

EX ANTE VERSUS EX POST APPROACHES TO NETWORK NEUTRALITY: A COMPARATIVE ASSESSMENT

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ABSTRACT

This Article will compare and contrast ex ante network neutrality regulation by a sector-specific government agency and ex post review by a court or competition authority. The Article concludes that ex post enforcement should generally serve as the goal in a deregulatory glide path that links increases in facilities-based competition with incremental reductions in government oversight. However, current marketplace conditions show insufficient competition particularly for the first and last mile of Internet access, making it possible for Internet Service Providers (ISPs) to leverage market power in potentially harmful ways.

Many advocates for less intrusive government oversight of telecommunications support the migration from regulation by an expert agency to the use of adjudication remedies largely guided by antitrust or competition policy principles. They believe that competition authorities, or reviewing courts, can resolve disputes after they have occurred—ex post remedies—in lieu of having sector-specific regulatory agencies available to anticipate and resolve problems before they become acute—ex ante prevention. The use of ex post safeguards risks false negatives where anticompetitive conduct has occurred without detection, or lacking an effective remedy. Using ex ante safeguards risks false positives, where a regulatory agency wrongly anticipates or detects harmful conduct and imposes unnecessary remedies that could reduce incentives for more investment. Advocates for muscular ex ante regulation in the United States believe that an expert agency remains essential, because sufficiently robust facilities-based competition does not exist.

As ISPs serving end users may have both the incentive and ability to pursue anticompetitive strategies, the Article supports a limited role for an expert, national regulatory authority. However, the Article emphasizes that ex ante regulation should concentrate on procedural safeguards to ensure good faith negotiations and timely resolution of complaints in light of the immediate harm to consumers when content becomes blocked, or degraded by artificial congestion.

The Article also notes that the Supreme Court has eliminated ex post remedies when the expert regulatory agency concludes that rising competition justifies streamlining, or eliminating safeguards, including the requirement that competitors cooperate by

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interconnecting networks on fair, cost-based terms. Additionally, the Supreme Court has substantially limited consumers' rights to form a class of similarly harmed parties, or to object to compulsory arbitration clauses in service contracts.

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I. INTRODUCTION

Imposing ex ante rules and regulations anticipates the need to prevent anticompetitive practices that harm consumers and the national economy, but acting on the basis of unproven harms can impose unnecessary costs

and stifle innovation. This Article reports that the potential for false positives has grown in light of the FCC's recent decision to reclassify broadband Internet access as a telecommunications service subject to common carrier regulation. The Article recommends that the FCC concentrate on resolving complaints and promoting timely and fair interconnection negotiations rather than apply the full array of ex ante regulatory safeguards.

To resolve both anticipated and actual marketplace conflicts in the telecommunications industry, most nations apply ex ante models of government oversight that impose regulation targeted toward a specific industry sector. Advocates for less intrusive government oversight of Internet broadband access, however, support either immediate or gradual replacement of expert agency oversight with adjudication and enforcement remedies applied if and when conflicts arise. Such ex post models rely primarily on existing regulatory agencies, new competition authorities, or the judiciary applying antitrust policy principles. Ex post remedies may not require the adjudicator to have expertise in every industry sector. Rather, courts, competition authorities, and regulatory agencies typically undertake an empirical assessment to determine whether a venture has engaged in anticompetitive practices that have harmed consumers and competitors.¹

Advocates for retaining ex ante regulation of broadband Internet access believe that a proactive expert agency remains essential in light of insufficient facilities-based competition among Internet Service Providers (ISPs). Supporters of Internet access regulation believe that, despite technological innovations, the broadband marketplace cannot self-regulate and prevent anticompetitive practices that would distort the marketplace and harm consumers.² Should a dominant telecommunications firm abuse

1. Examples of anticompetitive practices aiming to drive competitors out of the market include efforts to raise competitors' costs of providing service, refusing to provide competitors with a service element they need to provide a complete service, and offering below-cost rates to consumers that competitors cannot afford to offer even in the short term. See *Guide to Antitrust Laws*, FED. TRADE COMM'N, <http://www.ftc.gov/tips-advice/competition-guidance/guide-antitrust-laws> (last visited Apr. 20, 2015); *What is Competition Policy?*, EUR. COMMISSION, http://ec.europa.eu/competition/consumers/what_en.html (last updated Apr. 16, 2012); U.S. DEPT OF JUSTICE, ANTITRUST ENFORCEMENT AND THE CONSUMER (2012), available at http://www.justice.gov/atr/public/div_stats/antitrust-enfor-consumer.pdf.

2. See Tom Wheeler, Chairman, Fed. Commc'ns Comm'n, *The Facts and Future of Broadband Competition Address* (Sept. 4, 2014), available at <http://www.fcc.gov/document/chairman-remarks-facts-and-future-broadband-competition>. Wheeler states:

At the low end of throughput, 4 Mbps and 10 Mbps, the majority of Americans have a choice of only two providers. That is what

its market power and engage in anticompetitive practices,³ ex post remedies would apply well after the onset of harm to competitors and the public. Additionally, ex ante advocates note that in some nations, such as the United States, courts have reduced consumers' opportunities to seek judicial ex post remedies by limiting their rights to form classes of similarly harmed parties.⁴ Some courts have refrained from acting at all if the respective expert regulatory agency has concluded that marketplace competition justifies streamlining or eliminating regulatory safeguards⁵

economists call a "duopoly," a marketplace that is typically characterized by less than vibrant competition. But even two "competitors" overstates the case. Counting the number of choices the consumer has on the day before their Internet service is installed does not measure their competitive alternatives the day after. Once consumers choose a broadband provider, they face high switching costs that include early-termination fees, and equipment rental fees. And, if those disincentives to competition weren't enough, the media is full of stories of consumers' struggles to get ISPs to allow them to drop service.

Id.

3. See ORGANISATION FOR ECON. CO-OPERATION AND DEV., GLOSSARY OF INDUSTRIAL ORGANISATION ECONOMICS AND COMPETITION LAW 9 (2003), available at <http://www.oecd.org/regreform/sectors/2376087.pdf> (emphasis omitted). The Glossary explains:

The term abuse of dominant position has been explicitly incorporated in competition legislation of various countries such as Canada, EEC and Germany. In the United States, the counterpart provisions would be those dealing with monopoly and attempts to monopolize or monopolization of a market. Which of the different types of business practices are considered as being abusive will vary on a case by case basis and across countries. Some business practices may be treated differently in different jurisdictions as well. However, the business practices which have been contested . . . include[] the following: charging unreasonable or excess prices, price discrimination, predatory pricing, price squeezing by integrated firms, refusal to deal/sell, tied selling or product bundling and pre-emption of facilities.

Id.

4. See, e.g., *Comcast Corp. v. Behrend*, 133 S. Ct. 1426 (2013) (holding that the proposed plaintiff class could not generate a single, uniform claim of damages as required for class action law suits).

5. "The . . . extensive provision for access [in the Communications Act of 1934, as amended] makes it unnecessary to impose a judicial doctrine of forced access." *Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 411 (2004) (holding that there are little if any grounds for an antitrust claim if no duty to deal exists even though the FCC had ordered wholesale broadband access be made available for resale); see also *Pac. Bell Tel. Co. v. Linkline Commc'ns, Inc.*, 555 U.S. 438, 440 (2009) (finding no clear evidence of a price squeeze even though an incumbent carrier offered end users lower retail rates than the wholesale rate it offered competitors); *Bell Atl. Corp.*

that arguably provide greater consumer safeguards than what a court could offer using antitrust remedies.

Ex ante rules and regulations anticipate the need for safeguards to prevent anticompetitive practices in a specific sector of the economy, because of existing or potential harm to consumers and national economies. However, regulation based on speculative harms can impose costs and discourage investment in the upgrades needed to accommodate ever-increasing demand for faster and higher capacity broadband networks. National Regulatory Authorities (NRAs) should use caution, particularly because they may not have complete information about the potential for market failure, i.e., the inability of competitors to self-regulate.

This Article evaluates the strengths and weaknesses in ex ante and ex post enforcement of laws and regulations aiming to promote open and neutral access to the Internet. It considers whether countries should create and enforce ex ante network neutrality⁶ rules and regulations or continue to use ex post remedies, which include administrative procedures for receiving and resolving complaints, creation of new competition authorities, or reliance on litigation if and when disputes arise.

Network neutrality poses particularly vexing challenges. These challenges include the lack of a common definition of what safeguards the marketplace cannot provide, broad gaps in statutory interpretation, agitated and confused consumers, and conflicting framing of the issues and opposing views on the potential for harm to consumers and competitors absent regulatory intervention.⁷ Additionally, ISPs,

v. Twombly, 550 U.S. 544, 547 (2007) (antitrust suit dismissed due to insufficient evidence produced in the filing claiming harm).

6. Network neutrality refers to government-mandated nondiscrimination, transparency, and other requirements on ISPs designed to foster a level competitive playing field among content providers and to establish consumer safeguards so that Internet users have unrestricted access, limited only by legitimate concerns such as ISP network management and national security. See Preserving the Open Internet, Report and Order, 25 F.C.C. Rcd. 17,905, 17,916 n.48 (2010) [hereinafter 2010 Open Internet Order], *aff'd in part, vacated and remanded in part sub nom. Verizon v. FCC*, 740 F.3d 623 (D.C. Cir. 2014) (holding that FCC cannot impose common carrier duties on information service providers, but may impose some obligations to achieve statutory goals). On remand, the FCC released the 2014 Open Internet NPRM. Protecting and Promoting the Open Internet, Notice of Proposed Rulemaking, 29 F.C.C. Rcd. 5561 (2014) [hereinafter 2014 Open Internet NPRM].

7. See, e.g., Marvin Ammori, *Beyond Content Neutrality: Understanding Content-Based Promotion of Democratic Speech*, 61 FED. COMM. L.J. 273 (2009); Adam Candeub & Daniel McCartney, *Law and the Open Internet*, 64 FED. COMM. L.J. 493 (2012); Rob

particularly those ventures providing first and last mile access to the Internet, largely operate free of competitive restraints due to high sunk investment costs favoring a limited number of ventures able to accrue scale efficiencies.

ISPs can operate as intermediaries between other upstream ISPs, content distributors and content creators on one side, and downstream retail broadband subscribers on the other. This double- or multi-sided market enables such ISPs to create a platform⁸ through which diverse

Frieden, *Assessing the Merits of Network Neutrality Obligations at Low, Medium and High Network Layers*, 115 PENN ST. L. REV. 49 (2010); Rob Frieden, *Rationales for and Against Regulatory Involvement in Resolving Internet Interconnection Disputes*, 14 YALE J.L. & TECH. 266 (2012); Dirk Grunwald, *The Internet Ecosystem: The Potential for Discrimination*, 63 FED. COMM. L.J. 411 (2011); Lixian Hantover, *Creating Sustainable Regulation of the Open Internet*, 20 UCLA ENT. L. REV. 107 (2013); Ivar A. Hartmann, *A Right to Free Internet? On Internet Access and Social Rights*, 13 J. HIGH TECH. L. 297 (2013); Amanda Leese, *Net Transparency: Post-Comcast FCC Authority to Enforce Disclosure Requirements Critical to "Preserving The Open Internet,"* 11 NW. J. TECH. & INTELL. PROP. 81 (2013); Daniel A. Lyons, *Net Neutrality and Nondiscrimination Norms in Telecommunications*, 54 ARIZ. L. REV. 1029 (2012); Sascha D. Meinrath & Victor W. Pickard, *Transcending Net Neutrality: Ten Steps Toward an Open Internet*, 12 J. INTERNET L., No. 6, 1 (2008); Tim Wu & Christopher S. Yoo, *Keeping the Internet Neutral?: Tim Wu and Christopher Yoo Debate*, 59 FED. COMM. L.J. 575 (2007); Tim Wu, *Network Neutrality, Broadband Discrimination*, 2 J. ON TELECOMM. & HIGH TECH. L. 141 (2003); Christopher S. Yoo, *Would Mandating Broadband Network Neutrality Help or Hurt Competition? A Comment on the End-to-End Debate*, 3 J. ON TELECOMM. & HIGH TECH. L. 23 (2004).

8. See David S. Evans, *The Antitrust Economics of Multi-Sided Platform Markets*, 20 YALE J. ON REG. 325, 328 (2003). Evans writes:

Platform businesses compete in "multi-sided markets." For example, video game console companies such as Sony, Nintendo, and Microsoft compete for game developers and users, while payment card companies such as American Express, MasterCard, and Visa compete for merchants and cardholders. Platform businesses must deal with interdependent demand when devising pricing, production, and investment strategies. These strategies can be quite different from non-platform businesses that do not serve mutually dependent customer groups. The optimal price on a particular side of the market, whether measured socially or privately, does not follow marginal cost on that side of the market. Many platform businesses charge one side little or nothing; for example, most operating system vendors collect scant revenue from software developers who use their intellectual property. In many cases, the joint provision of a good that services multiple groups of customers makes the assignment of costs to any one side arbitrary

Id.; see also David S. Evans, *Governing Bad Behavior by Users of Multi-Sided Platforms*, 27 BERKELEY TECH. L.J. 1201 (2012); Daniel M. Tracer, *Overcharge but Don't*

content and services travel. As platform operators, ISPs may accrue market power that can favor affiliates and disadvantage competitors. Internet service involves multiple ventures providing different services in the link from content source to end user, including ISPs that serve both downstream retail broadband subscribers and upstream ISPs and content sources. An NRA or court might have great difficulty in detecting and sanctioning an ISP that used techniques to tilt the competitive playing field in favor of an affiliate, or a venture agreeing to pay a surcharge for preferred treatment.

Ex ante regulation advocates have not produced a large empirical record of harm,⁹ instead noting the lack of adequate competition¹⁰ and citing a few high profile disputes between ISPs, such as Comcast, and content providers, such as Netflix.¹¹ Network neutrality proponents also argue that biased networks will reduce the future value, accessibility, and utility of the Internet. Opponents assert that regulatory intervention to

Overestimate: Calculating Damages for Antitrust Injuries in Two-Sided Markets, 33 CARDOZO L. REV. 807 (2011).

9. *Madison River* is a frequently cited example of harmful operation of a biased and discriminatory network. *Madison River Commc'ns, LLC*, 20 F.C.C. Rcd. 4295, 4297 (2005) (small independent telephone company agreed to a \$15,000 monetary forfeiture and consent decree agreeing not to block Digital Subscriber Link customers' access to competitor's Voice over the Internet Protocol telephone service).

10. See Susan Crawford, *First Amendment Common Sense*, 127 HARV. L. REV. 2343, 2352 (2014). Crawford notes:

It turns out that this belief in competition is not well founded, as the following section describes: for between 77 and 82% of Americans, their local cable monopoly is their only choice for high-capacity, high-speed connections, and dominant members of the cable industry never enter each others' territories; the phone companies have retreated almost entirely to wireless where their profits are still secure, and have mostly ceded the wired marketplace to the cable companies . . .

Id. (footnotes omitted); see also Tejas N. Narechania, *Network Nepotism and the Market for Content Delivery*, 67 STAN. L. REV. ONLINE 27 (2014); Tejas N. Narechania & Tim Wu, *Sender Side Transmission Rules for the Internet*, 66 FED. COMM. L.J. 467, 482-86 (2014).

11. See Barbara van Schewick, *Network Neutrality and Quality of Service: What a Nondiscrimination Rule Should Look Like*, 67 STAN. L. REV. 1, 6 (2015). Schewick discusses the potential impact of content-selective service:

Internet service providers like Verizon, AT&T, or Time Warner that connect users to the Internet are now free to block any content, service, or application they want. They can slow down selected applications, speed up others, or require application or content providers like Netflix or Spotify to pay fees to reach their users. These practices would fundamentally change how each of us experiences the Internet.

Id.

solve unproven harms imposes costs, including a net reduction in innovation and investment in Internet infrastructure, content and applications.¹²

Many NRAs, including the United States Federal Communications Commission (FCC) and regulatory authorities in the European Union, have concluded that the potential for biased broadband network access necessitates some degree of ex ante regulatory safeguards.¹³ Some governments authorize their NRA to operate as both an adjudicator as well as a creator of rules, policies, and regulations. This dual authority makes it possible to reduce the nature and scope of ex ante regulation without significant change in the general structure of telecommunications regulation by government. For example, the European Union has devised a mechanism that authorizes ex ante network neutrality oversight,¹⁴ but

12. See, e.g., Babette E.L. Boliek, *FCC Regulation versus Antitrust: How Net Neutrality is Defining the Boundaries*, 52 B.C. L. REV. 1627 (2011); Shanika Chapman, *Hands Off My Internet! Why the FCC Should Refrain from Regulating the Internet*, 67 CONSUMER FIN. L.Q. REP. 375 (2013); Thomas W. Hazlett & Joshua D. Wright, *The Law and Economics of Network Neutrality*, 45 IND. L. REV. 767, 798 (2012); Lyons, *supra* note 7; Hon. Maureen K. Ohlhausen, *Net Neutrality vs. Net Reality: Why an Evidence-Based Approach to Enforcement, and Not More Regulation, Could Protect Innovation on the Web*, 14 ENGAGE: J. FEDERALIST SOC'Y PRAC. GROUPS 81 (2013); J. Gregory Sidak & David J. Teece, *Innovation Spillovers and the "Dirt Road" Fallacy: The Intellectual Bankruptcy of Banning Optional Transactions for Enhanced Delivery Over the Internet*, 6 J. COMP. L. & ECON. 521 (2010); Dennis L. Weisman & Robert B. Kulick, *Price Discrimination, Two-Sided Markets, and Net Neutrality Regulation*, 13 TUL. J. TECH. & INTELL. PROP. 81 (2010); Christopher S. Yoo, *Network Neutrality and the Economics of Congestion*, 94 GEO. L.J. 1847, 1901 (2006); Christopher S. Yoo, *Beyond Network Neutrality*, 19 HARV. J.L. & TECH. 1 (2005).

13. See, e.g., 2010 Open Internet Order, *supra* note 6; Formal Complaint of Free Press and Public Knowledge Against Comcast Corp. for Secretly Degrading Peer-to-Peer Applications, Memorandum Opinion and Order, 23 F.C.C. Rcd. 13,028 (2008), *vacated*, Comcast Corp. v. FCC, 600 F.3d 642 (D.C. Cir. 2010) (deeming FCC exceeded its statutory authority when responding to a complaint and imposing network neutrality rules); *Proposal for a Regulation of the European Parliament and of the Council Laying Down Measures Concerning the European Single Market for Electronic Communications and to Achieve a Connected Continent, and Amending Directives 2002/20/EC, 2002/21/EC and 2002/22/EC, and Regulations (EC) No 1211/2009 and (EU) No 531/2012*, COM (2013) 627 final (Nov. 9, 2013); Toshiya Jitsuzumi, *Discussion on Network Neutrality: Japan's Perspective*, 3 COMMS. & CONVERGENCE REV. 71 (2011).

14. See Eur. Comm'n, *EU Actions, DIGITAL AGENDA FOR EUR.*, <https://ec.europa.eu/digital-agenda/en/eu-actions> (last updated Mar. 2, 2015); Martin Cave & Pietro Crocioni, *Does Europe Need Network Neutrality Rules?*, 1 INT'L J. COMM. 669, 673, 677 (2007); Catherine Jasserand, *Critical Views on the French Approach to "Net Neutrality"*, J. INTERNET L., Mar. 2013, at 18, 23–24; Christopher T. Marsden, *Net Neutrality: The European Debate*, J. INTERNET L., Aug. 2008, at 1; Daithí Mac Sithigh,

primarily relies on assessments of whether sufficient competition exists in a specific market segment.¹⁵ In other nations, such as the United States, the NRA must apply legislatively-crafted service definitions to determine the lawfulness of ex ante regulations.

This Article concludes that countries should generally favor ex post enforcement over ex ante remedies. Countries should employ a deregulatory “glide path” that links increases in facilities-based competition with incremental reductions in government oversight.¹⁶ However, current marketplace conditions evidence limited competition—particularly for the first and last mile of Internet access—in many locales.¹⁷ Because ISPs serving end users still have both the incentive and ability to pursue anticompetitive strategies,¹⁸ this Article supports a well-calibrated and limited role for expert NRAs. The Article emphasizes that ex ante regulation should concentrate on procedural safeguards rather than the creation and enforcement of substantive rules and service definitions. Ex

Regulating the Medium: Reactions to Network Neutrality in the European Union and Canada, J. INTERNET L., Feb. 2011, at 3.

15. See Consolidated Version of the Treaty on the Functioning of the European Union art. 102, May 9, 2008, 2008 O.J. (C 115) 47; ARIEL EZRACHI, EU COMPETITION LAW: AN ANALYTICAL GUIDE TO THE LEADING CASES (3d ed. 2012).

16. A similar strategy is set out in ECORYS, FUTURE ELECTRONIC COMMUNICATIONS MARKETS SUBJECT TO EX-ANTE REGULATION (2013), available at http://ec.europa.eu/newsroom/dae/document.cfm?doc_id=3148.

17. See *Verizon v. FCC*, 740 F.3d 623, 646 (D.C. Cir. 2014) (citing 2010 Open Internet Order, *supra* note 6). Therein, the D.C. Circuit court states:

The Commission also convincingly detailed how broadband providers' position in the market gives them the economic power to restrict edge-provider traffic and charge for the services they furnish edge providers. Because all end users generally access the Internet through a single broadband provider, that provider functions as a “terminating monopolist,” with power to act as a “gatekeeper” with respect to edge providers that might seek to reach its end-user subscribers.

Id.

18. See *id.* at 646. The D.C. Circuit court continues with respect to competition:

[T]here appears little dispute that broadband providers have the technological ability to distinguish between and discriminate against certain types of Internet traffic. . . . As the Commission reasonably explained, this ability to act as a “gatekeeper” distinguishes broadband providers from other participants in the Internet marketplace—including prominent and potentially powerful edge providers such as Google and Apple—who have no similar “control [over] access to the Internet for their subscribers and for anyone wishing to reach those subscribers.”

Id. (alteration in original) (citing 2010 Open Internet Order, *supra* note 6, at 17,923, 17,935).

ante regulators should ensure that ventures involved in interconnection and compensation disputes negotiate in good faith. Additionally, NRAs should provide a forum for timely complaint resolution in light of the immediate harm to consumers when Internet content delivery becomes intentionally degraded or blocked.

II. STRENGTHS AND WEAKNESSES IN EX ANTE REMEDIES

Ex ante rules establish a regulatory regime for anticipating and resolving actual disputes and problems. Typically, a national legislature enacts a law providing the basic structure under which an NRA creates policies, rules and regulations.¹⁹ As a threshold matter, a legislature must contemplate regulatory needs and create a mechanism for an NRA to define services warranting government oversight and establish rules constraining their commercial operation.

The baseline justification for regulation lies in the determination that an unfettered marketplace would fail to achieve certain goals, which in the telecommunications arena include reasonable rates, widespread availability, and the inability of any single venture or group to control the price or availability of service. Put another way, ex ante regulation exists because legislatures and NRAs conclude that consumers and competition will suffer without a proactive regulatory presence. Such vigilance appears necessary in light of the incentive and ability of ventures—especially ones with market power—to engage in anticompetitive practices.

A. STRENGTHS IN EX ANTE REGULATION

Advocates for network neutrality regulation assume that, absent ex ante regulatory safeguards, the public and new market entrants will suffer. In light of the growing concentration of information, communications and entertainment (ICE) in the marketplace and increased reliance on the Internet for many essential services, network neutrality proponents believe that the government should erect proactive safeguards. They believe the broadband access market lacks sufficient competition to prevent incumbents from operating in ways that hamper competition and reduce the value of an Internet access subscription.

19. See, e.g., Communications Act of 1934, Pub. L. No. 73-416, 48 Stat. 1064 (amended 1996); Communications Act, 2003, c. 21 (U.K.); *Telecommunications Act 1997* (Cth) (Austl.). The most recent substantial revision of the Communications Act of 1934 took place in 1996. See *Telecommunications Act of 1996*, Pub. L. No. 104-104, 110 Stat. 56.

For example, network neutrality proponents worry that “Retail ISPs” providing the first and last mile of service to broadband subscriber end users can exploit their exclusive link to extract supracompetitive rates, i.e., compensation above what a competitive marketplace would permit. Such above-market revenues can accrue from two sources: 1) retail broadband subscribers and 2) upstream ISPs and content distributors obligated to pay surcharges to secure reliable traffic delivery to end-users.²⁰

Such price discrimination upstream from the Retail ISP creates a new dichotomy between upstream ventures relying on traditional “best efforts”²¹ traffic routing and new “better than best efforts” service for ventures seeking higher quality of service and “Most Favored Nation” treatment. Many network neutrality advocates believe this dichotomy in service will result in high-cost fast lanes, available only for ventures able to afford and willing to pay surcharges, with slow lanes available to everyone else, including startup ventures offering bandwidth-intensive video content.²²

20. See Daniel L. Brenner & Winston Maxwell, *The Network Neutrality and the Netflix Dispute: Upcoming Challenges for Content Providers in Europe and the United States*, 23 INTELL. PROP. & TECH. L.J. 3 (2011); Frieden, *supra* note 7; Drew Fitzgerald & Shalini Ramachandran, *Netflix-Traffic Feud Leads to Video Slowdown*, WALL ST. J. (Feb. 18, 2014), <http://online.wsj.com/news/articles/SB10001424052702304899704579391223249896550>; Shalini Ramachandran, *Netflix to Pay Comcast for Smoother Streaming*, WALL ST. J. (Feb. 23, 2014), <http://online.wsj.com/news/articles/SB10001424052702304834704579401071892041790>.

21. See Philip J. Weiser, *The Next Frontier for Network Neutrality*, 60 ADMIN. L. REV. 273, 277–78 (2008). Weiser’s article explains:

The Internet developed initially as an academic curiosity, based on a commitment to the “end-to-end principle.” This principle requires that all Internet traffic, whether an email, a Voice over Internet Protocol (VoIP) “call,” or a video stream, be treated equally and managed through “best efforts” connections. In such a network, data packets pass from one router to another without the prioritization of any particular packets. In practice, this means that Internet traffic reaches its destination at varying times, depending on the traffic levels of the relevant Internet communications links.

Id.

22. See Michael Weinberg, *How The FCC’s Proposed Fast Lanes Would Actually Work*, PUB. KNOWLEDGE BLOG (May 16, 2014), <https://www.publicknowledge.org/news-blog/blogs/how-the-fccs-proposed-fast-lanes-would-actually-work>. Weinberg discusses slow and fast lanes on the internet:

Once there is a split Internet, ISPs have the incentive to push every new innovation towards the fast lane. Innovation in the fast lane means extra revenue, while innovation in the slow lane gets them nothing. Investments that would have gone into the entire network before the split will now only go into the fast lane. That means that the forces that

Network neutrality advocates note that plain vanilla service has sufficed in the past, but now ISPs appear willing and able to generate artificial congestion²³ to nudge, or force, upstream ventures to pay for “more reliable” service.²⁴ They also contend that absent ex ante regulatory oversight, ISPs will engage in unreasonable discrimination that favors corporate affiliates and surcharge payers.²⁵ Should this occur, new ventures with limited finances might fail simply because they could not afford to

have traditionally increased speeds for everyone will now be reserved for those who can pay extra. All the while, the slow lane just keeps getting slower in comparison. After all, a slow slow lane makes the premium fast lane an even better value!

Id. Specifically, video has greater potential to cause disruptions in service in light of the substantial amount of content that ISPs must handle quickly so that frames of content arrive in time for immediate display. See Henry H. Perritt, Jr., *Technologies of Storytelling: New Models for Movies*, 10 VA. SPORTS & ENT. L.J. 106, 132 (2010). Video delivery standards call for the presentation of 30 discrete frames of content per second:

Video cameras, whether film or digital, take a series of still photographs at a rate determined by the frame-rate for the resulting movie. Thomas Edison is credited with discovering that a series of still images displayed at a sufficiently high frame rate produce the illusion of smooth motion. The typical frame rate is 24 frames/second for movies and 30 frames/second for U.S. television.

Id.

23. “The routing of data on the Internet is a zero-sum game. Unless there is continual congestion, no website would pay for priority treatment. This means the FCC’s proposed rules will actually produce a strong incentive for ISPs to create congestion through artificial scarcity.” Press Release, Free Press, FCC Proposal for a Payola Internet Would End Net Neutrality (Apr. 25, 2014), *available at* <http://www.freepress.net/press-release/106177/fcc-proposal-payola-internet-would-end-net-neutrality>.

24. See Marguerite Reardon, *Level 3 Accuses Six Broadband Providers of Degrading Network Traffic*, CNET (May 5, 2014 4:41 PM), <http://www.cnet.com/news/level-3-accuses-six-broadband-providers-of-degrading-network-traffic/>. Reardon’s article provides an example degraded network traffic:

Internet backbone provider Level 3 claims that five US consumer broadband providers are refusing to upgrade their peering connections for the past year in a move that is causing consumers to get sub par Internet access.

....

The dispute Level 3 has with these six broadband providers is part of an ongoing debate over so-called network peering arrangements. Companies like Level 3, Cogent Communications, and Netflix, which have brought the issue out in public, argue that more government oversight is needed to ensure big broadband companies are not abusing their power. Meanwhile, broadband providers say these disputes are part of an established way of doing business on the Internet.

Id.

25. See, e.g., Fitzgerald & Ramachandran, *supra* note 20.

pay surcharges for access to consumers. Similarly, all ventures would become vulnerable to surcharge payment demands to remedy artificial and induced congestion that an ISP might create by rationing ample switching and transmission capacity to discipline or punish a specific ISP or content source.

Ex ante network neutrality rules put Internet access providers on notice that they provide essential services to the public.²⁶ A vigilant government stands ready to remedy instances where providers have abused market power including access from and to the Internet cloud²⁷ via facilities that may have characteristics of an essential facility,²⁸ or bottleneck.²⁹

26. The essentialness of a service does not necessarily result in a concentrated or monopolized market. For example, the concept of common carriage, which NRAs incorporate as part of their ex ante nondiscrimination regulation of telecommunications services, also applies to unconcentrated markets such as hotels. See Barbara A. Cherry, *Maintaining Critical Rules to Enable Sustainable Communications Infrastructures*, 24 GA. ST. U. L. REV. 947, 948–49 (2008); Barbara A. Cherry, *Misusing Network Neutrality to Eliminate Common Carriage Threatens Free Speech and the Postal System*, 33 N. KY. L. REV. 483, 505–06 (2006).

27. The Internet cloud refers to the vast array of interconnected networks that make up the Internet and provide users with seamless connectivity to these networks and the content available via these networks. “The increasing functionality of the Internet is decreasing the role of the personal computer. This shift is being led by the growth of ‘cloud computing’—the ability to run applications and store data on a service provider’s computers over the Internet, rather than on a person’s desktop computer.” William Jeremy Robison, *Free at What Cost?: Cloud Computing Privacy Under the Stored Communications Act*, 98 GEO. L.J. 1195, 1199 (2010).

28. Essential facility refers to the classification of private property as so important to public welfare that the owner must share it by providing access. For example, in *United States v. Terminal Railroad Association of St. Louis*, 224 U.S. 383 (1912), the Supreme Court held that the operator of the only facilities available for transporting railroad trains across the Mississippi river had to provide access to competitors. The Court identified public benefits and operating synergies in accruing from compulsory sharing. Over time the Court has abandoned this precedent in response to severe criticism and based on the view that antitrust law generally proscribes competitors from collaborating as well as the belief that a refusal to deal claim under Section 2 of the Sherman Act, 15 U.S.C. § 2 (2012), constitutes a better cause of action. The Court rejected and all but disavowed the existence of an essential facilities rationale in *Verizon Communications, Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398 (2004) (refusing to apply antitrust remedies where no duty to deal exists and the expert regulatory agency has declined to impose ex ante access requirements). See also Phillip Areeda, *Essential Facilities: An Epithet in Need of Limiting Principles*, 58 ANTITRUST L.J. 841 (1989).

29. Even as the United States has abandoned the essential facilities doctrine, the European Union has recognized its importance in digital and information markets where a single venture may dominate and control access to many markets.

B. THE NEED FOR CLEAR STATUTORY AUTHORITY

Ex ante regulation works best when the NRA has clear statutory authority to act. Absent such specificity, stakeholders can claim that the NRA lacks jurisdiction to impose rules. When an NRA invokes questionable statutory authority, as the FCC has done on at least two occasions on the matter of network neutrality rulemaking,³⁰ stakeholders also can assert that the FCC has created regulatory uncertainty and disincentives for incumbent ventures to make necessary investments in network upgrades needed to support bandwidth intensive services such as video.

Network neutrality advocates see the need for a legislative mandate that authorizes NRAs to assert jurisdiction over broadband Internet access, preferably with specific and direct statutory authority to impose common carrier³¹ ex ante regulation.³² Such a mandate typically would require new or amended language in the statute that creates the NRA and defines the services subject to its regulatory oversight. Such statutory drafting constitutes a most difficult undertaking because the legislature has

More recently, however, European courts have aggressively extended the concept of an essential facility to include intellectual property. This can be seen as a departure from U.S. practice, although it might be more accurate to say that the European Commission is entering territory where U.S. precedents are thin to nonexistent. In the process, European courts have raised important issues about the extent to which essential facilities based on intellectual property can and should be treated differently from physical assets.

Stephen M. Maurer & Suzanne Scotchmer, *The Essential Facilities Doctrine: The Lost Message of Terminal Railroad*, 5 CALIF. L. REV. CIRCUIT 278, 296 (2014); see also ORGANISATION FOR ECON. CO-OPERATION AND DEV., POLICY ROUNDTABLES: THE ESSENTIAL FACILITIES CONCEPT (1996), available at <http://www.oecd.org/competition/abuse/1920021.pdf>.

30. See 2010 Open Internet Order, *supra* note 6; Formal Complaint of Free Press and Public Knowledge Against Comcast Corp. for Secretly Degrading Peer-to-Peer Applications, Memorandum Opinion and Order, 23 F.C.C Rcd. 13,028 (2008), *vacated*, Comcast Corp. v. FCC, 600 F.3d 642 (D.C. Cir. 2010) (FCC deemed to have exceeded its statutory authority when responding to a complaint and imposing network neutrality rules).

31. In the United States, the FCC currently requires that telecommunications service providers comply with the requirements established in Title II of the Communications Act of. See 47 U.S.C. §§ 201–276 (2012). These regulations impose common carriage duties including the obligation to provide service on a nondiscriminatory basis.

32. See, e.g., Cat Zakrzewski, *Senators Push for Broadband Reclassification That Would Protect Net Neutrality*, TECHCRUNCH (July 15, 2014), <http://techcrunch.com/2014/07/15/senators-push-for-broadband-reclassification-that-would-protect-net-neutrality/>.

to craft definitions triggering regulation based on a then-current understanding of technology that surely will change soon after enactment of the law. Many legislatures see the need to use broad service definitions that attempt to create a dichotomy between services that fit and do not fit within the NRA's jurisdiction.

The United States Congress created such a dichotomy with information services, constituting a largely unregulated category, and telecommunications services, subject to the FCC's jurisdiction over public utility common carrier service providers.³³ This dichotomy does not always create mutual exclusivity for two reasons. First, many service providers offer both service categories, e.g., wireless carriers offer voice telephony and texting, two legacy telecommunications services, but they also offer data service, such as broadband Internet access, and that constitutes an information service.³⁴ Second, both technological and market convergence³⁵ support the commingling of both service types by vertically-

33. The Communications Act of 1934, as amended, defines telecommunications service as "the offering of telecommunications for a fee directly to the public, or to such classes of users as to be effectively available directly to the public, regardless of the facilities used." § 153(46). Telecommunications is defined as "the transmission, between or among points specified by the user, of information of the user's choosing, without change in the form or content of the information as sent and received." § 153(43). Title II applies nondiscrimination and other common carrier requirements on telecommunications service providers. §§ 201–276. On the other hand, information service is defined as:

the offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications, and includes electronic publishing, but does not include any use of any such capability for the management, control, or operation of a telecommunications system or the management of a telecommunications service.

§ 153(20). These services qualify for a largely unregulated status.

34. See Inquiry Concerning High-Speed Access to the Internet over Cable and Other Facilities, Declaratory Ruling and Notice of Proposed Rulemaking 17 F.C.C. Rcd. 4798, 4823 (2002), *aff'd sub nom.* Nat'l Cable & Telecomms. Ass'n v. Brand X Internet Servs., 545 U.S. 967, 977–78 (2005); see also Appropriate Regulatory Treatment for Broadband Access to the Internet over Wireless Networks, Declaratory Ruling, 22 F.C.C. Rcd. 5901 (2007); United Power Line Council's Petition for Declaratory Ruling Regarding the Classification of Broadband over Power Line Internet Access Service as an Information Service, Memorandum Opinion and Order, 21 F.C.C. Rcd. 13,281 (2006); Appropriate Framework for Broadband Access to the Internet over Wireline Facilities, Report and Order and Notice of Proposed Rulemaking, 20 F.C.C. Rcd. 14,853, 14,863–64 (2005) [hereinafter DSL Reclassification Order], *petition for rev. denied*, Time Warner Telecom, Inc. v. FCC, 507 F.3d 205 (3d Cir. 2007).

35. Technological convergence refers to the ability to combine previously separate services, such as voice and data, using a single medium, such as a digital network. Market

integrated ventures and the dissolution of any “bright line” distinction. Notwithstanding evidence of significant convergence, the FCC has determined that it must treat these two services as mutually exclusive, despite the absence of any explicit statutory mandate to do so.³⁶

The FCC’s attempt to create *ex ante* rules and regulations for Internet access provides a case study in the extreme challenges in using static service dichotomies to segment markets for purposes of identifying the proper scope of regulatory coverage. On two separate occasions, a reviewing court largely rejected efforts by the FCC to assert jurisdiction to establish rules that anticipate, sanction, and remedy anticompetitive and discriminatory ISP practices. The court held that the FCC lacked statutory authority to establish rules prohibiting discrimination and content-blocking by ISPs in light of the FCC’s own determination that broadband Internet access constituted a largely unregulated information service instead of a regulated common carrier telecommunications service.³⁷

convergence refers to the ability of a venture to offer a combination of services previously only available if the venture operated multiple networks.

36. “The language and legislative history of [the Communications Act of 1996] indicate that the drafters . . . regarded telecommunications services and information services as mutually exclusive categories.” Federal-State Joint Board on Universal Service, Report to Congress, 13 F.C.C. Rcd. 11,501, 11,522–23 (1998); *see also* Vonage Holdings Corp. v. Minn. Pub. Utils. Comm’n, 290 F. Supp. 2d 993, 994, 1000–01 (D. Minn. 2003) (applying the FCC’s dichotomy). A major reviewing court does not see the need for the FCC to expect mutual exclusivity in the inventory of carrier services:

[E]ven if a regulatory regime is not so distinct from common carriage as to render it inconsistent with common carrier status, that hardly means it is so fundamentally common carriage as to render it inconsistent with private carrier status. In other words, common carriage is not all or nothing—there is a gray area in which although a given regulation might be applied to common carriers, the obligations imposed are not common carriage *per se*.

Cellco P’ship v. FCC, 700 F.3d 534, 547 (D.C. Cir. 2012).

37. *Verizon v. FCC*, 740 F.3d 623, 650 (D.C. Cir. 2014). The Verizon opinion states:

We think it obvious that the Commission would violate the Communications Act were it to regulate broadband providers as common carriers. Given the Commission’s still-binding decision to classify broadband providers not as providers of “telecommunications services” but instead as providers of “information services,” such treatment would run afoul of section 153(51): “A telecommunications carrier shall be treated as a common carrier under this [Act] only to the extent that it is engaged in providing telecommunications services.”

Id. (citations omitted and alteration in original).

In 2010, the D.C. Circuit Court of Appeals first held that the FCC could not sanction Comcast for using software to disable peer-to-peer file sharing by subscribers.³⁸ Even though the company did not need to remedy congestion and had financial incentives to prevent subscribers from sharing movies they might otherwise lease from Comcast on a pay-per-view basis,³⁹ the court determined that the FCC had no express statutory authority to impose network neutrality obligations on information service providers.⁴⁰ The court also rejected the FCC's attempt to assert "ancillary jurisdiction"⁴¹ based on its duty to ensure that new technologies do not adversely impact regulated services.

In its review of the FCC's second attempt to establish jurisdiction over ISPs in 2014, the D.C. Circuit Court of Appeals again rejected as unlawful common carrier rules that prohibited discrimination and traffic blocking.⁴² However, the court affirmed the FCC's assertion that it could impose non-common carrier rules based on the FCC's reading of Section

38. Comcast Corp. v. FCC, 600 F.3d 642, 644 (D.C. Cir. 2010).

39. *Id.* at 660.

40. "On the record before us, we see 'no relationship whatever,' between the [FCC's network neutrality] *Order* and services subject to Commission regulation." *Id.* at 654 (citation omitted).

41. On numerous occasions, the FCC has attempted to claim ancillary jurisdiction when no direct statutory authority exists. For example, the FCC successfully invoked ancillary jurisdiction to regulate cable television even before the Commission received a statutory mandate to do so. *United States v. Midwest Video Corp.*, 406 U.S. 649 (1972); *United States v. Sw. Cable Co.*, 392 U.S. 157 (1968); *see also* *Chevron U.S.A., Inc. v. Natural Res. Def. Council, Inc.*, 467 U.S. 837 (1984). The Supreme Court does not support deferral to the expertise of a regulating agency "if the intent of Congress is clear." *Chevron*, 467 U.S. at 842-43. If "Congress has not directly addressed the precise question at issue," and the agency has acted pursuant to an express or implied delegation of authority, the agency's statutory interpretation is entitled to deference, as long as it is reasonable. *Id.* at 843-44; *see also* *United States v. Mead Corp.*, 533 U.S. 218, 226-27 (2001).

42. *Verizon v. FCC*, 740 F.3d 623, 628 (D.C. Cir. 2014). The court discusses the common carrier rules:

[E]ven though the Commission has general authority to regulate in this arena, it may not impose requirements that contravene express statutory mandates. Given that the Commission has chosen to classify broadband providers in a manner that exempts them from treatment as common carriers, the Communications Act expressly prohibits the Commission from nonetheless regulating them as such. Because the Commission has failed to establish that the anti-discrimination and anti-blocking rules do not impose *per se* common carrier obligations, we vacate those portions of the *Open Internet Order*.

Id.

706 in the Communications Act,⁴³ which authorizes the FCC to assess the availability of nationwide access to advanced services, such as the Internet, and to take steps to promote more access if market forces prove inadequate.⁴⁴

Rather than act on a reviewing court's invitation to impose non-common carrier network neutrality rules, the Democratic majority of the FCC opted for clearer and more muscular *ex ante* rules on remand. In a controversial decision already subject to appeal,⁴⁵ the FCC opted to reclassify elements of Internet access as a Title II regulated common carrier service⁴⁶ with no distinction between wireline and wireless ISPs.⁴⁷ On appeal, the FCC will need to demonstrate that its reclassification

43. 47 U.S.C. § 1302 (2012).

44. *Verizon*, 740 F.3d at 628. The opinion discusses the Telecommunications Act:

[T]he Commission has established that section 706 of the Telecommunications Act of 1996 vests it with affirmative authority to enact measures encouraging the deployment of broadband infrastructure. The Commission, we further hold, has reasonably interpreted section 706 to empower it to promulgate rules governing broadband providers' treatment of Internet traffic, and its justification for the specific rules at issue here—that they will preserve and facilitate the “virtuous circle” of innovation that has driven the explosive growth of the Internet—is reasonable and supported by substantial evidence.

Id.

45. *In re Protecting and Promoting the Open Internet*, GN Docket No. 14-28. Order Denying Stay Petitions, 30 FCC Rcd. 4681 (2015); Joint Brief for Petitioners USTelecom, NCTA, CTIA, ACA, WISPA, AT&T, and CenturyLink, United States Telecom Ass'n. v. FCC, No. 15-1063 (and consolidated cases), (D.C. Cir. July 30, 2015), *available at* <http://www.ustelecom.org/sites/default/files/documents/Joint%20Brief%20of%20Petitioners%20073015.pdf>; Motion for Stay or Expedition, United States Telecom Ass'n v. FCC, No. 15-1063 (and consolidated cases), (D.C. Cir. May 15, 2015), *available at* <http://www.fhhlaw.com/1501063.net%20neutrality%20stay%20request.2015.05.13.PDF>.

46. *Protecting and Promoting the Open Internet*, GN Docket No. 14-28, Report and Order on Remand, Declaratory Ruling, and Order, F.C.C. 15-24, ¶ 25 (Mar. 12, 2015), *available at* http://transition.fcc.gov/Daily_Releases/Daily_Business/2015/db0403/FCC-15-24A1.pdf [hereinafter 2015 Open Internet Order].

47. The FCC previously had imposed less stringent rules on wireless carriers in light of spectrum use, greater potential for congestion and recent entry in broadband markets. The 2015 Open Internet Order treats wireless ISPs no differently than wireline ISPs:

Today, we find that changes in the mobile broadband marketplace warrant a revised approach. We find that the mobile broadband marketplace has evolved, and . . . conclude that it would benefit the millions of consumers who access the Internet on mobile devices to apply the same set of Internet openness protections to both fixed and mobile networks.

Id. ¶ 88.

decision resulted from rational decision-making based on a complete record evidencing substantially changed circumstances occurring in the ten years running from 2005, when the FCC opted to classify Internet access as an information service.⁴⁸

The FCC emphasized the need for narrowly crafted rules designed to “prevent specific practices we know are harmful to Internet openness—blocking, throttling, and paid prioritization—as well as a strong standard of conduct designed to prevent the deployment of new [anticompetitive] practices that would harm Internet openness.”⁴⁹ The FCC highlighted that ISPs have both the incentive and ability to leverage access in ways that can thwart the virtuous cycle of innovation and investment in the Internet ecosystem:

The key insight of the virtuous cycle is that broadband providers have both the incentive and the ability to act as gatekeepers standing between edge providers and consumers. As gatekeepers, they can block access altogether; they can target competitors, including competitors to their own video services; and they can extract unfair tolls.⁵⁰

The FCC emphasized that, while subjecting ISPs to Title II common carrier oversight, the FCC will use its statutory authority quite narrowly as evidenced by the decision to forbear⁵¹ from applying “27 provisions of Title II of the Communications Act, and over 700 FCC rules and regulations.”⁵² The FCC recognized the need to explain how the new

48. “It is also well settled that we may reconsider, on reasonable grounds, the Commission’s earlier application of the ambiguous statutory definitions of ‘telecommunications service’ and ‘information service.’” *Id.* ¶ 334.

The [Supreme] Court’s application of [the] *Chevron* test in *Brand X* makes clear our delegated authority to revisit our prior interpretation of ambiguous statutory terms and reclassify broadband Internet access service as a telecommunications service. . . . Where a term in the Act “admit[s] of two or more reasonable ordinary usages, the Commission’s choice of one of them is entitled to deference.”

Id. ¶ 332 (third alteration in original).

49. *Id.* ¶ 4.

50. *Id.* ¶ 20.

51. 47 U.S.C. § 160(a) (2012) authorizes the FCC to streamline the scope of its Title II oversight by forbearing from applying many common carrier requirements.

52. 2015 Open Internet Order, *supra* note 46, ¶ 5. The major provisions of Title II that the Order will apply are: nondiscrimination and no unjust and unreasonable practices under Sections 201 and 202; authority to investigate complaints and resolve disputes under section 208 and related enforcement provisions, specifically sections 206, 207, 209, 216 and 217; protection of consumer privacy under Section 222; fair access to poles and conduits under Section 224, protection of people with disabilities under Sections 225 and

requirements satisfy pressing needs, but in the most narrow and well-calibrated matter in light of virulent opposition from most ISPs and the two Republican Commissioners. The Order reports that:

[T]here will be fewer sections of Title II applied than have been applied to Commercial Mobile Radio Service (CMRS), [the regulatory classification for wireless voice telecommunications service] where Congress expressly required the application of Sections 201, 202, and 208, and permitted the Commission to forbear from others. In fact, Title II has never been applied in such a focused way.⁵³

In addition to the specific prohibitions on blocking, throttling, and paid prioritization, the FCC will consider on a case-by-case basis whether an ISP has engaged in a practice “that unreasonably interfere[s] with or unreasonably disadvantage[s] the ability of consumers to reach the Internet content, services, and applications of their choosing or of edge providers to access consumers using the Internet.”⁵⁴ The FCC opted to apply this more open-ended evaluative standard rather than the strict legal standard of prohibiting commercially unreasonable practices, which it had proposed in the 2014 Open Internet NPRM. The FCC concluded that it should “adopt a governing standard that looks to whether consumers or edge providers face unreasonable interference or unreasonable disadvantages, and makes clear that the standard is not limited to whether a practice is agreeable to commercial parties.”⁵⁵

The FCC reported that it will use the “no-unreasonable interference/disadvantage” standard to evaluate controversial subjects, including the lawfulness of “sponsored data” arrangements where an ISP accepts advertiser payment in exchange for an agreement not to meter and debit the downstream traffic delivery. The FCC also will use this standard to consider the lawfulness of data caps that tier service by the amount of

255; and providing universal funding for broadband service, but not the requirement to collect contributions to such funding through partial application of Section 254.

53. *Id.* ¶ 38.

54. *Id.* ¶ 135.

55. *Id.* ¶ 150. The FCC identified a number of factors it will consider in future evaluations. These include an assessment whether a practice allows end-user control and is consistent with promoting consumer choice, its competitive effect, whether consumers and opportunities for free expression are promoted or harmed, the effect on innovation, investment, or broadband deployment, whether the practice hinders the ability of end users or edge providers to use broadband access to communicate with each other and whether a practice conforms to best practices and technical standards adopted by open, broadly representative, and independent Internet engineering, governance initiatives, or standards-setting organization. *Id.* ¶¶ 139–45.

permissible downloading volume. In both instances, the FCC sees the potential for an ISP to create artificial scarcity to extract higher revenues, to favor corporate affiliates and third parties willing to pay a surcharge, and to disadvantage competitors, e.g., using data caps to harm new vendors of video programming that compete with an ISP service. On the other hand, the FCC recognizes that service tiering can promote innovation and the creation of new, customized services.

The Order expresses the view that reclassifying Internet access as a telecommunications service, combined with a secondary reference to Section 706 of the Telecommunications Act of 1996 and a tertiary reference to Title III (which addresses the use of radio spectrum and applies common carriage regulation to wireless voice carriers), provides the strongest legal foundation for the Open Internet regulations.⁵⁶ By using the stronger Title II foundation, the FCC asserts that it can not only establish a clear and unconditional statutory authority, but can also use the flexibility contained in Title II to forbear from applying most common carrier requirements not relevant to modern broadband service, just as it does for wireless telephone service. However, with a Title II regulatory foundation, the Order makes it possible for the FCC to create an Open Internet conduct standard that prohibits ISPs from harming consumers or edge providers with the use of enforcement tools available to sanction violations.⁵⁷

The FCC's decision to treat aspects of Internet access as common carriage has triggered a third judicial appeal and review of whether such reclassification constitutes a reasonable decision based on a complete evidentiary record. By opting for reclassification, the FCC underscores the riskiness in imposing *ex ante* regulation without an explicit legislative mandate.

C. DIFFICULTIES IN APPLYING EX ANTE REGULATION

An NRA that is legally obligated to apply *ex ante* regulation using service definitions will likely experience great difficulty and require extraordinary finesse in applying the regulations. For example, the FCC's

56. "We ground the open Internet rules we adopt today in multiple sources of legal authority—section 706, Title II, and Title III of the Communications Act." *Id.* ¶ 273.

57. With an eye toward providing timely, certain and flexible enforcement of its open Internet rules, the FCC announced its intention to use advisory opinions similar to those issued by the Department of Justice's Antitrust Division. "Advisory opinions will enable companies to seek guidance on the propriety of certain open Internet practices before implementing them, enabling them to be proactive about compliance and avoid enforcement actions later." *Id.* ¶ 229.

only option to impose clear common carrier duties on ISPs is to reclassify them as telecommunications service providers, either unilaterally or in light of new legislation.⁵⁸ The former has triggered substantial opposition and litigation while the latter has little chance of occurring.⁵⁹ Now, the FCC faces the challenge of creating ex ante rules that will be effective. The FCC appears willing to accord ISPs flexibility to engage in commercial negotiations that will provide specialized, arguably “better than best” routing options for single ventures, but without so balkanizing and dichotomizing the Internet into fast and slow lanes, with fast lanes available only to ventures with deep pockets, leaving slow lanes to ventures (including most startups) lacking the financial resources to pay surcharges.

By creating and applying mutually exclusive service categories, the FCC faces a regulatory quandary. Having determined that all forms of broadband access constitute information services, it abandoned the option of applying limited, calibrated, and streamlined common carrier rules to ISPs even though it has determined that the public interest warrants such safeguards. Upon determining that ISPs have both the incentive and ability to engage in anticompetitive practices, the FCC has opted for the controversial but clearer option of reclassifying Internet access as subject to Title II ex ante oversight. The alternative to re-classification would require shoehorning lawful regulations that are effective, but do not impose on ISPs common carrier, telecommunications service regulations that are impermissible in the absence of re-classification.

The FCC’s decision to opt for regulatory reclassification implies that it did not think it could prevent unreasonable blockage and discrimination by ISPs under their prior classification of broadband Internet access as a largely unregulated information service. The FCC had at its disposal

58. *See Verizon v. FCC*, 740 F.3d 623, 628 (D.C. Cir. 2014). The court states:

[E]ven though the Commission has general authority to regulate in this arena, it may not impose requirements that contravene express statutory mandates. Given that the Commission has chosen to classify broadband providers in a manner that exempts them from treatment as common carriers, the Communications Act expressly prohibits the Commission from nonetheless regulating them as such.

Id.

59. On the contrary, a “U.S. lawmaker has introduced legislation that would prohibit the Federal Communications Commission from reclassifying broadband as a common-carrier utility, a move many net neutrality advocates have called for.” Grant Gross, *Bill Would Prohibit FCC from Reclassifying Broadband as Utility*, PC WORLD (May 29, 2014), <http://www.pcworld.com/article/2303080/bill-would-prohibit-fcc-from-reclassifying-broadband-as-utility.html>.

precedent from the D.C. Circuit Court of Appeals supporting the implementation of significant ex ante regulation, so long as it did not rise to the level of common carriage oversight when considered in aggregate.⁶⁰ In *Cellco Partnership v. FCC* the court approved the FCC's decision to require wireless carriers to negotiate commercial "roaming agreements,"⁶¹ making it possible for subscribers located outside their local service area to access Internet services via another carrier.⁶² The court reasoned that even though wireless data access constitutes an information service provided by private carriers, the FCC can impose reasonable, non-common carrier duties. The court noted that the FCC only required wireless carriers to negotiate commercially reasonable terms, meaning that terms and conditions need not be uniform, and roaming need not even be offered, if technically infeasible.⁶³

60. See *Verizon v. FCC*, 740 F.3d at 642. In *Verizon*, the court reasons:

We think it quite reasonable to believe that Congress contemplated that the Commission would regulate this [broadband] industry, as the agency had in the past, and the scope of any authority granted to it by section 706(b)—limited, as it is, both by the boundaries of the Commission's subject matter jurisdiction and the requirement that any regulation be tailored to the specific statutory goal of accelerating broadband deployment—is not so broad that we might hesitate to think that Congress could have intended such a delegation.

Id.

61. "Roaming occurs when wireless subscribers travel outside the range of their own carrier's network and use another carrier's network infrastructure to make a call." *Cellco P'ship v. FCC*, 700 F.3d 534, 537 (D.C. Cir. 2012).

62. The FCC previously imposed roaming requirements on cellular radio telephone carriers providing voice and data services:

We codify the automatic roaming obligations of CMRS carriers into a rule requiring that they provide automatic roaming to any requesting technologically compatible CMRS carrier outside of the requesting CMRS carrier's home market on reasonable and nondiscriminatory terms and conditions. This rule applies to CMRS carriers that offer real-time, two-way switched voice or data service over digital network that is interconnected with the public switched network and utilize an in-network switching facility that enables the provider to reuse frequencies and accomplish seamless hand-offs of subscriber calls. We also note that codification of an automatic roaming obligation gives CMRS carriers another avenue to redress roaming disputes, benefiting mobile telephony subscribers.

Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers, Report and Order and Further Notice of Proposed Rulemaking, 22 F.C.C. Rcd. 15,817, 15,841 (2007).

63. *Cellco P'ship*, 700 F.3d at 548. The court describes the FCC rule as follows:

D. FALSE NEGATIVES AND POSITIVES IN EX ANTE NETWORK NEUTRALITY RULES

Ex ante rules imposing network neutrality requirements have the potential to trigger false positives (i.e., a determination that a rule violation has occurred, despite the absence of harm to consumers and competitors), as well as false negatives (i.e., a failure to make a determination detecting and remedying conduct that violates a rule and causes harm). A false positive would occur if the FCC sanctioned an ISP for engaging in price and quality of service discrimination that enhanced consumer welfare and accrued revenues without adversely affecting the Internet access marketplace, e.g., offering an enhanced filtering system to guard against excessive and unsolicited content, commonly referred to as spam.

The FCC previously attempted to avoid false positives by exempting reasonable network management and specialized networks from ex ante Open Internet rules.⁶⁴ However, in carving out exemptions for “good

The rule itself actually spells out sixteen different factors plus a catch-all “other special or extenuating circumstances” factor that the Commission must take into account in evaluating whether a proffered roaming agreement is commercially reasonable. The Commission has thus built into the “commercially reasonable” standard considerable flexibility for providers to respond to the competitive forces at play in the mobile-data market. Although the rule obligates Verizon to come to the table and offer a roaming agreement where technically feasible, the “commercially reasonable” standard largely leaves the terms of that agreement up for negotiation.

Id. (citing Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers and Other Providers of Mobile Data Services, Second Report and Order, 26 F.C.C. Rcd. 5411, 5452–53 (2011)).

64. See 2010 Open Internet Order, *supra* note 6, at 17,951 n.48, *aff'd in part, vacated and remanded in part sub nom.* Verizon v. FCC, 740 F.3d 623 (D.C. Cir. 2014). The Order states:

The open Internet rules we adopt today expressly provide for and define “reasonable network management” in order to provide greater clarity to broadband providers, network equipment providers, and Internet end users and edge providers regarding the types of network management practices that are consistent with open Internet protections.

Id. The Order continues by responding to commenter concerns:

We agree with the many commenters who advocate that the Commission exercise its authority to closely monitor and proceed incrementally with respect to specialized services, rather than adopting policies specific to such services at this time. We will carefully observe market developments to verify that specialized services promote

discrimination,” the FCC risks false negatives. For example, an ISP intent on favoring its video content services, or that of an unaffiliated venture paying a surcharge, might claim that it engaged in reasonable network management to prevent congestion caused by subscribers with the largest consumption of carrier services.⁶⁵

Ostensibly to promote fair access to, and sharing of bandwidth among all subscribers, a Retail ISP might slow down and degrade traffic based on the identity of either the source of traffic, or the intended recipient. The ISP might justify slowing inbound traffic on grounds that the upstream carrier has generated “too much” traffic in light of the downstream capacity it had secured from the ISP. The Retail ISP also could throttle, or degrade traffic delivery to one of its subscribers on grounds that he or she exceeded a monthly downloading allotment available for the service tier selected by the subscriber.⁶⁶ In doing so, an ISP could tilt the competitive playing field in its favor for such services as consumer access to video programming. Subscribers to Netflix and users of legally questionable peer-to-peer file sharing services, such as BitTorrent,⁶⁷ would experience degraded or blocked service unless they shifted to a more expensive service offering faster download speeds and a higher monthly allotment of permissible downloading volume. Worst yet, upstream ISPs

investment, innovation, competition, and end-user benefits without undermining or threatening the open Internet.

Id. at 17,965–66 (citations omitted).

65. ISPs have referred to such high volume users as “bandwidth hogs,” despite the option of tiering service and raising rates. “Usage-based pricing thus can temper the activities of “bandwidth hogs” whose heavy consumption could impose substantial congestion costs on their neighbors.” Daniel A. Lyons, *Internet Policy’s Next Frontier: Usage-Based Broadband Pricing*, 66 FED. COMM. L.J. 1, 32 (2013).

66. “Federal officials on Tuesday sued AT&T, the nation’s second-largest cellular carrier, for allegedly deceiving millions of customers by selling them supposedly ‘unlimited’ data plans that the company later ‘throttled’ by slowing Internet speeds when customers surfed the Web too much.” Brian Fung & Craig Timberg, *The FTC is Suing AT&T for Throttling Its Unlimited Data Customers*, WASH. POST (Oct. 28, 2014), <http://www.washingtonpost.com/blogs/the-switch/wp/2014/10/28/the-ftc-is-suing-att-for-throttling-its-unlimited-data-customers/>; see also Press Release, Fed. Trade Comm’n, FTC Says AT&T Has Mised Millions of Consumers with ‘Unlimited’ Data Promises (Oct. 28, 2014), available at <http://www.ftc.gov/news-events/press-releases/2014/10/ftc-says-att-has-mised-millions-consumers-unlimited-data>.

67. “Each computer in a BitTorrent ‘swarm’ is able to download content from the other computers in the swarm, and in turn each computer also makes available content for those same peers to download, all via TCP connections.” Formal Complaint of Free Press and Public Knowledge Against Comcast Corp. for Secretly Degrading Peer-to-Peer Applications, Memorandum Opinion and Order, 23 F.C.C. Rcd. 13,028, 13,029 (2008), *vacated*, Comcast Corp. v. FCC, 600 F.3d 642 (D.C. Cir. 2010).

and content providers as well as end users might not know why service degradation has occurred, because the Retail ISP could obscure its traffic prioritization and degradation tactics.⁶⁸

Bear in mind that when the FCC investigated Comcast for allegedly meddling with subscriber's traffic leading to sanctions and litigation that overturned the FCC's first set of network neutrality regulations, Comcast initially claimed that it had nothing to do with the problem.⁶⁹ The company later characterized its actions as lawful network management needed to abate congestion.⁷⁰ Even though the FCC failed to establish rules for lawfully sanctioning Comcast, they compiled an evidentiary

68. For example, the FCC determined that retail broadband subscribers of Comcast broadband service experienced service degradation and disruption without explanation from the company which in fact caused the problems to occur. The FCC took the position:

The record leaves no doubt that Comcast's network management practices discriminate among applications and protocols rather than treating all equally. To reiterate: Comcast has deployed equipment across its networks that monitors its customers' TCP connections using deep packet inspection to determine how many connections are peer-to-peer uploads. When Comcast judges that there are too many peer-to-peer uploads in a given area, Comcast's equipment terminates some of those connections by sending RST packets. In other words, Comcast determines how it will route some connections based not on their destinations but on their contents; in laymen's terms, Comcast opens its customers' mail because it wants to deliver mail not based on the address or type of stamp on the envelope but on the type of letter contained therein.

Id. at 13,500–01 (citations omitted).

Comcast's claim that it has always disclosed its network management practices to its customers is simply untrue. . . . And although Comcast eventually disclosed some elements of its network management practices to customers, Comcast's first reaction to allegations of discriminatory treatment was not honesty, but at best misdirection and obfuscation. If Comcast actually believed its practices were reasonable, it should not have behaved in this manner.

Id. at 13,059.

69. The FCC's opinion further states:

Comcast subscribers began to notice that they had problems using BitTorrent and similar technologies over their Comcast broadband connections. Last year, their complaints began to receive widespread attention in the press. When first confronted with these press reports, Comcast—the nation's second largest provider of broadband Internet access services—misleadingly disclaimed any responsibility for the customers' problems.

Id. at 13,030.

70. *Id.* at 13,031–32.

record conclusively showing that Comcast had no legitimate reason to interfere with subscribers' video content downloading. The FCC determined that Comcast had never experienced network congestion despite having resorted to bandwidth conservation tactics designed to abate congestion, even as it inconvenienced certain subscriber groups.⁷¹ In this instance the FCC identified the need for ex ante safeguards, but lacked statutory authority to remedy a true positive and not a false positive that network neutrality opponents consider more likely.

Regulators risk both false positives and false negatives, because multiple carriers, with increasingly divergent motivations, participate in the complete link between content sources and consumers. Rather than share a single goal of providing the best possible service, ISPs have to consider how they can accommodate ever increasing demand for bandwidth and faster transmission speeds while also recouping costs and profiting from providing service. An ISP serving end users might balk at satisfying the increased capacity requirements of upstream content sources without a commensurate increase in financial compensation. If the parties cannot reach closure on new interconnection and compensation arrangements, the potential exists for congestion to degrade service quality. Regulatory authorities may lack the tools for conducting a forensic investigation whether such congestion naturally occurred in light of vastly more traffic, or was artificially generated by an ISP seeking greater negotiation leverage.

Two service options, proposed or offered by one or more ISPs, provide examples where the absence of ex ante safeguards made it possible for congestion and degraded service to occur without clear evidence of the cause.

In 2012, Comcast announced that it would exempt from monthly caps on retail broadband data carriage traffic, including full length movies, content that Comcast delivers to its subscribers who also have a paid

71. The FCC found in its analysis of Comcast's network congestion: Comcast claimed that it sent RST packet "only during periods of peak network congestion" and "only . . . during periods of heavy network traffic." Evidence in the record, however, contradicts this claim. . . . Comcast changed its story yet again, and admitted that its "current P2P management is triggered . . . regardless of the level of overall network congestion at th[e] time, and regardless of the time of day."

Id. at 13,032 (alteration in original).

monthly subscription to Xbox video game online services.⁷² Comcast claimed that its delivery of such traffic used specialized network routing and not the Internet thereby qualifying such traffic for exemption from network neutrality rules.⁷³

The FCC readily could create a false positive by rejecting the specialized network routing rationale on grounds that this option violates network neutrality policy even though the traffic arguably traversed private broadband networks and not the “public” Internet. However, the FCC just as readily could have accepted the network exemption rationale, even though other stakeholders could persuasively claim a false negative by showing that Comcast simply tailored the service to appear specialized even though the traffic would traverse the same network facilities used by Comcast to switch and route “plain vanilla” Internet traffic.⁷⁴

A second example evidences the FCC’s quandary when a particular source of content agrees to pay an ISP to route specific bitstreams without metering the traffic and debiting a specific subscriber’s monthly data traffic allotment. AT&T has proposed such a “sponsored data” plan for reaching wireless subscribers reluctant to watch advertisements and other

72. See Joel Hruska, *The New Comcast Xbox Xfinity App is the First Nail in Net Neutrality’s Coffin*, EXTREMETECH (Mar. 28, 2012), <http://www.extremetech.com/extreme/124041-the-new-comcast-xbox-xfinity-app-is-the-first-nail-in-net-neutralities-coffin>. Kruska discusses the relationship between Comcast and Microsoft Xbox users:

Comcast recently announced that Xbox users who subscribe to the company’s Xfinity TV service will now be able to access Xfinity On Demand content on their Xbox 360s—and that doing so won’t count against your 250GB data cap. The cable provider’s new policy has touched off a firestorm of criticism from net neutrality advocates, who point to the decision as proof of just how toothless the FCC’s Open Internet rules are.

Id.; see also Amy Schatz, *Why an Apple-Comcast Deal Stirs Net Neutrality Concerns*, RE/CODE (Mar. 25, 2014), <http://recode.net/2014/03/25/why-an-apple-comcast-deal-stirs-net-neutrality-concerns/>.

73. “Comcast says streaming its video on demand service via the Xbox won’t count against its monthly caps because the traffic doesn’t go over the public Internet.” Stacey Higginbotham, *The Technical and Legal Realities of Comcast’s Xbox Cap Spat*, GIGAOM (Mar. 27, 2012), <http://gigaom.com/2012/03/27/the-technical-and-legal-realities-of-comcasts-xbox-cap-spat/>.

74. “What Comcast has done through its agreement with Microsoft is to create a specialized path through the public Internet. By conceding to Comcast’s demands over authentication and whatever else, Microsoft has extended Comcast’s network onto its device and created a fast lane over which Comcast bits can travel.” *Id.*

content that would quickly deplete monthly data traffic allotments.⁷⁵ If the FCC were to permit this type of service sponsorship, opponents would claim a false negative on grounds that the subsidy constitutes a type of “pay to play” preference in violation of network neutrality rules. On the other hand, AT&T and willing sponsors would claim a false positive if the FCC were to deem the option an unfair preference constituting unreasonable price discrimination and a violation of network neutrality policy. Arguably, an advertiser subsidy promotes wider overall Internet access, particularly by previously underrepresented consumers.

E. DIFFICULTIES IN CREATING AND ENFORCING EX ANTE REGULATIONS TO ISPs

Even with a conscientious and well-trained staff, an NRA may lack the technical competency that qualifies it to make “expert” judgments on the commercial and technological reasonableness of a new pricing and traffic routing initiative. Ex ante regulations require an NRA to anticipate future problems and to identify potential causes for conflicts and harms to consumers. Typically an NRA becomes aware of a problem only after it has become acute and consumers complain that “mission critical” bitstreams of “must see” video have become degraded. The NRA must undertake a forensic investigation to identify the technical reasons for service degradation as well as who, or what caused the problem. Predictably stakeholders will dispute cause and effect thereby forcing the NRA to assume twin roles as fact finder and adjudicator.

NRAs have achieved mixed success in crafting regulations that anticipate problems and provide appropriate remedies.⁷⁶ Even if they

75. See Brian X. Chen, *AT&T Allows Advertisers to Sponsor Mobile Data*, N.Y. TIMES (Jan. 6, 2014), <http://bits.blogs.nytimes.com/2014/01/06/att-allows-advertisers-to-sponsor-mobile-data>. The N.Y. Times reported on sponsored data streams:

Say you want to watch a trailer for “The Wolf of Wall Street” on your smartphone. Why should you pay for the data required to display it when you are essentially viewing an advertisement? That’s the idea behind a program that AT&T calls Sponsored Data. Businesses working with AT&T can pay for the data that is used to consume their content or services so that it does not show up on a customer’s phone bill.

Id.

76. See, e.g., Douglas H. Ginsburg, *Synthetic Competition*, 16 MEDIA L. & POL’Y 1, 11–15 (2006); Howard A. Shelanski, *Adjusting Regulation to Competition: Toward a New Model for U.S. Telecommunications Policy*, 24 YALE J. ON REG. 55 (2007); Adam Thierer, *Technopanics, Threat Inflation, and the Danger of an Information Technology Precautionary Principle*, 14 MINN. J.L. SCI. & TECH. 309, 385–86 (2013).

succeed in achieving a fair, “rough justice” process, NRAs have no certainty that they can “future proof” the rules so that they remain viable and effective in light of technological change as well as the convergence and robust change in markets. NRAs will attempt to fashion flexible rules that can respond to changed circumstances, but they may not be able to keep up with technological and marketplace change, or they may generate too much ambiguity in rules ostensibly designed to promote flexibility.

Alternatively NRAs may strive for certainty at the risk of creating inflexible rules and static definitions. Specificity helps an NRA draw a bright line distinction between regulated and unregulated services, but such a dichotomy may not survive technological innovations and market convergence that create incentives for ventures to offer an inventory of both regulated and unregulated services.

Additionally NRAs may experience difficulty in establishing the cause and responsible party for a harmful outcome. Internet-mediated services present a particularly vexing problem for NRA forensic investigations in light of the fact that numerous network operators typically participate in the switching and routing of content from source to end user. When retail broadband service subscribers experience frozen, blurred or disrupted service, they cannot readily determine the cause of the problem and the responsible party.

For example, in early 2014, many Netflix customers experienced degraded service when attempting to download and immediately view “streaming” video content.⁷⁷ Netflix asserted that ISPs such as Comcast and Verizon deliberately caused congestion, by refusing to make timely network capacity upgrades, or by rationing plentiful transmission, switching, and port capacity in ways that increased the probability of congestion for Netflix traffic alone. ISPs rejected this scenario and suggested that Netflix should blame itself for releasing an entire season’s worth of a program at once instead of the conventional weekly release of just one episode.⁷⁸ Consumers and regulators alike may find it difficult to

77. See Drew Fitzgerald & Shalini Ramachandran, *Netflix-Traffic Feud Leads to Video Slowdown*, WALL ST. J. (Feb. 18, 2014), <http://online.wsj.com/news/articles/SB10001424052702304899704579391223249896550>.

78. “The hit political drama series of Netflix kept about 60,000 subscribers glued onto their screens on Valentine’s Day to watch the whole 13-hour production. However, the shifting behavior of consumers to watch videos on demand over the Internet is causing some clogged pipes on the information highway.” Randell Suba, *Netflix-Verizon Standoff: Only Net Neutrality Can Now Stop Video Slowdown*, TECH TIMES (Feb. 23, 2014), <http://www.techtimes.com/articles/3670/20140223/netflix-verizon-standoff-only-net-neutrality-can-now-stop-video-slowdown.htm>.

identify the cause of congestion and degraded service. Sophisticated network tracking techniques are needed to identify whether congestion was created artificially, or the result of unanticipated peak demand. Because many networks participate in the carriage of traffic from source to destination, NRAs may not easily identify the network operating the weakest link with the lowest available bandwidth and switching capacity that can cause end users to experience delays in downloads and even dropped packets of content.

F. INEFFICIENCY AND DEFECTIVE OUTCOMES OF EX ANTE RULEMAKING

Before an NRA establishes final and binding rules, it typically initiates a process to compile a complete evidentiary record by inviting any interested parties to participate. This process, often termed a rulemaking⁷⁹ or public consultation,⁸⁰ takes significant time and effort. Given the stakes, the most comprehensive filings come from ventures likely to be adversely affected by new rules. These stakeholders often incur sizeable expenses in retaining the services of lawyers, economists and other experts to assist in the preparation of document that will become part of the NRA's record. Often the work product of these experts masquerade as scientific fact finding, research and analysis, despite being no more than sponsored advocacy.⁸¹

Stakeholders have both great incentives to delay the onset of new burdens and many ways to achieve such outcomes including litigation, lobbying the legislature and using procedural tactics. Additionally, parties anticipating a bad outcome will attempt to reframe the issues in a proceeding as less about creating safeguards and more about misguided efforts that will harm consumers by creating regulatory uncertainty and disincentives for risk taking and new infrastructure investment. Stakeholders opposed to ex ante regulation will attempt to persuade the legislature to preempt or constrain NRA initiatives on grounds that rules

79. See, e.g., 2014 Open Internet NPRM, *supra* note 6.

80. See, e.g., Press Release, Eur. Comm'n, Digital Agenda: Commission Opens Public Consultation on Preservation of the Open Internet (Net Neutrality) (July 23, 2012), available at <http://ec.europa.eu/digital-agenda/en/news/commission-opens-public-consultation-preservation-open-internet-net-neutrality>.

81. See Rob Frieden, *Case Studies in Abandoned Empiricism and the Lack of Peer Review at the Federal Communications Commission*, 8 J. ON TELECOMM. & HIGH TECH. L. 277 (2010).

impose unnecessary costs to both service providers and consumers.⁸² The process can easily get sidetracked into a dispute about the robustness and competitiveness of the marketplace and the virtue in maintaining the least amount of government intrusion in the lives of consumers and corporations.

G. THE INABILITY TO COMBINE EX ANTE AND EX POST
FUNCTIONS IN SOME COUNTRIES

Some national governments foreclose the option for an NRA to use both ex ante and ex post regulation. In the United States, the Communications Act of 1934, as amended,⁸³ requires the FCC to make a threshold determination of whether a particular service fits within a definition that permits ex ante regulation, or not. Such a definition-driven regulatory process has forced the FCC to reclassify broadband internet access as a Title II telecommunications service, despite having previously determined that all forms of broadband Internet access constitute largely unregulated information services.⁸⁴

The FCC's determination that telecommunications services and information services are mutually exclusive makes it nearly impossible for it to apply network neutrality rules to providers of information services. Having determined that Internet-mediated service is not the functional equivalent of a telecommunications service, the FCC largely abandoned

82. See C. Scott Hemphill, *Network Neutrality and the False Promise of Zero-Price Regulation*, 25 YALE J. ON REG. 135, 148, 152–59 (2008).

83. The Communications Act imposes different regulatory requirements for common carriers in Title II, 47 U.S.C. §§ 201–276 (2012), broadcasters in Title III, 47 U.S.C. §§ 301–399b (2012), and cable operators in Title VI, 47 U.S.C. §§ 521–573 (2012). See also *supra* note 36.

84. Appropriate Regulatory Treatment for Broadband Access to the Internet Over Wireless Networks, Declaratory Ruling, 22 F.C.C. Rcd. 5901 (2007) (broadband via wireless smartphones and tablets deemed an information service); United Power Line Council's Petition for Declaratory Ruling Regarding the Classification of Broadband Over Power Line Internet Access Service as an Information Service, Memorandum Opinion and Order, 21 F.C.C. Rcd. 13,281 (2006) (broadband via the electricity grid deemed an information service); Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities, Declaratory Ruling and Notice of Proposed Rulemaking, 17 F.C.C. Rcd. 4798, 4821 (2002), *aff'd sub nom.* Nat'l Cable & Telecomms. Ass'n v. Brand X Internet Servs., 545 U.S. 967, 977–78 (2005) (affirming the FCC decision to apply the information service classification to broadband Internet access); Appropriate Framework for Broadband Access to the Internet Over Wireline Facilities, Report and Order and Notice of Proposed Rulemaking, 20 F.C.C. Rcd. 14,853, 14,863 (2005), *petition for rev. den.*, Time Warner Telecom, Inc. v. FCC, 507 F.3d 205 (3d Cir. 2007) (FCC classifying wire-based broadband Internet access as an information service).

the option of applying ex ante regulation. It also may have given up the option of applying ex post, adjudicatory remedies. Reviewing courts have already reversed the FCC's attempts to impose ex ante regulations and sanctions for violations of those regulations. Going forward, a similar legal reasoning can extend to ex post remedies of any sort based on the premise that if the FCC cannot assert jurisdiction—willingly or otherwise—adjudicatory bodies similarly should not assert jurisdiction over an apparently well-performing and self-regulating market.

Nations in the European Union combine a market power assessment with the option of applying ex ante safeguards on an as needed basis.⁸⁵ Unlike the process for applying regulation types based on service classification, EU nations assess the need for ex ante regulation based on whether an operator, or group possesses significant market power. Ex ante regulation applies only for market segments where the lack of competition makes it possible for one or more ventures to accrue significant market power. Stakeholders may disagree on the how to define and segment the telecommunications marketplace. They can also dispute the definition and calculation of whether market power exists. However, they cannot secure a court order declaring as off limits the option for an NRA to apply ex ante rules and regulations where necessary.

III. STRENGTHS AND WEAKNESSES IN EX POST REMEDIES

Ex post remedies apply when an aggrieved party can supply evidence supporting claims that a particular venture caused specific harm in violation of one or more laws enacted to promote full and fair competition.

85. See Pierre de Vries, *The Resilience Principles: A Framework for New ICT Governance*, 9 J. ON TELECOMM. & HIGH TECH. L. 137, 170 (2011). de Vries discusses the European approach:

The European approach to telecommunications regulation provides a framework for encouraging diversity through market entry. If a national regulator finds that a firm possesses Significant Market Power (SMP) within a defined market, it may impose obligations including transparency, non-discrimination, accounting separation, access to and use of specific network facilities, and price controls. If there is no SMP, such obligations must be rolled back. The current review of the E.U. Framework Directive indicates that European regulators continue to be mindful of diversity as an important component of a healthy communications system. It proposes that regulators will focus their resources on the market sectors in which the dominance of incumbents has been least challenged.

Id.

The ex post remedy applies to real and proven harms. While the specificity of harms largely prevents awarding damages and prescribing remedies for false positives, the potential for false negatives is significant. Ex post adjudication works best when an aggrieved party can identify the cause of harm and quantify it. For violations of network neutrality, aggrieved parties may not easily identify the cause of traffic congestion that has resulted in service outages, or degraded network performance. Even if it can identify the culprit, an aggrieved party may not be able to readily quantify the damages incurred in terms of lost subscriptions, revenues and profits. For example, even if a party proved that an ISP deliberately degraded service, it might have difficulty quantifying how many existing customers terminated service and how many prospective customers opted not to take service as a result. Existing customers may opt out of service, a process commonly referred to as churn, for a number of reasons. A venture seeking damages from an ISP could not readily prove that ISP meddling with bitstreams constituted the primary and proximate cause for the nonrenewal.

The cost of ex post remedies and the likely time it takes to secure relief can have a potentially debilitating impact even for ventures that can prove causation and damages. For startup ventures, the risk from biased networks lies in both higher costs for a delivery of service to end users, and strategies that tilt the competitive playing field in favor of a surcharge payer, or affiliate of the ISP providing the last mile of content delivery. New ventures without deep pockets to pay surcharges may fail to achieve a fair market trial based simply on having been targeted for higher content delivery payments. Proving such targeting may require a comprehensive and possibly expensive reverse forensic investigation to determine why a market entrant's customers are suddenly experiencing inferior service that can be remedied only with payment of a surcharge.

A. LIMITED OR ELIMINATED EX POST REMEDIES

In the United States, the Supreme Court has expressed growing reluctance to provide a judicial forum for conflict resolution if the expert regulatory agency, with the power to impose ex ante rules, has opted for deregulation. The absence of an ex post, antitrust remedy has the consequences of providing no place for aggrieved parties to seek relief once the FCC has determined that it lacks jurisdiction, or considers

competition sufficiently robust to abandon oversight.⁸⁶ The FCC has reestablished a forum for conflict resolution by resorting to a questionable reassessment of marketplace conditions finding that self-regulation insufficient to protect consumers and promote competition. An appellate court may not accept the FCC's reconsideration as rational and supported by a complete evidentiary record.

Notwithstanding the FCC's renewed interest in ex ante regulatory safeguards, a now significant body of case law supports the conclusion that ex post antitrust remedies are unavailable if the FCC has jurisdiction over a disputed service and has opted not to regulate it.⁸⁷ The Court concluded that because industry sector-specific legislation provides the FCC with authority to craft ex ante regulatory remedies, when the FCC refuses to act, presumably based on the existence of sufficient and sustainable competition, appellate courts have no legal basis for imposing additional antitrust safeguards. The Court reasoned that when the FCC has determined that a carrier has no duty to deal with an actual or prospective competitor, a court applying antitrust law should not impose such a duty either.⁸⁸ The potential for false positives appears to justify a reluctance to support ex post action even at the greater risk for false negatives.

The Supreme Court's deference to the FCC has gone so far as to allow an incumbent carrier to offer end users lower retail rates than the wholesale rate it might voluntarily charge competitors, an apparent predatory and anticompetitive practice commonly referred to as a price squeeze.⁸⁹ In 2003, several ISPs filed suit against Pacific Bell Telephone

86. Nations in the European Union have not abandoned ex post adjudication of telecommunications disputes. *See, e.g.*, Commission Decision 2003/707/EC of May 21, 2003, Relating to a proceeding under Article 82 of the EC Treaty, 2003 O.J. (L 263) 9 (European Court of Justice affirming lower court's decision upholding the European Commission's determination that the incumbent operator of the German fixed telephone network had abused its dominant position by engaging in a margin squeeze); Commission Decision 2008/C 83/05 of 4 July 2007, Case COMP/38.784, *Wanadoo España v. Telefónica*, 2008 O.J. (C 83) 5, *aff'd*, Case T-398/07, *Spain v. Comm'n*, 2012 ECJ EUR-Lex LEXIS 231 (Mar. 29, 2012) (affirming a finding that dominant wireline carrier engaged in a price squeeze when pricing wholesale rates it had a legal duty to offer); *see also* Caroline Cavaleri Rudaz, *Did Trinko Really Kill Antitrust Price Squeeze Claims? A Critical Approach to the Linkline Decision Through a Comparison of E.U. and U.S. Case Law*, 43 VAND. J. TRANSNAT'L L. 1077 (2010).

87. The Supreme Court also affirmed the FCC's decision to classify all types of broadband Internet access as information services thereby eliminating the prospect for ex ante regulation.

88. *Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398 (2004).

89. *Pac. Bell Tel. Co. v. Linkline Commc'ns, Inc.*, 555 U.S. 438 (2009).

Co., contending that it attempted to monopolize the market for Digital Subscriber Line (DSL)⁹⁰ broadband Internet access by creating a price squeeze requiring ISP competitors to pay a higher wholesale price than the complete DSL service Pacific Bell offered on a retail basis to its broadband subscribers. Both the District Court and the Ninth Circuit Court of Appeals agreed that the ISPs could present their price squeeze claim, despite the Supreme Court's *Trinko* decision that severely constrained the scope of antitrust remedies in lieu of, or in addition to FCC regulatory safeguards.⁹¹

The Supreme Court assumed that Pacific Bell had no duty to deal with any ISPs based on the FCC's premise that ample facilities-based competition existed and on the FCC's refusal to order any remedy even when presented with clear evidence that Pacific Bell offered retail users rates below wholesale rates offered to competitors. But for a voluntary concession to secure the FCC's approval of AT&T's acquisition of BellSouth, the court noted that Pacific Bell would not have even had the duty to provide ISPs wholesale services. The court agreed to hear the case to answer whether ISP plaintiffs can bring a price squeeze claim under Section 2 of the Sherman Act⁹² when the defendant carrier has no mandatory duty to deal with the plaintiffs. The lower court concluded that the *Trinko* precedent did not bar such a claim,⁹³ but the Supreme Court reversed this holding.⁹⁴

90. See *Digital Subscriber Line Definition, Types of Broadband Connections*, FCC, <http://www.fcc.gov/encyclopedia/types-broadband-connections#dsl> (last visited Apr. 17, 2015). The FCC describes digital subscriber line service:

DSL is a wireline transmission technology that transmits data faster over traditional copper telephone lines already installed to homes and businesses. DSL-based broadband provides transmission speeds ranging from several hundred Kbps to millions of bits per second (Mbps). The availability and speed of your DSL service may depend on the distance from your home or business to the closest telephone company facility.

Id.

91. *Pac. Bell Tel. Co.*, 555 U.S. at 444–45.

92. Sherman Antitrust Act, 15 U.S.C. § 2 (2012); see also U.S. DEPT OF JUSTICE, ANTITRUST DIVISION MANUAL (3d ed. 2014), available at <http://www.justice.gov/atr/public/divisionmanual/chapter2.pdf> (providing an outline of antitrust law enforcement practice and procedure).

93. *Law Offices of Curtis V. Trinko, LLP v. Bell Atlantic Corp.*, 305 F.3d 89, 111 (2d Cir. 2002), *rev'd sub nom. Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398 (2004). *Verizon* reasons:

It is unlikely that allowing antitrust suits would substantially disrupt the regulatory proceedings mandated by the Telecommunications Act. In

The Supreme Court's decision upbraided the ISP plaintiffs for changing the nature of their claim from a price squeeze to one characterizing Pacific Bell's tactics as predatory pricing, a practice where one competitor charges below-cost rates with an eye toward driving out competitors after which rates can rise.⁹⁵ On substantive grounds, the court noted that a new emphasis on predatory pricing would have required determination whether the retail price was set below cost, a claim the ISPs did not make.⁹⁶

The Supreme Court determined that the case did not become moot, because of the change in economic and antitrust arguments. However, the decision evidenced great skepticism as to whether the ISPs had any basis for a claim because the Court concluded that the ISPs failed to make a claim that Pacific Bell's retail DSL prices were predatory, and because the ISPs failed to refute the conclusion that Pacific Bell had no duty to deal, i.e., to offer cost-based wholesale service that typically costs less than retail service. The Court apparently could ignore the voluntary concession AT&T made that it did have a duty to deal, because that concession only triggered FCC oversight, without affecting whether an antitrust law duty to deal arises. The Court read the *Trinko* case as foreclosing any antitrust claim if no antitrust duty to deal exists, even if the FCC had ordered wholesale broadband access be made available for resale.

The Supreme Court remanded the case to the District Court to determine whether the ISP plaintiffs have any viable predatory pricing claim. The Supreme Court expressed the need for clear antitrust rules and apparently views consumer access to low retail prices as sufficient reason for courts to refrain from intervention.⁹⁷ The Court stated that

discussing the impact such suits would have on the regulatory process, it is useful to discuss separately suits seeking damages and suits for injunctive relief. Awarding damages for the willful maintenance of monopoly power would not substantially interfere with the regulatory scheme envisioned by the Telecommunications Act.

Id.

94. *Pac. Bell Tel. Co.*, 555 U.S. at 457.

95. *Id.* at 451–52.

96. *Id.* at 455–57.

97. *Pac. Bell Tel. Co.* states:

To avoid chilling aggressive price competition, we have carefully limited the circumstances under which plaintiffs can state a Sherman Act claim by alleging that prices are too low. Specifically, to prevail on a predatory pricing claim, a plaintiff must demonstrate that: (1) “the prices complained of are below an appropriate measure of its rival’s

“[i]nstitutional concerns also counsel against recognition of such claims . . . [because of the need for] clear rules in antitrust law . . . [and] . . . [n]o court should impose a duty to deal that it cannot explain or adequately and reasonably supervise.”⁹⁸

The Supreme Court does not seem troubled even if all ISP competitors exited the market, an event that surely would enable the surviving incumbent carrier to raise rates: “For if AT&T can bankrupt the plaintiffs by refusing to deal altogether, the plaintiffs must demonstrate why the law prevents AT&T from putting them out of business by pricing them out of the market.”⁹⁹

This case evidences a strong reluctance on the part of the Supreme Court to support any sort of ex post judicial review over the pricing strategies of carriers and analysis of the FCC’s determinations about the appropriateness of such prices and the viability of competition. Judicial deference to the FCC and the FCC’s failure to detect and remedy a price squeeze, or predatory pricing surely will result in the near-term elimination of competition unless ISPs quickly replace expensive leased lines with their own facilities, a desirable but commercially impractical goal at least in the short term.¹⁰⁰ The FCC’s assumptions about competition and its viability do not make sense if incumbent carriers can drive competitors out of business by offering predatory, below cost retail rates.

Courts in the United States have also curtailed the ability of individuals claiming the same harm to join together in a class action lawsuit against a telecommunications carrier.¹⁰¹ By a 5–4 vote the Supreme Court, in *Comcast Corp. v. Behrend*, 133 S. Ct. 1426 (2013), held that cable television subscribers in the Philadelphia market could not join in a

costs”; and (2) there is a “dangerous probability” that the defendant will be able to recoup its “investment” in below-cost prices.

Id. at 451 (citing *Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 222–24 (1993)). “Low prices benefit consumers regardless of how those prices are set, and so long as they are above predatory levels, they do not threaten competition.” *Id.* (quoting *Atl. Richfield Co. v. USA Petroleum Co.*, 495 U.S. 328, 340 (1990)).

98. *Id.* at 452 (citations and quotation marks omitted).

99. *Id.* at 456–57.

100. Facilities-based competition in telecommunications requires ventures with substantial financial and operational resources and infrastructure installation takes significant time. Additionally market entrants start with no market share, but typically use equipment with large capacity.

101. *See Bell Atl. Corp. v. Twombly*, 550 U.S. 544 (2007) (dismissing the antitrust suit due to insufficient evidence produced in the filing claiming harm).

class action lawsuit alleging that Comcast caused anticompetitive harm to the video programming marketplace through a “clustering” strategy of buying up all cable television franchises in a metropolitan area.¹⁰² Writing for the majority, Justice Scalia asserted that expert witness studies, relied upon by the plaintiff class, could not measure damages that applied uniformly to all members throughout a broad metropolitan area as is required for certification of class on issues pertaining to law or fact.¹⁰³ This means that individual cable television subscribers will have no opportunity to seek redress in the courts in light of the cost they would incur by having to file individual lawsuits to recover damages for the anticompetitive harm that would allegedly result from Comcast’s acquisition of the Adelphia Communications cable systems.

The Court rejected the lower court’s acceptance that an expert witness’s regression analysis could quantify the total financial harm, in the amount of \$875,576,662, resulting when Comcast’s clustering strategy deterred market entrants from offering a competitive alternative to Comcast in the Philadelphia video market:

By refusing to entertain arguments against respondents’ damages model that bore on the propriety of class certification, simply because those arguments would also be pertinent to the merits determination, the Court of Appeals ran afoul of our precedents requiring precisely that inquiry. And it is clear that, under the proper standard for evaluating certification, respondents’ model falls far short of establishing that damages are capable of measurement on a classwide basis.¹⁰⁴

Justice Scalia characterized the case as simply one that turned on the straightforward application of class-certification principles. He noted that

102. *Comcast Corp. v. Behrend*, 133 S. Ct. 1426 (2013) (holding that plaintiff class could not measure damages that applied uniformly to all members throughout the Philadelphia metropolitan area as is required for certification of class).

103. Pursuant to Federal Rule of Civil Procedure 23(b)(3), a class action lawsuit can proceed only if the court finds that the questions of law or fact common to class members predominate over any questions affecting only individual members. To meet the predominance requirement respondents had to show:

(1) that the existence of individual injury resulting from the alleged antitrust violation (referred to as “antitrust impact”) was “capable of proof at trial through evidence that [was] common to the class rather than individual to its members”; and (2) that the damages resulting from that injury were measurable “on a class-wide basis” through use of a “common methodology.”

Comcast Corp., 133 S. Ct. at 1430 (citations omitted) (alteration in original).

104. *Id.* at 1432–33.

the damages estimate factored in four antitrust claims: decreased penetration by satellite providers, market entry deterrence, lack of benchmark competition, and increased bargaining power; and not the one claim that the lower court accepted as the sole basis for certifying the plaintiff class. The Court concluded that “[i]n light of the model’s inability to bridge the differences between supra-competitive prices in general and supra-competitive prices attributable to the deterrence of overbuilding [i.e., facilities-based competition in the same locality], Rule 23(b)(3) cannot authorize treating subscribers within the Philadelphia cluster as members of a single class.”¹⁰⁵

The dissenting opinion chided the majority for formulating a more difficult burden that a plaintiff must satisfy in order to allow a class action lawsuit to proceed to trial. Instead of having to prove a preponderance of common damages among all parties in the class action lawsuit, the dissent interprets the majority as changing the facts of the case, ignoring settled law on antitrust, and now requiring extreme accuracy in the calculation of financial harm that cannot deviate even when the geographical size of the market includes subscribers residing in urban, suburban and even less concentrated outlying areas.

Courts also allow carriers to insert binding arbitration clauses in service contracts thereby eliminating the option for consumers to seek a court-ordered remedy even if the conduct of an ex ante regulated carrier approaches unconscionability.¹⁰⁶ In *AT&T Mobility v. Concepcion*, 563 U.S. 321 (2011), the Supreme Court invalidated the formation of a class action lawsuit, not because of the inability to evidence common harm, but because AT&T’s “take it or leave it” contract mandated binding arbitration.¹⁰⁷ The Court held that Federal Arbitration Act of 1925

105. *Id.* at 1435.

106. See generally David Horton, *Unconscionability Wars*, 106 NW. U. L. REV. 387 (2012); James Parrinello, *Arbitration at the Tipping Point: Challenging Claim-Suppressing Arbitration Clauses*, 65 HASTINGS L.J. 1441 (2014); Peter B. Rutledge & Christopher R. Drahozal, “Sticky” Arbitration Clauses? *The Use of Arbitration Clauses After Concepcion and Amex*, 67 VAND. L. REV. 955 (2014); Andrew Tutt, Note, *On the Invalidity of Terms in Contracts of Adhesion*, 30 YALE J. ON REG. 439 (2013).

107. *AT&T Mobility LLC v. Concepcion*, 131 S. Ct. 1740, 1748 (2011). The Court in *AT&T Mobility* reasoned:

The overarching purpose of the FAA, evident in the text of §§ 2, 3, and 4, is to ensure the enforcement of arbitration agreements according to their terms so as to facilitate streamlined proceedings. Requiring the availability of classwide arbitration interferes with fundamental attributes of arbitration and thus creates a scheme inconsistent with the FAA.

preempts state laws that prohibit contracts from disallowing class-wide arbitration, such as the law previously upheld in California.¹⁰⁸

B. NEAR TERM FACTORS SUPPORTING RETAINED EX ANTE REGULATION

Using an assessment whether significant market power exists in the broadband access marketplace, one cannot yet conclude that a robustly competitive marketplace exists in the United States in all market sectors. The FCC recently recanted a previous determination that all Americans, regardless of location and income, have adequate access to broadband services.¹⁰⁹

Sustained and robust facilities-based competition may not persist, because the telephone company DSL option cannot provide sufficiently fast bit transmission to generate one or more adequate video displays in a single location.¹¹⁰ Far faster hybrid fiber/copper cable and dedicated fiber optic options have replaced DSL, but only in selected markets.¹¹¹ Google has demonstrated the commercial viability of gigabit per second delivery speeds, albeit in a handful of urban locales, with no plans for widespread deployment.¹¹² Satellite broadband providers offer comparatively slower bit

Id.

108. "Because it 'stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress,' . . . California's *Discover Bank* rule is preempted by the FAA." *Concepcion*, 131 S. Ct. at 1753 (citing *Hines v. Davidowitz*, 312 U.S. 52, 67 (1941)).

109. See Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, Fifteenth Report, 28 F.C.C. Rcd. 10,496 (2013).

110. FCC Chairman Wheeler emphasized DSL's inability to be competitive in the developing market in his 2014 statement. Tom Wheeler, Chairman, Fed. Comm'n's Comm'n, The Facts and Future of Broadband Competition (Sept. 4, 2014), *available at* <http://www.fcc.gov/document/chairman-remarks-facts-and-future-broadband-competition>.

111. The Verizon coverage area for its FiOS fiber optic broadband network serves 20 cities throughout the United States. *FiOS Availability*, VERIZON, <http://fios.verizon.com/fios-coverage.html> (last visited Apr. 18, 2015); see also *Finally a Verizon FiOS Availability Map*, FIBER FOR ALL, <http://fiberforall.org/fios-map/> (last visited Apr. 18, 2015). The company ended most of its construction in 2010 and has no expansion plans. See Roger Cheng, *Verizon to End Rollout of FiOS*, WALL ST. J. (Mar. 30, 2010), <http://online.wsj.com/articles/SB10001424052702303410404575151773432729614>. AT&T combines fiber optic cable with existing copper wire to offer its broadband U-verse service in parts of twenty-two states. At the end of 2011, AT&T U-verse passed approximately 30.3 million homes. Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, Fifteenth Report, 28 F.C.C. Rcd. 10,496, 10,550 (2013).

112. In 2014, Google Fiber served three metropolitan areas: Kansas City, Provo, and Austin. *Cities and Plans*, GOOGLE FIBER, <https://fiber.google.com/cities/> (last visited

transmission speeds, have lower caps on monthly use, charge higher rates and require payments for necessary receiving equipment. Additionally, higher latency,¹¹³ caused by the distance to and from satellites, can disrupt some uses.¹¹⁴ The newest generation of terrestrial wireless service provides a broadband option, albeit one with data caps typically at rates of 1–2 gigabytes per month per handset,¹¹⁵ making the per megabyte cost of service significantly higher than wireline options that offer 250 gigabytes per month or higher at lower rates.¹¹⁶

Even when consumers have broadband choices, most subscribe to one carrier that provides an exclusive link between content providers and the Retail ISP's subscribers.¹¹⁷ Should a service disruption occur upstream, almost all upstream ISPs, operating in the Internet cloud, can activate or procure alternative interconnection arrangements quickly. But in the retail sector, even consumers with competitive options will encounter some delay and expense in migrating from one carrier to another.

Apr. 19, 2015). The venture has plans to serve nine additional metropolitan areas. *Expansion Plans*, GOOGLE FIBER, <https://fiber.google.com/newcities/> (last visited Apr. 22, 2015).

113. Satellite service latency is explained in an FCC report:

Communicating with a geosynchronous satellite orbiting the earth at a distance of greater than 36,000 km results in a round trip latency of about 500 [milliseconds]. The necessary signaling between the set-top box and the satellite controller, to request assignment of a communication channel, can double this to over 1000 ms, which would precluded [sic] use of many latency-sensitive services.

OFFICE OF ENG'G & TECH. & CONSUMER & GOVERNMENTAL AFFAIRS BUREAU, FCC, 2014 MEASURING BROADBAND AMERICA FIXED BROADBAND REPORT: A REPORT ON CONSUMER FIXED BROADBAND PERFORMANCE IN THE U.S. 18 (2014) (footnote omitted), *available at* <http://data.fcc.gov/download/measuring-broadband-america/2014/2014-Fixed-Measuring-Broadband-America-Report.pdf>.

114. *See, e.g., Package Comparison Chart*, WILDBLUE, <http://www.wildblue.com/options/comparison-chart> (last visited Apr. 17, 2015).

115. *See, e.g., The More Everything Plan*, VERIZON WIRELESS, <http://www.verizonwireless.com/wcms/consumer/shop/shop-data-plans/more-everything.html> (last visited Apr. 21, 2015).

116. *See, e.g., Questions and Answers About Our Data Usage Plan*, XFINITY, <http://customer.comcast.com/help-and-support/internet/common-questions-datapolicy> (last visited Apr. 17, 2015).

117. By functioning as a “terminating monopolist” and “gatekeeper” between edge-providers and end users, the broadband providers maintain economic power “to restrict edge-provider traffic and charge for the services they furnish edge providers.” *Verizon v. FCC*, 740 F.3d 623, 646 (D.C. Cir. 2014) (citing the 2010 Open Internet Order, *supra* note 6, at 17,919).

In light of the possibly limited competitive options available for retail Internet access and subscribers' sole reliance on one carrier, the chosen ISP has significant negotiating power with both end users and upstream ISPs. End users may balk at the inconvenience of changing carriers¹¹⁸ and upstream ISPs will have no migration option at all if they want to secure access to all end users. Put another way, if a single ISP enjoys a dominant share of the retail market, which occurs in many localities, a substantial portion of the market exclusively relies on that single ISP making it absolutely necessary for upstream ISPs to secure an agreement with that ISP for delivery of content. A single ISP has the potential to exert exclusive control, as a terminating monopoly,¹¹⁹ over access to a majority of the end user market in many places. Content providers and distributors are captive to that ISP in the sense that they must secure delivery to the televisions, computer monitors, smartphones and tablets that access the Internet solely via a single ISP.¹²⁰

Additionally a number of factors cast doubt on the ability of an unregulated Internet access marketplace to avoid the tactics an ISP might use to secure an unfair and anticompetitive advantage.

1. *Technological and Marketplace Convergence*

Technological convergence refers to the ability to combine previously separate services, such as voice and data, using a single medium, such as a digital network.¹²¹ Market convergence refers to the ability of a venture to offer a combination of services previously only available if the venture operated multiple networks.¹²² Convergence makes it difficult for NRAs to define specific services and to apply different regulatory regimes. For

118. "[M]any end users may have no option to switch, or at least face very limited options . . ." *Id.* at 647.

119. See 2010 Open Internet Order, *supra* note 6, at 17,924–25.

120. For a summary of major peering disputes, see Jon Brodtkin, *Why YouTube Buffers: The Secret Deals that Make—and Break—Online Video*, ARS TECHNICA (July 28, 2013), <http://arstechnica.com/information-technology/2013/07/why-youtube-buffers-the-secret-deals-that-make-and-break-online-video/>.

121. "A related, and equally disruptive, phenomenon is technology convergence, the ability to offer multiple telecommunications services on the same platform." Daniel A. Lyons, *Technology Convergence and Federalism: Who Should Decide the Future of Telecommunications Regulation?*, 43 U. MICH. J.L. REFORM 383, 401 (2010).

122. The "convergence of formerly single purpose communications media, [means that] video programming can be transported over the Internet (by wireline or wireless connections) to viewers by use of a high-speed broadband connection. This integration facilitates independence of services (such as video and voice) from the physical transmission network." John B. Meisel, *Legal and Economic Challenges to the Business Model of the Television Industry*, 36 HASTINGS COMM. & ENT L.J. 451, 454 (2014).

example, the United States uses ex ante regulation based on interpretation of statutory authority by the FCC, which uses static definitions such as telecommunications service and information service. The FCC has created a regulatory dichotomy with information services largely exempt from regulation even as providers of these services compete with incumbents treated as regulated common carrier, telecommunications service providers.¹²³

Convergence makes it difficult for nations to use ex post remedies. As markets combine, an adjudicator (competition authority or court) might have difficulty defining the relevant market for purposes of determining whether one or more ventures have significant market power.

2. *Regulatory Asymmetry*

Regulatory asymmetry refers to inconsistent government oversight that may or may not have reasonable and lawful justifications. Reasonable regulatory asymmetry occurs when ventures providing competitive services trigger different degrees of regulatory oversight based on their potential to engage in anticompetitive conduct and to acquire market power.¹²⁴ Unreasonable regulatory asymmetry occurs when different regulatory oversight occurs between competing ventures. This is because one can qualify for less or no regulation even though it might have market power, or the ability to generate higher revenues based on comparatively lower regulatory oversight.

Incumbents increasingly complain about regulatory asymmetry from Internet-mediated services such as Voice over Internet Protocol¹²⁵ and

123. See *supra* note 36.

124. For example, the “FCC has not imposed regulatory burdens on IPTV [Internet Protocol Television] service providers, despite the fact that these ventures provide a competitive alternative to broadcast, satellite, and cable television. The Commission has allowed regulatory asymmetry to occur, apparently disinclined to apply equal levels of government oversight between competing ventures.” Rob Frieden, *The Rise of Quasi-Common Carriers and Conduit Convergence*, 9 I/S: J.L. & POL’Y FOR INFO. SOC’Y 471, 476 (2014).

125. VoIP is the real-time carriage and delivery of data packets that correspond to voice. VoIP services range in quality, reliability, and price and can link both computers and ordinary telephone handsets. For technical background on how VoIP works, see Susan Spradley & Alan Stoddard, *Tutorial on Technical Challenges Associated with the Evolution to VoIP*, FCC (Sept. 22, 2003), <http://www.fcc.gov/events/tutorial-technical-challenges-associated-evolution-voip>. See generally Charles J. Cooper & Brian Stuart Koukoutchos, *Federalism and the Telephone: The Case for Preemptive Federal Deregulation in the New World of Intermodal Competition*, 6 J. ON TELECOMM. & HIGH TECH. L. 293 (2008).

Internet Protocol Television.¹²⁶ These services can qualify for comparatively less or no regulation, even as incumbents continue to incur costs from legacy government oversight.

3. *Incumbent Responses to New Internet-Mediated Service Competition*

Incumbents and market entrants alike continue to rely on ex ante regulatory remedies and procedures for securing less burdensome government oversight. For example, in the United States incumbent providers of wireline voice telephony seek expedited consideration of reduced or eliminated regulation when these carriers migrate from copper wire Time Division Multiplexed telephone service to VoIP.¹²⁷ In other nations, incumbents have sought regulation of VoIP service providers to ensure a “level competitive playing field.” While incumbents in particular may want to eliminate ex ante regulation they are quite adept at using every procedural vehicle in this regulatory regime to secure competitive advantages, or to reduce the cost and impact of regulatory requirements.

4. *Viability of a Glide Path from Ex Ante to Ex Post Safeguards*

In nations that rely on a regulatory model that uses significant market power assessments to identify the need for ex ante government regulations, NRAs may have more difficulty defining convergent markets and assessing market power. This task becomes quite difficult when assessing the market power possessed by incumbent firms that engage in vertical and horizontal

126. IPTV offers consumers with broadband connections options to download video files or view (streaming) video content on an immediate “real time” basis. Sky Angel U.S., LLC, Emergency Petition for Temporary Standstill, 25 F.C.C. Rcd. 3879 (2010). Some of the available content duplicates what cable television subscribers receive therein triggering disputes over whether cable operators can secure exclusive distribution agreements and prevent an IPTV service provider from distributing the same content. “Sky Angel has been providing its subscribers with certain Discovery networks for approximately two and a half years, including the Discovery Channel, Animal Planet, Discovery Kids Channel, Planet Green, and the Military Channel. Sky Angel submits that these channels are a significant part of its service offering.” *Id.* at 3879–80. For background on IPTV, see In-Sung Yoo, *The Regulatory Classification of Internet Protocol Television: How the Federal Communications Commission Should Abstain From Cable Service Regulation and Promote Broadband Deployment*, 18 COMMLAW CONSPECTUS 199 (2009).

127. Technology Transitions, Order, Report and Order and Further Notice of Proposed Rulemaking, Report and Order, Order and Further Notice of Proposed Rulemaking, Proposal for Ongoing Data Initiative, 29 F.C.C. Rcd. 1433 (2014); see also Rob Frieden, *The Mixed Blessing of a Deregulatory Endpoint for the Public Switched Telephone Network*, 37 TELECOMM. POLY, 400 (2013); Kevin Werbach, *No Dialtone: The End of the Public Switched Telephone Network*, 66 FED. COMM. L.J. 203 (2014).

integration to include convergent, Internet-mediated services. Vertical market integration occurs when a single firm enters into two or more related market segments, e.g., video content production, syndication, packaging and delivery to end users. Horizontal integration occurs when a single firm provides two or more competing options, e.g., when a television broadcast network diversifies into cable television programming, or acquires a venture that does. Incumbent firms seek to offer service bundles that exploit synergies and efficiencies accruing from vertical and horizontal integration.¹²⁸

The possibility exists that an incumbent coming close to qualifying for ex post regulation might have such a successful integration strategy that it acquires new market power in convergent markets, possibly leveraged by its significant but declining market power in a market segment previously served. This scenario might occur when an incumbent telephone company, facing projections of even greater customer attrition and declining voice service revenues, acquires ventures that can combine broadband access and “over the top” (OTT) services¹²⁹ achieving significant market power in new market segments.

5. *Changes in Consumer Expectations*

Consumers increasingly have no tolerance for attempts by ventures to ration access to content based on willingness to pay. Incumbents prefer to use “windows” to extract maximum revenues from content by using a linear sequence of access over time, e.g., theatrical display of a movie, followed by DVD sale, on demand access, rental, premium channel display and broadcast. Consumers have little patience for “appointment television” that uses possibly exclusive, time-based windows in lieu of platforms for access at anytime, anywhere, via any device and in any delivery and presentation format.¹³⁰ Consumers also evidence technology agnosticism in the sense that they appear to have little concern about the

128. See, e.g., *FiOS Deals*, VERIZON, <http://www.verizon.com/home/bundles/fios/> (last visited Apr. 25, 2015).

129. “Over-the-top VoIP [and other] services require the end user to obtain broadband transmission from a third-party provider, and providers of over-the-top . . . [services] can vary in terms of the extent to which they rely on their own facilities.” 2010 Open Internet Order, *supra* note 6, at 17,916 n.48.

130. See Rob Frieden, *The Impact of Next Generation Television on Consumers and the First Amendment*, 24 *FORDHAM INTELL. PROP. MEDIA & ENT. L.J.* 61 (2013).

medium used to deliver content and to some extent the size and resolution of the presentation screen and degree of signal compression used.¹³¹

The proliferation of new Internet-centric services increases concerns about whether the Internet can remain sufficiently open and neutral absent government oversight. More services will traverse fewer networks making it likely that higher reliance helps surviving network operators acquire and sustain market power. Nations may determine that broadband network operators, providing last mile content delivery, possess significant market power. Consumers typically have limited broadband delivery options and usually rely on one venture to serve all their traffic carriage requirements. NRAs may have to link market power assessments with the need for ex ante network neutrality rules and regulations.

In any event, the rise in OTT options raises the stakes in the network neutrality debate. Ventures providing video content, e.g., Netflix and other IPTV providers, may assert that ex ante regulation remains essential even without a determination of significant market power based on the potential for anticompetitive treatment of their content by carriers.

6. *Viability of Resale and Virtual Network Competition*

Most OTT service providers lease broadband capacity for service delivery. Without safeguards for resellers and virtual network operators, the potential exists for owners of the transmission facilities to engage in anticompetitive practices, e.g., price squeezes, predatory pricing and refusals to deal. For nations, including the United States, that have determined broadband service providers should not bear conventional common carrier obligations, a refusal to deal may be lawful even as it could hamper, or preclude non-facilities based network competition.

131. For example, consumers increasingly expect to have access to the same video content via television sets, computer monitors, smartphone screens and tablets.

The ways to distribute video content to consumers have begun to diversify, as the Internet becomes an increasingly attractive option for delivering programming, and provides an alternative to broadcast, satellite and cable networks. Viewers no longer need to tolerate “appointment television,” with access to content at a prescribed time, available on a single channel and delivered to a single receiving device using only one acceptable transmission format. Access primarily will become a matter of using one of several software-configured interfaces capable of decoding live and recorded content anytime, anywhere, to any device, and through many different transmission and presentation formats.

Id. at 62 (footnotes omitted).

IV. CONCLUSIONS AND RECOMMENDATIONS

The decision whether to impose ex ante regulations, or ex post remedies depends in large part on a government's tolerance for instances where its chosen administrative and legal mechanism fails to detect an anticompetitive practice, or wrongly sanctions as anticompetitive a benign practice. An NRA's decision to impose ex ante regulations reflects the agency's emphasis on the need to prevent or reduce false negatives, while opting for ex post safeguards eliminates the potential for false positives generated by proactive regulatory oversight.

The FCC has opted for ex ante network neutrality rules and regulations on three occasions. The FCC has concluded that absent such proactive vigilance, ISPs would act on their ability and incentive to engage in anticompetitive practices.¹³² The FCC does have some empirical evidence to support its conclusion that ISPs can and will use techniques to block traffic, drop packets and otherwise target selected types of subscribers' traffic for degraded service.¹³³ If the FCC had no positive evidence of ISP meddling of subscriber traffic, then it would have had a far more difficult case to make that absent ex ante regulation, false negatives would occur.

In the Netherlands, a country which has legislated ex ante network neutrality rules,¹³⁴ the incumbent carrier KPN also provided concrete evidence that it would disadvantage competitors and harm consumers by using deep packet inspection¹³⁵ to identify subscribers using services, which

132. "Today, broadband providers have incentives to interfere with the operation of third-party Internet-based services that compete with the providers' revenue-generating telephony and/or pay-television services. This situation contrasts with the first decade of the public Internet, when [common carrier provided] dial-up was the primary form of consumer Internet access." 2010 Open Internet Order, *supra* note 6, at 17,916.

133. "On a number of occasions, broadband providers have blocked lawful traffic without informing end users or edge providers. In addition to the Madison River and Comcast-BitTorrent incidents described above, broadband providers appear to have covertly blocked thousands of BitTorrent uploads in the United States throughout early 2008." 2010 Open Internet Order, *supra* note 6, at 17,937 n.168.

134. Wet van 10 mei 2012 tot wijziging van de Telecommunicatiewet ter implementatie van de herziene telecommunicatierichtlijnen, Stb. 2012, 235; *see also* Kevin J. O'Brien, *Dutch Lawmakers Adopt Net Neutrality Law*, N.Y. TIMES (June 22, 2011), <http://www.nytimes.com/2011/06/23/technology/23neutral.html>; Sara Webb, *Dutch Pass Law to Ensure Open Internet Access*, REUTERS (June 22, 2011), <http://www.reuters.com/article/2011/06/22/us-dutch-telecoms-idUSTRE75L6Z120110622>.

135. Deep packet inspection technology permits network providers to identify both the applications used on their networks and the content that the network delivers. Using DPI, a network operator has the ability to decide which applications or content will be transmitted and at what speed. *See* Rob Frieden, *Invoking and Avoiding the First*

migrated traffic and revenues from KPN, for traffic blocking, or higher rates.¹³⁶ In early 2015, the Netherlands Authority for Consumers and Markets fined KPN for €250,000 and Vodafone for €200,000 for violating the net neutrality laws by blocking access to VoIP services via the companies' Wi-Fi hot spots.¹³⁷

In stark contrast to the approach of the FCC and other NRAs, the United States Supreme Court has emphasized the harms from false positives, particularly when courts apply antitrust safeguards prematurely or without firm legal and economic rationale. In *Trinko*, Justice Scalia concluded that the social costs from detection of false positives greatly outweighed instances where false negatives give ventures the opportunity to engage in anticompetitive practices:

Mistaken inferences and the resulting false condemnations “are especially costly, because they chill the very conduct the antitrust laws are designed to protect.” The cost of false positives counsels against an undue expansion of § 2 liability. One false-positive risk is that an incumbent LEC’s failure to provide a service with sufficient alacrity might have nothing to do with exclusion.¹³⁸

When ISPs operate as intermediaries in a two-sided market the potential for false negatives increases¹³⁹ at the same time as ex post

Amendment: How Internet Service Providers Leverage Their Status as Both Content Creators and Neutral Conduits, 12 U. PA. J. CONST. L. 1279, 1311–12 (2010); Rob Frieden, *Internet Packet Sniffing and Its Impact on the Network Neutrality Debate and the Balance of Power Between Intellectual Property Creators and Consumers*, 18 FORDHAM INTELL. PROP. MEDIA & ENT. L.J., 633, 644 (2008).

136. Milton Mueller, “*We Will Not Block; We Will Monetize.*” *KPN’s Foray into DPI*, INTERNET GOVERNANCE PROJECT (May 23, 2011), <http://www.internetgovernance.org/2011/05/23/we-will-not-block-we-will-monetize-kpns-foray-into-dpi/>.

137. *Fines Imposed on Dutch Telecom Companies KPN and Vodafone for Violation of Net Neutrality Regulations*, NETHERLANDS AUTHORITY FOR CONSUMERS & MARKETS (Jan. 27, 2015), <https://www.acm.nl/en/publications/publication/13765/Fines-imposed-on-Dutch-telecom-companies-KPN-and-Vodafone-for-violation-of-net-neutrality-regulations/>.

138. *Verizon Commc’ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 414 (2004) (quoting *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 594 (1986)).

139. See Howard A. Shelanski, *Information, Innovation, and Competition Policy for the Internet*, 161 U. PA. L. REV. 1663, 1667 (2013). Shelanski explains:

At the heart of the critiques of antitrust enforcement in digital industries is the mismatch between the conventional, price-oriented antitrust framework and the more innovation-based competition that characterizes markets for digital goods and services. Fast changing markets, such as those related to the Internet, might be hard to define and less subject to the structural presumptions of conventional antitrust

antitrust remedies become less likely in the United States. ISPs control a platform through which a variety of content, applications and content traverse. ISPs can use flexibility to determine how best to recoup investment costs, possibly erecting subsidies that enhance consumer welfare by facilitating access to free or low cost services. On the other hand, such flexibility can provide ISPs with the ability to price access in ways that favor their own ventures and affiliates. Bear in mind that in reviewing the FCC's open Internet rules, the D.C. Circuit Court of Appeals did not dispute the FCC's conclusion that ISPs have the incentive and ability to engage in anticompetitive practices that harm both competitors and consumers.¹⁴⁰

The elimination of ex ante, telecommunications regulation should serve as a goal tempered by the reality that current marketplace conditions may not generate sufficiently robust competition to ensure effective self-regulation.¹⁴¹ Nations should make the migration from ex ante regulation

analysis. More fundamentally, the usual price-oriented antitrust analysis may be irrelevant in markets where many consumers pay nothing for the services they use and in which firms compete more through technological advancements than through lower prices.

Id.

140. *See* Verizon v. FCC, 740 F.3d 623, 645–46 (D.C. Cir. 2014). The court found:

[T]he Commission has adequately supported and explained its conclusion that, absent rules such as those set forth in the Open Internet Order, broadband providers represent a threat to Internet openness and could act in ways that would ultimately inhibit the speed and extent of future broadband deployment. First, nothing in the record gives us any reason to doubt the Commission's determination that broadband providers may be motivated to discriminate against and among edge providers. . . .

. . . [B]roadband providers have the technical and economic ability to impose such restrictions.

Id.

141. *See* Tom Wheeler, Chairman, Fed. Comm'n's Comm'n, More Competition Needed in High-Speed Broadband Marketplace (Sept. 4, 2014), *available at* <http://www.fcc.gov/document/fcc-chairman-more-competition-needed-high-speed-broadband-market>. The FCC report discusses marketplace conditions as follows:

to ex post remedies when and if the likelihood for anticompetitive outcomes become negligible. If there remain significant risks of harm to competition and consumers, ex ante regulation should persist. However the nature of ex ante regulation should change on an incremental basis as market conditions make self-regulation more plausible.

Government regulation should not operate from an absolute dichotomy with sector-specific regulation inferred as intrusive but necessary and ex post adjudication considered an ineffective or delayed option. In light of changed circumstances, ex ante regulation may remain necessary, but the scope and burdens imposed should shift toward dispute resolution when and if an NRA receives a complaint, instead of proactive regulations and rulemaking.

Ex ante regulation of Internet access should concentrate on procedural safeguards rather than the creation and enforcement of substantive rules and service definitions. The FCC lost flexibility to craft a limited and well-calibrated remedy to anticompetitive practices, because it has to apply legislatively drawn definitions, such as information services and telecommunications services. Having determined that all types of broadband Internet access constituted an information service, the FCC abandoned a direct and uncontestable ex ante regulatory mandate. In hindsight the FCC now recognizes that whether it should regulate Internet access depends on evidence of harm to consumers, rather than on a blanket conferral of jurisdiction.

Additionally ex ante regulators should ensure that ISPs negotiate interconnection and compensation arrangements in good faith with upstream ISPs and content distributors. Arguably the FCC does not need to apply Title II common carrier status to ISPs in order to have legal authority to remedy interconnection disputes. Instead the FCC could have imposed lawful, private carrier obligations on ISPs and created a dispute resolution forum for complaints. NRAs do not need to deem Internet access a public utility common carrier function in order to establish lawful

The FCC's current definition of broadband is 4 Mbps download speed/1 Mbps upload speed. But 60 percent of peak-period Internet activity consists of delivering bandwidth-intensive content, like video. . . . The average U.S. Internet-connected homes have six connected devices—televisions, desktops, laptops, tablets, smartphones, etc. When those devices are in use at the same time, it's not difficult to strain the capacity of a 25 Mbps connection, and completely overwhelm a 4 Mbps connection.

Id.

regulatory authority to resolve complaints on a timely basis, in light of the immediate harm to consumers when the delivery of Internet content becomes intentionally degraded, or blocked.

Currently there exist many factors that work against the onset and sustainability of facilities-based broadband competition. Broadband networks require such substantial investment in plant that few firms have the financial and operational wherewithal to provide service. The Internet access marketplace tends to support limited competition with incumbents able to exploit economies of scale, converging media technologies and consolidating markets.

One cannot accurately predict what existing and new factors will affect the level of broadband service competition. Accordingly, NRAs should undertake a cautious and incremental shift toward eventual ex post remedies tied to the pace of market entry and the elimination of bottlenecks and other structural impediments to a neutral and open Internet.