested,<sup>10</sup> may prove similarly futile. Regulatory approaches that aim to stifle particular practices or network architectures often make little technical sense and are unacceptably subject to political whims. Instead of adopting specific neutrality regulations—whether narrowly tailored to last mile networks or broadly viewed from the perspective of overall consumer welfare—this Article advocates a uniform disclosure regime. Categorized, detailed disclosures would enable the market to choose technologies and business models dynamically, yet still provide regulators with a potential enforcement mechanism.

This Article proceeds in eight parts. Part II provides a brief overview of the current net neutrality debate. It highlights both the muddled definition of the term and the positions of the three specific commentators whose positions this Article discusses. Part III describes historical and technological non-neutrality on the internet, and the history of past neutrality and tiered access debates. Part IV describes the evolution of advanced non-neutral service differentiation tools used to operate last mile

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7. *Id.* at 1854.

8. van Schewick, *supra* note 4, at 345 (under the heading “Application to the Internet,” discussing “the hypothetical [monopolist-controlled] network that is the focus of this analysis” rather than the internet); *see also infra* note 181 (detailing van Schewick’s use of theoretical markets, rather than internet markets, to test monopolist theories).

9. Yoo, *supra* note 5, at 1855.

10. *See, e.g.,* Alfred E. Kahn, *Telecommunications: The Transition from Regulation to Antitrust*, 5 J. ON TELECOMM. & HIGH TECH. L. 159 (2006) (advocating deregulation and antitrust oversight of the internet service provider market).

and backbone networks, as well as the non-neutrality of current content providers. Part V discusses the modern internet market's responses to access provider behavior and the failure of vertical foreclosure theory as a regulatory justification. Part VI discusses how commentators often overestimate congestion and transaction costs, leading to solutions premised on theoretical markets rather than the real-world internet. Part VII details both the impact of consumers on internet access and content markets and the inherent enforcement difficulties in preemptive or ex post neutrality regulation. This Part illustrates why consumer-focused, consumer-led policies provide an effective third option for regulators. Part VIII outlines a uniform disclosure approach that encourages—rather than discourages—innovation, and helps to protect consumers by mitigating the problem of imperfect information that sits at the core of net neutrality proponents' concerns.

## II. THE HISTORY OF NETWORK NEUTRALITY AND RELATED DEBATES

The broad concept of net neutrality covers a range of issues over a longer period than most commentators recognize.<sup>11</sup> While the FCC may have only joined the debate in recent years,<sup>12</sup> the internet community, its standards bodies, and market participants have discussed and debated these issues for over two decades. Decisions made before regulators took notice affect today's debate in many ways. Standards bodies built non-neutrality into networking protocols long before the commercialization of the internet. Discussions about acceptable use, user restrictions, tiered access plans, and pay-by-usage are at least as old as the pre-internet bulletin board systems that flourished during the 1980s and early 1990s.<sup>13</sup> By the

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11. Professor Yoo, for example, traces the beginnings of serious debate over net neutrality to February 2002, when the FCC first issued a ruling about the classification of DSL services. Yoo, *supra* note 5, at 1855-56. See also, e.g., Tim Wu, Network Neutrality FAQ, [http://www.timwu.org/network\\_neutrality.html](http://www.timwu.org/network_neutrality.html) ("The Net Neutrality debate grew out of the concerns in the late 1990s about possible threats to the end-to-end nature of the internet."). The debates over net neutrality started in earnest long before that, as this Part explains.

12. See *Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities*, 17 F.C.C.R. 4798 (2002), *aff'd sub nom.* Nat'l Cable & Telecomms. Ass'n v. Brand X Internet Servs., 545 U.S. 967 (2005).

13. E.g., Posting of Matt Hucke, [hucke@ux1.cso.uiuc.edu](mailto:hucke@ux1.cso.uiuc.edu), to alt.bbs (Sept. 4, 1992, 19:40:11 GMT), available at [http://groups.google.com/group/alt.bbs/browse\\_thread/thread/aaf8a0aabeb73093/ec6c2c8f42b391f0](http://groups.google.com/group/alt.bbs/browse_thread/thread/aaf8a0aabeb73093/ec6c2c8f42b391f0) (advising new BBS owners on when and how to place restrictions on users); see also Posting of Mark Neeley, [mneeley@nyx.cs.du.edu](mailto:mneeley@nyx.cs.du.edu), to alt.flame (Nov. 13, 1992 14:56:27 GMT), available at <http://groups.google.com>.

mid-1990s, the burgeoning internet service provider industry had largely replaced the offline BBS as the focal point of neutrality and content filtering debates. As this Article explains, the internet community's successful—and regulation-free—resolution of these difficult neutrality issues not only requires reframing today's discussions about network neutrality, but also provides important lessons for legislators and regulators considering new regulatory regimes.

#### A. Net Neutrality: “Defined!” or “Defined?”

In the internet and telecommunications industries, even casual observers of policy debates will recognize the term “net neutrality.” The literal definition appears in Section 202 of the Communications Act of 1934.<sup>14</sup> Providers of traditional telecommunications services in the United States may not “make any unjust or unreasonable discrimination in charges, practices, classifications, regulations, facilities, or services . . . or . . . make or give any undue or unreasonable preference to any particular person, class of persons, or locality . . . .”<sup>15</sup> As with any issue of statutory interpretation, what constitutes “unjust” or “unreasonable” discrimination is the subject of considerable debate.

On one end of the definitional spectrum, Google considers net neutrality as “the principle that Internet users should be in control of what content they view and what applications they use on the Internet.”<sup>16</sup> On the other end, representatives of telecommunications companies and others support non-neutrality as a way of realizing profits and providing better services to consumers.<sup>17</sup> Landing somewhere in the middle, World Wide Web inventor Tim Berners-Lee agrees, but only in part: “If I pay to connect to the Net with a certain quality of service, and you pay to connect with that or greater quality of service, then we can communicate at that [minimum] level.”<sup>18</sup> While Berners-Lee believes that net neutrality historically ex-

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com/group/alt.flame/browse\_thread/thread/5bf4339af24ab034/5ebe660cd43746e4 (discussing the history of the Denver-based Nyx BBS); Postings of W.D. Rolph, a722756@pan.mc.ti.com, to alt.bbs.internet (Jan. 15-16, 1992), available at [http://groups.google.com/group/alt.bbs.internet/browse\\_thread/thread/c6d22b669f9614/03d27f45094048e9](http://groups.google.com/group/alt.bbs.internet/browse_thread/thread/c6d22b669f9614/03d27f45094048e9) (a Usenet newsgroup thread discussing commercial restrictions on the NSFnet versus the lack of restriction on The World, a popular BBS at the time).

14. 42 U.S.C. § 202 (2000).

15. *Id.* § 202(a).

16. Google, Net Neutrality, <http://www.google.com/help/netneutrality.html> (last visited Oct. 14, 2007).

17. See *infra* note 21.

18. Posting of Tim Berners-Lee to Decentralized Information Group (DIG) Breadcrumbs, <http://dig.csail.mit.edu/breadcrumbs/node/144> (June 21, 2006, 16:35 EST).

isted, he also explains, “Net Neutrality is NOT saying that one shouldn’t pay more money for high quality of service. We always have, and we always will.”<sup>19</sup>

Agency employees, company executives, and legislators take positions that land at various points along the spectrum. The FCC’s former chief technologist, David Farber, recently explained his opposition to neutrality, dismissing recent debate as attempting to combine multiple initiatives “under the banner of ‘network neutrality.’”<sup>20</sup> Verizon Communications’ Senior Vice President and Deputy General Counsel, John Thorne, told a recent conference discussing the 1996 Telecommunications Act that neutrality initiatives were simply utopianism, a way for content providers like Google to extend their “free lunch.”<sup>21</sup> Hinting at pending net neutrality legislation, Thorne argued access providers could only “attract the truly huge amounts of capital needed to build out [Internet] networks [by striking] down governmental entry barriers and allow[ing] providers to realize profits.”<sup>22</sup> Senator Jim DeMint (R-S.C.) boiled down the definition of net neutrality “to the government telling network owners that they can’t provide higher speed or more capacity for Internet sites or services that have different needs to serve their consumers.”<sup>23</sup>

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19. *Id.*

20. David Farber & Michael Katz, *Hold Off On Net Neutrality*, WASH. POST., Jan. 19, 2007, at A19.

21. Arshad Mohammed, *Verizon Executive Calls for End to Google’s Free Lunch*, WASH. POST., Feb. 7, 2006, at D01.

22. *Id.*

23. Jim DeMint, *Perspective: Why Net Neutrality Means More Federal Regulation*, CNET NEWS.COM, Jun. 27, 2006, [http://www.news.com/Why-Net-neutrality-means-more-federal-regulation/2010-1028\\_3-6088253.html](http://www.news.com/Why-Net-neutrality-means-more-federal-regulation/2010-1028_3-6088253.html). In the same article, DeMint captured the essence of the net neutrality definitional debate:

This term has become a nebulous catchall for a number of competing public policy issues. To illustrate the current level of confusion: Neither the House Energy and Commerce Committee nor the Senate Commerce Committee could arrive at a conclusion of what Net neutrality really means. Senator Ted Stevens, R-Ark., rightly expressed his frustration that defining it was like “defining a vacuum.” *Id.*

## B. Commentator Positions on Net Neutrality<sup>24</sup>

In recent years, legal commentators have debated the precise definition of net neutrality and the existence and danger of monopolistic actors in internet-related markets. Like others, net neutrality proponents have had considerable difficulty defining the concept or its enforcement. Proponents of net neutrality generally fear that monopolistic internet access providers will monopolize the “last mile” connections to end users, limiting their access to content.<sup>25</sup> Others worry that successful monopolists will also favor their own vertical services by excluding or disfavoring other content providers.<sup>26</sup> Net neutrality is their answer to these threats.

Professor Lawrence Lessig, whose work has tended to focus on the first fear, argues for regulation of a purported monopoly/duopoly in broadband internet access.<sup>27</sup> However, his position on what net neutrality entails and how to regulate it has shifted considerably. Originally concerned about proprietary technology on internet networks, Lessig has moderated his position somewhat in recent years.<sup>28</sup> Under this softer stance, if access providers respected what Lessig called “Internet values,” they could “add whatever technology they like[d] to the basic suite of Internet protocols.”<sup>29</sup> Lessig testified before Congress arguing against “access tiering” by broadband providers<sup>30</sup> while advocating a policy that would allow those providers to offer “consumer-tiered” services, such as bandwidth guarantees. Under this proposal, Lessig recommended that Congress add regulations that would “require network providers to pro-

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24. This subsection briefly synthesizes the major positions of commentators whose work this Article addresses. The summaries herein contain citations to key articles and public statements by each commentator. Readers unfamiliar with each commentator’s positions should refer to the cited material for additional background, rather than relying solely on the summaries here. Subsequent sections will address specific points by each commentator in detail.

25. See *infra* note 27.

26. See generally van Schewick, *supra* note 4.

27. See generally *Net Neutrality: Hearing Before the S. Comm. on Commerce, Science & Transportation*, 109th Cong. 2 (2006) (testimony of Prof. Lawrence Lessig) [hereinafter Lessig Testimony], available at <http://commerce.senate.gov/pdf/lessig-020706.pdf>; Lessig, *supra* note 3; Lawrence Lessig & Mark Lemley, *The End of End-to-End: Preserving the Architecture of the Internet in the Broadband Era*, 48 U.C.L.A. L. REV. 925 (2001).

28. See Lawrence Lessig, *Coase’s First Question*, 27 REGULATION 38, 39 (2004).

29. *Id.*

30. Lessig Testimony, *supra* note 27, at 2-7. See also *infra* note 66 and Section III.B for further discussion of tiered internet access services.

vide [an FCC-defined] ‘basic Internet service’ to all broadband customers.”<sup>31</sup>

Lessig has suggested that “net neutrality” would not constitute “a massive programme of regulation,” but would instead be “a very thin rule for broadband providers that forbids business models that favour scarcity over abundance.”<sup>32</sup> Taking a view of historical *neutrality* on the internet, Lessig now sees “profound implications for the future of growth and innovation” in the practices of cable and DSL providers.<sup>33</sup> With “DSL and cable . . . free of any real obligation to protect the original neutrality of the Internet,”<sup>34</sup> and “[n]o more competition”<sup>35</sup> in broadband, Lessig sees regulation of a cable/DSL monopoly to prevent discrimination as the only way to “protect the promise of the Internet”<sup>36</sup> and ensure continued application competition and innovation.<sup>37</sup>

Dr. van Schewick defines net neutrality as regulations that “forbid network operators to discriminate against third-party applications, content, or portals (‘independent applications’) and to exclude them from their network.”<sup>38</sup> Her focus turns to economic justifications for regulation and the second fear of vertical foreclosure. She fears that without a net neutrality mandate, access providers will likely discriminate against content.<sup>39</sup> Her economic analysis attempts to complement the arguments advanced by commentators like Professor Lessig.

Unlike Lessig, van Schewick does not attempt to address the entire range of topics in the net neutrality debate. She notes that her definition of “net neutrality” is narrower than that of other commentators, encompassing only “markets for applications, content, and portals,” rather than “interconnection, nondiscrimination, rate regulation and the adoption of standardized protocol interfaces such as TCP/IP.”<sup>40</sup> She recognizes that her

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31. Lessig Testimony, *supra* note 27, at 5.

32. Lawrence Lessig, *Congress Must Keep Broadband Competition Alive*, FINANCIAL TIMES (LONDON), Oct. 19, 2006, at 17.

33. Lessig & Lemley, *supra* note 27, at 925.

34. Lessig 2.0, [http://lessig.org/blog/2006/10/21st\\_century\\_reaganomics\\_helpi.html](http://lessig.org/blog/2006/10/21st_century_reaganomics_helpi.html) (Oct. 23, 2006, 0:44 PST).

35. Lessig 2.0, [http://lessig.org/blog/2007/10/things\\_i\\_didnt\\_have\\_time\\_to\\_do\\_1.html](http://lessig.org/blog/2007/10/things_i_didnt_have_time_to_do_1.html) (Oct. 3, 2007, 18:00 PST).

36. Lessig 2.0, [http://lessig.org/blog/2007/08/jamming\\_the\\_pearl.html](http://lessig.org/blog/2007/08/jamming_the_pearl.html) (Aug. 10, 2007, 10:50 PST).

37. See generally Lessig Testimony, *supra* note 27.

38. van Schewick, *supra* note 4, at 333.

39. *E.g.*, *id.* at 329.

40. *Id.* at 333-34.

analysis leaves many open questions in the debate, but acknowledges different goals.<sup>41</sup>

Van Schewick attempts to show why the “one monopoly rent” argument against discrimination might fail in the context of broadband internet services.<sup>42</sup> If internet access providers could extract additional monopoly rents in secondary markets, the traditionally absent incentive to discriminate against services in secondary markets would appear.<sup>43</sup> By applying economic theory to the broadband access market, she hopes to provide policymakers with a “framework within which calls for network neutrality regulation can be analyzed.”<sup>44</sup>

On the opposite side of the debate, Professor Christopher Yoo has argued against net neutrality regulation in favor of his concept of network diversity.<sup>45</sup> Like van Schewick, Yoo relies primarily on a sophisticated economic analysis.<sup>46</sup> His opposition to net neutrality draws from economic theory involving congestion, club goods, public goods, and other economic subdisciplines. Yoo focuses on the negative externalities of congestion generated by users. By looking at broader network considerations than end-user access policy, he finds that “the key regulatory question is whether the restrictions criticized by network neutrality proponents are so pernicious and unjustifiable that experimentation should not be permitted.”<sup>47</sup> By focusing on congestion<sup>48</sup> and the transaction costs<sup>49</sup> associated with metering usage, Yoo concludes “that deviations from network neutrality might well enhance economic welfare” rather than reduce it as Lesig, van Schewick, and other net neutrality proponents surmise. Yoo also quibbles with the definition of net neutrality, finding the current debate framed too narrowly.<sup>50</sup>

As the vast range of definitions and scopes of debate suggest, net neutrality is less a definable term than one view of how things ought to be on

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41. *E.g.*, *id.* at 333 n.9, 390.

42. *E.g.*, *id.* at 378-82.

43. *Id.* at 340-68.

44. *Id.* at 390.

45. *See generally* Yoo, *supra* note 5; Christopher S. Yoo, *Beyond Network Neutrality*, 19 HARV. J.L. & TECH. 1 (2005); Christopher S. Yoo, *Would Mandating Network Neutrality Help or Hurt Broadband Competition?: A Comment on the End-to-End Debate*, 3 J. ON TELECOMM. & HIGH TECH. L. 23 (2004).

46. *See generally* sources cited *supra* note 45.

47. Yoo, *supra* note 5, at 1852.

48. *Id.* (“The key to understanding why [non-neutrality might enhance economic welfare] is recognizing the fact that the Internet is subject to congestion.”).

49. *Id.* at 1864-65.

50. *Id.* at 1851.

the internet—though not necessarily how they are or ever were. Historical and technical confusion have confounded the net neutrality debate, rendered the analyses of commentators such as Lessig, van Schewick, and Yoo suspect, and have obscured an important consumer-focused solution. To understand why disclosure—rather than draconian regulation, ex post enforcement, or entirely laissez-faire approaches—represents the most sensible step, this Article explores the balance between fair outcomes for consumers and protection of technical innovation in the internet access and content markets. An understanding of history helps cut through the confusion of high economic theory.

### III. HISTORICAL NON-NEUTRALITY ON THE INTERNET

The fight to keep the internet unregulated began in earnest in the mid-1990s as the nascent commercial internet took hold. In 1996, John Perry Barlow published his “Declaration of the Independence of Cyberspace.”<sup>51</sup> Barlow argued that the internet was an empty space that should be free of government regulation. Barlow’s declaration was one of the first to extend Saltzer, Reed, and Clark’s mid-1980s arguments for “dumb” communications networks to regulatory neutrality on the internet.<sup>52</sup> Barlow directed his comments at government regulation, but also described his ideal internet as a neutral commune that hoped to create solutions by the Golden Rule and eschew prejudice caused by, among other sources, “economic power.”<sup>53</sup> Saltzer, Reed, and Clark reasoned that networks’ primary function was to pass raw data from source to destination without inquiring as to that data’s actual content.<sup>54</sup> In a “dumb” network, only the servers and workstations at the edges (ends) of the network perform intelligent functions.

Unfortunately, a free, deregulated internet and a dumb internet backbone network did not exist even in 1984 when Saltzer, Reed, and Clark weighed the concepts. The debates about Department of Commerce con-

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51. JOHN PERRY BARLOW, A DECLARATION OF THE INDEPENDENCE OF CYBERSPACE, <http://homes.eff.org/~barlow/Declaration-Final.html> (1996) (“[Y]ou weary giants of flesh and steel . . . you have no sovereignty where we gather.”).

52. *Id.* (describing the internet as “a world that all may enter without privilege or prejudice”).

53. *Id.*

54. Jerome H. Saltzer et al., *End-to-End Arguments in System Design*, 2 ACM TRANSACTIONS IN COMPUTER SYS. 277 (1984), available at [http://portal.acm.org/ft\\_gateway.cfm?id=357402&type=pdf](http://portal.acm.org/ft_gateway.cfm?id=357402&type=pdf). See also Lessig, *supra* note 3 (summarizing the end-to-end theory).

trol and influence first over InterNIC<sup>55</sup> and later ICANN,<sup>56</sup> FCC debates about common carrier requirements for DSL services, and network neutrality itself illustrate that the internet has faced the same regulatory pressures as any other telecommunications service.

Although commentators have invoked Saltzer's paper to argue that the internet is neutral,<sup>57</sup> the specification for the internet's communications protocol, TCP/IP, was never dumb or neutral. IP packets, the data "envelopes" that carry pieces of actual content, reserve space in those "envelopes" that helps to identify how network devices should process those packets.<sup>58</sup> Prepared for a Defense Advanced Research Project Agency (DARPA) project, the original TCP/IP standards "treat[ed] high precedence traffic as more important than other traffic" and defined informational flags for prioritization of packets traveling on TCP/IP networks.<sup>59</sup> The standards document outlined the process for automatically enforcing one of several separately defined policies including minimizing delays in

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55. See, e.g., *Internet Domain Names, Part I: Hearing Before the Subcomm. on Basic Research of the H. Comm. on Science*, 105th Cong. (1997) (considering domain name system reform). InterNIC, the Internet Network Information Center, was the private organization primarily responsible for domain name and IP address allocations until September 18, 1998 when this role was assumed by ICANN (Internet Corporation for Assigned Names and Numbers). ICANN is a non-profit corporation created on September 18, 1998 to oversee domain name assignments and IP addressing, among other tasks delegated to it, under an agreement with the Department of Commerce.

56. See, e.g., *Internet Domain Names and Intellectual Property Rights Hearing Before the Subcomm. on Courts and Intellectual Property of the H. Comm. on the Judiciary*, 106th Cong. 50 (1999) (testimony of Andrew J. Pincus, General Counsel, Department of Commerce) (stating that the Department of Commerce's goal for cession of power to ICANN was to create a private body that "would operate according to the policy principles that the United States Government felt were important."); Joe Wilcox, House Subcommittee Gives NSI a Grilling, CNET NEWS.COM, Jul. 22, 1999, [http://news.com.com/House+subcommittee+gives+NSI+a+grilling/2100-1023\\_3-228906.html](http://news.com.com/House+subcommittee+gives+NSI+a+grilling/2100-1023_3-228906.html).

57. Neutrality proponents often recite this false "dumb network" or "historical neutrality" maxim. For example, Professor Tim Wu claimed that "[t]he existing design of the Internet is neutral" in justifying his pro-neutrality stance. Tim Wu, *The Broadband Debate: A User's Guide*, 3 J. ON TELECOMM. & HIGH TECH. L. 69, 91 (2004).

58. To extend the analogy, if a complete data packet is an envelope, the reserved space (packet header) is the addressee's delivery information written on the outside. The actual payload of data is the letter sealed inside the envelope.

59. INFO. SCIS. INST., UNIV. S. CAL., RFC 791: INTERNET PROTOCOL DARPA INTERNET PROGRAM PROTOCOL SPECIFICATION 11 (Jon Postel ed., 1981), available at <http://www.ietf.org/rfc/rfc791.txt>. An RFC is a best practices document developed as part of the standards-making process of the IETF. See IETF, ION: The IETF Process: An Informal Guide, <http://www.ietf.org/IESG/content/ions/ion-procdocs.html> (last visited Oct. 28, 2007). For an overview of the IETF and its role in defining standards, see IETF, Overview of the IETF, <http://www.ietf.org/overview.html> (last visited Oct. 28, 2007).

transmission, maximizing throughput, and maximizing reliability.<sup>60</sup> Expanded by subsequent Internet Engineering Task Force (IETF) standards documents,<sup>61</sup> the “smart” traffic filtering and prioritization system predated Saltzer’s “dumb” design suggestion by several years. The Internet Assigned Numbers Authority (IANA), the body that administers common numeric value standards, still describes the standard Type of Service values as ways to enforce different standards for different types of content. IANA suggests, “[g]enerally, protocols which are involved in direct interaction with a human should select low delay, while data transfers which may involve large blocks of data . . . need high throughput. Finally, high reliability is most important for datagram-based internet management functions.”<sup>62</sup>

The 1990s also saw the first major carrier and consumer skirmishes over net neutrality issues. The battles tread familiar ground: disputes over equal access<sup>63</sup> and arbitrary consumer content restrictions. With the continued rapid growth of the number of internet-connected networks, major providers started to balk at passing traffic for smaller providers and carriers. In the major content battle of the time, providers often restricted access to the bandwidth-hogging “alt.binaries” Usenet newsgroups or refused to carry those groups altogether.<sup>64</sup>

### A. The Genesis of Net Neutrality Debates

A short technical and history lesson will help explain the debate over access to the major backbone provider networks, and the birth of tiered access.<sup>65</sup> Many prominent commentators, such as Professor Lessig,<sup>66</sup> se-

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60. Internet Assigned Numbers Authority (IANA), IP Option Numbers, <http://www.iana.org/assignments/ip-parameters> (last visited Oct. 28, 2007).

61. STEVEN BLAKE ET AL., IETF NETWORK WORKING GROUP, REQUEST FOR COMMENTS 2475: AN ARCHITECTURE FOR DIFFERENTIATED SERVICES (1998) [hereinafter RFC 2475], available at <http://www.ietf.org/rfc/rfc2475.txt>; KATHLEEN NICHOLS ET AL., IETF NETWORK WORKING GROUP, REQUEST FOR COMMENTS 2474: DEFINITION OF THE DIFFERENTIATED SERVICES FIELD (DS FIELD) IN THE IPV4 AND IPV6 HEADERS (1998), available at <http://www.ietf.org/rfc/rfc2474.txt>.

62. IANA, *supra* note 60.

63. See *infra* Section III.B.

64. E.g., Banned Newsgroups, CNN, Dec. 29, 1995, [http://www.cnn.com/TECH/9512/compuserve/pm/banned\\_list.html](http://www.cnn.com/TECH/9512/compuserve/pm/banned_list.html) (listing Usenet newsgroups censored by CompuServe, a leading national internet provider).

65. This summary omits certain technical details and vastly simplifies others. A detailed technical explanation of Classless Inter-Domain Routing (CIDR) and its impact on IP address allocations and routing table growth would not be possible here. Since the early 1990s, noted internet networking engineer Hank Nussbacher has maintained a detailed explanation of CIDR, and the discussion in this section draws from that document.

lectively choose which “tiers” of access to discuss, while ignoring others. Broadly defined, “tiered access” refers to discrimination by a provider based on *any* criteria, including the price paid, the speed of the service requested, the geographical location of the service, or the nature of the traffic transmitted and received. Interpretations that ignore some tiers of discrimination in order to emphasize others make little sense given the non-neutrality built into the internet’s underlying technological structure.

Every device connected to the internet must have an associated IP address to communicate with other networks, servers, and devices.<sup>67</sup> In the days before widespread use of firewalls helped to conserve the limited IP address space available, every connected device needed one of roughly 4 billion addresses. IANA and its sister regional registries originally allocated addresses to providers, universities, and even individuals in large, contiguous blocks. Before the IETF developed new standards for address allocation,<sup>68</sup> IANA and its regional authorities could only allocate addresses along “classful” IP address boundaries: Class A (approximately 17 million addresses), Class B (65,536 addresses), or Class C (256 addresses). For many providers, Class C allocations were insufficient, but Class B allocations were far too large. The IETF resolved this inefficiency by creating a system of classless IP subnetworks that created allocations not just along the traditional boundaries of Class A, B, and C, but of virtu-

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Interall, CIDR FAQ Version 7.2 (Hank Nussbacher ed., 2007), <http://www.interall.co.il/cidr.html> (last visited Dec 24, 2007).

66. See, e.g., Lessig Testimony, *supra* note 27. Professor Lessig prefers the term “access tiering,” but the term has essentially the same meaning as the less awkwardly phrased “tiered access.” This Article refers to tiered access, except in direct quotations by other commentators that prefer Professor Lessig’s term.

67. Non-technical users can conceptualize an IP address as the digital “postal address” that enables other online devices to contact you, much in the way that the postal mail system delivers items to your physical address.

68. NETWORK WORKING GROUP, INTERNET ENG’G TASK FORCE, REQUEST FOR COMMENTS 1517: APPLICABILITY STATEMENT FOR THE IMPLEMENTATION OF CLASSLESS INTER-DOMAIN ROUTING (CIDR) (Robert M. Hinden ed., 1993), *available at* <http://www.ietf.org/rfc/rfc1517.txt>; IETF NETWORK WORKING GROUP, RFC 1518: AN ARCHITECTURE FOR IP ADDRESS ALLOCATION WITH CIDR (Yakov Rekhter & Tony Li eds., 1993), *available at* <http://www.ietf.org/rfc/rfc1518.txt>; VINCE FULLER ET AL., IETF NETWORK WORKING GROUP, REQUEST FOR COMMENTS 1519: CLASSLESS INTER-DOMAIN ROUTING (CIDR): AN ADDRESS ASSIGNMENT AND AGGREGATION STRATEGY (1993), *available at* <http://www.ietf.org/rfc/rfc1519.txt>; YAKOV REKHTER & CLAUDIO TOPOLCIC, IETF NETWORK WORKING GROUP, REQUEST FOR COMMENTS 1520: EXCHANGING ROUTING INFORMATION ACROSS PROVIDER BOUNDARIES IN THE CIDR ENVIRONMENT (1993), *available at* <http://www.ietf.org/rfc/rfc1520.txt>.

ally any size.<sup>69</sup> While this addressed a major source of allocation inefficiency, it also further accelerated the growth of address allocations, triggering a round of predictions that the internet could soon melt down.<sup>70</sup> The creation of variably sized IP address allocations dramatically increased the number of different allocations that internet-connected devices had to store in memory as routing tables, helping to create the first major net neutrality debate.<sup>71</sup> As the associate administrative and hardware costs of maintaining these routing tables increased, so did the pressure on providers to collect revenue to offset them.<sup>72</sup>

## B. History Lesson #1: The Genesis of Tiered Access

By 1991, the “privatization” of the former National Science Foundation NSFnet had spawned commercial services on the nascent internet. Along with commercialization came the tiered access structure that defines the internet today. Founded in 1991 to manage commercial access to the former NSFnet, the Commercial Internet eXchange (CIX) provided a peering site where its members agreed to exchange network traffic (“peer”) free of charge.<sup>73</sup> Internet providers that connected at CIX’s interchange benefited from increased interconnectivity that today’s providers—not to mention legal scholars—take for granted when discussing net neutrality. As commercial internet services expanded over the next three years, the CIX peering point produced a tiered access hierarchy. The largest of the backbone providers, including Sprint, UUNET, Advanced Network Services (ANS), BBN Planet, and later MCI and AT&T, banded together to form the core internet backbone, agreeing to peer with each other and resell services to small providers.<sup>74</sup> These decisions quickly created a tiered network.

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69. CIDR identifies a block of contiguous addresses based on the number of bits, out of 32 possible, that the particular subnetwork contains. This allows allocations of variably sized subnetwork blocks from a single IP address to an entire Class A. For a table of all possible subnetworks and an explanation of the conversion from binary to IP addresses, see Wikipedia, Classless Inter-Domain Routing, [http://en.wikipedia.org/wiki/Classless\\_Inter-Domain\\_Routing](http://en.wikipedia.org/wiki/Classless_Inter-Domain_Routing) (last visited Jan. 11, 2007).

70. *E.g.*, David L. Wilson, *Internet’s Shallow Pool*, AUSTIN AM.-STATESMAN, Aug. 23, 1997, at D4.

71. For an historical view of the growth of internet routes, see BGP Reports, BGP Routing Table Analysis Reports, <http://bgp.potaroo.net/> (last visited Oct. 28, 2007).

72. Padmanabhan Srinagesh, Internet Cost Structures and Interconnection Agreements, Presentation at the MIT Workshop on Internet Economics (Mar. 10, 1995), *available at* <http://www.press.umich.edu/jep/works/SrinCostSt.html>.

73. FRED GOLDSTEIN, *THE GREAT TELECOM MELTDOWN 65-67* (2005).

74. *Id.* at 67.

The top-tier providers built national networks interconnecting with other national networks at CIX and at a handful of other traffic exchanges around the country. Each of these national "Tier 1" providers agreed to peer with each other and pass traffic on behalf of downstream customers that used them for internet connectivity.<sup>75</sup> "Tier 2" providers typically maintained smaller national or super-regional networks and agreed to peer with the major Tier 1 providers and, sometimes, each other. Tier 2 providers often had to pay to connect and to peer with Tier 1 providers.<sup>76</sup> Local and regional internet providers who purchased bandwidth from Tier 1 providers found themselves a step removed from the equal access of the internet's "backbone."

Price and service level agreements differentiated the tiers. Providers with the desire and money to build large national networks or negotiate expensive peering agreements with CIX or Tier 1 providers could receive guarantees about traffic and connectivity unavailable to smaller providers. The price of internet service depended on capacity, but with fewer pricing models than today. In the early 1990s, providers typically paid a flat fee either per Megabit (Mbps)<sup>77</sup> or based on the type of physical interface (DS1, DS3, Ethernet, etc.) that they purchased.

At the same time, Tier 1 and Tier 2 providers had begun testing a variety of service and pricing models for end users. For example, Skye/net, an internet provider in northern Indiana, prevented users from running "programs designed to keep a connection up by sending regular amounts of data through the dial-up connection," and banned practices including the use of servers or mailing list software on dial-up connections and the display of business information on personal websites.<sup>78</sup> The company offered

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75. The definition of a "Tier 1" provider proved nebulous even then. Discussions and publications at the time typically cited the six providers named above as the "Tier 1" providers. *See supra* text accompanying note 74. Numerous other providers joined the ranks of "Tier 1" providers with national peering agreements over the next decade.

76. Dozens of providers, including the author's own company, *see infra* note 78, qualified as Tier 2 providers under this definition during the mid-1990s. The Tier 2 distinction tended to be transitory. Super-regional and small national networks often either grew into Tier 1 providers or became acquisition targets.

77. The abbreviations "Mbps" and "Kbps" will appear frequently throughout this paper. "Mbps" stands for Megabits (one million bits) per second. "Kbps" stands for Kilobits (one thousand bits) per second. For reference, Major League Baseball's MLB.tv Premium service delivers broadcast-quality full-motion video at 700 Kbps (0.7 Mbps). Major League Baseball, Subscription Access FAQs, [http://www.mlb.com/mlb/help/faq\\_subscriptions.jsp](http://www.mlb.com/mlb/help/faq_subscriptions.jsp) (last visited Oct. 28, 2007).

78. Skye/net Network Servs., Inc., Skye/net Account Guidelines Overview, [http://support.skyenet.net/Use\\_Policy.html](http://support.skyenet.net/Use_Policy.html) (last visited Oct. 28, 2007), *available at* [http://web.archive.org/web/19980109033327/support.skyenet.net/Use\\_Policy.html](http://web.archive.org/web/19980109033327/support.skyenet.net/Use_Policy.html). As

a range of tiered access plans from 100 hours of dial-up access to dedicated modems and high bandwidth leased lines such as T1s and DS3s. Leased-line customers received both higher speed connections and preferred access to Skye/net's network and multipoint backbone compared to non-leased-line or non-dedicated-access customers with identical connection speeds.<sup>79</sup>

Warning that "[a]ccess tiering will create an obvious incentive among [broadband providers to] . . . restrict the opportunity to compete in providing new Internet service,"<sup>80</sup> Professor Lawrence Lessig argued that tiered access charges represented a fundamental change in the internet networking environment.<sup>81</sup> To make this point, Professor Lessig necessarily takes an overly narrow definition of tiered access, considering only potential tiered service offerings targeting specific content.<sup>82</sup> He also creates a meaningless distinction between types of customers.<sup>83</sup> Even if a bandwidth-hungry content provider or a next-generation-service-hungry (and, consequently, bandwidth-hungry) consumer sits at the network's "edge," access providers have offered those customers a wide range of services based on price tiers and types of service for many years. As this Article explains,<sup>84</sup> the opposite of Lessig's prediction has come true as improved tools and technologies have allowed for new internet services and more differentiated service offerings.

Professor Lessig's testimony repeats a common refrain. Various pundits and experts have offered similar doomsday warnings for years. In 1997, a group of internet providers argued that termination of peering agreements "may be just the opening . . . skirmish in the long-predicted move [by Tier 1 providers] acting as a closed cartel to change the fundamental economics of the Internet . . . [that] will cascade down to the pockbooks of all users and smaller . . . ISPs."<sup>85</sup> In 1994, internet journalist

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Skye/net's Vice President, the author managed network operations and, along with two partners, owned the company until 1998.

79. Skye/net Network Servs., Inc., Skye/net Dedicated Internet Services, <http://skyenet.net/Dedicated.html> (last visited Oct. 28, 2007), available at <http://web.archive.org/web/19971224192532/skyenet.net/Dedicated.html>.

80. Lessig Testimony, *supra* note 27, at 2.

81. *Id.* at 5-10.

82. *Id.*

83. *Id.*

84. See *infra* Section IV.A and the discussion later in this section regarding lower costs and new service offerings compared to a decade ago.

85. See, e.g., Postings of Dennis Brumm, [dennisbr@hooked.net](mailto:dennisbr@hooked.net), et al. to [ba.internet](http://ba.internet) (May 4, 1997), available at [http://groups.google.com/group/ba.internet/browse\\_thread/thread/99c7a3a80b74d0de/](http://groups.google.com/group/ba.internet/browse_thread/thread/99c7a3a80b74d0de/).

Gordon Cook warned that Tier 1 providers would soon dominate the market and force higher usage-based pricing and the elimination of free peering points like CIX.<sup>86</sup> Legislators, too, have fanned these fears. In 2006, Senator Ron Wyden (D-Ore.) used similar language to claim that “[c]reating a two-tiered system could have a chilling effect on small mom and pop businesses that can’t afford the priority lane, leaving these smaller businesses no hope of competing against the Wal-Marts of the world.”<sup>87</sup>

Net neutrality proponents such as Lessig ignore the long history of tiered access when arguing for stringent neutrality regulations. Today’s providers, while enjoying other niche options, still follow the same tiered access model that CIX and backbone providers created in the early 1990s. Providers that want better service guarantees or direct peering arrangements pay for this added service, just as they have since the U.S. government privatized the NSFnet.

In addition, today’s consumers, access providers, and businesses can choose from a host of broadband options and dozens of providers of bandwidth and other niche services. A 10 Mbps co-located connection that cost \$7,500 annually in the heart of Silicon Valley in 1997<sup>88</sup> is available in smaller markets like South Bend, Indiana for less than half that cost today.<sup>89</sup> Consumers who need broadband connectivity are no longer limited to leased, private-line 1.5 Mbps T1 service, but can choose from among DSL, cable, fiber optic, satellite, cellular, and fixed wireless options at vastly reduced prices. The proliferation of services has continued even though providers use backbone-to-backbone, backbone-to-provider, and provider-to-end-user tiers of all types. A market once in *actual* danger of domination by a handful of founding players has evolved into an innovative marketplace replete with services and players of all types and sizes.

Tiered access, present from the commercialization of the internet, does not represent a fundamental change to business models or internet economics. Cook and others in the mid-1990s may not have foreseen the power of individuals to shape internet governance, given the compara-

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86. COOK Network Consultants, *Executive Summary: CIX Board Enforces Routing—Path Routing Filters to Go Up Nov. 1, 1994*, THE COOK REPORT, Aug. 1994, at 23, available at <http://cookreport.com/backissues/august94newsletter.pdf>.

87. Press Release, Senator Ron Wyden, Wyden Moves To Ensure Fairness of Internet Usage With New Net Neutrality Bill (March 6, 2006), available at [http://wyden.senate.gov/media/2006/03022006\\_net\\_neutrality\\_bill.html](http://wyden.senate.gov/media/2006/03022006_net_neutrality_bill.html).

88. Commercial Internet Exchange, CIX Router Information, available at <http://web.archive.org/web/19980130083449/cix.org/CIXInfo/router-services.html>.

89. Colostore, Colocation, <http://www.colostore.com/colocation.shtml> (last visited Oct. 28, 2007).

tively limited scope of the commercial internet at the time. However, both Professor Lessig and Senator Wyden have the benefit of history. Neither of their scenarios explains clearly how the “Wal-Marts of the world” could hope to buy discriminatory access on thousands of local, national, and international provider networks to create a worldwide priority lane. Lessig, Wyden, and others fail to explain why a meshed, worldwide network would eschew opportunities to circumvent any discriminatory “lanes” that individual carriers tried to build.<sup>90</sup> As the next section recounts, organizations like CIX have found that creating a discriminatory lane leads to irrelevance, not dominance. Professor Lessig’s warnings of impending domination by a telecommunications oligopoly have not materialized at any point in the existence of the tiered access model. Despite almost two decades of dire predictions,<sup>91</sup> the tiered access model has arguably fostered—or at worst failed to hinder—innovation in internet networking.<sup>92</sup>

### C. History Lesson #2: CIX, AOL, and the Absence of Monopoly Power

Net neutrality proponents fear that permitting tiered access will transform providers into monopolists with significant incentive to block access to content.<sup>93</sup> These fears of a tiered access monopoly have endured despite historical evidence to the contrary. The relatively few attempts to impose blocks have had no measurable effect on the innovation and growth of internet networks, services, and content. Three events illustrate this absence of power: CIX’s 1994 attempt to isolate non-members, the 2006 decision by AOL to eliminate its walled garden content, and the separate

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90. For example, University of Colorado Law School Professor Phil Weiser suggests that a nondiscriminatory priority lane already exists with companies such as Akamai and that lack of competition, not tiered access, is the problem. Posting of Phil Weiser to Public Knowledge, <http://www.publicknowledge.org/node/646> (Sept. 22, 2006, 15:15 EST). See also *infra* notes 135-140 and accompanying text.

91. This Article looks at internet history after the debate about commercialization of the internet had run its course. Similar Armageddon scenarios were commonplace in the days before the NSF relinquished control of NSFnet, too. The haunting chimera back then was the innovation-destroying force of commercialization. In the software world, fears of commercialization in the 1980s and early 1990s gave rise to the Free Software Foundation and the open source software community, another powerful individual-led movement. Like the internet access debate, the open source community is rife with dire, but unsubstantiated, predictions of dominance by commercial companies. See generally Douglas A. Hass, *A Gentlemen’s Agreement: Assessing the GNU General Public License and its Adaptation to Linux*, 6 CHI.-KENT J. INTELL. PROP. 213 (2007).

92. The proposition that innovation happens at the network edge is one of two assumptions that both network neutrality opponents and proponents implicitly accept. See *infra* note 184.

93. See, e.g., Lessig Testimony, *supra* note 27, at 2.

panic over a technical glitch at Craigslist that same year. This section discusses the demise of CIX. Section V.A addresses the two more recent events in light of Dr. van Schewick's vertical foreclosure arguments.

In 1994, CIX decided that the rapidly expanding size of routing tables—lists of instructions stored by routers and other internet-connected devices about the available paths to different networks—would soon overwhelm the capacity of their routers to store them.<sup>94</sup> CIX provided a few basic services for its internet provider members: lobbying efforts, public forums, policy committees to propose legislation or regulation, and other information services.<sup>95</sup> Most importantly, CIX provided connectivity for its members. All members were required “to interconnect with all other CIX members . . . directly or indirectly through the CIX router—at no additional cost to member networks.”<sup>96</sup> Prior to November 1994, non-CIX members could still exchange routing tables at the CIX router and with other CIX members without paying CIX's \$7,500 annual membership fee.<sup>97</sup>

After CIX members considered filtering proposals during the summer, they voted against filtering non-CIX members' routing information at their September 1994 meeting. Despite the vote, the CIX Board of Directors decided to impose route filtering for unspecified legal reasons.<sup>98</sup> CIX President Bob Collet announced on November 1st that CIX would impose filtering beginning on November 15th.<sup>99</sup> A key member of CIX resigned in

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94. Posting of Gene Hastings to North American Network Operators Group (NANOG) Mailing List (Nov. 2, 1994, 12:15:35 EST), *available at* <http://merit.edu/mail.archives/nanog/1994-11/msg00020.html>. Hastings forwarded a copy of CIX President Bob Collet's e-mail to the NANOG list. In the e-mail, Collet referred to “the inherent scaling limitations of the CIX router-based interconnection point” as a factor in making the filtering decision and recommending that providers pay to join CIX or to interconnect elsewhere.

95. CIX, About the Commercial Internet eXchange, *available at* <http://web.archive.org/web/19970413033334/cix.org/CIXInfo/about-cix.html>. Without reading this section further, readers can deduce from this citation's URL the result of CIX's routing policy decision. The only available link to this information about CIX comes from archive.org, a non-profit archive of historical webpages and other digital collections, and not a current CIX site.

96. *Id.*

97. COOK Network Consultants, *CIX On Again Off Again Filtering: What's at Stake?*, THE COOK REPORT, Dec. 1994, at 1, 4, *available at* <http://cookreport.com/backissues/dec94newsletter.pdf>.

98. *Id.*

99. Hastings, *supra* note 94; Ellen Messmer, *IP Service Providers Face Traffic Shutdown*, NETWORK WORLD, Aug. 22, 1994, at 5. Bob Collet was also an internet product manager for Tier 1 provider Sprint.

protest on the same day, and the announcement fueled a significant debate.<sup>100</sup> COOK Report editor Gordon Cook warned providers that failure to pay CIX's membership fee to avoid the filtering amounted to "a double barreled round of Russian roulette. . . . Joining the CIX is obvious [sic] the safest thing for non-member ISPs to do."<sup>101</sup>

The commercial internet community in 1994 was miniscule compared to today's global network of providers. As the primary exchange point for commercial internet traffic in 1994, customers and backbone providers depended on CIX. However, the company quickly learned that it had little power to impose filters, despite its dominant market position.<sup>102</sup> On November 16th, one day after the supposed imposition of the filters, a member of the network user group mailing list Com-Priv noted that nothing had changed, and that the CIX router was still sharing routing information for both CIX and non-CIX members. Collet admitted that CIX had encountered trouble implementing its filter, and the COOK Report's December issue described the filtering as "on again off again."<sup>103</sup>

CIX quickly faded into obscurity. Its decision served to encourage the major backbone providers to build new platforms and to offer downstream customers ways to interconnect and bypass CIX's network altogether. As the COOK Report explained, "with the CIX router foundering and seen as a place to avoid, many providers began to get interested in MAE-East [another routing information exchange point] as an alternative."<sup>104</sup> By 1997, CIX membership had stalled at approximately 150 members, and it faced

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100. Postings of Rich Braun, richb@pioneer.ci.net, et al., to ne.org.neci.general (Nov. 2-16, 1994), available at [http://groups.google.com/group/ne.org.neci.general/browse\\_thread/thread/f02eec7dd620501b/](http://groups.google.com/group/ne.org.neci.general/browse_thread/thread/f02eec7dd620501b/) (a Usenet newsgroup thread debating the decision and including the text of key CIX member Net99's resignation).

101. COOK Network Consultants, *supra* note 86, at 7.

102. See *Management of NSF Network Hearing Before the H. Subcomm. on Science of the H. Comm. on Science, Space, & Technology*, 102d Cong. (testimony of Mitchell Kapor, Pres. of Electronic Frontier Foundation and Chairman of CIX) (discussing NSFNet and CIX's roles), available at [http://www.eff.org/Infrastructure/NREN\\_NSFNET\\_NPN/nsfnet\\_hr\\_sst-s\\_920312.testimony](http://www.eff.org/Infrastructure/NREN_NSFNET_NPN/nsfnet_hr_sst-s_920312.testimony). In a testament to CIX's pivotal early role, the Smithsonian Museum of American History in 2006 acquired the router that once powered the CIX network along with documents and private notes from CIX's inception. See Farooq Hussain, Projects, <http://www.farooqhussain.org/projects> (last visited Oct. 28, 2007).

103. COOK Network Consultants, *supra* note 97. Sadly, the debate on the popular Com-Priv mailing list operated by internet provider PSI was never archived publicly, and most of the original discussions are no longer available online.

104. *Id.* at 4.

defections by major founding members MCI and UUNET.<sup>105</sup> By 2001, CIX had decommissioned its router and exchange point.<sup>106</sup> CIX needed content and customers to survive—a network truth as important today as it was then.

#### IV. MODERN NON-NEUTRALITY ON THE INTERNET

Although technologies have changed considerably and evidence of an increasingly competitive internet access market driven by content is strong, the concept of creating a free and unfettered internet by regulating incumbent common carriers and cable providers has persisted. More recently, commentators have turned to prioritization of particular applications or types of traffic as the primary neutrality problem.<sup>107</sup> Under this theory, network neutrality advocates worry that providers will prioritize preferred traffic or applications to the detriment of non-preferred content, rather than merely charging discriminatory “tiered access” rates for carrying specific content. As with tiered access, the prioritization debate has raged for years, and has had a similar non-effect on innovation and growth of internet networks, services, and content.

##### A. Quality of Service Tools for Service Differentiation

Access providers’ implementation of tools to control individual applications, such as voice, video, or e-mail is not a recent phenomenon. In 1998 and 1999, network access providers began to “tier” and “prioritize” applications and individual traffic flows within networks. Using the Linux operating system, manufacturing startup ImageStream released a line of router products<sup>108</sup> that provided service differentiation tools for network administrators.<sup>109</sup> Open source software developers of the Linux Differentiated Services (commonly called “DiffServ”) tools did not create them in

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105. Kenneth Cukier, *CIX Unfazed as ISPs Shun its Router*, COMM. WEEK INT’L, Mar. 10, 1997, at 16.

106. E-mail from Farooq Hussain, CIX, to Randy S. Whitney, UUNET (Jan. 11, 2002, 09:36:02 EST), *quoted in* E-mail from Randy S. Whitney, UUNET, to Farooq Hussain, CIX (Jan. 11, 2002 11, 2002 13:27:21 EST), *available at* <http://www.farooqhussain.org/projects/Shutdown%20email.pdf>.

107. Yoo, *supra* note 5, at 1880-81 (discussing net neutrality proponents’ criticisms of discrimination against applications).

108. ImageStream Internet Solutions, Inc., Products & Services, <http://www.imagestream.com/Products.html> (last visited Oct. 28, 2007).

109. The word “discrimination” carries negative connotations. Differentiation of network services may create significant positive externalities or have plausible justifications. Rather than use a word with pejorative meaning, this article uses the industry standard term “service differentiation” whenever possible.

a surreptitious attempt to eliminate competition or destroy internet growth and innovation. The DiffServ utilities allowed access and content providers to control the different types of data and applications that passed through their systems. With this suite of tools, network administrators could easily prioritize favored, or de-emphasize disfavored, applications or traffic. In addition to tiers of access at the provider level, DiffServ gave providers a way to implement Quality of Service (QoS) by introducing tiers at the individual application level of a network.

Far from Lessig's neutral network of innovation,<sup>110</sup> the internet of the late 1990s had increased its focus on tiered access and service differentiation from end to end on internet networks, without harming innovation or growth. With DiffServ, Linux developers implemented an existing standards document, the DiffServ RFC, that created a framework to allocate "traffic streams by service provisioning policies which govern how traffic is marked and conditioned upon entry to a differentiated services-capable network, and how that traffic is forwarded within that network."<sup>111</sup> With this suite of tools, network administrators could easily prioritize favored, or de-emphasize disfavored, applications or traffic.

Non-neutrality extended far beyond emerging companies, open source operating systems, and esoteric standards documents. Cisco, the largest networking equipment manufacturer, followed the DiffServ RFC with its own offering in 1999. Cisco's more advanced successor technologies provide the same ability to "identify a subscriber, classify an application, apply application-level performance, and meter and charge for the application or service bundle" offered by Linux-based solutions.<sup>112</sup> The IETF has continued to innovate and improve the ability to control access from end-to-end on a network, maintaining multiple active working groups<sup>113</sup> and creating dozens of refined standards for tiered network access.<sup>114</sup> Today, the ability to control data for policy or business reasons is a central feature

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110. See Lessig, *supra* note 3.

111. RFC 2475, *supra* note 61.

112. CISCO SYS., INC., CREATING NEW BROADBAND TIERS OF SERVICE USING CISCO SERVICE CONTROL TECHNOLOGY (2005), [http://www.cisco.com/application/pdf/en/us/guest/products/ps6150/c1031/cdcont\\_0900aecd8024525f.pdf](http://www.cisco.com/application/pdf/en/us/guest/products/ps6150/c1031/cdcont_0900aecd8024525f.pdf). (last visited Oct. 28, 2007).

113. MPLS-RC, MPLS Standards, <http://www.mplsrc.com/standards.shtml> (last visited Oct. 28, 2007) (listing related IETF Working Groups and other industry forums).

114. IETF Multiprotocol Label Switching (mpls) Working Group, Charter, <http://www.ietf.org/html.charters/mpls-charter.html> (last visited Oct. 28, 2007).

of ImageStream<sup>115</sup> and Cisco<sup>116</sup> products. Other successful companies have emerged to market products designed solely to control and prioritize traffic,<sup>117</sup> and the open source software community maintains a powerful suite of free tools for service differentiation.<sup>118</sup>

Yet many commentators cling to a belief that implementing Quality of Service (QoS) is still the expensive, difficult proposition that it was in 1995. According to Jon Peha, Professor of Electrical Engineering and Public Policy at Carnegie Mellon, “[T]he cost per bit of a stream with strict QoS requirements is greater than the cost per bit when QoS requirements are lax.”<sup>119</sup> While this statement is theoretically correct, the “cost per bit” of a stream of QoS-limited traffic is realistically infinitesimal—both in terms of actual cost and opportunity cost—and requires little more than creating a configuration and enabling the QoS features on network equipment.<sup>120</sup> When balanced against the harms of undifferentiated, non-conforming network traffic<sup>121</sup> and their significant negative effects on a network, the miniscule cost of QoS becomes an asset.

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115. See ImageStream, Implementing Quality of Service with iptables CLASSIFY Rules, [http://support.imagestream.com/QOS\\_with\\_iptables\\_CLASSIFY.html](http://support.imagestream.com/QOS_with_iptables_CLASSIFY.html) (last visited Oct. 28, 2007).

116. See CISCO SYS., INC., *supra* note 112.

117. E.g., *Insider: P2P Drives Use of DPI*, LIGHT READING, Sept. 6, 2006, [http://www.lightreading.com/document.asp?doc\\_id=103020](http://www.lightreading.com/document.asp?doc_id=103020) (discussing report comparing quality of service products from Allot Communications, Caspian Networks, Ellacoya Networks, Narus, and Sandvine).

118. Bert Hubert et al., Linux Advanced Routing & Traffic Control, <http://www.lartc.org/> (last visited Oct. 28, 2007).

119. Jon M. Peha, *The Benefits and Risks of Mandating Network Neutrality, and the Quest for a Balanced Policy*, 1 INT’L J. COMM’N 652 (2007); see also *infra* notes 258-66, 279-97 and accompanying text (providing more examples of inaccurate QoS cost estimates).

120. See, e.g., David Newman, *Filters on Routers: The Price of Performance*, NETWORK WORLD, Jul. 14, 2003, at 35 (finding that, aside from the Cisco routers tested, most routers and switches exhibited virtually no significant performance difference with advanced filtering and routing enabled); see also THE TOLLY GROUP, TEST SUMMARY NO. 205121, AVAYA, INC. “TRIPLE PLAY” CONVERGED NETWORK BENCHMARK (2005), <http://www.tolly.com/ts/2005/Avaya/Convergence/TollyTS205121AvayaIncTriple-PlayConvergedNtwkBenchmarkAugust2005.pdf> (test report showing that enabling QoS on Avaya switches was costless); Press Release, 3Com Corp., 3Com Outperforms Cisco in Independent Test Conducted by the Tolly Group (Jan. 17, 2006), available at <http://www.tolly.com/NewsDetail.aspx?NewsID=52> (test certifying 3Com equipment as able to “enforce both security and application service levels” and provide “higher security and Quality of Service for VoIP traffic” by merely turning on the QoS features of the equipment).

121. Worms, viruses, spam, spyware, adware, denial of service attacks, abusive use of network resources, and many other types of traffic fall into this category.

Even net neutrality proponents concede this proposition. In a draft of his proposed neutrality legislation, Professor Wu makes broad exceptions for QoS used to: “[p]revent physical harm” to the network; “[p]revent Broadband users from interfering” with others by implementing bandwidth limits, spam, worm, and virus protection, and limits on denial of service attacks; and “[p]revent violations of the security” of the network, including a broad anti-hacking provision.<sup>122</sup> The broad exceptions would likely nullify any regulatory effect of Wu’s proposed legislation, since virtually any QoS limitation on the network could fit one of these broadly defined categories. Providers could simply classify QoS policies that reclassify video or voice over IP traffic as preventing “violations of security” or protecting mission-critical voice and video traffic from denial of service attacks and other abuses. If couched as a service enhancement, providers would have the regulatory imprimatur to charge more for this premium service, a non-egalitarian, non-neutral outcome distinctly different from the one Wu’s rhetoric anticipates. As Section VII.B discusses *infra*, Wu’s model internet provider, with completely neutral, nondiscriminatory policies,<sup>123</sup> is just as likely to face regulatory scrutiny as a provider that surreptitiously implements policies detrimental to particular types of traffic. Most importantly, Wu’s inclusion of extensive allowances for QoS illustrates both the utility and ubiquity of QoS tools and policies on today’s networks.

Providers can easily implement access control policies, content filters, and prioritization schemes on their networks. Companies, websites, and mailing lists offer assistance with implementation. The techniques used to implement tiered access and service differentiation are frequent topics at industry trade shows.<sup>124</sup> Content filters and prioritization schemes on internet networks are in wide use and generally focused on the last mile between the provider’s equipment and the consumer.

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122. Wu, *supra* note 57, at 95.

123. *See id.*

124. *E.g.*, John Bartlett, Vice Pres., NetForecast, Inc., Address at Interop New York 2006: WAN Acceleration Technologies: Which One Is For Me? (Sept. 20, 2006) (discussing available application acceleration and performance options for network deployment); Douglas A. Hass, Dir. of Bus. Dev., ImageStream Internet Solutions, Inc., Address at the LinuxWorld Conference & Expo: Quality of Service & Firewalls (Apr. 5, 2006) (discussing open source tools for service differentiation and application security); Christophe D. Masiero, Head of IP VPN Prod. Mgmt., Equant, Address at the MPLScon 2004: MPLS VPNs: Drivers & the Road Ahead (May 25, 2004) (discussing emerging application and service differentiation technologies).

## B. Content and Application Provider Non-Neutrality

As discussed earlier, much of the current commentary on net neutrality focuses on internet access providers. However, access providers are not the only non-neutral actors. Vonage, with over two million subscribers,<sup>125</sup> offers branded equipment for use with its Voice-over-IP (VoIP) telephony service. On its technical support website, Vonage details a configuration using equipment that prioritizes voice traffic for Vonage services over other data traffic, including data destined for other VoIP providers.<sup>126</sup> While the site touts how the configuration will provide “high-quality [Vonage] telephone service,” it does not mention that the configuration could degrade other services.<sup>127</sup> Even though Vonage openly advocates configuration settings that prioritize its own traffic without informing customers of the consequences, Congress and the telecommunications industry have welcomed the company to the forefront of net neutrality advocacy.<sup>128</sup>

Google’s Image Search is an example of a content provider putting controls on the content it offers.<sup>129</sup> Although Google markets Image Search as the “most comprehensive image search on the web,” the search’s default setting is a “moderate” filter that “excludes most explicit images.”<sup>130</sup> Although the search results page contains the innocuous statement that “Moderate SafeSearch is on,” users only learn about the filter *after* the search, and must click on the “Preferences” link to learn about the filter’s function.<sup>131</sup> Even if they notice and disable the filters, users still cannot avoid decisions that Google has made to exclude content due to

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125. Vonage, About Us, [http://www.vonage.com/corporate/index.php?lid=footer\\_corporate](http://www.vonage.com/corporate/index.php?lid=footer_corporate) (last visited Oct. 28, 2007) (“Vonage is a leading provider . . . with over 2.2 million subscriber lines as of December 31, 2006.”).

126. Vonage, Linksys WRT54GP2: Installation with Multiple Computers, <http://vonage.com/help.php?article=61&category=43&nav=3> (last visited Oct. 28, 2007).

127. *Id.*

128. See, e.g., *Net Neutrality: Hearing Before the S. Comm. on Commerce, Science & Transportation*, 109th Cong. 2 (2006) (Jeffrey Citron, Chairman & CEO, Vonage Holdings Corp. among witnesses testifying); Progress & Freedom Foundation, Aspen Summit 2005 Agenda, <http://www.pff.org/aspen summit/aspen2005/agenda.html> (last visited Oct. 25, 2007) (Citron included in roundtable discussion of net neutrality and other telecommunications reforms); Progress & Freedom Foundation, Aspen Summit 2007, <http://www.pff.org/aspen summit/> (last visited Oct. 25, 2007) (Citron named as important “technology pioneer” appearing as a speaker at past events).

129. Google Image Search, <http://images.google.com/> (last visited Oct. 28, 2007).

130. Google Help: Search Preferences, <http://images.google.com/intl/en/help/customize.html> (last visited Oct. 28, 2007).

131. Google, Preferences, <http://images.google.com/preferences?hl=en> (last visited Oct. 28, 2007).

political pressures or other issues.<sup>132</sup> The response that users could locate the content another way, perhaps by using a different search engine, uses the same “just switch providers” rationale rejected by net neutrality proponents who claim that access providers maintain monopoly or duopoly power.<sup>133</sup> In Google, net neutrality proponents have their doomsday scenario: a consumer’s inability to access content through a “monopoly” provider due to that provider’s arbitrary and hidden decision to restrict access. Except on the internet, unlike in the theoretical models, this “monopolistic” actor is a *content* provider, not an access provider.<sup>134</sup>

The most prominent example of technological non-neutrality on today’s internet is not an access provider, but a successful content delivery service provider. Akamai Technologies delivers content on behalf of its customers using a widely dispersed network of servers. Akamai’s acceleration services improve both performance and reliability for content providers by delivering content to end users with enforced QoS and distributed delivery.<sup>135</sup> Akamai’s site accelerator service can cache a content provider’s data on Akamai’s worldwide network of servers.<sup>136</sup> Its enhanced QoS service provides customers with “high performance and reliability”<sup>137</sup> that it has described as critical to user experiences.<sup>138</sup> The de-

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132. See Michael Liedtke, *Google Agrees to Censor Results in China*, ASSOCIATED PRESS, Jan. 24, 2006, available at <http://www.breitbart.com/news/2006/01/24/D8FBFCF686.html>.

133. E.g., Lessig Testimony, *supra* note 27.

134. The market power of companies like Google, Yahoo!, and Microsoft and the applicability of major net neutrality theories to these “oligopoly” providers is worthy of further exploration. If net neutrality proponents are fearful of monopolistic control of internet content, then the dominant content providers would be a logical starting point for application of monopoly/oligopoly and vertical foreclosure theories.

135. Akamai Techs., Dynamic Site Accelerator, <http://www.akamai.com/html/technology/products/dsa.html> (last visited Oct. 28, 2007) (describing Akamai’s QoS-enabled content acceleration offerings).

136. *Id.* Akamai does not maintain its own networks. It typically co-locates its servers on access provider networks, hence the designation as a content, rather than access, provider. See Akamai, Accelerated Network Program, [http://www.akamai.com/html/partners/network\\_program.html](http://www.akamai.com/html/partners/network_program.html) (“Akamai servers are located at the edges of the Internet.”). Several other companies also provide similar content acceleration services. E.g., AT&T, Enterprise Business: Intelligent Content Distribution Service, [http://www.business.att.com/services.jsp?repopid=ProductCategory&segment=ent\\_biz](http://www.business.att.com/services.jsp?repopid=ProductCategory&segment=ent_biz) (Follow the link on left side for “Hosting Services” and then the link for “Intelligent Content Distribution Service.”) (last visited Oct. 28, 2007); SAVVIS, Intelligent Hosting, <http://www.savvis.net/corp/Products+Services/Hosting/Intelligent+Hosting.htm> (last visited Oct. 28, 2007).

137. Akamai Techs., *supra* note 135.

mand for Akamai's services is significant. The company reported over 2,300 customers under long-term contract and enjoyed a fifty-one percent increase in revenues in 2006 to \$428.7 million.<sup>139</sup>

Akamai's successful, paid QoS service further supports the conclusions that the broadband access and content markets are competitive, and that non-neutrality is integral to content providers' offerings.<sup>140</sup> Net neutrality regulation advocates' embrace of Akamai, Google, Vonage, and others for the same products and services deemed verboten when offered by access providers is puzzling. Despite Professor Lessig's concerns about the effects of differentiation, QoS, and content filtering, content providers continue torrid growth, and innovative new QoS-enabled converged voice/video/data equipment and services have flourished since the introduction of advanced traffic control tools.

Lessig claims "innovation has come primarily from the 'edge' or 'end' of the network through application competition."<sup>141</sup> In making this claim, he overlooks innovation on the network—such as the flourishing distributed content delivery market, integrated voice/video/data platforms, and advanced QoS capabilities—and ignores the internet's historic lack of net neutrality. In a 2003 joint filing to the FCC, Lessig and Wu presented another example of edge-focused reasoning to justify their position in favor of net neutrality regulation:

The question an innovator, or venture capitalist, asks when deciding whether to develop some new Internet application is not just whether discrimination is occurring today, but whether restrictions might be imposed when the innovation is deployed. If the innovation is likely to excite an incentive to discrimination, and such discrimination could occur, then the mere potential *imposes a burden on innovation today* whether or not there is dis-

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138. Press Release, Akamai Techs., Inc., Akamai Supports EA.com's Highly Interactive Internet Suspense Thriller, *Majestic* (Aug. 17, 2001), available at [http://www.akamai.com/html/about/press/releases/2001/press\\_081701.html](http://www.akamai.com/html/about/press/releases/2001/press_081701.html) (last visited Oct. 28, 2007) (describing the interactive multimedia used in the *Majestic* game, and its dependence on Akamai's QoS-enabled distributed network).

139. Press Release, Akamai Techs., Inc., Akamai Reports Fourth Quarter 2006 and Full-Year 2006 Financial Results (Feb. 7, 2007), available at [http://www.akamai.com/dl/press/press\\_020707.pdf](http://www.akamai.com/dl/press/press_020707.pdf).

140. The emergence of Akamai and similar competitive services in the market supports my assertion that innovation is largely the province of content providers. The primacy of content, evidenced not only by Akamai but also by the success of multiplayer online games, further supports the idea that the access market may be the secondary market and not the primary one. See *infra* note 184.

141. Lessig Testimony, *supra* note 27, at 3.

crimination now. The possibility of discrimination in the future dampens the incentives to invest today.<sup>142</sup>

Lessig and Wu would impose regulations on existing providers in the name of protecting innovation, but their justification depends on overlooking innovations on the network, ignoring the historical lack of neutrality on the internet from edge to edge, and characterizing the access market as a broadband duopoly.<sup>143</sup> Their justification ignores the future as well.<sup>144</sup> Lessig's conclusions about the lack of internet network innovation are unwarranted. Fifteen years ago, most consumers had never heard of the internet, much less demanded the ability to share their homemade videos, publish daily journals, or communicate via voice and video online. No commentator, legislator, or regulator can be certain how networks and technologies will evolve over the next decade, especially when they misunderstand how those networks evolved over the last one.

Even commentators who oppose regulatory intervention assume away network innovation and structural non-neutrality in favor of other, weaker justifications. Professor Christopher Yoo argues for restraint until regulators can demonstrate a "concrete harm to competition."<sup>145</sup> His position ultimately differs little from those of Lessig and Wu. Because of potential unforeseen consequences of regulation and the "economics of congestion," Yoo urges a policy that requires regulators to demonstrate concrete harms to competition before acting.<sup>146</sup> However, in focusing on congestion and transaction costs<sup>147</sup>—and overlooking imperfectly informed consumers—he leaves the concept of "concrete harm" undefined, giving regulators the power to twist the definition according to current political

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142. Ex Parte Submission in CS Docket No. 02-52 from Tim Wu, Associate Professor, University of Virginia School of Law & Lawrence Lessig, Professor of Law, Stanford Law School, to Marlene H. Dortch, Secretary, Federal Communications Commission (Aug. 22, 2003) (emphasis in original), available at [http://faculty.virginia.edu/timwu/wu\\_lessig\\_fcc.pdf](http://faculty.virginia.edu/timwu/wu_lessig_fcc.pdf).

143. Lessig Testimony, *supra* note 27; Ex Parte Communication in CS Docket No. 02-52 from Coalition of Broadband Users and Innovators to Michael K. Powell, Chairman, Federal Communications Commission, et al. (Jan. 8, 2003), available at [http://gullfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native\\_or\\_pdf=pdf&id\\_document=6513401671](http://gullfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6513401671) (calling for regulation of the "broadband duopoly" that will "define the Internet for some time").

144. See *infra* note 368 and accompanying text.

145. Yoo, *supra* note 5, at 1851.

146. *Id.* at 1907-08.

147. See *infra* Part VI.

tastes.<sup>148</sup> Absent a shift in policy to consumer-focused rather than provider-focused regulation, the definition of “concrete” or “harm” would depend on which net neutrality faction held power at the time.

## V. DEBUNKING VERTICAL FORECLOSURE: WHY CIX COULD NEVER HAPPEN TODAY

Despite repeated failures by supposed internet access monopolists to exert vertical pressure on internet content providers, net neutrality proponents cling to monopolist theories. Monopoly power has yet to emerge. Recent research advocating neutrality regulation makes erroneous assumptions about the market power of broadband access providers, while evidence shows that today’s providers wield far less power than the failed CIX did in the days of the nascent commercial internet. Markets have adequately addressed harmful provider actions and developed innovative, competitive services. As this Part explains, regulation would address a nonexistent problem, unnecessarily squelching market responses and innovations.

Professor Lessig worries that a lack of competition among broadband providers threatens neutrality and the availability of content.<sup>149</sup> In testimony before Congress, Lessig argued that an “effective duopoly” controlled broadband access in the United States, and that the duopoly “has now led network owners to openly advocate changes in network policy designed to vest new control in the network owner over the applications and content that flow over their network.”<sup>150</sup> Lessig relies on FCC statistics as the basis for his duopoly argument,<sup>151</sup> which Professor Yoo refutes by citing his own competing research and statistics.<sup>152</sup> Before sorting through various statistical analyses and market definitions, however, regu-

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148. Senator DeMint identified three categories of net neutrality advocates and “a number of competing public policy issues,” any of which could pull the definition in different directions. DeMint, *supra* note 23.

149. Lessig Testimony, *supra* note 27, at 5. Part IV, *supra*, further illustrates that providers have long exercised the detailed level of control over applications and content that Lessig fears as being new.

150. *Id.*

151. Fed. Comm’n Comm’n, High-Speed Services for Internet Access: Status as of December 31, 2005 (2006), available at [http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/DOC-266596A1.pdf](http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-266596A1.pdf).

152. Yoo, *supra* note 5, at 1892 (“It is a common misperception that the broadband markets are sufficiently concentrated to justify regulatory intervention. On the contrary . . . the concentration levels fall short of those traditionally associated with anticompetitive concern.”) (citations omitted).

lators can first turn to historical evidence that such monopolies have yet to emerge.

**A. The Modern Response to Puffs of Smoke: Assume a Raging Forest Fire**

Broadband providers would face a public relations and economic disaster similar to the one that CIX endured if they attempted to completely block or even severely restrict access to sites or services that their customers desired. Researchers Anton Wahlman and Brian Coyne of Needham & Company, a private asset management firm, argue, “[c]onsumers will gravitate to pipe providers that do not restrict their activities. . . . Any pipe provider who tries to restrict uses of the pipe to favored services (voice, video or data) in a ‘walled garden’ will likely be at a severe or impossible disadvantage, with consumers leaving for other pipes.”<sup>153</sup>

While Wahlman and Coyne make their argument in the context of the value of a “dumb pipe” in the broadband market, their argument applies equally to any pipe: smart or dumb, edge or backbone. Broadband networks exhibit strong direct and indirect network externalities<sup>154</sup> and bandwagon effects.<sup>155</sup> Under these theories, a network’s value increases proportionally with the number of its users.<sup>156</sup> The increased interconnectivity of the internet generates substantial benefits for users, broadband providers, and content providers.

Time Warner’s AOL unit exemplifies the disadvantages of Wahlman and Coyne’s “walled garden.” AOL, after peaking at 26.7 million subscribers in 2002, slid to under 18 million in 2006.<sup>157</sup> The company, famous for its proprietary, subscriber-only content, abandoned its pay-for-content model as its former users increasingly migrated to other dial-up and broadband providers. By jettisoning its internet access business and releasing its content freely, AOL has built a business model better positioned to succeed on an increasingly large and interconnected internet. AOL’s deci-

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153. ANTON WAHLMAN & BRIAN COYNE, NEEDHAM & CO., SCIENTIFIC-ATLANTA (SFA/NYSE) 5 (2003), available at [http://www.vonage.com/media/pdf/res\\_12\\_15\\_03.pdf](http://www.vonage.com/media/pdf/res_12_15_03.pdf).

154. Brett Frischmann, *An Economic Theory of Infrastructure and Commons Management*, 89 MINN. L. REV. 917, 971-72 (2005) (describing network effects as applied to infrastructure).

155. JEFFREY H. ROHLFS, BANDWAGON EFFECTS IN HIGH-TECHNOLOGY INDUSTRIES 30-31 (2001).

156. As Professor Yoo explains, net neutrality proponents tend to overlook portions of this theory. Yoo, *supra* note 5, at 1891.

157. Anick Jesdanun, *AOL Shifts Strategy with Free Offerings*, ASSOCIATED PRESS, Aug. 2, 2006, available at <http://abcnews.go.com/Technology/wireStory?id=2264677>.

sion perfectly illustrates the substantial benefits to users, broadband providers—and even AOL itself—that increased numbers of users provide.

The fate of erstwhile internet giants CIX<sup>158</sup> and AOL provide two concrete examples, but the market has swiftly addressed even the *hint* of restriction as well. In early June 2006, writer Tom Foremski wrote on his popular SiliconValleyWatcher blog that Cox Cable—one of Professor Lessig's “duopoly” providers—had blocked access to popular classified advertisement site Craigslist.<sup>159</sup> Other online net neutrality activists immediately jumped on the story to criticize both Cox for its alleged actions and lawmakers for failing to protect net neutrality.<sup>160</sup> Senator Wyden, a sponsor of net neutrality legislation,<sup>161</sup> went even further. He penned a *Wall Street Journal* editorial on net neutrality that cited Cox as an example of why legislation was necessary.<sup>162</sup> He claimed, as bloggers had, that Cox was blocking access to Craigslist to boost its own classified advertising business.<sup>163</sup> Cox had not blocked Craigslist, however, and quickly announced the real reason for the inaccessibility: a technical glitch in the way Craigslist served data from its website coupled with a bug in third-party security software distributed by Cox to its customers.<sup>164</sup> The Cox/Craigslist incident was one of several protests over allegedly discriminatory behavior in 2006.<sup>165</sup> Unwanted regulatory attention aside, even the hint of inaccessibility or overly restricted access creates a fire-

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158. See *supra* Section III.C.

159. Tom Foremski, *Craigslist is Being Blocked by Cox Interactive—Is This a Net Neutrality Issue?*, SILICONVALLEYWATCHER, June 6, 2006, [http://www.siliconvalleywatcher.com/mt/archives/2006/06/craigslist\\_is\\_b.php](http://www.siliconvalleywatcher.com/mt/archives/2006/06/craigslist_is_b.php). Foremski originally claimed that Cox was using a purposefully configured “blacklist” to block access to Craigslist. He retracted his statement in an update to the post, admitting that he had no information about why Craigslist was inaccessible.

160. See, e.g., Matt Stoller, *Please Lie to Me About Net Neutrality*, MYDD, June 14, 2006, <http://www.mydd.com/story/2006/6/14/214831/479>; Posting of tkarr to Save The Internet.com, <http://www.savetheinternet.com/blog/2006/06/14/discrimination-in-disguise/> (June 14, 2006, 23:07 EST).

161. Wyden, *supra* note 87.

162. Sen. Ron Wyden, Editorial, *Why We Must Protect Internet Neutrality*, WALL ST. J., June 17, 2006, at A11.

163. *Id.* (“Cox Communications, a broadband provider that also has a large classified advertising business, is currently blocking access to craigslist.org, a large, free classified Web site that competes with Cox.”).

164. See The Great American Blog, <http://bennett.com/blog/index.php/archives/2006/06/17/know-nothing-claims-about-site-blocking/> (June 17, 2006, 22:20 EST).

165. E.g., Mark Hachman, *BellSouth Says It's Not Blocking MySpace*, PC MAG., June 2, 2006, <http://www.pcmag.com/article2/0,1895,1971082,00.asp>.; Caroline McCarthy, *Did Comcast Really Sensor the 'Sleepy Repairman' Video from 'Nightline'?*, CNET NEWS.COM, Jul. 18, 2006, [http://news.com.com/2061-10802\\_3-6095431.html](http://news.com.com/2061-10802_3-6095431.html).

storm of negative publicity today.<sup>166</sup> As it did with CIX and threatened to do with Cox, the market would correct or bypass any discriminatory practice. Faced with an inability to deliver content to customers, major content providers would seek alternate delivery avenues.

## B. The Failure of Vertical Foreclosure Theory

Commentators including Daniel Rubinfeld and Hal Singer<sup>167</sup> and, more recently, Barbara van Schewick<sup>168</sup> have suggested that—despite the experiences of CIX, AOL, and Cox—broadband providers could exert vertical pressure on content providers. Rubinfeld, Singer, and van Schewick merely state an implicit tautology: if vertical foreclosure of markets is harmful, and broadband providers vertically foreclose markets, their actions would harm the market. Under this theory, Cox would use its theoretical monopoly power to force Craigslist, Google, eBay, or other similar

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166. Professor Lessig unwittingly provided an example of both the firestorm of publicity and the market's immediate, non-regulatory correction on his blog in August 2007. Posting of Lawrence Lessig to Lessig Blog, [http://lessig.org/blog/2007/08/jamming\\_the\\_pearl.html](http://lessig.org/blog/2007/08/jamming_the_pearl.html) (Aug. 10, 2007, 10:50 EST). Lessig posted about supposed "censorship" by AT&T of anti-President Bush lyrics in a Pearl Jam song webcast from the Lollapalooza tour. Calling it a "censoring event" that was "precisely the behavior we [net neutrality] advocates have been warning about," Lessig links to a Los Angeles Times op-ed article about the incident.

The article recounts the *actual* story and the aftermath of the publicity. As it does for all of its webcasts, AT&T "hire[d] contractors to monitor the performances, and the broadcasts are delayed slightly to enable monitors to bleep off-color material." Jon Healey, *AT&T Drops Pearl Jam's Call*, L.A. TIMES, available at <http://opinion.latimes.com/bitplayer/2007/08/att-drops-pearl.html> (last visited Oct. 30, 2007). "But those monitors aren't supposed to edit songs, just the stage patter between them." *Id.* Despite this directive, the contractors had bleeped two lines from one of Pearl Jam's songs. The op-ed noted "AT&T wants to post an unexpurgated version" of the song, and that the band "says it will post the video on its own site soon." *Id.* The piece also cited Craig Aaron, spokesman for net neutrality advocate Free Press, admitting that no one could know if it was a glitch or not. *Id.*; see also Section VII.B (discussing this exact problem in applying regulatory oversight).

Despite Lessig's cries of censorship, AT&T's action looked much like either the innocuous Cox/Craigslist incident recounted in this section or, cynically, like the Sinister Cable hypothetical in Section VII.B. Regardless, as the Free Press spokesman correctly noted, "there's no way . . . to know" what really happened and the negative publicity caused by the disclosure led to the elimination of any intentional or unintentional "censorship." Rather than make a case for them, Lessig illustrated the extreme difficulty in implementing any net neutrality regulations and lent support to an alternate disclosure regime.

167. See generally Daniel L. Rubinfeld & Hal J. Singer, *Vertical Foreclosure in Broadband Access*, 49 J. INDUS. ECON. 299, 310-13 (2001).

168. See van Schewick, *supra* note 4. Dr. van Schewick cites Rubinfeld and Singer's vertical foreclosure theory with approval throughout her article. *E.g., id.* at 334 n.13.

content aggregators and providers out of the market in favor of Cox-provided services. Once again, the theoretical model differs greatly from the real world. While broadband providers have launched limited services into content aggregation markets, such as search engines,<sup>169</sup> their efforts have met with high inherent barriers to entry. In February 2007, end users conducted nearly seven billion searches on the internet, nearly half with market leader Google.<sup>170</sup> The current search engine industry leaders—Google, Yahoo!, Microsoft (MSN.com), and IAC/Interactive’s Ask.com—dominate the market with 91.7% of all searches in comScore’s February 2007 qSearch rankings.<sup>171</sup> TimeWarner, including its AOL subsidiary, led all other search providers with a paltry 4.9% of searches.<sup>172</sup> Even TimeWarner’s position as the leader among broadband providers is somewhat misleading. Its AOL unit outsourced its search engine to Google in 2002,<sup>173</sup> illustrating the poor applicability of the vertical foreclosure theory as applied to highly profitable,<sup>174</sup> highly desirable markets such as content aggregation. When highlighting potential threats to the Google juggernaut, industry pundits focus not on broadband providers but social network sites and start-up search providers.<sup>175</sup>

Despite a lack of evidence that vertical foreclosure has emerged in the access provider market, monopolist theories still find favor among proponents of net neutrality regulation. Dr. van Schewick<sup>176</sup> depends largely on

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169. *The Un-Google*, ECONOMIST, June 17, 2006, at 65 (“But because barriers to entry in the search business are high . . . most analysts think that the four big search engines will stay ahead of the tiny ones.”).

170. Press Release, comScore, comScore Releases February U.S. Search Engine Rankings, (Mar. 21, 2007), available at <http://www.comscore.com/press/release.asp?press=1255>.

171. *Id.*

172. *Id.*

173. *AOL to Use Google Searches*, WASH. POST, May 2, 2002, at E2.

174. Paid search advertising generated nearly 99 percent of Google’s total \$3.21 billion in fourth quarter 2006 revenue, with over \$1 billion in GAAP operating income. Press Release, Google Inc., Google Announces Fourth Quarter and Fiscal Year 2006 Results (Jan. 31, 2007), available at [http://investor.google.com/pdf/2006Q4\\_earnings\\_google.pdf](http://investor.google.com/pdf/2006Q4_earnings_google.pdf).

175. *E.g.*, Access Intelligence, Inc., *Storming the Googleplex*, MIN’S B2B, Feb. 12, 2007, available at <http://www.minonline.com/b2b/363.html> (“And don’t forget how Google attacked the social networking market and crushed the competition. Wait, that was MySpace, now owned by News Corp.”); Sunshine Mugrabi, *Wikipedia Founder’s Google Killer*, RED HERRING, Dec. 25, 2006, <http://www.redherring.com/Home/20453> (“Wikipedia founder Jimmy Wales is planning to launch a new search engine that he hopes can compete with top search engines Google and Yahoo.”).

176. van Schewick, *supra* note 4, at 335, 342.

the theory of “internalizing complementary efficiencies” (ICE),<sup>177</sup> the research of Joseph Farrell and Michael Katz into rent extraction in systems markets<sup>178</sup> and Michael Whinston’s economic study of monopolists’ ability to exclude competitors from complementary markets through tying.<sup>179</sup> Her synopsis of Farrell and Weiser’s theory is sound:

If the presence of independent producers of complementary products generates additional surplus, the monopolist may be able to capture some of that surplus through its pricing of the primary good. In this case, the monopolist will earn greater profits when its rivals are in the market than when they are not. In this case, the monopolist does not wish to steal sales in the secondary market, but takes its profits by charging a higher price for the primary good.<sup>180</sup>

However, Dr. van Schewick’s application of this theory is not. While van Schewick applies this and other theories to the internet, her applications focus entirely on theories of what *could* happen in a monopolist-controlled network rather than what *does* happen on the competitive internet.<sup>181</sup> Her theory makes two fatal assumptions about the internet access market, according to Dennis Carlton’s research into monopolists’ exclu-

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177. Joseph Farrell & Philip J. Weiser, *Modularity, Vertical Integration, and Open Access Policies: Towards a Convergence of Antitrust and Regulation in the Internet Age*, 17 HARV. J.L. & TECH. 85, 114 (2003). Professor Wu cites this same monopolist presumption in an attempt to justify regulation. See also Wu, *supra* note 57, at 84-85.

178. Joseph Farrell & Michael L. Katz, *Innovation, Rent Extraction, and Integration in Systems Markets*, 48 J. INDUS. ECON. 413 (2000).

179. Michael D. Whinston, *Tying, Foreclosure, and Exclusion*, 80 AM. ECON. REV. 837, 840, 850-52, 855 (1990).

180. van Schewick, *supra* note 4, at 341 (citing Farrell & Weiser, *supra* note 177).

181. See, e.g., van Schewick, *supra* note 4, at 344 (under the heading “Application to the Internet,” discussing the “the hypothetical [monopolist-controlled] network that is the focus of this analysis” rather than the internet); *id.* at 346 (under the heading “Application to the Internet,” discussing a hypothetical local telephone company and its revenue sources); *id.* at 356 (under the heading “Application to the Internet,” discussing situations under which providers “may be able to force” rivals from the market and citing hypothetical example); *id.* at 359 (under the heading “Application to the Internet,” suggesting “conditions underlying this theory may well be present in the Internet context” and that monopolists, if they exist, “may be able to drive [their] rivals” from the market, but citing no evidence of this actually occurring). Dr. van Schewick mentions the *Madison River* case in passing as the first instance of anticompetitive—and possibly monopolistic—behavior by a provider. *Id.* at 346. This first instance, *Madison River Commc’ns, LLC*, 20 F.C.C.R. 4295 (2005), is also the only instance. Its existence did not evidence monopoly control of the internet access market, and represented an easy case for regulators to resolve. See *infra* text accompanying note 340.

sionary conduct.<sup>182</sup> Carlton explained that monopolists could only extract profits from the secondary market if the secondary market is subject to economies of scale.<sup>183</sup> As applied to broadband internet access providers, van Schewick's theory fails both of Carlton's tests: existence of a monopoly and economies of scale in the secondary market.

The failure of AOL's walled garden and the emergence of Google and other search engines illustrates that the secondary market in internet content<sup>184</sup> is not subject to economies of scale in the traditional sense. Economies of scale (or, more correctly, economies of *demand*) apply to indi-

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182. See, e.g., Dennis W. Carlton, *A General Analysis of Exclusionary Conduct and Refusal to Deal—Why Aspen and Kodak are Misguided*, 68 ANTITRUST L.J. 659, 664-65 (2001) [hereinafter Carlton, *Exclusionary Conduct*]; Dennis W. Carlton & Michael Waldman, *The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industries*, 33 RAND J. ECON. 194, 205 (2002).

183. Carlton, *Exclusionary Conduct*, *supra* note 182 at 664-68. Carlton also adds a third element beyond the existence of a monopoly and economies of scale in secondary markets. He suggests that some segment of consumers must also demand *only* the secondary goods. *Id.* at 667-68 (Case 3b). Under the broadest view, all consumers demand only the "secondary" internet content (e-mail, web content, voice over IP, etc.). Given this formulation, Carlton's third requirement is likely met. However, satisfying this third element does not affect the analysis here.

184. The view that content is a complementary market to the primary access market is the second assumption made by proponents and opponents of net neutrality. See *supra* note 92. For purposes of discussing a regulatory middle ground and responding to views on both the pro-regulation and anti-regulation sides of the debate, this paper must concede both the idea that innovation happens primarily at the network's edges (and, therefore, regulation should target that part of the network) and that content is a secondary market.

This concession does not indicate *acceptance* of either assumption, though. Although better left for a separate discussion, neither assumption is unassailable. The "edge" of the network has no black-letter definition. Innovation has long been the province of content providers far from the traditional "edge" of the last mile broadband network. To the extent that content providers innovate in the "middle" of the internet to foster demand for content and services, the assumption that content is the secondary market probably fails as well. More likely, content is the primary good and access its complement. As demand for content increases, demand for access increases with it. However, the converse is not necessarily true: the mere availability of a bigger broadband pipe does not necessarily create demand for content to fill it.

At an even more basic level, intellectual property systems exist in part to *encourage* innovation. Patents and copyrights force subsequent market entrants to innovate to avoid infringing those rights. To relate this argument to the offline world, we can turn to architecture. Architects often design the most innovative and recognizable works when they are presented with challenging plots where they must design around limitations imposed by terrain, costs, governments, and even terrorists. On this point, even if net neutrality proponents are entirely correct, monopolies at the network edge may foster more—not less—innovation.

vidual market participants as well as the internet market—access companies, content providers, and consumers—as a whole. The standardization of online contracts to eliminate costly bilateral negotiations,<sup>185</sup> courts' tendencies to give a structural pass<sup>186</sup> on potential intellectual property violations to content and access providers like Google,<sup>187</sup> Netcom,<sup>188</sup> and Network Solutions,<sup>189</sup> and similar phenomena illustrate the broader economies of demand that apply to the entire internet. The drive to lower search and transaction costs to increase network effects overshadows any particular firm's drive to exploit narrow economies of scale within individual markets.

More importantly, van Schewick's model requires that internet access providers hold a monopoly in the primary market. Net neutrality proponents often cite the "broadband duopoly" in support of this element of Carlton's exclusionary theory.<sup>190</sup> However, van Schewick, Lessig, and others mistakenly conflate *market* power with *monopoly* power.

Carlton explains the difference by using the example of a monopoly resort owner.<sup>191</sup> Guests at the hypothetical island resort are required to purchase all meals at the resort. As long as the resort holds a monopoly, it

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185. For example, users do not negotiate the terms of use for every website they visit online. These online contracts of adhesion are preferable to the exceedingly high transaction costs associated with individually negotiating each contract term.

186. The "structural pass" refers to the unwritten rule that modern courts tend to give great latitude to internet content and access providers to ensure the continued functionality and structure of the web and the internet. The three cases cited as examples at notes 187-189, *infra*, illustrate this trend.

187. *Gov't. Emps. Ins. Co. v. Google, Inc.*, 77 U.S.P.Q.2d (BNA) 1841 (E.D. Va. 2005) (rejecting Lanham Act claims by GEICO for Google's use of trademarked terms in sponsored search engine results).

188. *Religious Tech. Ctr. v. Netcom On-Line Comm'n Servs.*, 907 F. Supp. 1361 (N.D. Cal. 1995) (rejecting direct and vicarious copyright infringement claims by plaintiffs against Netcom, despite Netcom's eleven-day storage of infringing material, and rejecting plaintiff's request for an injunction based on contributory infringement by Netcom).

189. *Lockheed Martin Corp. v. Network Solutions, Inc.*, 141 F. Supp. 2d 648 (N.D. Tex. 2001) (refusing to hold Network Solutions liable under the Anti-Cybersquatting Protection Act for allowing trademark-infringing domain name registrations); *Lockheed Martin Corp. v. Network Solutions, Inc.*, 194 F.3d 980 (9th Cir. 1999) (refusing to hold Network Solutions liable for contributory infringement under the Lanham Act for allowing registration of trademark-infringing domain names).

190. Lessig Testimony, *supra* note 27, at 5; Network Neutrality Act of 2006, H.R. 5273, 109th Cong. § 2.8 (2006) ("The overwhelming majority of residential consumers take broadband service from one of only two wireline providers, namely, from the cable operator or the local telephone company.").

191. Carlton, *Exclusionary Conduct*, *supra* note 182, at 667-68.

fully exploits the secondary meal market. The resort exploits economies of scale by requiring guests to purchase all meals at the resort, rendering any non-resort restaurants unprofitable and forcing them out of the market.<sup>192</sup> The monopoly resort then can exploit island residents who did not demand the primary good (lodging at the resort) but are nonetheless subjected to the monopolist resort owner's control of the supply of meals.<sup>193</sup> However, Carlton's model requires that the firm be a monopolist in the resort market. If the resort did not hold a monopoly, it could not exclude outside restaurants from the market. Guests could simply stay at another resort that did not have the onsite meal requirement. In an island resort "duopoly," resort owners would hold *some* pricing power but lack the *significant* (i.e. monopoly) power over meal pricing to exclude all restaurants.<sup>194</sup>

### C. The Failure to Foreclose Primary Markets

Lessig's duopoly has not only failed to control secondary markets in content,<sup>195</sup> but the primary access market as well. The access market shows signs of increasing competition as various providers combine voice, video, and data services. Commentators have decried competition from alternative providers as "border[ing] on laughable"<sup>196</sup> and unrealistic.<sup>197</sup> Derek Turner, for example, argues that the FCC significantly overesti-

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192. *Id.*

193. *Id.*

194. The same argument holds true if the number of "monopolist" resorts increases. As soon as a resort appears that does not have an onsite meal requirement, the monopolists' significant power over meal pricing disappears.

195. See, e.g., *supra* notes 167-175. In an ever-increasing number of urban and rural areas, Lessig's duopoly is at worst an oligopoly, if not fully competitive. See *infra* notes 196-204, 207.

196. Bill D. Herman, *Opening Bottlenecks: On Behalf of Mandated Network Neutrality*, 59 FED. COMM. L.J. 103, 112 (2006). Herman cites the Free Press's outdated statistic that "cable and DSL providers control almost 98 percent of the residential and small-business broadband market." *Id.* at 126 (citing S. DEREK TURNER, FREE PRESS, BROADBAND REALITY CHECK: THE FCC IGNORES AMERICA'S DIGITAL DIVIDE 3 (2005), [http://www.freepress.net/docs/broadband\\_report.pdf](http://www.freepress.net/docs/broadband_report.pdf)). Turner's statements were roughly accurate in 2005. FCC, HIGH-SPEED SERVICES FOR INTERNET ACCESS: STATUS AS OF DECEMBER 31, 2006 at 6 tbl. 1, 8 tbl. 3 (2007) [hereinafter FCC HIGH-SPEED SERVICES], available at [http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/DOC-277784A1.pdf](http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-277784A1.pdf). Turner's statements predated the significant increase in mobile wireless penetration. The 98% statement, when later cited in 2006 by Herman, was outdated. The release of the latest FCC report shows that DSL and cable providers have continued to experience pronounced market share declines, as this section discusses.

197. S. DEREK TURNER, FREE PRESS, BROADBAND REALITY CHECK II: THE TRUTH BEHIND AMERICA'S DIGITAL DECLINE 32 (2006) (criticizing the FCC's use of the zip code measure).

mates broadband availability,<sup>198</sup> especially in rural areas.<sup>199</sup> The FCC's 2004 decision to revamp its reporting requirements because previous standards "exempted some carriers from filing [broadband deployment reports] with the commission" resulting in undercounts, especially in "rural and underserved markets,"<sup>200</sup> undermines this claim. DSL and cable providers have been unable to exclude competitors, an indication that they do not wield monopoly power. The FCC's latest broadband internet service report illustrates the market share losses sustained by DSL and cable providers.<sup>201</sup> According to the report, cable modem providers, the most popular type of broadband internet access provider, accounted for just 38.9% of all high-speed lines in the United States as of December 31, 2006, down from 59.3% in December 2003.<sup>202</sup> ADSL providers' market share, roughly flat as a percentage of residential subscribers,<sup>203</sup> slid from 38.5% overall in June 2005 to 35.5% in December 2006, the first decline in DSL provider market share recorded by the FCC's high-speed services reports.<sup>204</sup> The big winners appear to be mobile wireless providers. Sprint Nextel, Verizon Wireless, and AT&T's wireless arm (formerly Cingular) market 3G voice and data technologies to businesses and consumers.<sup>205</sup> The FCC did not separately categorize mobile wireless providers until 2005. In that short

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198. *Id.*

199. *Id.* at 33. Turner erroneously cites a ConnectKentucky consumer survey that showed 23% of users were *unaware* of any available broadband options while the FCC showed 95% *availability*. *Id.* at 33 (internal citation omitted). ConnectKentucky, however, estimates that actual broadband *availability* in Kentucky is approximately 90%. CONNECTKENTUCKY, 2007 PROGRESS REPORT 4, [http://connectkentucky.org/\\_documents/connectkentucky\\_2007.pdf](http://connectkentucky.org/_documents/connectkentucky_2007.pdf). The latest FCC study zip code estimate is 97% availability, a far smaller difference than suggested by Turner. FCC HIGH-SPEED SERVICES, *supra* note 196, at 24 tbl.17.

200. Press Release, FCC, FCC Improves Data Collection to Monitor Nationwide Broadband Rollout (Nov. 9, 2004), *available at* [http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/DOC-254115A1.pdf](http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-254115A1.pdf).

201. FCC HIGH-SPEED SERVICES, *supra* note 196, at 5 tbl.1, 7 tbl.3.

202. *Id.* at 6 tbl.1. Cable modem providers slipped in the narrower group of residential high speed line providers as well, dropping from 77.2% in December 2003 to just 53.3% in December 2006. *Id.* at 8 tbl.3.

203. *Id.* (showing that after an increase from 37.3% in June 2005 to 39.5% in December 2005, the residential market share for ADSL providers fell to 39.1% in December 2006).

204. *Id.* at 6 tbl.1.

205. Sprint Mobile Broadband Network, <http://powervision.sprint.com/mobilebroadband/> (last visited Apr. 14, 2007); Verizon Wireless, Broadband Access Wireless Internet Access, <http://solutions.vzwshop.com/bba/> (last visited Oct. 28, 2007); AT&T EDGE, <http://www.wireless.att.com/learn/why/technology/edge.jsp> (last visited Dec. 7, 2007).

time, though, these providers have blossomed from a 0.89% share in June 2005 to 26.5% in December 2006.<sup>206</sup> Over that period, wireless providers dramatically increased their service areas<sup>207</sup> and announced significant expansion plans.<sup>208</sup> The rapid growth in wireless broadband also blunts the criticism of net neutrality proponents that the FCC's use of a zip code-based measure provides an unrealistic picture of where broadband is available within the zip code.<sup>209</sup> Additionally, mobile and fixed wireless technologies, as well as satellite broadband, overcome many of the physical reach limitations of wired cable and DSL services, meaning that broader coverage of rural zip codes is possible.

Competitiveness extends beyond the traditional players and even the access market. Largely blocked by regulatory hurdles from directly entering cable TV markets, Verizon and AT&T have both released IPTV services to compete with entrenched cable TV service.<sup>210</sup> Google has bypassed both cable and DSL technologies to invest in a broadband over power line provider.<sup>211</sup> HughesNet offers satellite broadband.<sup>212</sup> Fixed wireless technologies have gained increasing traction in many urban and

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206. FCC HIGH-SPEED SERVICES, *supra* note 196, at 6 tbl.1.

207. Compare INDUS. ANALYSIS & TECH. DIV., FED. COMM'NS COMM'N, HIGH-SPEED SERVICES FOR INTERNET ACCESS: STATUS AS OF JUNE 30, 2005 at 21 tbl.16 (2006), available at [http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/DOC-264744A1.pdf](http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-264744A1.pdf) (showing that mobile wireless providers did not serve 47.3% of zip codes in June 2005) with FCC HIGH-SPEED SERVICES, *supra* note 196, at 22 tbl.16 (only 12.8% of zip codes not served by a mobile wireless provider in December 2006).

208. See, e.g., Press Release, Sprint Nextel, Sprint Sets Its Sights on 2007 After Continuing to "Power Up" Networks in 2006 (Dec. 20, 2006), available at [http://www2.sprint.com/mr/news\\_dtl.do?id=14801](http://www2.sprint.com/mr/news_dtl.do?id=14801) (noting that Sprint's wireless broadband coverage was available to 188 million people, and announcing further speed and coverage upgrades in 2007 and 2008); Press Release, Cingular Wireless, Cingular 3G Coverage in More than 160 Markets (Dec. 20 2006), available at <http://att.centralcast.net/cingularnewsarchive/Release.aspx?ID=4191>; Juliette Fardulis, *Verizon Goes Into High Gear*, FORT COLLINS COLORADOAN, April 3, 2007, at 6B (discussing Verizon Wireless's expansion plans and noting that Verizon's wireless broadband coverage was available to 200 million people).

209. See TURNER, *supra* note 197.

210. Marguerite Reardon, *Verizon's TV Dreams*, CNET NEWS.COM, Oct. 13, 2005, [http://news.com.com/Verizons+TV+dreams/2100-1034\\_3-5894645.html](http://news.com.com/Verizons+TV+dreams/2100-1034_3-5894645.html); Marguerite Reardon, *Laying a New Path to Your TV*, CNET NEWS.COM, Dec. 28, 2006, [http://news.com/Laying+a+new+path+to+your+TV/2100-1034\\_3-6146207.html](http://news.com/Laying+a+new+path+to+your+TV/2100-1034_3-6146207.html) (describing AT&T's plans "to deliver its TV service en masse in 2007.").

211. Dawn Kawamoto, *Google Invests in Power-Line Broadband*, CNET NEWS.COM, July 7, 2005, [http://news.com.com/Google+invests+in+power-line+broadband/2100-1036\\_3-5777917.html](http://news.com.com/Google+invests+in+power-line+broadband/2100-1036_3-5777917.html).

212. HughesNet Services, <http://www.hughesnet.com/> (last visited Oct. 28, 2007).

rural markets,<sup>213</sup> often aided by government grants in rural areas with limited broadband choices.<sup>214</sup> Manufacturers aid in limiting the power of the traditional cable and DSL providers as well. Cellular chipset maker Qualcomm recently announced a new chipset for their market-leading EV-DO broadband wireless technology that offers 9.3 Mbps speeds,<sup>215</sup> rivaling the fastest of the wired broadband services. Intel, Motorola, and Samsung have backed the new WiMAX wireless standard, leading to Sprint's 2006 announcement of its impending deployment of a new nationwide network based on WiMAX.<sup>216</sup>

The decline in cable and DSL provider market share strongly suggests that this purported duopoly lacks the monopolist's ability to exclude rivals. While broadband providers undoubtedly have some market power to set prices, evidence shows that the market exhibits significant innovative flexibility and pricing power that falls well short of a monopoly. Even a purely price-based analysis supports the conclusion that broadband providers lack the prerequisite monopoly pricing power. The price of DSL

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213. FCC HIGH-SPEED SERVICES, *supra* note 196, at 5 tbl.1. Fixed wireless providers reported a 72.97% increase in subscribers from June 2005 to June 2006. The FCC report notes that many "[s]mall providers of high-speed connections . . . serve rural areas with relatively small populations." *Id.* at 2.

214. The USDA's Rural Utilities Service program has funded numerous fixed wireless deployments in markets underserved or unserved by incumbent cable and DSL providers. *See, e.g.*, USDA Rural Development, Utilities Programs, <http://www.usda.gov/rus/> (last visited Oct. 28, 2007) (announcing recent grants and loans); Press Release, Mt. Vernon Net, Closing the Gap on the Digital Divide (Sept. 23, 2003), *available at* <http://www.part-15.org/news/092603.html> (announcing USDA Rural Utilities Service grant to Mt. Vernon Net, a rural Illinois internet service provider); USDA, Veneman Announces \$11.3 Million in Broadband Technology Grants (Sept. 23, 2003), *available at* <http://www.usda.gov/documents/NewsReleases/2003/09/0328.doc>; USDA, Broadband Grants—September 2003, <http://www.rurdev.usda.gov/rd/newsroom/2003/sept03bbbandgrants.html> (list of recipients including Mt. Vernon Net). *See also* Gerry Blackwell, *A WISP with a Vision*, ISP-PLANET, Jan. 5, 2007, [http://www.isp-planet.com/fixed\\_wireless/business/2007/mt.vernon.net.html](http://www.isp-planet.com/fixed_wireless/business/2007/mt.vernon.net.html) ("We can't build [fixed wireless] fast enough to serve everyone." (quoting Mt. Vernon Net CEO John Scrivner)).

215. Press Release, Qualcomm Inc., Qualcomm Demonstrates Significant EV-DO Milestones with High-Capacity VoIP Over Rev. A and High-Speed Data Over Rev. B (Mar. 23, 2007), *available at* [http://www.qualcomm.com/press/releases/2007/070323\\_demonstrates\\_significant\\_ev\\_print.html](http://www.qualcomm.com/press/releases/2007/070323_demonstrates_significant_ev_print.html) (announcing the successful live demonstration of EV-DO chipsets achieving 114 simultaneous VoIP calls and 9.6 Mbps of peak throughput over a CDMA-based wireless network).

216. Press Release, Sprint Nextel, Sprint Nextel Announces 4G Wireless Broadband Initiative with Intel, Motorola and Samsung (Aug. 8, 2006), *available at* [http://www2.sprint.com/mr/news\\_dtl.do?id=12960](http://www2.sprint.com/mr/news_dtl.do?id=12960) (announcing the planned deployment that "will use [Sprint Nextel's] extensive 2.5GHz spectrum holdings, which cover 85 percent of the households in the top 100 U.S. markets").

service from Verizon has decreased from \$49.95 per month for a 768 Kbps download ADSL service in 2001 (plus the cost of a modem rental)<sup>217</sup> to just \$14.99 per month (with a free modem) for the same 768 Kbps connection in 2007.<sup>218</sup> AT&T cable broadband pricing has fallen from \$45.95 in 2001<sup>219</sup> to as little as \$33 per month in 2007 with AT&T successor Comcast.<sup>220</sup> The price of cable modem service in 2007, priced per Mbps based on the bandwidth offered to customers, has declined to less than twenty-five percent of 2002 levels.<sup>221</sup>

While today's dominant content providers depend on broadband providers for content delivery to customers, broadband providers could not survive without content from Google, eBay, or Yahoo! driving demand for broadband service. Companies like Cox and Verizon have far less market power and influence today than CIX or other early commercial providers once had. Markets have adequately addressed, and will continue to address, harmful provider actions. Markets will continue to develop innovative service offerings, provided regulators do not squelch market responses with onerous regulation.

## VI. WHY CONGESTION AND TRANSACTION COSTS FAIL AS ANTI-REGULATION ARGUMENTS

Internet access and content markets have never been neutral. The failure of monopoly theories to describe real world, non-neutral internet markets undermines pro-regulation arguments. However, laissez-faire approaches proposed by commentators have significant flaws as well. In his

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217. Tom Spring, *Verizon Joins Broadband Price Hike Parade*, PC WORLD, May 2, 2001, <http://www.pcworld.com/article/id,48945-page,1/article.html>. See *supra* note 77 for definitions of Kbps and Mbps.

218. Verizon, *Verizon High Speed Internet Plans*, <http://www2.verizon.com/content/consumerdsl/plans/all+plans/all+plans.htm> (last visited Nov. 20, 2007).

219. Spring, *supra* note 217.

220. Comcast, *The Comcast Triple Play*, <http://www.comcast.com/tripleplay-s/> (last visited Nov. 20, 2007). Comcast offers the \$33 per month package for customers ordering a voice, video, and data package. *Id.* Comcast also offers a package at the same price for the first year for data-only subscribers who subscribe online. ComcastOffers.com, <http://www.comcastoffers.com/> (last visited Nov. 20, 2007) (offering \$19.99 per month for 6 months, \$42.95 per month thereafter).

221. The standard rate for Comcast service is \$42.95 per month for 6 Mbps, or \$7.16 per Mbps. Comcast Help, *FAQ: What speeds are available with the Comcast High-Speed Internet or Comcast Home Networking services?*, <http://www.comcast.net/help/faq/index.jsp?faq=Connection118073> (last visited Nov. 20, 2007) (detailing the speed/price packages available for customers). AT&T Broadband limited its customers to 1.5 Mbps for \$45.95—nearly \$31 per Mbps. Larry Dignan, *AT&T Broadband Opts for Tiered Pricing*, CNET NEWS.COM, Aug. 1, 2002, <http://news.com/2100-1033-947559.html>.

recent article, Professor Yoo focused on network congestion and related economic concepts to explain why he favors less proactive neutrality regulation aimed at correcting concrete harms *ex post*.<sup>222</sup> Yoo argued, “flat-rate pricing results in excessive consumption of club resources,”<sup>223</sup> claiming that the “thirty-year old suite of protocols around which [the] Internet is currently designed . . . [is] an increasingly obsolete technology” that cannot address the bandwidth demands of today’s broadband users.<sup>224</sup> Yoo relies in part on his own research<sup>225</sup> and on a statement of the FCC’s former chief technologist, David Farber.<sup>226</sup>

Yoo, Farber, and others overlook the market’s technological response to the inadequacies of best-effort networking technologies,<sup>227</sup> as Section IV.A describes *supra*. More importantly, Yoo also overestimates the effect of congestion on the internet. Usage, traffic, and demand for service guarantees are growing, making network management more complex. However, complexity does not equate to difficulty or impossibility. Because of innovation at the network edge, both in service differentiation schemes and in the variety of last mile technologies, the internet does not neatly fit either economist James Buchanan’s “club goods” definition or economists’ definition of pure public goods.<sup>228</sup> Yoo’s arguments rely heavily on excessive consumption evidenced by widespread, constant congestion and

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222. Yoo, *supra* note 5, at 1907-08.

223. *Id.* at 1864.

224. *Id.* at 1863.

225. Daniel F. Spulber & Christopher S. Yoo, *On the Regulation of Networks as Complex Systems: A Graph Theory Approach*, 99 NW. U. L. REV. 1687 (2005).

226. Carol Wilson, *Point of No Return*, TELEPHONY, Apr. 3, 2006 (quoting former FCC Chief Technologist and Carnegie Mellon Professor David Farber to the effect that the current internet architecture is “getting old” and is increasingly unable to satisfy the demand for new functionality and services). While wrong on this point, as this section argues, Farber opposes net neutrality regulation for other reasons. See Farber & Katz, *supra* note 20.

227. A “best effort” network is one that makes no guarantees about delivering a particular piece of data, using a particular quality of service, or ensuring delivery time. A real-world analogy to best-effort delivery online is postal mail. A first-class letter carries no guarantee of delivery or time for delivery. A first class letter sent from California to New York during the summer would likely arrive at its destination more quickly than the same letter sent during the Christmas rush. A best-effort network does not necessarily fail to deliver lost data: some protocols used on internet networks—such as TCP—have provisions to “resend” a copy of your data in another “envelope” if the protocol does not receive an acknowledgement of delivery, while others—like UDP—work more like first class mail and do not resend your data in another envelope. See also *supra* note 58 (explaining the “envelope” analogy).

228. See Yoo, *supra* note 5, at 1863-64.

left unremedied due to high transaction costs.<sup>229</sup> The lack of actual congestion and high transaction costs undermine his laissez-faire position on neutrality.

### A. Overemphasizing Congestion

Using an example that follows the network path of downloading a webpage, Yoo implies that increases in complexity have led to increases in congestion.<sup>230</sup> However, as network use has grown, providers have addressed congestion problems.<sup>231</sup> While transient latency undoubtedly exists in certain places from time to time, widespread, significant congestion of the type that “gives rise to a number of important policy implications”<sup>232</sup> has decreased, not increased, over the past decade.<sup>233</sup> At Senate hearings in 2006, the Internet2<sup>234</sup> project’s Gary Bachula explained how expansion relegates congestion to largely isolated incidents. He testified that Internet2 engineers originally assumed that their new network would need advanced tools to differentiate among various types of data. However, their remedy for network-wide congestion of the type Yoo posits did not rely on QoS deployment. Bachula testified that “all of [their] research and practical experience supported the conclusion that it was far more cost effective to simply provide more bandwidth.”<sup>235</sup> Broadband technologies including fixed and mobile wireless and technologies not yet on the market may well render the congestion debate moot in the future.

Future technological advances aside, however, several studies expose the myth of increased congestion in today’s broadband era. Several organizations have undertaken long-term end-to-end performance measurement of internet connectivity since the mid-1990s.<sup>236</sup> The longest-running and most comprehensive of these studies is the Stanford Linear Accelerator Center’s Internet End-to-end Performance Monitoring (IEPM) pro-

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229. See *infra* Section VI.B.

230. *Id.* at 1861-63.

231. See *infra* note 250.

232. *Id.* at 1863.

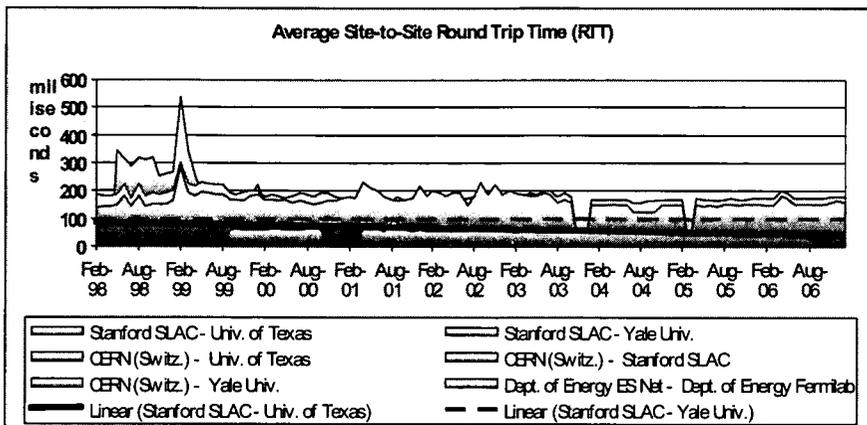
233. See *infra* notes 236-246 and accompanying text.

234. Internet2 is a non-profit advanced networking consortium of universities, commercial vendors, and government agencies. Internet2, About Internet2, <http://www.internet2.edu/about/> (last visited Nov. 20, 2007).

235. *Net Neutrality: Hearing Before the S. Comm. on Commerce, Science & Transportation*, 109th Cong. 2 (2006) (testimony of Gary R. Bachula), available at <http://commerce.senate.gov/pdf/bachula-020706.pdf>.

236. Les Cottrell et al., Comparison of Some Internet Active End-to-end Performance Measurement Projects, <http://www.slac.stanford.edu/comp/net/wan-mon/iepm-cf.html> (last visited Nov. 20, 2007).

ject.<sup>237</sup> The IEPM project maintains monitoring stations in nearly a dozen different countries, and many of the monitors have observed internet connectivity twice an hour since 1998. IEPM averages these readings together over the course of a month. While some monitor sites show significant, but transient, variability, the sites trend toward less congestion, not more.<sup>238</sup> Samples from the longest running monitor-to-monitor measurements illustrate that increased congestion has never materialized.<sup>239</sup>



The European non-profit internet infrastructure organization RIPE NCC also maintains a similar project, called Test Traffic Measurements (TTM).<sup>240</sup> RIPE's TTM project reports similar results between various worldwide sites,<sup>241</sup> whether testing between U.S. sites<sup>242</sup> or from European

237. Internet End-to-end Performance Monitoring, <http://www-iepm.slac.stanford.edu/> [hereinafter IEPM] (last visited Nov. 20, 2007).

238. See IEPM, PingER Site-by-monthly History Table, <http://www-iepm.slac.stanford.edu/cgi-wrap/pingtable.pl> (last visited Nov. 20, 2007) (Select "WORLD" from the "From" drop-down box, and retain other default form settings to replicate the data set.).

239. *Id.* The graph draws its data from the raw dataset provided by the IEPM project's data reporting engine. *Id.* The Microsoft Excel spreadsheet used to generate the graph is on file with the author.

240. RIPE NCC, Test Traffic Measurements, <http://www.ripe.net/ttm/> (last visited Nov. 20, 2007).

241. See, e.g., RIPE NCC, TTM summaries for tt01.ripe.net, <http://www.ripe.net/ttm/Plots/summary.cgi?sortfield=marked+cells&sortkey=relative+change&sortorder=descending&format=html&threshold=+40.0&unit=percent&boxname=tt01&file=summary.xml> (last visited Oct. 28, 2007) (displaying detailed latency, throughput, and transit times from RIPE NCC's monitor in Amsterdam to various worldwide sites). Each site shows six-month trend data. Long-term data is available from a search form.

to U.S. sites across the heavily trafficked trans-Atlantic connections.<sup>243</sup> U.S.-based internet traffic analyst Keynote Systems maintains website performance indices of popular consumer and business sites. Keynote's performance ratings of these major consumer<sup>244</sup> and business sites<sup>245</sup> have barely budged since their 2005 inception, despite the added textual and graphic complexity of most of its index sites over that same period.<sup>246</sup>

Despite staggering growth in users and bandwidth demands,<sup>247</sup> the deteriorating club good has yet to materialize. Professor Yoo mistakenly labels service differentiation as a provider response "to mitigate the problems of congestion and latency on the Internet."<sup>248</sup> While differentiating between applications can mitigate some congestion, no amount of reshuffling of traffic priorities can substitute for adequate bandwidth capacity. At the same time, Yoo notes that networks often "maintain a certain level of excess capacity" that can make them always appear slack.<sup>249</sup> Given this network engineering maxim, long-term evidence that belies sustained congestion problems may be less surprising. Yoo's focus on congestion

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242. See, e.g., RIPE NCC, Test Traffic Delay Plots: TT87—CERN at Starlight [Networks, a Chicago-based internet provider], Chicago, IL, US to TT84—XO Comms., Inc. Reston, Va., [http://www.ripe.net/ttm/Plots/plots.cgi?ipv=4&url=map\\_index.cgi&base=tt84&src=tt87&dst=tt84#trends](http://www.ripe.net/ttm/Plots/plots.cgi?ipv=4&url=map_index.cgi&base=tt84&src=tt87&dst=tt84#trends) (last visited Oct. 28, 2007) (displaying detailed monitor data between test sites in Chicago and Reston). Note that the six-month trend line is flat-to-declining.

243. See, e.g., RIPE NCC, Test Traffic Delay Plots: TT84—XO Comms., Inc. Reston, Va. to TT01—RIPE NCC at AMX-IX, Amsterdam, NL, [http://www.ripe.net/ttm/Plots/plots.cgi?ipv=4&url=map\\_index.cgi&base=tt01&src=tt84&dst=tt01#trends](http://www.ripe.net/ttm/Plots/plots.cgi?ipv=4&url=map_index.cgi&base=tt01&src=tt84&dst=tt01#trends) (last visited Oct. 28, 2007) (displaying detailed monitor data between test sites in Reston and Amsterdam). Again, the six-month trend line is flat-to-declining.

244. Compare Keynote Consumer 40 Internet Performance Index (KC40): Week of 08-15-2005, [http://www.keynote.com/solutions/performance\\_indices/consumer\\_index/consumer\\_40-081505.html](http://www.keynote.com/solutions/performance_indices/consumer_index/consumer_40-081505.html) (last visited Nov. 20, 2007) (reporting a KC40 Index of 30.98 seconds) with KC40: Week of 09-25-2006, [http://www.keynote.com/solutions/performance\\_indices/consumer\\_index/consumer\\_40-092506.html](http://www.keynote.com/solutions/performance_indices/consumer_index/consumer_40-092506.html) (last visited Nov. 20, 2007) (reporting a KC40 Index of 32.49 seconds). From October 2005 through October 2006, the KC40 Index rarely moved outside the range of 32 to 34 seconds.

245. Compare Keynote Business 40 Internet Performance Index (KB40): Week of 01-02-2006, [http://www.keynote.com/keynote\\_competitive\\_research/performance\\_indices/business\\_index/business-010206.html](http://www.keynote.com/keynote_competitive_research/performance_indices/business_index/business-010206.html) (last visited Nov. 20, 2007) (reporting a KB40 Index of 1.8 seconds) with KB40: Week of 01-01-2007, [http://www.keynote.com/solutions/performance\\_indices/consumer\\_index/consumer\\_40-092506.html](http://www.keynote.com/solutions/performance_indices/consumer_index/consumer_40-092506.html) (last visited Nov. 20, 2007) (reporting a KB40 Index of 1.84 seconds).

246. See generally Internet Archive Wayback Machine, <http://www.archive.org/web/web.php>, and dated archives of sites used in the KC40 and KB40 indices.

247. Yoo, *supra* note 5, at 1862-63.

248. *Id.* at 1881.

249. *Id.* at 1870.

does not explain decisions to implement application differentiation policies on networks with a surplus of bandwidth. Service differentiation tools respond not to supposedly pervasive, internet-wide congestion or latency, but to a wealth of *individual provider* needs, not the least of which is to align network resource usage with business objectives.<sup>250</sup>

Internet users owe the remarkable stability of end-to-end performance to innovations in service differentiation and management<sup>251</sup> and in last mile technologies. Companies announce new technologies for delivering content<sup>252</sup> and expansions of non-cable, non-DSL broadband platforms<sup>253</sup> on an almost daily basis. Supply keeps pace with demand due to invest-

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250. See, e.g., Press Release, NetScout Systems, Inc., Survey Reveals Users of Sophisticated Network Monitoring Tools Diagnose Network Performance Problems 69 Percent Faster (May 22, 2007), available at <http://www.netscout.com/news/07/0522b.asp> (showing broad use of QoS policies and noting that neither of the two most cited reasons for implementing QoS—representing nearly two-thirds of QoS deployments in the survey—were related to system-wide congestion); TELECHOICE, ENABLING CONTENT SERVICES: A SERVICE PROVIDER PERSPECTIVE 6 (2003), <http://www.telechoice.com/whitepapers/BCDFPaper-F.pdf> (“Each of the [broadband] providers we spoke with has spent a considerable amount of time and effort developing and implementing QoS mechanisms for their networks” to ensure service quality for both bandwidth-intensive and low-bandwidth applications, not to address network-wide congestion.); EDUCAUSE CTR. FOR APPLIED RESEARCH, INFORMATION TECHNOLOGY NETWORKING IN HIGHER EDUCATION: CAMPUS COMMODITY AND COMPETITIVE DIFFERENTIATOR 84 (2005) (finding more than three-quarters of responding bachelor’s-degree-granting educational institutions had implemented QoS for packet shaping purposes).

251. See *supra* notes 108-118 and accompanying text (discussing the development of service differentiation tools).

252. See, e.g., Jefferson Graham, *Verizon Wireless Goes Prime Time with TV Simulcasts via Cellphone*, USA TODAY, Jan. 8, 2007, at 1A (noting that Qualcomm, which provides the chipsets to Verizon Wireless for its TV service, “has invested more than \$800 million in its ambitious cell phone TV network.”); Li Yuan, *Cellphone Video Gets On the Beam: Samsung’s New Technology Enables Reception Of Digital TV Broadcasts*, WALL ST. J., Jan. 4, 2007, at B3 (describing Samsung’s new chipset enabling digital TV signal broadcasts to cellular telephones).

253. See, e.g., *Broadband via power lines to be offered in Onondaga*, WATERTOWN DAILY TIMES, Jan. 8, 2007, at B2 (“National Grid and a Syracuse company announced an agreement Thursday that will provide for a high-speed broadband over-the-power-line connection in some Syracuse suburbs.”); Press Release, Sprint Nextel, Sprint Nextel Cites WiMAX Network Progress for 2007 (Jan. 8, 2007), available at [http://www2.sprint.com/mr/news\\_dtl.do?id=15000](http://www2.sprint.com/mr/news_dtl.do?id=15000) (announcing intention “to launch Mobile WiMAX broadband services in initial markets by year-end 2007 with a larger roll-out encompassing at least 100 million people by year-end 2008.”); Press Release, Wisper Telecommunications, Inc., WisperTel Brings Wireless High-Speed Internet to Summit County (Jan. 9, 2007), available at <http://www.prnewswire.com/cgi-bin/stories.pl?ACCT=104&STORY=/www/story/01-09-2007/0004503185&EDATE=> (announcing broadband wireless service expansion).

ment in additional bandwidth capacity, such as Verizon's late 2006 announcement of a \$500 million capacity expansion from the U.S. to China.<sup>254</sup> As capacity demands increase in China, other bandwidth providers like AT&T, who "is in talks with Telekom Malaysia and . . . StarHub," race to take advantage.<sup>255</sup> Providers repeat this network investment spree all over the world. When coupled with long-term data reflecting a lack of overall network congestion,<sup>256</sup> this investment further undercuts Yoo's theory of a congested internet suffering from an "excessive consumption of club resources."<sup>257</sup>

## B. Overemphasizing Transaction Costs

Adam Thierer explained that providers facing potential excessive consumption "might need to configure network architectures differently or even restrict certain online activities."<sup>258</sup> Buchanan's theory of club goods holds that flat-rate pricing will induce club members (internet users in this case) to maximize personal consumption, since the marginal cost of another unit of usage is zero.<sup>259</sup> Taken together, these individual decisions increase overconsumption of the club good, building an economic case for usage-sensitive pricing, rather than restrictions.<sup>260</sup> Yoo theorizes that providers cannot rely on usage-sensitive pricing due to high transaction costs that Buchanan's theory necessarily assumes away.<sup>261</sup> Yoo agrees that network reconfiguration or restriction is the only option for access providers, since "the transaction costs associated with metering internet traffic are likely to be even more significant than those associated with local telephone service."<sup>262</sup>

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254. See, e.g., *Verizon Teams with Asian Companies for High-speed Cable to China*, USA TODAY, Dec. 19, 2006, at 3B.

255. *Id.*

256. See *supra* notes 236-246 and accompanying text.

257. Yoo, *supra* note 5, at 1864.

258. Adam Thierer, *Are "Dumb Pipe" Mandates Smart Public Policy? Vertical Integration, Net Neutrality, and the Network Layers Model*, 3 J. ON TELECOMM. & HIGH TECH. L. 275, 296 (2005).

259. See generally James Buchanan, *An Economic Theory of Clubs*, 32 *ECONOMICA* 1 (1965); RICHARD CORNES & TODD SANDLER, *THE THEORY OF EXTERNALITIES, PUBLIC GOODS, AND CLUB GOODS* 351-52 (1996).

260. Yoo, *supra* note 5, at 1864.

261. *Id.* at 1865 (Buchanan's model showing a preference for usage-based pricing "depends on the assumption that exclusion and metering is costless.").

262. *Id.* at 1875.

However, Yoo's justification relies on outdated information<sup>263</sup> and overemphasizes transaction costs in an attempt to support his arguments against network neutrality. Professor Yoo bases much of his economic argument for "allow[ing] network providers to pursue alternative pricing regimes" on flawed, and now extremely outdated, research by economists Jeffrey MacKie-Mason and Hal Varian. As this section explains, their research into pricing mechanisms on internet networks reflected a deep misunderstanding of the internet's connection-oriented traffic and the traffic accounting and management tools available to providers in 1995. MacKie-Mason and Varian also arrived at conclusions about the future that overlooked the potential for technological advances. Yoo compounded each of these misunderstandings. Yoo cited their work without acknowledging the *actual* technological advances in traffic accounting and management since 1995, much less the erroneous 1995-era assumptions in the original.<sup>264</sup> Like MacKie-Mason, he erred in applying the concept of a dynamic, "connectionless" internet to the connection-oriented data streams that flow over it.<sup>265</sup> Relying on this flawed foundation, Yoo concluded transaction costs in metering and monitoring internet traffic were "likely to be even more significant than those associated with local telephone service."<sup>266</sup>

### 1. Theoretical Congestion Solutions

Jeffrey MacKie-Mason and Hal Varian first applied Buchanan's congestion pricing model to the internet, proposing a market-priced approach to resource allocation on congested networks.<sup>267</sup> In MacKie-Mason and Varian's model, each packet on a network would carry a bid value indicating how much the packet owner would pay to pass the packet through a congested device.<sup>268</sup> The router would compare the values of all incoming packets in an auction format, admitting the highest bidders. Provided the

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263. *E.g.*, *id.* at 1854 n.24, 1868 n.94, 1875 n.125, 1883 n.168, 1884 n.171 (citing Jeffrey K. MacKie-Mason & Hal R. Varian, *Some FAQs About Usage-Based Pricing*, 28 *COMPUTER NETWORKS & ISDN SYS.* 257, 263 (1995)); *see also infra* notes 285-297 (addressing the shortcomings of MacKie-Mason & Varian's work and its inapplicability to modern networks).

264. *E.g.*, Yoo, *supra* note 5, at 1875 (citing MacKie-Mason and Varian and repeating their mistaken assumption that "multiple records are required to account for every Internet-based communication" because of supposedly untraceable packet-by-packet internet communication).

265. *Id.* ("In addition, the Internet is connectionless, in that it does not establish a closed, dedicated circuit between the originating and the terminating computers.")

266. *Id.*

267. Jeffrey K. MacKie-Mason & Hal R. Varian, *Pricing the Internet*, in *PUBLIC ACCESS TO THE INTERNET* 269 (Brian Kahin & James Keller eds., 1995).

268. *Id.* at 293.

bids accurately reflected owner preferences, the congestion market would theoretically internalize the congestion externalities.<sup>269</sup>

The system devised by the two economists has several practical shortcomings, though. Bids need updates to avoid packet loss when bid “money” runs out after traversing several congested networks successfully. While computing power and programming ingenuity could overcome some of the transaction costs of processing messages in such a system, the signaling required to notify packet owners would further burden the already congested links and result in additional delays for packet delivery. Worse, network operators would effectively lose control of their network operations under a protocol-based congestion resolution mandate.

While theoretical solutions, such as MacKie-Mason and Varian’s, preferred usage-based pricing, they traditionally assumed that any necessary metering carried no costs.<sup>270</sup> Later research relaxed this assumption, finding that competitive sellers could achieve the same equilibrium by offering a flat-rate price that equaled the base price in a usage-sensitive model plus the unit costs at the Pareto optimal consumption.<sup>271</sup> As Yoo noted, under this relaxed model, providers can “choose the pricing regime that imposes the fewest transaction costs.”<sup>272</sup>

In this sense, engineering concerns have a significant effect on a provider’s choice to price-discriminate. Instead of a market-pricing approach, providers have approximated a congestion-prevention solution at the network’s edges (likely inflaming the net neutrality debate in part). This split-edge pricing framework<sup>273</sup> attempts to solve the problems created by settling payments for each individual packet in the MacKie-Mason and Varian model.<sup>274</sup> Rather than force packet owners to make individual pay-

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269. *Id.*

270. Robert W. Helsley & William C. Strange, *Exclusion and the Theory of Clubs*, 24 CAN. J. ECON. 888, 889, 895-96 (1991) (noting that earlier research found Pareto efficiency only if exclusion or metering were costless).

271. Robert J. Barro & Paul M. Romer, *Ski-Lift Pricing, with Applications to Labor and Other Markets*, 77 AM. ECON. REV. 875, 876-79 (1987).

272. Yoo, *supra* note 5, at 1866.

273. The term “split-edge pricing,” and the theory behind its modified congestion model, first appeared in a paper presented by British Telecom researcher Bob Briscoe in 1999. Bob Briscoe, British Telecom Networks Research Ctr., *The Direction of Value Flow in Connectionless Networks: Address before the First Annual Workshop on Networked Group Communication* (Nov. 19, 1999), *available at* [http://www.cs.ucl.ac.uk/staff/bbriscoe/projects/charging/qos-based/e2char/valflow\\_ngc99.html](http://www.cs.ucl.ac.uk/staff/bbriscoe/projects/charging/qos-based/e2char/valflow_ngc99.html).

274. Several technical approaches to address congestion exist in addition to split-edge pricing. IP packet headers include, though rarely use, an explicit congestion mechanism (ECN) to signal network congestion explicitly to end users. On frame relay networks, devices regularly use similar notifications (Forward and Backward ECN, or FECN and

ments at each congested network device, owners in a split-edge-priced network pay only at the network's edge. Each edge provider sets the cost of delivering packets across its network based on its internal costs, the costs of transferring traffic to other networks, and "one of possibly many classes of service."<sup>275</sup>

In the split-edge pricing framework, both senders and receivers pay a charge for transmissions, with potentially different prices in each direction.<sup>276</sup> Briscoe's framework presents several models for payments, advocating the use of third-party clearinghouses that iteratively settle interdomain charges between providers. He notes, however, that there is "nothing to stop providers or customers [from] assuming the clearinghouse role."<sup>277</sup> The third-party clearinghouse has never materialized on the internet. As discussed in Section III.B, providers have instead entered into pairs of financial agreements at each point: end users with last mile providers, last mile providers with backbone providers, etc.<sup>278</sup>

## 2. *Correcting MacKie-Mason, Varian, and Yoo's Misunderstandings*

If the internet suffers from transient and isolated congestion, then high transaction costs would theoretically explain the pervasive flat-rate prices in broadband and dial-up internet access. Yoo turns to traditional telecommunications metering regimes in an attempt to explain internet pricing mechanisms.<sup>279</sup> However, parties in the net neutrality debate should avoid equating the evolution of service and pricing in the largely unregulated internet sector with that of the highly regulated telecommunications sector.

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BEEN) to signal congestion. ATM networks offer built-in classes of service that can allow congestion (unspecified bit rate, or UBR), reserve bandwidth for a particular ATM user (constant bit rate, or CBR), or provide a way to eliminate congestion by allowing the ATM network to recapture unused bandwidth (variable bit rate, or VBR). As built-in features of standard protocols and data encapsulations, their use does not result in transaction costs. These technical approaches are beyond the scope of this article.

275. Briscoe, *supra* note 273, at § 5. Briscoe notes that this model is general enough to include specific tools such as "RSVP and diffserv." *Id.* The latter term refers to the technical name for the open source Linux tools described at notes 109-111, *supra*, and accompanying text.

276. Briscoe, *supra* note 273, at §§ 5, 9.

277. *Id.* at § 7.

278. Briscoe describes this system in one of his example scenarios: "A price needs to be set and settlement made between each pair of parties. If this is achieved, end-to-end, between the parties involved there are no further engineering implications—the pairs of parties clearly trust each other enough to enter into a financial arrangement and are willing to accept the cost of the transaction." *Id.* at § 9.1.

279. Yoo, *supra* note 5, at 1866-70.

As Yoo noted later, “Internet-based communications operate on fundamentally different principles.”<sup>280</sup> Despite this, he still assumed that “the transaction costs associated with metering Internet traffic are likely to be even more significant than those associated with local telephone service.”<sup>281</sup>

The underlying reasons for price discrimination and usage-based pricing help illustrate why the reverse is increasingly true. Internet providers’ attraction to service and price discrimination will likely increase for two reasons.<sup>282</sup> Just as a pharmaceutical drug costs millions to develop but dramatically less to manufacture and distribute, the total cost of providing internet service consists increasingly of capital expenditures and one-time expenses rather than marginal costs.<sup>283</sup> Accordingly, the effect of transaction costs on the bottom line of service providers is gradually decreasing. At the same time, technology has made price discrimination simpler and less costly. In 2000, Amazon created a stir when it experimented with dynamic pricing.<sup>284</sup> Brick-and-mortar booksellers had few tools in the pre-internet days to create similar schemes. Internet service providers, too, benefit from advancements in technology that enable detailed levels of control over traffic.

The overemphasis on transaction costs may stem from rapid advancement in technologies. A decade ago, commentators differentiated between the connection-oriented telephony network and a “connectionless” internet. MacKie-Mason and Varian wrote that “if telephone-style accounting were implemented [for the Internet], the equivalent of a one-minute local phone call would generate about 2500 accounting records, and a ten-

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280. *Id.* at 1875.

281. *Id.*

282. Studies have long held that “generally, discriminatory prices [are] required for an optimal allocation of resources in real life situations.” See LOUIS PHILIPS, *THE ECONOMICS OF PRICE DISCRIMINATION* 1 (1983) (emphasis omitted).

283. See, e.g., *supra* notes 88-89 and accompanying text. The advent of fixed wireless technologies, the widespread availability of co-location and shared web hosting facilities, and the emergence of niche application providers have lowered the variable costs of providing internet service.

284. David Streitfeld, *On the Web, Price Tags Blur; What You Pay Could Depend on Who You Are*, WASH. POST, Sept. 27, 2000, at A1. Customers reported similar activity in the spring of 2000, and a summer 2000 academic study found evidence of dynamic pricing on Amazon’s site. Coca-Cola also reportedly experimented with soda machines that could dynamically price drinks based on the temperature. *Id.*; see also Robert M. Weiss & Ajay K. Mehrotra, *Online Dynamic Pricing: Efficiency, Equity, and the Future of E-Commerce*, 6 VA. J. L. & TECH. 11 (2001). Should Amazon resurrect the use of discriminatory pricing, it too would make an interesting case study for the application of Dr. van Schewick’s monopoly theories. See *supra* note 134 and accompanying text.

minute call would require 25,000 records.”<sup>285</sup> The authors used the analogy of web server logs recording an accounting record or “hit” for each individual file accessed on a webpage. If usage analysis required examining a “hit” in a log for every packet, then providers attempting usage analysis would struggle under a deluge of data. With incredulity, MacKie-Mason and Varian wrote that low-quality compressed video required “about 45 Mbs—which is the entire capacity of the NSFNet backbone.”<sup>286</sup> Today’s users can watch compressed video feeds from YouTube, professional sports leagues, and video blogs with considerably lower speed connections, just as traffic accounting technologies have improved.<sup>287</sup>

However, MacKie-Mason, Varian, and Professor Yoo misunderstand what engineers and technical commentators meant by “connectionless.” The internet’s underlying architecture is connectionless “in that it does not establish a closed, dedicated circuit between the originating and the terminating computers. Instead, each packet is allowed to move independently.”<sup>288</sup> However, the data streams running over this dynamic internet have never been “connectionless,” even in 1995. The path *between* a particular source and destination on the internet can change dynamically, but the source and destination endpoints remain the same regardless of the particular network path selected. An end user who connects to a particular website will create a distinct, connection-oriented stream of communication between their computer and the web server hosting the site. The user-to-server connection, regardless of the number of files actually downloaded from the site, has a distinct, recognizable “signature.”<sup>289</sup> Even at the time of MacKie-Mason and Varian’s article, the free Linux operating system supported rudimentary filtering.<sup>290</sup> Modern tools allow provid-

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285. MacKie-Mason & Varian, *supra* note 263, at 263 (1995).

286. *Id.* at 260. “Mbs” means “Mbps.” *See supra* note 77.

287. *E.g.*, Major League Baseball, *supra* note 77.

288. Yoo, *supra* note 5, at 1875. Although he does not cite it directly, Professor Yoo cites the same (correct) definition used by MacKie-Mason and Varian. *See* MacKie-Mason & Varian, *supra* note 263, at 263.

289. More technically, the “signature” of a TCP or UDP connection consists of a wealth of potential information: IP addresses, port numbers, connection “states,” packet sizes, types of information, and more. *See* INFO. SCIS. INST., UNIV. OF S. CAL., RFC 793: TRANSMISSION CONTROL PROTOCOL (TCP) DARPA INTERNET PROGRAM PROTOCOL SPECIFICATION (Jon Postel ed., 1981), *available at* <http://www.ietf.org/rfc/rfc793.txt>; JON POSTEL, RFC 768: USER DATAGRAM PROTOCOL (UDP) (1980), *available at* <http://www.ietf.org/rfc/rfc768.txt>. The discussion that follows draws primarily from those two technical standards documents.

290. Mark Stone, *A Linux Firewall Primer*, LINUX.COM, Oct. 14, 2004, <http://security.linux.com/security/04/10/11/2030249.shtml?tid=100&tid=35> (“Firewall code has been included in standard Linux distributions from early on.”).

ers to identify traffic based on any portion of the data stream signature without inspecting each packet.<sup>291</sup> Those same tools permit providers to classify, police, mark, and re-queue packets for delivery based on their service differentiation policies.<sup>292</sup> These filtering mechanisms' abilities to identify streams of traffic are unaffected by the "connectionless" path between the streams' source and destination, a crucial distinction that fatally undermines MacKie-Mason, Varian, and Yoo's conclusions about accounting costs for those data streams.<sup>293</sup>

Providers can now generate reports and bill customers based on bandwidth usage as well, something virtually impossible in 1995. Cisco's NetFlow software enables providers to perform "network traffic accounting, usage-based network billing, network planning, security, Denial of Service monitoring capabilities, and network monitoring."<sup>294</sup> The company touts its NetFlow software in customer usage-based billing case studies.<sup>295</sup> Popular internet provider billing software supports not just Cisco's NetFlow, but other service differentiation products on the market as well.<sup>296</sup> Internet providers with more available technical knowledge than available capital can download less expensive, or free, utilities to provide similar functionality.<sup>297</sup>

### 3. *A Forward-Looking Justification for Ex Post Regulation*

Professor Yoo may find justification for his ex post regulatory stance, however, by looking forward at the possibilities of innovation, rather than backward at misunderstood internet technologies. Game theory research

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291. See RUSTY RUSSELL, LINUX 2.4 PACKET FILTERING HOWTO § 7 (2002), <http://www.netfilter.org/documentation/HOWTO/packet-filtering-HOWTO-7.html>.

292. See generally Hubert et al., *supra* note 118.

293. See Stone, *supra* note 290; RUSSELL, *supra* note 291.

294. Cisco Systems, Cisco IOS Netflow, [http://www.cisco.com/en/US/products/ps6601/products\\_ios\\_protocol\\_group\\_home.html](http://www.cisco.com/en/US/products/ps6601/products_ios_protocol_group_home.html) (last visited Nov. 20, 2007) (emphasis added).

295. CISCO SYS., INC., GTE INTERNETWORKING (2006), [http://www.cisco.com/warp/public/cc/pd/iosw/ioft/neflct/profiles/gtent\\_cp.pdf](http://www.cisco.com/warp/public/cc/pd/iosw/ioft/neflct/profiles/gtent_cp.pdf).

296. Rodopi Software, Bandwidth Management Devices, <http://www.rodopi.com/index.php?page=20701> (last visited Nov. 20, 2007).

297. See, e.g., ntop.org, network top, <http://www.ntop.org/news.html> (last visited Nov. 20, 2007); NetUP Inc., UTM 5: Universal ISP Billing System, <http://www.netup.biz/article-utm5-billing-system-modules.php> (last visited Nov. 20, 2007); FreeSide Billing and Trouble Ticketing, <http://www.sisd.com/freeside/> (last visited Nov. 20, 2007). The ntop project also includes a lightweight probe called "nprobe" that uses Cisco's NetFlow protocol, and therefore integrates with any commercial or non-commercial billing package that supports NetFlow. ntop.org, nProbe, <http://www.ntop.org/nProbe.html> (last visited Nov. 20, 2007).

applied to internet protocol design may obviate any debate about high transaction costs for usage-based billing and provide the essentially cost-free transactions necessary for Buchanan's theory to appear in internet access pricing.<sup>298</sup> Existing solutions described above, while low-cost compared to MacKie-Mason and Varian's packet-by-packet accounting, carry much higher costs than a future dynamic pricing protocol—such as their “bid” method<sup>299</sup>—would. When used to remove adverse user incentives,<sup>300</sup> the theory of mechanism design could allow a new internet protocol developed through game theory research to capture usage automatically without the need for external billing systems or analysis software.<sup>301</sup>

Several researchers have reported their practical experiences applying mechanism design and game theory to internet networking.<sup>302</sup> While some of these researchers encountered difficulties applying theory to networking models,<sup>303</sup> any application that improves upon the current add-on external reporting schemes such as NetFlow—for example, by adding a dynamic, internal component or by replacing external reporting completely—could lower transaction costs dramatically. One of the shortcomings of Dr. van Schewick's theories is their inapplicability to the real internet.<sup>304</sup> To provide a foundation for Professor Yoo's ex post regulation, game theory and mechanism design must overcome this same barrier. Harvard researchers Jeffrey Shneidman and David Parkes have made progress toward ensuring that game theory can apply to real-world distributed internet networks. In a 2004 symposium paper, Shneidman and Parkes presented methods to prove that an implementation of a mechanism in a real-world distributed

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298. See *supra* notes 258-261 and accompanying text.

299. See *supra* text accompanying notes 268-270.

300. See *infra* Part V.A.

301. Mechanism design takes game theory to “game reality” by ensuring that a game's design achieves a particular outcome. In this case, game theory would develop the protocol, and mechanism design would ensure that the real world outcome matched the intended result. See *generally* ERIC RASMUSSEN, GAMES AND INFORMATION (4th ed. 2006).

302. E.g., Elgan Huang et al., *Rethinking Incentives for Mobile Ad Hoc Networks*, in PROCEEDINGS OF THE ACM SIGCOMM WORKSHOP ON PRACTICE AND THEORY OF INCENTIVES IN NETWORKED SYSTEMS 191 (2004); Ratul Mahajan et al., *Experiences Applying Game Theory to System Design Networks*, in PROCEEDINGS OF THE ACM SIGCOMM WORKSHOP ON PRACTICE AND THEORY OF INCENTIVES IN NETWORKED SYSTEMS 183 (2004).

303. Mahajan, *supra* note 302, at 183-90.

304. See *supra* note 181 and accompanying text.

system will match a designer's specification.<sup>305</sup> Just as MacKie-Mason and Varian scoffed at the idea of accounting for traffic flows in real time in 1995, the currently implausible idea of an internet protocol that automatically manages usage-based pricing may prove simplistic by 2015.

Commentators outside of internet service provider and engineering research circles, unfortunately, have not always kept pace with these technological advances, and sometimes rely on outdated research<sup>306</sup> or misunderstandings of technical issues.<sup>307</sup> However, the innovative internet market does not wait for theoretical research. With transaction costs for service differentiation low, capacity problems transient at worst, and internet providers free from common carrier regulation or legacy billing practices of telephony providers, usage-based pricing already should have emerged. However, despite a myriad of possible pricing schemes,<sup>308</sup> flat-rate prices still dominate the broadband access sector.<sup>309</sup> This pricing phenomenon has a simple explanation: the power of end users. End users also hold the key to a uniform disclosure solution that avoids market regulation while encouraging the market to bypass any future discriminatory burdens on new innovators.<sup>310</sup>

## VII. THE HUMAN ELEMENT

### A. End User Effects on Pricing and Service

All internet service pricing schemes share a common element: end users. Especially in the United States, end users view unlimited, flat-rate

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305. Jeffrey Shneidman & David C. Parkes, *Specification Faithfulness in Networks with Rational Nodes*, in 23 ACM SYMPOSIUM ON PRINCIPLES OF DISTRIBUTED COMPUTING 88 (2004).

306. See, e.g., Yoo, *supra* note 5, at 1854 n.24 (citing MacKie-Mason & Varian, *supra* note 263); *id.* at 1868 n.95 (citing a January 1998 article about telecommunications billing practices); *id.* at 1875 n.125 (citing MacKie-Mason & Varian, *supra* note 263).

307. See, e.g., *id.* at 1875. Drawing from MacKie-Mason & Varian, *supra* note 263, Yoo writes that "multiple records are required to account for every Internet-based communication," when networking equipment today no longer inspects data in this way.

308. Yoo, *supra* note 5, at 1870-72 (describing the various pricing schemes used in telecommunications, including peering exchanges and wireless telephony service).

309. See, e.g., Consumers Union of U.S., Inc., *Internet Service: Fiber Joins the Fray*, CONSUMER REP., Feb. 2007, at 24. The report lists a flat-rate price for all twenty-nine providers rated.

310. This addresses a central concern of net neutrality proponents like Professor Lessig. See Lessig Testimony, *supra* note 27, at 2 ("The incentives in a world of access-tiering . . . will only burden new innovators.").

internet access as the standard.<sup>311</sup> As Andrew Odlyzko of the University of Minnesota's Digital Technology Center notes, "[p]eople react extremely negatively to price discrimination. They also dislike the bother of fine-grained pricing, and are willing to pay extra for simple prices, especially flat-rate ones."<sup>312</sup> Judging from pervasive flat-rate wireline and wireless telephone service in the United States,<sup>313</sup> users appear willing to avoid complex pricing schemes, even if they pay a premium for a simple, more predictable plan.

Few actual usage-based pricing studies of broadband internet access exist, since users have generally insisted on flat-rate pricing. Instead, economic theory and applied mathematics have helped to explain the market's adoption of flat-rate pricing. Rather than provider transaction costs or internet congestion, small-scale economic studies and game theory research have found that users *themselves* have the greatest effect on the market's pricing choices.

In an early study from the late 1990s, the Internet Demand Experiment (INDEX) project studied user responses to usage-based pricing for access to different levels of service.<sup>314</sup> The project tested approximately seventy users, giving them access via ISDN at speeds up to 128 Kbps. Users could select a free low-speed connection, or pay per minute and per byte for higher speed connections. The project's results supported the idea that users preferred flat-rate pricing, even when researchers required users to pay a premium for it.<sup>315</sup> The study had a limited scope, given the small sample size and the tendency of subjects to be early adopters and heavy users of the internet.<sup>316</sup> Furthermore, the study did not test service differentiation within a broadband connection. However, other studies of user responses to application differentiation indicate that users prefer the stable service

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311. Thierer, *supra* note 258, at 299 ("[T]he web-surfing public has come to view 'all you can eat' buffet-style, flat-rate pricing as a virtual inalienable right.").

312. ANDREW ODLYZKO, PRICING AND ARCHITECTURE OF THE INTERNET: HISTORICAL PERSPECTIVES FROM TELECOMMUNICATIONS AND TRANSPORTATION 29 (2004), <http://www.dtc.umn.edu/~odlyzko/doc/pricing.architecture.pdf>.

313. Yoo, *supra* note 5, at 1868, 1870.

314. Richard J. Edell & Pravin P. Varaiya, *Providing Internet Access: What We Learn from INDEX*, 13 IEEE NETWORK, Sept./Oct. 1999, at 18-25.

315. HAL R. VARIAN, THE DEMAND FOR BANDWIDTH: EVIDENCE FROM THE INDEX PROJECT (2002), available at <http://www.sims.berkeley.edu/~hal/Papers/brookings.pdf>.

316. *Id.* at 5. ("This is indicated by the following statistics: 91% had used the Internet for more than 3 years [in 1998], 86% had used computers for more than 5 years, 58% characterized their Internet use as 'above average,' 56% considered themselves 'computer professionals'") (alteration in original).

levels of discrimination, even when allowing bandwidth to vary would result in more average bandwidth over time.<sup>317</sup>

Game theory researchers have suggested that users will take action to enforce their preferences for flat-rate pricing. Congestion or usage-based pricing mechanisms may encourage users to “cheat” to gain better access. Steven Bauer and Peyman Faratin’s analysis applied game theory to internet networking directly. Their results showed that usage-based pricing created incentives for users to implement strategies to increase overall network capacity and decrease their long-term costs:

[U]sers can lower their own overall long-term contribution to a capacity expansion cost by paying smaller penalties (i.e. smaller congestion charges) earlier . . . thereby enabling their later and larger amounts of traffic to enjoy the benefit (i.e. a congestion free expanded network capacity). By causing congestion in earlier time periods a selfish user can induce other players that would have been “free riders”—sending traffic while there was no congestion—to now contribute to the capacity expansion cost.<sup>318</sup>

By using congestion-creating strategies earlier, users could force providers to increase capacity, making congestion-based charges unlikely in the future. While Bauer and Faratin doubted that users would be sophisticated enough to execute congestion avoidance strategies, “the capability of classes of applications to exhibit strategic behaviors makes understanding the incentives created by congestion pricing a very relevant issue.”<sup>319</sup>

Despite Bauer and Paratin’s doubts, users have employed strategies in the past to defeat usage-based pricing and instead force providers to increase capacity. When faced with insufficient capacity, dial-up users often used programs that sent periodic traffic across a modem to avoid provider-imposed limits on inactivity or connection duration. By evading these lim-

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317. E.g., Anna Bouch et al., *Of Packets and People: A User-Centered Approach to Quality of Service*, in PROCEEDINGS OF THE 8TH INT’L WORKSHOP ON QUALITY OF SERVICE 189 (2000); see also Tony Hallett, *Broadband Users “Would Pay More For Quality”*, ZDNET.CO.UK, Oct. 13, 2003, <http://news.zdnet.co.uk/communications/0,1000000085,39117081,00.htm> (detailing a survey of 6,000 broadband users in the U.K. finding “over half of all broadband users . . . would be willing to pay a premium for QoS”).

318. Steven Bauer & Peyman Faratin, *Analyzing Provider and User Incentives Under Congestion Pricing on the Internet*, in 1 PROCEEDINGS OF THE CSAIL STUDENT WORKSHOP 9, 10 (2005), available at <http://projects.csail.mit.edu/csw/2005/proceedings/Proceedings.pdf>.

319. *Id.*

its, users kept more provider telephone lines in use, requiring the provider to add capacity.<sup>320</sup> Dial-up service providers regularly banned any “programs designed to keep a connection up by sending regular amounts of data through the dial-up connection” in standard terms of service agreements with users.<sup>321</sup> One popular software download site still lists forty-four different dial-up internet service tools to prevent connection terminations or to reconnect automatically to a provider.<sup>322</sup> Large broadband providers, server co-location and web hosting providers, educational institutions, and even smaller local access providers ban many peer-to-peer applications, spam, or systematic downloads.<sup>323</sup> Websites discuss end-user strategies for using quality of service tools to increase download speeds and interactivity at the expense of other users by defeating access providers’ queuing techniques used to improve download capacity for all users.<sup>324</sup> The use of various congestion-creating strategies to force providers

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320. For example, Skye/net’s user-to-modem ratio in South Bend, Indiana was 4-to-1 before implementing these rules, with 100% usage during peak late afternoon and early evening periods. After implementing inactivity and duration limits, Skye/net was able to maintain a ratio closer to 8-to-1 with approximately 85% peak usage without adding additional capacity. *See supra* note 78 (author managed Skye/net’s network operations).

321. Skye/net Network Servs., Inc., *supra* note 78; *see also* Cyberlink International, Member Agreement: Terms and Services, <http://www.cyberlinkint.com/agreement.asp> (last visited Nov. 20, 2007) (banning any method “to defeat the network inactivity termination” of fifteen minutes).

322. Free Downloads Center, Keep Alive Tools, [http://www.freedownloadscenter.com/Network\\_and\\_Internet/Keep\\_Alive\\_Tools/](http://www.freedownloadscenter.com/Network_and_Internet/Keep_Alive_Tools/) (last visited Nov. 20, 2007).

323. *E.g.*, AT&T, High Speed Internet and Dial Terms of Service, <http://home.bellsouth.net/csbellsouth/s/s.dll?spage=cg/legal/att.htm&leg=tos> (last visited Nov. 20, 2007) (Users “agree that [AT&T’s] Service is not to be used to host peer-to-peer application [sic] [the user is] not actively using” and are prohibited from “[s]ystematic retrieval of data or other content” from AT&T’s service.); Bluefish Web Hosting, Acceptable Use Policy, <http://www.bluefishhosting.com/policyAcceptUse.html> (last visited Nov. 20, 2007) (banning unsolicited commercial e-mail—spam—not only because of its negative consumer effects, but also “because it can overload BlueFish’s network and disrupt service to its Customers subscribers”); Binghamton Univ., Issues and Practices Concerning Peer-to-Peer Programs, <http://training.binghamton.edu/navdisplay.asp?navfilename=NAV-P2P2> (last visited Nov. 20, 2007) (limiting peer-to-peer traffic through the use of quotas and system-wide caps in large part because of its congestive effects); Fordham Univ., Peer-to-Peer Policy, [http://www.fordham.edu/campus\\_resources/administrative\\_offic/legal\\_counsel/university\\_policies/information\\_technolo/peer\\_to\\_peer\\_policy\\_17245.asp](http://www.fordham.edu/campus_resources/administrative_offic/legal_counsel/university_policies/information_technolo/peer_to_peer_policy_17245.asp) (last visited Nov. 20, 2007) (same); UpHi.net, LLC, Service Agreement, [http://uphi.net/service\\_agreement.htm](http://uphi.net/service_agreement.htm) (last visited Nov. 20, 2007) (local New Mexico provider reserving the right to terminate customer accounts without notice for use for numerous congestion-causing events).

324. *E.g.*, Hubert et al., *supra* note 118, <http://lartc.org/howto/lartc.cookbook.ultimate-tc.html>.

to increase capacity would help explain the lack of long-run congestion in the IEPM project's results.<sup>325</sup>

The studies and empirical evidence summarized here suggest that users are reluctant to accept complex, usage-based pricing schemes. As recent research indicates, they may prefer a simpler, more predictable mechanism, even if that flat-rate mechanism allocates resources less economically or fairly. Users with sufficient power to enforce pricing levels, who influence provider capacity decisions and choose from among multiple competitive broadband options, need better information about broadband services, not the illusory "protection" of neutrality regulation.<sup>326</sup>

### B. Why Doing Nothing Now, or Acting Post-Harm, Could Fail

The net neutrality issue is not a simple two-sided coin. The internet's tumultuous history, economies of demand, Coase's lighthouses, and macroeconomic theories of libertarian government, among others, provide justification for embracing network competition and avoiding regulation. Judging by user awareness of terms such as "spam," "firewall," "spyware," "Internet cookies," and "adware" in a recent Pew Research study,<sup>327</sup> and the proliferation of spam, virus, and spyware filtering appliances for internet providers, users may actually *expect* certain types of non-neutrality from their providers. Historical lessons of user power support a market solution without government regulation.

However, while a regulation-free environment may avoid certain consequences, total government inaction or even *ex post* remedies may result in other, less desirable ones. Net neutrality advocates are right to rely on the same *ex post* justifications in Section VI.B.3 *supra* in worrying that network providers will discriminate against users at the first opportunity. If game theory research someday produces an internet protocol that pushes the balance of power in favor of providers, discrimination may be both difficult to identify and difficult to stop.<sup>328</sup> As Lemley and Lessig wrote: "To say there is no reason to use a seatbelt because there is always the

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325. See *supra* notes 237-246 and accompanying text.

326. See *infra* Section VII.B for a discussion of why neutrality regulation as envisioned by Lessig, Wu, and van Schewick or Yoo could easily fail.

327. Memorandum from Lee Rainie, PIP Director, Pew Internet & American Life Project (July 2005), available at [http://www.pewinternet.org/pdfs/PIP\\_Data\\_Techterm\\_aware.pdf](http://www.pewinternet.org/pdfs/PIP_Data_Techterm_aware.pdf).

328. Scott Carlson, *Managing Bandwidth: Packet Shapers Control the Flow*, CHRON. HIGHER EDUC., Jan. 30, 2004, at 7 ("In the future, packet shapers will probably become ubiquitous, easier to use, and smarter about how they manage traffic on networks . . .").

care of an emergency room is to miss the extraordinary cost of any ex post remedy.”<sup>329</sup>

Ex post remedies such as antitrust law or alternative regulatory remedies that can address concrete harms to competition have the same intuitive appeal as regulations “guaranteeing” a nondiscriminatory internet. Ex post remedies and neutrality regulation, however, present similar difficulties in application, such as distinguishing anticompetitive behavior from technical issues, the difficult task of defining “neutrality,” and political capture of regulators. Acting preemptively or ex post, legislators and FCC commissioners would struggle to identify and measure the effects of innovation that never happened,<sup>330</sup> whether due to the unintended effects of regulatory mandates or to laissez-faire approaches to net neutrality.

A simple hypothetical illustrates the difficulty that regulators would face applying either net neutrality regulations or Yoo’s ex post enforcement. Any regulatory regime would need to separate actual discrimination that harms the market from inevitable transient performance issues that users encounter online daily. Assume that regulators discover that Sinister Cable’s customers can no longer access internet television service from NetTube, a popular upstart content provider, due to excessive jitter.<sup>331</sup> Among partisan regulatory commission members,<sup>332</sup> two theories emerge. One side believes that Sinister Cable has configured software on their set-top boxes to inject network delay with the goal of derailing NetTube’s service in favor of its own. If true, Sinister Cable’s actions would violate the net neutrality regulations and cause a concrete harm in the market.

Other regulators argue that Sinister Cable is not behind the problems for NetTube subscribers. They point to evidence that Sinister Cable’s service configurations are nondiscriminatory, and that a bug in third-party software licensed by Sinister Cable caused unforeseen problems with NetTube’s unique IP television protocol. In fact, Sinister Cable has

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329. Lemley & Lessig, *supra* note 27, at 956.

330. See *supra* note 184 (postulating that like intellectual property systems, the never-was-neutral internet may foster greater innovation); *supra* note 104 and accompanying text (discussing the innovative market response to CIX’s attempt to leverage their near-monopoly position in 1994).

331. In lay terms, jitter simply refers to the gaps in delivery times between data packets. Services such as IP voice and video are sensitive to delays between packet deliveries. Repeated half-second pauses in packet delivery, for example, would render video streams unwatchable. Excessive jitter would be akin to having a conversation with someone who stopped talking for a few seconds after every third or fourth word.

332. Unfortunately, partisan wrangling is often *not* hypothetical—another danger in leaving the definition of “concrete harm” to the political capriciousness of Congress or the FCC.

worked for months with the third-party software developer and posted software patches long before any of its customers complained to regulators. The company and some of its cable provider brethren also present the agency with a wealth of peer-reviewed scientific evidence showing that, while its shared cable architecture offers higher speeds, it suffers from more variability in packet delivery as a result. With the software problem fixed, the jitter problems appear to dissipate enough for the NetTube service to function. These regulators argue that net neutrality and concrete harm regulations should not hold Sinister Cable liable for software bugs and architecture limitations beyond its control.

The debate quickly devolves into a political power struggle, a non-neutral outcome that could result in significant concrete harm of its own. Worse yet for policymakers, Sinister Cable's motives remain private. While the company might not have taken any deliberate or obvious steps to create the problem, it did not fret over NetTube's service problems. The company took several months to release a patch, and then did so without fanfare, leaving NetTube customers without service until media attention revealed the patch's existence. Sinister Cable could return to quietly managing its cable network so that jitter remains a problem.

This situation closely mirrors the Cox/Craigslist situation described earlier.<sup>333</sup> The combination of Craigslist's non-standard server configuration and a bug in the third-party security software prevented Cox customers from accessing Craigslist. Craigslist configured their servers in a non-standard way, exploiting a third party's software bug. Cox released a full patch months after its third-party provider found the bug,<sup>334</sup> and Cox customers have not reported similar problems since. For its part, Cox denied that it had ever considered interfering with Craigslist, just as Comcast claimed that its selective edit of a Nightline broadcast was an encoding error by ABC.<sup>335</sup> A network provider that wants to cause network disruptions to gain an advantage over competitors can easily do so and present plausible reasons for its decisions. Laws and regulations cannot act as divining rods, locating the true intentions of an internet service or content provider. While courts might fairly adjudicate intent in other contexts, internet service presents a special case. Sinister Cable is unlikely to pro-

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333. See *supra* notes 159-164.

334. The original fix was just an unsupported beta patch. David A. Utter, *Authentium Responds to Craigslist Flap*, WEBPRONews, June 8, 2006 ("The beta of the fix was made available almost immediately—in mid-March." (quoting John Sharp, CEO of Authentium)). The full release came out several months later. See Foremski, *supra* note 159.

335. McCarthy, *supra* note 165.

vide a “smoking gun” by openly blocking or degrading service.<sup>336</sup> Assuming Sinister Cable *is* sinister and conceals its motives, courts will face the impossible task of determining whether a transient problem with the fictional NetTube’s service was due to the service itself, a transient problem over internet networks on that day, a casualty of best-effort internet networks generally,<sup>337</sup> or a specific action by Sinister Cable.

On the other hand, providers who choose an entirely “neutral” policy and perform no service differentiation could easily violate net neutrality regulations. For example, a company with no QoS policies could degrade VoIP by intermingling that traffic with other data. VoIP packets are typically small (often 64 bytes) to minimize the effects of any potential data loss on a conversation.<sup>338</sup> Web or e-mail servers typically optimize for efficiency and break data down into the largest packet size possible (often between 1400 and 1500 bytes). In a network that does nothing to differentiate between VoIP streams and other packets, the 64-byte packets could be queued for transmission behind larger 1500-byte packets. On slower or congested networks, the delay caused by the time to transmit larger 1500-byte packets introduces jitter.<sup>339</sup> The delays caused by commingling data would have a similar effect on VoIP as a purposely induced transmission delay. To regulators, Sinister Cable and the “neutral policy” provider would look the same.

In some cases, such as the FCC’s decision to sanction Madison River Communications for openly blocking VoIP,<sup>340</sup> regulators would easily discern anticompetitive strategies and weak technical justifications. Hard cases, such as the Cox/Craigslist issue and the hypothetical situations posed above, would result in arbitrary—and possibly incorrect—decisions.

The potential for eventual networking technology advancements to give regulators the ability to distinguish between harmful discrimination and sound network operations practices provides another excellent justifi-

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336. *E.g.*, Madison River Commc’ns, LLC, 20 F.C.C.R. 4295 (2005).

337. *See supra* note 227 (defining “best effort”).

338. The discussion of VoIP packet sizes, queuing, and quality of service issues in this section is adapted from Douglas A. Hass, Dir. of Bus. Dev., ImageStream Internet Solutions, Inc., Address at the LinuxWorld Open Solutions Summit: Open Source Tools for Quality of Service (Feb. 14, 2007).

339. In non-technical terms, think of an undifferentiated broadband network as a crowded interstate highway tollbooth. Your car has an automated toll payment transceiver, so you can clear the booth without slowing down. Unfortunately, you are sandwiched among several large tractor-trailers that must stop at the booth, pay cash, and make change. Even though the interstate system is completely neutral, the nature of the traffic on the road nonetheless affects your ability to avoid travel delays (“jitter”).

340. Madison River Commc’ns, LLC, 20 F.C.C.R. 4295 (2005).

cation for leaving the never-was-neutral status quo in place. If future regulators develop effective tools that identify harmful discrimination by access or content providers *and* non-neutrality harms have moved beyond Dr. van Schewick's theoretical models<sup>341</sup> and into real-world internet markets, then policy makers could take a fresh look at potential net neutrality regulations. Until then, regulators will struggle to distinguish between Cox Communications, which had no intention of discriminating but implemented a software update that nonetheless caused discrimination, and "Sinister Cable," which might falsely claim that it follows nondiscriminatory practices but in fact seeks out reasons to discriminate.

### VIII. ENCOURAGING CONSUMER-LED REGULATION

Pro-regulation arguments rely heavily on theoretical markets that have never existed in the access and content market. Approaches such as Professor Yoo's depend on incorrect or outdated understandings of internet networking technologies. As Part VII discusses, consumers can influence the market and make informed decisions about internet services. These realities point to a third, consumer-focused approach to the net neutrality debate: a disclosure system that fully and clearly informs users about non-neutral policies. Consumer-led evaluation of non-neutral policies through meaningful disclosure requirements can best balance innovation and consumer protection.

The idea that consumers of internet access and content services should have better information about these services is not new. Law and economics theory traditionally found a market failure "when [market] players do not have symmetric and full information relevant to their market activities."<sup>342</sup> However, commentators and policy makers have often overlooked the power that such information can give consumers. The solution outlined in this section proposes a standard information disclosure model based on the Fair Credit and Charge Card Disclosure Act.

In 2004, then-FCC Chairman Michael Powell famously labeled "clear and meaningful information" as the fourth "Internet Freedom" to which consumers are entitled.<sup>343</sup> Two years earlier, state regulators had identified

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341. See *supra* note 181.

342. Niva Elkin-Koren & Eli M. Salzberger, *Law and Economics in Cyberspace*, 19 INT'L REV. L. & ECON. 553, 555 (1999).

343. Michael K. Powell, *Preserving Internet Freedom: Guiding Principles for the Industry*, 3 J. ON TELECOMM. & HIGH TECH. L. 5, 12 (2004) ("Finally, and most importantly, consumers must receive clear and meaningful information regarding their service plans and what the limits of those plans are. Simply put, information is absolutely necessary to ensure that the market is working.").

the same need for accurate and complete consumer information about internet services. The National Association of Regulatory Utility Commissioners (NARUC), which represents state regulatory agencies and officials, adopted a resolution at its November 2002 meeting recognizing the possibility that “some providers of broadband service or facilities may have an incentive to restrict internet access to favored news sources, and if they chose to do so, it could significantly harm free and open information exchange in the marketplace of ideas.”<sup>344</sup> Therefore, NARUC resolved that broadband “users should: 1. Have a right to access to the Internet that is unrestricted as to viewpoint and that is provided without unreasonable discrimination as to lawful choice of content (including software applications); and 2. *Receive meaningful information regarding the technical limitations of their broadband service . . .*”<sup>345</sup>

The same year, internet standards makers also recognized the importance of meaningful information. RFC 3260,<sup>346</sup> released in April 2002, clarified several terms in the original Differentiated Services RFC that created a framework for dissemination of technical information about QoS policies.<sup>347</sup> Specifically, the RFC noted the importance and function of the Traffic Conditioning Agreement (TCA). “A TCA is ‘an agreement specifying classifier rules and any corresponding traffic profiles and metering, marking, discarding and/or shaping rules which are to apply . . .’”<sup>348</sup> The RFC drafters separated the TCA from other concepts, since the term “implied considerations that were of a pricing, contractual, or other business nature, as well as those that were strictly technical.”<sup>349</sup>

The TCA concept, if adopted by regulators, would both avoid onerous government regulation and address the concerns of net neutrality advocates that providers could act discriminatorily.<sup>350</sup> Throughout internet his-

344. Nat’l Ass’n of Regulatory Util. Comm’ns, Resolution Regarding Citizen Access to Internet Content (2002), *available at* [http://www.naruc.org/Resolutions/citizen\\_access.pdf](http://www.naruc.org/Resolutions/citizen_access.pdf).

345. *Id.* (emphasis added).

346. DAN GROSSMAN, IETF NETWORK WORKING GROUP, REQUEST FOR COMMENTS 3260: NEW TERMINOLOGY AND CLARIFICATIONS FOR DIFFSERV (2002) [hereinafter RFC 3260], *available at* <http://www.ietf.org/rfc/rfc3260.txt>.

347. *See supra* note 111 and accompanying text.

348. RFC 3260, *supra* note 346.

349. *Id.*

350. Although neither Professor Wu nor Professor Lessig have ever developed the concept, both have signaled their interest in—and potential agreement with—the idea of increased disclosure, whether voluntary or regulatory. *E.g.*, Posting of Tim Wu to Public Knowledge, <http://www.publicknowledge.org/node/494> (June 28, 2006, 11:38 EST) (“The proposed Net Neutrality rules haven’t done enough to force network providers to disclose what, exactly, they are selling their customers. There is no argument against

tory—squabbles with CIX, the rise of spam filters and antivirus software, complaints about discriminatory actions by providers, and the net neutrality debate—users have held the greatest sway over the market. While innovators and entrepreneurs have shaped tastes, users have governed officially and unofficially. Providing detailed information to users about traffic policies that could affect internet service on their connections would ensure that the balance of power remained on the side of consumers.

Regulators or legislators could model a “Traffic Control Disclosure Act” (TCDA) on the Fair Credit and Charge Card Disclosure Act.<sup>351</sup> That Act emphasizes a “more detailed and uniform disclosure . . . with respect to information.”<sup>352</sup> A proposed TCDA should require providers to furnish detailed information about their practices and policies. Internet service providers and content providers alike would consistently disclose the specifics of their service offerings and traffic control policies in a uniform table. If designed correctly, this disclosure would help consumers more easily compare different service offerings. Given the vociferous and vocal opposition to the most egregious differentiation policies, public disclosures would likely discourage all but a few standard classes of service differentiation.

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broadband disclosure rules that has any strength . . . .”); Lessig 2.0, [http://lessig.org/blog/2007/10/things\\_i\\_didnt\\_have\\_time\\_to\\_do\\_1.html](http://lessig.org/blog/2007/10/things_i_didnt_have_time_to_do_1.html) (Oct. 3, 2007, 18:00 PST) (“Sure, these companies MAY BE extraordinarily inept. They MAY BE just tripping up all over the place. *They may be simply signaling their own non-neutral position in a competitive market for networks, allowing consumers to select other networks that are more neutral.*”) (emphasis added). Lessig chose to strike out the portion of his post in italics to protest what he perceives as a lack of competition. *Id.*

351. Fair Credit and Charge Card Disclosure Act, Pub. L. No. 100-583, 102 Stat. 2960 (1988) [hereinafter Fair Credit Act]; see also 12 C.F.R. § 226.5a (disclosures for credit and charge card applications and solicitations). The Fair Credit Act is enforced by the FTC. For an argument for FTC enforcement of net neutrality mandates, see Raymond L. Gifford, *Let The FTC Do It! Maybe It Already Can*, PROGRESS SNAPSHOT, Apr. 2006, <http://www.pff.org/issues-pubs/ps/2006/ps2.12ftc.pdf>. FTC action is not without precedent. The FTC has taken action against internet companies in the past. See, e.g., *Petco Animal Supplies, Inc.*, No. C-4133 (Fed. Trade Comm’n Mar. 4, 2005) (final decision and order), available at <http://www.ftc.gov/os/caselist/0323221/00308do0323221.pdf> (enforcing the Federal Trade Commission Act, 15 U.S.C. § 45, and resolving FTC claims that Petco had violated federal law and its own stated policies by failing to implement reasonable safeguards to protect customers’ personal information); Federal Trade Commission, Privacy Initiatives—Unfairness & Deception: Enforcement, [http://www.ftc.gov/privacy/privacyinitiatives/promises\\_enf.html](http://www.ftc.gov/privacy/privacyinitiatives/promises_enf.html) (last visited Nov. 20, 2007) (listing FTC enforcement actions against online and offline companies for violations of consumer privacy).

352. Fair Credit Act, at preamble.

With public comment and regulatory oversight, the disclosure table can evolve as technology advances and consumer tastes change. For example, the proliferation of unsolicited commercial e-mail (spam) has led providers to block external access to the ports used by mail servers,<sup>353</sup> a type of filtering developers of the mail protocols likely did not foresee.

A TCDA must accomplish three primary goals:

### 1. *Notice*

The Fair Credit Act's provisions provide sensible guidelines for the TCDA framework. Content or internet service providers must post their disclosures conspicuously and prominently on their websites. Solicitations by internet service providers for dial-up or broadband access, or by content providers for pay services, must include the disclosures in a tabular format determined by regulators.<sup>354</sup> During telephone or in-person solicitations for internet service, "the person making the solicitation shall orally disclose the information described" in the table.<sup>355</sup> Providers offering a pay service must notify customers of any changes to their policies.

### 2. *Choice*

The TCDA must require providers to inform consumers of the choices available to discontinue service penalty-free after a short trial period. The provider must also notify customers of their rights to reject any changes in network policy and cancel penalty-free, regardless of contract duration or prepayment.

### 3. *Education*

Disclosures under the TCDA will enable consumers to obtain easily understandable and accurate information about traffic control policies, applications, and technology advancements. Companies that implement service differentiation schemes will have an opportunity to explain the benefits of the technologies to consumers. The regulatory oversight agency can act as a forum for information and education about technologies and con-

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353. *E.g.*, Declan McCullagh, *Feds to Fight the Zombies*, CNET NEWS.COM, May 23, 2005, [http://news.com.com/Feds+to+fight+the+zombies/2010-1071\\_3-5715633.html](http://news.com.com/Feds+to+fight+the+zombies/2010-1071_3-5715633.html) ("The FTC also wants Internet providers to prevent e-mail from leaving their network unless it flows through their own internal servers" by blocking port 25); Cox High Speed Internet FAQ: SPAM, <http://www.cox.com/sandiego/highspeedinternet/spamfaq.asp>, (last visited Nov. 20, 2007); Univ. of Notre Dame Office of Info. Tech., SMTP (Port 25) Blocking, [http://oit.nd.edu/email/port25\\_block.shtml](http://oit.nd.edu/email/port25_block.shtml) (last visited Nov. 20, 2007).

354. *See* Fair Credit Act § 2(a) (amending 15 U.S.C. 1637 § 127(c)(1)(A)).

355. *Id.* (amending § 127(c)(2)(A)).

sumer options. In addition, regulators can address any failures by providers to disclose and maintain policies accurately and clearly.

Unlike approaches that attempt to react after the fact to market failures, or cumbersome regulations that try to determine institutional intent or dictate network policies, a TCDA would embrace openness and transparency. A disclosure regime would compel providers to make public their service differentiation policies and practices. Individuals do not have a right to neutrality, but have a right to know how service differentiation policies could affect the services they purchase from internet service or content providers.

The IETF's Network Working Group has released a document that outlines a disclosure foundation aimed in part at regulators and provides insight into how the TCDA might address different types of service differentiation. RFC 4084<sup>356</sup> attempts to standardize terminology used to describe internet services. As the abstract to the RFC notes:

[M]any types of arrangements have been advertised and sold as "Internet connectivity." Because these may differ significantly in the capabilities they offer, the range of options, and the lack of any standard terminology, the effort to distinguish between these services has caused considerable consumer confusion. This document provides a list of terms and definitions that may be helpful to providers, consumers, and, potentially, regulators in clarifying the type and character of services being offered.<sup>357</sup>

The RFC lists five types of internet connectivity organized by access level.<sup>358</sup> For regulatory purposes, these classifications, when combined with others for content providers and other types of network services, could serve as useful delineations between different types of disclosures. Content providers such as Yahoo! or Google would have fewer opportunities to implement service differentiation, and regulators would likely require different disclosures from them than from internet service providers like AT&T.

More importantly, sections three and four of the RFC list multiple terms "that a service provider might choose to provide to complement

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356. JOHN C. KLENSIN, IETF NETWORK WORKING GROUP, REQUEST FOR COMMENTS 4084: TERMINOLOGY FOR DESCRIBING INTERNET CONNECTIVITY (2005), available at <http://www.ietf.org/rfc/rfc4084.txt>.

357. *Id.*

358. *Id.* at § 2 (Web connectivity; Client connectivity only, without a public address; Client only, with a public address; Firewallled internet connectivity; Full internet connectivity).

those general definitions” about its service differentiation policies,<sup>359</sup> focusing primarily on e-mail filtering issues. A similar TCDA disclosure would need to touch on at least four other general service differentiation categories as well: classification, policing, queuing, and shaping.<sup>360</sup> These four categories cover each major aspect of service differentiation by providers.<sup>361</sup>

Classification happens even at basic levels, such as the analysis of a data packet’s ultimate destination. For disclosure purposes, however, providers should disclose any policies of identifying and sorting traffic into different classes, whether for monitoring purposes<sup>362</sup> or for actual service differentiation. For example, Professor Yoo notes the “natural response” of network owners to give “time-sensitive applications . . . a higher priority.”<sup>363</sup> Classification also couples with traffic queuing. For maximum performance, providers may choose to queue traffic for delay-sensitive VoIP ahead of e-mail or web traffic, regardless of the actual bandwidth allocated to each service.<sup>364</sup> Niche providers today focus service differentiation policies on gaming performance,<sup>365</sup> application hosting,<sup>366</sup> interactive voice response and call center hosting,<sup>367</sup> and any number of other vertical services.

Policing, as the name suggests, typically involves discarding nonconforming traffic to maintain network integrity. Much of RFC 4084, not to

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359. *Id.* at §§ 3-4.

360. These categories adapted from Douglas A. Hass, Dir. of Bus. Dev., ImageStream Internet Solutions, Inc., Address at the LinuxWorld Open Solutions Summit: Open Source Tools for Quality of Service (Feb. 14, 2007).

361. Cisco uses similar categories in describing its products’ quality of service capabilities. See Cisco, Cisco IOS Quality of Service Solutions Configuration Guide, Overview (2007), [http://cisco.com/univercd/cc/td/doc/product/software/ios121/121cgcr/qos\\_c/qcdintro.htm](http://cisco.com/univercd/cc/td/doc/product/software/ios121/121cgcr/qos_c/qcdintro.htm).

362. Monitoring and logging traffic with tools such as NetFlow potentially implicates privacy as well as net neutrality concerns and may require additional scrutiny.

363. Yoo, *supra* note 5, at 1880.

364. See *supra* note 338 and accompanying text. For a detailed discussion of service differentiation that arises from business decisions by content and internet service providers, see Craig McTaggart, *Was the Internet Ever Neutral?*, in PROCEEDINGS OF THE 34TH RESEARCH CONFERENCE ON COMMUNICATION, INFORMATION, AND INTERNET POLICY 4 (2007), available at <http://web.si.umich.edu/tprc/papers/2006/593/mctaggart-tprc06rev.pdf>.

365. E.g., INXGaming, About, <http://www.inx-gaming.co.uk/about/> (last visited Nov. 20, 2007).

366. E.g., Connectria, Citrix Hosting Services, <http://www.connectria.com/citrix.html> (last visited Nov. 20, 2007).

367. E.g., Voxeo, VoiceCenter IVR Hosting, <http://www.voxeo.com/products/voicexml-ivr-hosting.jsp> (last visited Nov. 20, 2007).

mention the debate over discriminatory provider practices, focuses on this aspect of service differentiation. Disclosure of policing policies would encompass a range of practices from spam, virus, and spyware filtering to e-mail traffic blocking, server hosting, or the use of wireless access points.

The queuing and shaping steps in service differentiation control traffic bursts and allocate bandwidth to traffic flows according to a provider's business policies. Providers can use bandwidth allocations to guarantee bandwidth for a particular mission-critical application, or to ensure efficient operation of various applications in a multi-service network. As last mile networks change, any of the aforementioned niches could organize vertically. A gaming provider may offer consumers a wireless connection built for maximum performance with every major online gaming network, but otherwise offering degraded performance for other applications or content providers. A TCDA would give consumers clear, concise information about that vertical integration and the choices they necessarily make when selecting one service over another. Net neutrality regulations banning service differentiation would block this type of vertical innovation.<sup>368</sup>

The proposed disclosure act would not in and of itself prevent service differentiation or tiered access. Instead, disclosure requirements make provider decisions more transparent to customers. Focusing regulation on empowering consumers to make informed decisions recognizes that those end users do not passively receive content at the network edge, but drive service development, improvement, and change.

Under this disclosure regime, operators are free to pursue policies that align their network policies with their business objectives, and can respond to ever-changing network conditions. The approach is not completely *laissez-faire*, though. A disclosure requirement aids the countervailing market forces that curb truly discriminatory actions and makes those actions far less appealing to access and content providers.

## IX. CONCLUSION

The largely academic NSFnet did not evolve into the commercial internet because of neutrality or nondiscrimination. Entrepreneurs, scientists, academics, and a wave of consumer demand beginning with early technology adopters drove network expansion and the proliferation of broadband technologies—despite technological discrimination and priori-

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368. As Thierer writes, net neutrality regulations “seem to ignore market evolution and the potential for sudden technological change by adopting a static mindset preoccupied with micro-managing an existing platform regardless of the implications for the development of future networks.” Thierer, *supra* note 258, at 290.

tization from the internet's earliest days. Both history and economic evidence suggest that this innovative culture will continue unabated, provided regulators resist the urge to tinker. The internet's content and service suppliers have developed numerous new technologies and industry sectors over the past twenty years. Innovation has often required, and customers have increasingly demanded, non-neutrality, tiered access, and other service differentiation. Net neutrality regulation, in the direct form of neutrality mandates or in the indirect form of a ban on concrete harms, will discourage innovators and strip consumers of their power to shape service offerings.

Consumers in the internet's non-neutral markets have efficiently policed providers' service differentiation choices without the heavy hand of government regulation. Such freedom has fostered continued innovation. Regulators should create incentives for consumers to continue to govern. Government enforcement, therefore, should focus on disclosure of provider practices. This Article presents the framework for a simple, clear, uniform disclosure regime modeled on existing law that can address the concerns of net neutrality proponents without jeopardizing regulators' agnosticism for the market's direction.

As Andrew Odlyzko concluded in 1999:

While the Internet should appear as a simple network, it will need sophisticated technical controls . . . as well as the right economic incentives . . . . The future of the Internet will be a competition between simplicity and novelty, and while simplicity will be essential to enable novelty, it is never likely to win completely. The blame for this belongs to us, the users, as we allow our requirements to grow.<sup>369</sup>

Tomorrow's networks will need a combination of simplicity and complexity, openness and differentiation. As they have since the invention of TCP/IP, networks will also need end users to strike the proper balance between that openness and differentiation. By improving available information, government regulators can foster a robust market governed by well-informed consumers.

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369. ANDREW ODLYZKO, THE STUPID NETWORK: ESSENTIAL YET UNATTAINABLE (1999), <http://www.dtc.umn.edu/%7Eodlyzko/doc/stupid.unattainable.txt>.

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