

BOOK REVIEW

EXAMINING TRADITIONAL LEGAL PARADIGMS IN A NON-PHYSICAL ENVIRONMENT: NEED WE INVENT NEW RULES OF THE ROAD FOR THE INFORMATION SUPERHIGHWAY?

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LAW AND THE INFORMATION SUPERHIGHWAY. By *Henry H. Perritt, Jr.*
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I. INTRODUCTION

Scarcely a decade has passed since author William Gibson described in his acclaimed science fiction novels *Neuromancer* and *Count Zero* a fantasy world of computer-generated data matrices which had no correlation to any physical reality, but to which people could “plug in” via a “brain-computer link” and have the illusion of physically moving about to obtain information.¹ Gibson dubbed this virtual world

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1. See WILLIAM GIBSON, *NEUROMANCER* (1984); WILLIAM GIBSON, *COUNT ZERO* (1986). See also EDWARD A. CAVAZOS & GAVINO MORIN, *CYBERSPACE AND THE LAW* 1 (1994); William Byassee, *Jurisdiction of Cyberspace: Applying Real World Precedent to the Virtual*

cyberspace—"the space that wasn't space."² In Gibson's portrayal of cyberspace, inhabitants could meet, converse, carry on business and recreation, and do everything else that was possible in a physical world, including break the law.³

Today it is apparent that Gibson's vision was more than a science fiction dream. It is strikingly similar to existing information and communications networks, and the term *cyberspace* has even caught on as a name for the virtual space in which users interact via these networks. Politicians, the media, business leaders, and technologists have sensationalized this burgeoning information infrastructure,⁴ especially the "network of networks" known as the Internet, and its potential to change the way we communicate, learn, work, and play.⁵ Already, this "Information Superhighway" is having a phenomenal effect on the way we live. Cellular phones and fax machines, email and the World Wide Web, satellite broadcasting and cable television, video conferencing and personal communications systems are just a few of the building blocks of this Superhighway that are helping to create a society and economy in which time and geography are no longer formidable obstacles to human interaction, and information is the most valuable commodity.⁶

History suggests that when new technology is a catalyst for sweeping social and economic change, the law struggles to keep up.⁷

Community, 30 WAKE FOREST L. REV. 197, 198 n.5 (1995); ETHAN KATSH, LAW IN A DIGITAL WORLD 14 (1995).

2. GIBSON, COUNT ZERO, *supra* note 1, at 38.

3. See GIBSON, NEUROMANCER, *supra* note 1.

4. Many terms are used to describe this infrastructure. Perritt refers to it informally as the "Information Superhighway" and he broadly defines it to include information conduits such as the Internet, the public switched telephone network, proprietary systems such as Westlaw and LEXIS, broadcast radio and television networks, movie theaters, and video rental stores; content producers such as book and newspaper publishers, television and film studios, and radio talk show hosts; and information finders and brokers such as critics, reviewers, libraries, and newsstands. See Henry H. PERRITT, LAW & THE INFORMATION SUPERHIGHWAY iii, 11 (1996) [hereinafter PERRITT, INFORMATION SUPERHIGHWAY]. When discussing the infrastructure in the context of government initiatives, the more formal terms "National Information Infrastructure" (NII) or "Global Information Infrastructure" (GII) are usually used; Perritt uses these terms interchangeably with "Information Superhighway." "Cyberspace" is a term used to describe information networks in general, but sometimes is used when specifically referring to the Internet.

5. Compare NICHOLAS NEGROPONTE, BEING DIGITAL (Vintage Books 1996) (1995) (a self-proclaimed optimist's view of the fascinating technological, commercial, social, and political effects of the Internet and the "digital revolution," as well as though-provoking predictions of what is yet to come) with CLIFFORD STOLL, SILICON SNAKE OIL (1995) (taking a skeptical view of the Internet, arguing that the truly fulfilling things in life are *real* experiences and relationships, while Internet experiences are superficial).

6. See, e.g., JAMES BOYLE, SHAMANS, SOFTWARE, AND SPLEENS: LAW AND THE CONSTRUCTION OF THE INFORMATION SOCIETY (1996).

7. For example, the invention of the printing press in the late 15th Century left English authors without effective copyright protection for their works until the *Statute of Anne* was passed nearly 200 years later, in 1710. See ROBERT A. GORMAN & JANE C. GINSBURG, COPYRIGHT FOR THE NINETIES 1-2 (1993). During the Industrial Revolution thousands of injured workers were left without sufficient recourse before negligence principles were

Thus, not surprisingly, the perceived changes produced by the proliferation of networks and digital technology have led several notable commentators to suggest that traditional legal paradigms are an uncomfortable fit in this new environment. For example, in *Being Digital*, Nicholas Negroponte describes the law, in its struggle to adapt to digital technologies, as "behaving like an almost dead fish flopping on the dock. It is gasping for air because the digital world is a different place."⁸ Similarly, John Perry Barlow, noting the "problem of digitized property" and lack of physical boundaries in cyberspace, has compared our continued reliance on traditional legal models to "sailing into the future on a sinking ship . . . developed to convey forms and methods of expression entirely different from the vaporous cargo it is now being asked to carry."⁹ Barlow argues that instead of trying to make the old legal models work through a "grotesque expansion" of existing laws or through the "brute force" application of these laws to the digital world, we "need to develop an entirely new set of methods as befits this entirely new set of circumstances."¹⁰

Are existing legal principles and paradigms truly insufficient to address the problems presented by the new information and communications technologies? Does a special body of law need to be carved out for online issues? In *Law and the Information Superhighway*, Henry Perritt attempts to answer these questions.¹¹ And from the outset his answer is clearly a resounding "No!"

Professor Perritt is eminently qualified to address the legal issues presented by new information technologies. Perritt has provided information law and policy guidance to the Clinton administration, the

incorporated into tort law in the late 19th Century. See LAWRENCE M. FRIEDMAN, *A HISTORY OF AMERICAN LAW* (2d Ed. 1985). Over the course of the 19th Century, the proliferation of newspapers, and the invention of new technology such as the telegraph, telephone, and camera, enabled unprecedented "snooping" into people's lives, eventually leading to state-recognized rights of privacy by the end of that century. See Lawrence M. Friedman, *Looking Backward, Looking Forward: A Century of Legal Change*, 28 *IND. L. REV.* 259, 261-2 (1995); William H. Minor, *Identity Cards and Databases in Health Care: The Need for Federal Privacy Protections*, 28 *COLUM. J.L. & SOC. PROBS.* 253 (1995). Our first forays into sea and space challenged, and continue to challenge, our notion of law based on borders. See generally GLENN H. REYNOLDS & ROBERT P. MERGES, *OUTER SPACE: PROBLEMS OF LAW AND POLICY* 248-58 (1989); Robert P. Merges & Glenn H. Reynolds, *Toward a Computerized System for Negotiating Ocean Bills of Lading*, 6 *J. L. & COMM.* 23 (1986).

8. NEGROPONTE, *supra* note 5, at 237 (reacting to the case of Jake Baker, whom the government attempted to prosecute for posting a violent, fictitious story to a newsgroup on the Internet; see *United States v. Baker*, 890 F. Supp. 1375 (E.D. Mich. 1995)).

9. John Perry Barlow, *The Economy of Ideas*, *WIRED*, March 1994, at 85, 85. Barlow is Executive Chair of the Electronic Frontier Foundation, and presented the keynote luncheon address at the 1996 Berkeley Technology Law Journal symposium, *Digital Content: New Products and New Business Models*, Nov. 8-9, 1996.

10. *Id.*

11. PERRITT, *INFORMATION SUPERHIGHWAY*; HENRY H. PERRITT, *LAW AND THE INFORMATION SUPERHIGHWAY* (Supp. 1997) [hereinafter PERRITT, 1997 SUPPLEMENT].

European Commission and other international bodies, and the Board of Governors of the American Bar Association. He has been a professor of computer and information law at Villanova University School of Law for fifteen years, and is an instrumental figure in the Villanova Center for Information Law and Policy. The author of 11 books and more than 35 journal and law review articles, Perritt's works have been cited in more than 400 journal and law review articles and 30 cases.¹²

Perritt squarely acknowledges in the first chapter of *Law and the Information Superhighway* that the Information Superhighway presents several novel phenomena that call for thoughtful examination of existing legal paradigms.¹³ However, he asserts that these phenomena are merely "interesting," not "revolutionary," and that we do not need to scrap the traditional legal doctrines developed in other contexts. What we need, according to Perritt, is "a clear understanding of the core legal principles . . . and a clear understanding of how the various NII [National Information Infrastructure] technologies actually work," so that we can properly adapt the existing doctrines to the NII.¹⁴

Perritt provides ample support for this position throughout his text, exhibiting a keen understanding of the underlying network technology as well as a thorough knowledge of traditional American and international legal principles. He addresses an extremely broad range of issues, many of which books of this sort often omit for the sake of manageability,¹⁵ including criminal, regulatory, and international issues, as well as problems related to NII technologies other than the Internet, such as

12. The majority of Perritt's articles have addressed federal information policy, electronic commerce, electronic property rights and liabilities, or problems of regulation and jurisdiction on the NII. See, e.g., Henry H. Perritt, *Unbundling Value in Electronic Information Products: Intellectual Property Protection For Machine Readable Interfaces*, 20 RUTGERS COMPUTER & TECH. L.J. 415 (1994). He is also a notable scholar in the areas of employment and labor law. See, e.g., Henry H. Perritt, *The Future of Wrongful Dismissal Claims: Where Does Employer Self Interest Lie?*, 58 U. CIN. L. REV. 431 (1989).

13. These new phenomena include: (1) the convergence of technologies which historically defined distinct legal categories (e.g. radio and wire), thereby collapsing the old categorical boundaries; (2) the convergence of communications and computing, which previously mapped a distinction between regulated and essentially unregulated activity; (3) the fading distinction between basic and enhanced communication services (significant in terms of regulation), and between "raw" content and "value-added" content (significant in the context of intellectual property); and (4) low barriers to entry in electronic markets and low transaction costs (collectively called "atomization"). See PERRITT, *INFORMATION SUPERHIGHWAY* at 27-30.

14. *Id.* at 30.

15. A significant number of excellent books on the subject of online legal issues have been written in the last three years, mirroring the growth and interest in the Internet itself. See, e.g., JONATHAN ROSENOER, *CYBERLAW: THE LAW OF THE INTERNET* (1997); KENT D. STUCKEY ET AL., *INTERNET AND ONLINE LAW* (1996); *ONLINE LAW: THE SPA'S LEGAL GUIDE TO DOING BUSINESS ON THE INTERNET* (Thomas J. Smedinghoff ed., 1996); BOYLE, *supra* note 6; KATSH, *supra* note 1; TOWARD AN INFORMATION BILL OF RIGHTS AND RESPONSIBILITIES (Charles M. Firestone & Jorge Reina Schement eds., 1995); LANCE ROSE, *NETLAW: YOUR RIGHTS IN THE ONLINE WORLD* (1994); CAVAZOS & MORIN, *supra* note 1.

telephone and cable. Although the ambitious undertaking of analyzing the law over this wide range of topics limits his opportunity to provide detailed policy arguments in all of the areas, he effectively picks his spots, dropping suggestions where the law appears to him to be unclear or headed in the wrong direction.¹⁶ His analysis of existing case law and the extension of the principles established therein to the online context are consistently sound, which creates a convincing case for the continued use of traditional paradigms and framework to address the legal problems on the Information Superhighway.

II. A TELLING METAPHOR

Perritt enlists the commonly used term "Information Superhighway" as a metaphor for the information infrastructure in order to emphasize his point that a new legal structure is unnecessary. He compares the Information Superhighway to the interstate highway system which, like its electronic counterpart, requires various rules to ensure continued order, safety, and utility for those who use it. He notes that on a physical highway, one must have rules establishing tolls for use of the highway (analogous to NII regulation policy); payment systems for bus rides and automobile rentals and purchases (E-commerce); and rules for determining who gets to use which lanes and when (NII access policy).¹⁷ Likewise, the highway must have rules for allocating risk of loss for accidents (liability for harmful electronic communications); rules for assigning responsibility for fixing potholes (liability for information service failures); standards to ensure passable interconnections between roads (interoperability and standard setting); and safeguards to constrain police and others from unreasonable searches of vehicles (E-privacy).¹⁸

Perritt is not the first author to utilize linguistic devices such as metaphors and analogies to facilitate understanding of the online world. A description of an abstract, non-physical entity such as cyberspace (much like the description of abstract, non-physical emotions or experiences such as anger, love, or even the creative process of writing) often requires the use of familiar language based on known, tangible

16. For example, for the assignment of top-level domain names (TLDs) he proposes a private, international, self-regulatory scheme with specialized tribunals and the built-in sanction of refusing to recognize an email address or domain name, as an alternative to the present system in which Network Solutions, Inc. (NSI) administers TLDs in North America (including the popular ".com" domain) under contract with the National Science Foundation (Europe and Asia also have registries for other TLDs). See PERRITT, 1997 SUPPLEMENT at 50-53. See generally Daniel W. McDonald et al., *Intellectual Property and the Internet*, COMPUTER LAW., Dec. 1996, at 8, 13-14 (describing the domain name registration battle).

17. PERRITT, INFORMATION SUPERHIGHWAY at iii.

18. *Id.*

things discernible by the traditional five senses.¹⁹ Thus, the cyberspace literature is rich with symbolism and comparisons to things common in real-world existence. For example, copyright law professor Paul Goldstein coined the term "Celestial Jukebox" to describe the satellite and fiber optic network that will deliver a nearly limitless selection of videos, movies, and texts to our desktop or living room.²⁰ In *Netlaw*, Lance Rose examined the effectiveness of various metaphors for the Internet, including "local bar," "wild west frontier," "supermarket," and "adult bookstore."²¹ Some metaphors have even become an explicit part of the Internet language: for example, we can "surf" the World Wide "Web" (WWW), guided by Netscape "Navigator"™ software.²²

While Perritt's use of the Information Superhighway metaphor is effective in calling immediate attention to his point that the development of the NII does necessitate drastic changes to the structure of the law, he wisely refrains from carrying the Superhighway metaphor too far. The mere fact that we can recognize similarities between the virtual world and something (like a highway) in the physical world does not mean *prima facie* that the same legal paradigms apply to both. Consequently, Perritt devotes adequate individual attention to each of the separate legal

19. See, e.g., Elizabeth Bishop, *At the Fishhouses*, in *THE COMPLETE POEMS* 64-66 (1983) (using a description of fishhouses at the water's edge as a multi-layered metaphor).

20. See PAUL GOLDSTEIN, *COPYRIGHT'S HIGHWAY: THE LAW AND LORE OF COPYRIGHT FROM GUTENBERG TO THE CELESTIAL JUKEBOX* (1994). See also Robert Chow, Book Note, 10 *HIGH TECH. L.J.* 193 (1995) (reviewing GOLDSTEIN, *supra*).

21. ROSE, *supra* note 15. Rose contrasts the metaphors used in various contexts, including: "print publisher," "telephone service," "magazine distributor," "bookstore," and "local bar" (ch. 1); "shopping mall" and "toll road" (ch. 2); "wild west frontier" and "supermarket" (ch. 4); "postal service" and "private home" (ch. 5); "casino" (ch. 6); "dangerous gadget" (ch. 7); and "adult bookstore" and "singles bar" (ch. 8)). *Id.*

22. At least two recent works have specifically focused on the use of metaphors to describe the new information infrastructure. In his book *Internet Dreams*, Xerox PARC scientist Mark Stefik, recognizing that metaphors can have an impact on the legal and policy treatment of a technology, explored various metaphors for describing what the Internet is and will be. MARK STEFIK, *INTERNET DREAMS: ARCHETYPES, MYTHS, AND METAPHORS* (1996). Stefik suggests, as an alternative to the common "Information Superhighway" metaphor, four metaphors consistent with thousands of years of human history: digital library ("keeper of knowledge"), electronic mail ("communicator"), electronic marketplace ("trader"), and digital world ("adventurer"). See *id.* And in an essay reviewing recent books by Ethan Katsh and James Boyle, Pamela Samuelson discusses the efforts of the authors to discard metaphors of a declining era—print in Katsh's case and the romantic author in Boyle's case—and search for the emergence of new metaphors to better suit the information age. Pamela Samuelson, *The Quest for Enabling Metaphors for Law and Lawyering in the Information Age*, 94 *MICH. L. REV.* 2029 (1996) (reviewing KATSH, *supra* note 1; BOYLE, *supra* note 6). For other uses of symbolic language to describe cyberspace, see Barlow, *supra* note 9 (describing the law's attempt to carry on existing principles in the NII environment as a "sinking ship" on a rough sea, carrying "vaporous cargo"); Paul Gilster, *THE INTERNET NAVIGATOR*, xix (1993) (describing the Internet as a "frontier that has barely begun to be explored"). A more common example is the metaphor of "community," often used in the context of supporting an argument for self-regulation schemes online. See, e.g., Henry H. Perritt, *Cyberspace Self Government: Town Hall Democracy or Rediscovered Royalism?* 12 *BERKELEY TECH. L.J.* (forthcoming Dec. 1997).

subjects,²³ to determine which legal paradigms are most appropriate for that subject in the online context, and which principles are best applied to resolve the problems presented.

III. NEW RULES OF THE ROAD?

Some online legal issues lend themselves fairly easily to traditional paradigms. For example, someone who uses a computer to gain unauthorized access to a bank's computer system, cracks the security codes with the help of software tools, and transfers funds to an account of his own is as easily characterized as a criminal as someone who breaks into the same bank at night, cracks open the safe with a crowbar, and steals printed money.²⁴ In other contexts, though, how existing legal principles provide tenable solutions to online problems is less clear.

In addition to resolving the more straightforward problems, Perritt offers some creative applications of existing principles in analyzing the more complex problems. Without attempting to force traditional legal paradigms where they do not fit in the online context, Perritt illustrates that even the seemingly troublesome online problems can be addressed effectively within the existing legal framework, staying faithful to his premise that creating new categories for NII issues is unnecessary. While it would be impractical to summarize his treatment of each of the many issues presented in the book, an examination of the following two particular areas provides a representative example of Perritt's legal and policy analysis: (1) access rights to public information and to online networks and facilities; and (2) private intellectual property rights.

A. Access to Public Information and Networks

Perritt considers the availability of access to public information to be a key to the development of the NII: "In order for the full potential of the NII as a conduit for public information to be realized . . . private sector electronic publishers and individual citizens must have access to basic governmental data collected by public entities, particularly including primary legal information."²⁵ He supports the extension of traditional Freedom of Information (FOI) doctrine into the online

23. The book is divided into fourteen chapters, organized in survey format, addressing: how the NII technology works, access to networks, privacy, liability for communications, liability for service failure, Constitutional issues, regulation, interoperability, electronic commerce, intellectual property, public information, civil procedure, criminal law, and international law.

24. Compare Computer Fraud and Abuse Act, codified at 18 U.S.C. § 1030 (1991) (defining various computer crimes) with Cal. Penal Code § 484 (1995) (defining common theft).

25. PERRITT, INFORMATION SUPERHIGHWAY at 469-70.

environment, stressing two principles that he believes are essential to developing fair, effective information policy for the NII: first, if information is requested in electronic format rather than paper, it should be supplied electronically if available;²⁶ and second, the government should promote a diversity of channels and sources of public information (which necessarily coincides with principles of access to networks and facilities).²⁷ Although the copyright law,²⁸ the First Amendment,²⁹ and state freedom of information laws all provide some degree of protection for information access rights, Perritt believes that the most important source of that right is incorporated in Freedom of Information Acts (FOIAs),³⁰ thus he focuses his analysis on the application of FOI doctrine to the online environment.

Perritt's first principle of effective information policy is sound. Anyone who has used electronic information tools realizes the electronic format has significant search and retrieval advantages, saving the user time and money.³¹ Thus, as a purely practical matter, supplying documents in paper form rather than electronically impairs public access to information. Perritt alertly recognizes that the inability to obtain electronic formats of information would present a problem for electronic publishers who wished to attach value-added features to the information and resell it, because electronic format greatly facilitates the addition of features like links and tags, and significantly lowers barriers to entry in the market.³² He criticizes the position taken by those who claim that mandating electronic disclosure of public records to private publishers planning to resell the records for profit constitutes the use of public funds for private purposes. Perritt argues that:

the mere fact that an individual or entity may obtain income from an activity that serves a public purpose does not negate the public

26. This principle was recently incorporated into the Freedom of Information Act by amendment, after *Law and the Information Superhighway* was first published. See Electronic Freedom of Information Act Amendments of 1996, Pub. L. 104-231, 110 Stat. 3048 (amending Freedom of Information Act, 5 U.S.C. § 552 (1994)). The amendments are discussed in Perritt's 1997 Supplement. See PERRITT, 1997 SUPPLEMENT, *supra* note 11, at 75.

27. PERRITT, INFORMATION SUPERHIGHWAY at 473.

28. Factual information is not copyrightable because it does not meet the originality requirement of section 102 of the 1976 Copyright Act. See 17 U.S.C. § 102 (1996); *Feist Publications v. Rural Tel. Serv. Co.*, 499 U.S. 340 (1991).

29. The First Amendment has been held to limit direct restrictions on access to electronic forms of information. See *Legi-Tech, Inc. v. Keiper*, 766 F.2d 728 (2d Cir. 1985) (restrictions on plaintiff's access to electronic legislative database amounted to censorship, since the same restrictions did not apply to individual citizens and the state's preferred publisher); U.S. CONST. amend. I.

30. See, e.g., Freedom of Information Act, *supra* note 26.

31. An instructive example is using the search tools to find legislative history for a statute on the THOMAS database online, compared with searching the various print versions of legislative history sources. See Library of Congress, THOMAS <<http://thomas.loc.gov>>.

32. PERRITT, INFORMATION SUPERHIGHWAY at 495-496.

nature of the activity. When a commercial publisher disseminates public information, it is serving a public purpose, the same purpose that is the central justification for enactment of the Freedom of Information statutes: increasing access to government information.³³

Providing public electronic records to private publishers for resale does, however, present some interesting problems of ownership and property protection. Raw public information such as judicial opinions, the text of statutes, basic land records, and agency rules are not copyrightable.³⁴ Thus, pirates could extract the publicly supplied information (omitting the value-added features such as tags, links, and headers) from the private publisher's product and reuse it in competition with the publisher, incurring neither the publisher's cost of assembling the product nor liability for copyright infringement. Of course, this problem is nothing new, as it appeared in the context of paper records more than a century ago. In the 1834 case of *Wheaton v. Peters*, the Supreme Court confirmed the right of competing reporters to publish the text of its opinions.³⁵ The problem is even more significant in the electronic medium, which greatly facilitates the "lifting" or extracting of such unprotected content from a publisher's product.³⁶

Perritt suggests several strategies that private publishers can use to protect their investments, without necessitating the reach of copyright into material belonging in the public domain. Publishers could design the product to make effective pirating difficult by using fine "granularity of information" (dividing content into many small parts to make it difficult for each individual element to be extracted and reassembled by a pirate) or utilizing a "planned obsolescence" strategy (providing frequent updates to the product and thus rendering older material worthless).³⁷ Creative legal solutions are also possible. Perritt suggests that publishers brand electronic information products with trademarks, which prevent competitors from appropriating the name and goodwill built up by the

33. *Id.* at 481.

34. See *Feist Publications v. Rural Tel. Serv. Co.*, 499 U.S. 340 (1991) (holding that originality in selection and arrangement is necessary in order for a factual compilation to be copyrightable).

35. 33 U.S. (8 Pet.) 591 (1834).

36. For example, on the World Wide Web, an "IMG" link on a web page instructs the browser to supplement the text on that page with an image contained in a separate file (on another web page). The result can be the presentation of content from one page within the "frame" of a completely different page, with the user never seeing the original source of the content. At least two plaintiffs have claimed to be the victim of some type of misappropriation or infringement using IMG links. See *The Shetland Times, Ltd. v. Dr. Jonathan Wills and ZetNews, Ltd.*, Sess. Cas. (Oct. 24, 1996) (visited May 2, 1997) <<http://www.shetland-news.co.uk/opinion.html>>; *The Washington Post Co. v. Total News, Inc.*, No. 97-1190 (S.D.N.Y., filed Feb. 20, 1997) (visited May 2, 1997) <<http://www.ljx.com/Internet/complain.html>>.

37. See PERRITT, *INFORMATION SUPERHIGHWAY* at 497.

trademark owner.³⁸ This is an excellent suggestion, because it is difficult to effectively protect digital works, particularly works encompassing some degree of public, non-copyrightable information, solely by copyright law.³⁹ Also, trademark infringement is sometimes easier to prove than other theories of misappropriation or infringement, as illustrated by several recent cases.⁴⁰

In addition to providing some degree of protection for the information products of private publishers, Perritt indicates that trademarks can be used by public entities which directly supply information:

[C]onceivably, a local government could obtain a trademark for the 'official version' of a land records database and deny use of the trademark to unofficial sources. This form of intellectual property permits public agencies to reduce risks of poor quality information that might endanger the public, while also permitting a diversity of channels and sources to exist.⁴¹

Perritt's second principle of effective information policy—promoting diversity of channels and sources—is also sound. He observes that The need for a diversity of sources and channels of information . . . is based on the reality that no one supplier can design modern information products to suit the needs of all users. The diversity principle is inimical to any state-maintained or state-granted monopoly over public information.⁴²

Perritt notes that the present architecture of the infrastructure provides for a wide variety of channels and conduits for information, in the form of various choices of service providers to access the network⁴³ and a huge

38. See Trademark Act of 1946 ("Lanham Act"), codified as amended at 15 U.S.C. §§ 1051-1128 (1994).

39. See, e.g., *Feist Publications v. Rural Tel. Serv. Co.*, 499 U.S. 340 (1991); but see *West Publishing Co. v. Mead Data Central, Inc.*, 799 F.2d 1219 (8th Cir. 1986) (star pagination used in Westlaw to correspond with pagination in West's official reporters cannot be used in Mead's LEXIS database).

40. See *Playboy Enters., Inc. v. Frena*, 839 F. Supp. 1552 (M.D. Fla. 1993) and *Sega Enters., Ltd. v. MAPHIA*, 948 F. Supp. 923 (N.D. Cal. 1996) (both finding trademark infringement based on Plaintiff's trademark/logo being displayed on the user's screen when the computer file is downloaded and run).

41. PERRITT, *INFORMATION SUPERHIGHWAY* at 488. Perritt cites the examples of "Smokey Bear" and the figure of an eagle above the letters "U.S." as government-owned trademarks. See *id.*

42. *Id.* at 474.

43. Searches using Lycos and Yahoo yield hundreds of ISPs in the United States. See, e.g., *Yahoo!* (visited May 2, 1997) <<http://www.yahoo.com>>. Access to the telephone system is available from a variety of phone companies, especially under access provisions of the Telecommunications Act of 1996, Pub. L. 104-104, 110 Stat. 56 (amending 47 U.S.C. § 153, 251-252 (1996)). Cable providers tend to have a monopoly in their area of operation, but they are closely regulated in order to preserve access rights. See, e.g., *Cable Communications Policy Act*, 47 U.S.C.A. §§ 521-559 (West Supp. 1995); *Turner Broadcasting Sys., Inc. v. FCC*, 117 S. Ct. 1174 (1997) (upholding "must-carry" provisions of the Cable Television Consumer Protection and Competition Act, 47 U.S.C.A. §§ 534-535 (1992)). See generally Brent K. Yamashita, *Building the National Information*

network of cables and wires providing a wide range of paths between any two points.⁴⁴ However, in concluding that this architecture likely precludes the development of diversity of access problems, Perritt overlooks one significant bottleneck to network access and use of online services, the potential problems this bottleneck presents, and the possible role of antitrust law in addressing this problem.⁴⁵

Perritt devotes substantial analysis to the relationships and markets of World Wide Web content providers and Internet Service Providers (ISPs),⁴⁶ and concludes that the wide variety of access points and paths of information flow likely precludes any online market from being characterized under antitrust law as an essential facility and, furthermore, appears to prevent the need for antitrust intervention to ensure competition in online markets.⁴⁷ However, he appears to have missed the importance of the final physical "link" in the "chain" of information flow across the network from content provider to consumer: the user's desktop personal computer (PC) and modem.

Web browser software such as Microsoft™ Internet Explorer™ and Netscape Navigator™, running on top of the OS, currently provides the interface between the user and network. However, many industry observers agree that browser software and OS software are on an inevitable crash course—they will soon become one and the same.⁴⁸ Netscape Navigator, for example, already has the capability of running "add-on" applications,⁴⁹ much like an OS runs application programs. The potential problem, then, is that one company (Microsoft Corp.) already has a virtual monopoly on the OS market,⁵⁰ leading one to believe

Infrastructure: An Agenda for Action (1994) (unpublished A.B. thesis, Princeton University) (on file with author).

44. See PERRITT, INFORMATION SUPERHIGHWAY at 465-71.

45. Perritt does suggest the possibilities of taking property by eminent domain or instituting partial condemnation of intellectual property rights in order to force access if necessary, citing the examples of patents for encryption algorithms, or a sudden assertion of copyright in a fundamental protocol such as TCP/IP. See PERRITT, INFORMATION SUPERHIGHWAY at 293. Arguably, the same principle could be applied to proprietary operating system software.

46. See *id.* at 64-74 (comparing, for example, the cable network/cable channel relationship as discussed in *Futurevision Cable Systems, Inc. v. MultiVision Cable TV Corp.*, 789 F. Supp. 760 (S.D. Miss. 1992) with the Internet content provider/network service provider relationship).

47. See *id.* at 70-71. Under antitrust law, an essential facility is something that (1) is essential to the antitrust plaintiff's competitive survival; (2) cannot practically be duplicated; and (3) can be used by the plaintiff without interference with the defendant's use. See *Hecht v. Pro-Football, Inc.*, 570 F.2d 982 (D.C. Cir. 1977); *United States v. AT&T*, 552 F.Supp. 131 (D.D.C. 1982) (holding that AT&T is required to share access to the local telephone networks with other long distance providers).

48. See, e.g., STUCKEY, *supra* note 15, at xx-xxi.

49. For example, application programs called "applets" can be written for Netscape Navigator, adding special capabilities to the browser.

50. 80% of the world's PCs presently use a Microsoft operating system. See STUCKEY, *supra* note 15, at xxi.

that it is quite possible they could soon control the user's complete software interface with the web.⁵¹

A monopoly in the area of desktop web interface software (which, for the sake of simplicity will be referred to as OS software) could have several detrimental effects on access to public information, as well as chilling effects on the free speech rights of content providers and consumers. First, it could limit the variety of forms in which a user may receive information. The variety of available value-added features which Perritt considers so important could significantly decline in the event of a monopoly OS, because any feature not supported by that OS would not likely be developed by content providers. Second, the bottleneck at the desktop could be used by the producer of the monopoly OS to regulate the actual substance of information users are able to receive, the ease or difficulty with which it can be retrieved, and the speed with which it is accessible. In other words, the OS can be designed so that the content produced by sources favored by the OS producer—probably as part of a financial arrangement between the parties—appears more attractive, or has additional features, or is accessed faster than the content of another source.⁵² Not only is this harmful for public information policy in that it limits diversity of sources and channels, it also allows the OS producer to filter out specific kinds of information, giving it the power of “virtual censorship.” Likewise, the OS producer could design the system to favor certain ISPs over others, thereby limiting the users' practical access to the physical network.⁵³

There are several theories under which antitrust law could help address the problem. First, section 2 of the Sherman Act could be applied to prevent a dominant OS producer from tying other information products or services to the sale of the OS, or engaging in other anticompetitive practices.⁵⁴ Presently, this theory would help to preserve competition in the market for web browsers, thereby allowing competing browsers to develop into viable competing OSs for the future. Second, vertical relationships between OSs and content providers or ISPs should be scrutinized carefully under section 1 of the Sherman Act, in order to prevent certain content providers or ISPs from gaining a favored status

51. *See id.*; Gary L. Reback et al., *Why Microsoft Must Be Stopped*, UPSIDE, Feb. 1995, at 52.

52. *See* Reback, *supra* note 51.

53. *See* STUCKEY, *supra* note 15, at xxiii (“Microsoft’s virtual operating system monopoly, control of this interface, and interest in competing in the online services market threaten to interfere with the continued unfettered formation of robust competitive markets offering a diverse array of access and service providers.”).

54. *See* 15 U.S.C. § 2 (1996); *United States v. Microsoft Corp.*, 56 F.3d 1448 (D.C. Cir. 1995) (consent decree prohibiting Microsoft from engaging in certain restrictive actions, such as pricing with minimum commitments).

with the OS producer.⁵⁵ Potential mergers and acquisitions of firms in other network or computing markets by the OS producer should likewise be closely scrutinized under the Sherman and Clayton Acts.⁵⁶ Finally, some lawyers and economists view online markets as natural monopolies, which means that the existence of one dominant OS is actually the most market-efficient scenario.⁵⁷ In that case, viewing the operating system as a bottleneck to the network, the essential facilities doctrine could be applied to ensure that all content providers have the ability to send information to users without any filtering mechanisms, or discrimination at the OS level as to how fast the file is received or the way it is displayed.⁵⁸ This would alleviate potential access policy problems as well as Constitutional problems.

Thus, in light of the foregoing, it seems as if antitrust law may have a more important role in access problems than Perritt realizes, and the application of the existing antitrust doctrine to a non-physical "bottleneck" like a software interface is not really analogous to the physical examples he cites. Nevertheless, his premise that existing legal principles are sufficient to address NII problems still holds true in the area of public information and network access.

B. Protection of Intellectual Property Online

Digital technology and networks create a myriad of problems for the protection of intellectual property. The many levels of expression in computer programs, which can possess literary qualities,⁵⁹ artistic

55. See 15 U.S.C. § 1 (1996). Traditionally, though, under both the Sherman Act and the Clayton Act, "rule of reason" rather than "per se" analysis is applied to vertical relationships. See, e.g., *Continental T.V., Inc. v. GTE Sylvania, Inc.*, 433 U.S. 36 (1977); see also Clayton Act, 15 U.S.C. § 12-26 (1996).

56. See Clayton Act, *supra* note 55. When a monopolist in one market enters a related market, it often has the ability to leverage its monopoly so as to drive out competing firms in the newly entered market, and if one firm were to gain a dominant position at more than one level of the network environment, access and censorship problems would be a legitimate concern. See, e.g., *In the Matter of Policy and Rule Concerning Rates for Dominant Carriers*, 4 FCC Rcd 2873 (1989) (acknowledging the economic power of dominant carriers to extend their control to other markets). For example, there is evidence that Microsoft has attempted to leverage its near-monopoly in the OS market to improve the position of its Internet Explorer in the browser market. See Reback et. al, *supra* note 51 (claiming that Microsoft is attempting to use leveraging power in the OS market in order to control the bottleneck at both ends of the network—desktop and server—and antitrust action is merited). For the view that antitrust law should be applied more cautiously to standard-driven markets like Internet software markets, see Mark A. Lemley, *Antitrust and the Internet Standardization Problem*, 28 Conn. Law Rev. 1041 (1996).

57. See Lemley, *supra* note 56.

58. See, e.g., *United States v. American Tel. & Tel. Co.*, 524 F. Supp. 1336 (D.D.C. 1981) (essential facilities doctrine could be a basis for initial restructuring of the voice telephone system).

59. Both the source code (human readable programming language such as FORTRAN or C) and the object code (the machine-readable binary code) are eligible for copyright protection as literary works, but this scope of protection (limited to literal copying) is quite

qualities,⁶⁰ and functional qualities,⁶¹ make it difficult to ascertain the appropriate scope of protection for programs, particularly copyright protection. Unique problems for intellectual property are also presented by characteristics of digital networks, such as the ability to make perfect copies and to do so in potentially unlimited numbers, the ability to instantaneously transmit copies of digital works to any number of users (and the uncertainty as to whether such a transmission satisfies the "fixation in a tangible medium" requirement for establishing copyright),⁶² and the caching of files downloaded from remote sites.

Perritt recognizes the importance of protecting intellectual property, and the gravity of the piracy problem on the Internet: "The NII can realize its potential only if it protects private property and makes it possible to offer something for sale or license in open networks like the Internet without it being misappropriated by a competitor."⁶³ Consistent with his oft-stated premise, though, he believes that the combination of existing legal, technological, and business schemes can adequately protect property interests online, while properly balancing such private interests with the public domain.

Much literature is addressed to the problem of intellectual property protection in cyberspace. The approaches taken can be put into three general categories: (1) arguments for the creation of entirely new regime(s) to protect software or digitized property (*sui generis* approach); (2) arguments for rewriting the copyright laws to make them fit the digital environment; and (3) arguments for a more conservative approach, based on existing legal principles and on the promise of technology to help address the problems it created. Several notable authors have favored the first category. In *A Manifesto Concerning the Legal Protection of Computer Programs*, Pamela Samuelson, Randall Davis, Mitchell Kapor, and J.H. Reichman argue that the unique properties of computer software—including the observation that they "behave"—make software expensive to develop and easy to imitate, an ill-suited combination for protection under traditional intellectual property regimes such as patent

narrow given that it is usually possible to vary the programming of a computer in order to obtain the same end result. See 17 U.S.C. § 101 (1996).

60. Artistic elements that a program displays or plays, such as graphics or music, are eligible for copyright protection or trademark protection. See 17 U.S.C. § 102 (1996).

61. Functional qualities of software can be protected by patent law. See 35 U.S.C. § 101 (1996); Examination Guidelines for Computer Related Inventions, 51 PATENT, TRADEMARK, & COPYRIGHT J. 422 (1995).

62. See U.S. DEP'T OF COMMERCE, INFORMATION INFRASTRUCTURE TASK FORCE, INTELLECTUAL PROPERTY AND THE NATIONAL INFORMATION INFRASTRUCTURE: THE REPORT OF THE WORKING GROUP ON INTELLECTUAL PROPERTY RIGHTS (1995) [hereinafter NII WHITE PAPER].

63. PERRITT, INFORMATION SUPERHIGHWAY at 416.

and copyright.⁶⁴ They argue that the use of traditional regimes will lead to cycles of overprotection or underprotection of software, and outline the general principles of a sui generis, market-based approach that features a three-year "blockage period" for software clones, during which development but not distribution would be allowed.⁶⁵ In a separate article, Reichman proposes another hybrid regime loosely based on antitrust and trade secret (but not property) principles that is designed to give innovators adequate lead time to recover their investment, while allowing others to build socially desirable derivatives of the innovation.⁶⁶

The Clinton Administration's Information Infrastructure Task Force, led by the Patent and Trademark Office (PTO) Commissioner Bruce Lehman, favors the second category. In *The Report of the Working Group on Intellectual Property Rights* (commonly referred to as the "NII White Paper"), the Working Group outlines several proposals for revising copyright law for the digital age, including provisions clarifying that transmission of a copyrighted work is the exclusive right of a copyright holder, imposing liability on service providers for copyright infringement perpetrated via their system, and prohibiting the unauthorized removal or alteration of copyright management information.⁶⁷ Some of the proposals have already been enacted into law, such as the right of performance in digital works.⁶⁸

Professor Perritt, on the other hand, favors the conservative approach of the third category. He exclaims:

[M]uch of the concern about protecting intellectual property through new statutes and elaborate encryption structures is overblown. As with other threats to property and personal interests through the NII, a combination of existing law and effective entrepreneurial mobilization of the particular attributes of new technologies should suffice to strike a reasonable balance between competing interests.⁶⁹

For example, Perritt states that the problem of determining the copyrightable elements of a computer program is adequately addressed by the "filtration method" used by the court in *Computer Associates Int'l*,

64. Pamela Samuelson et al., *A Manifesto Concerning the Legal Protection of Computer Programs*, 94 COLUM. L. REV. 2308 (1994) [hereinafter Samuelson et al., *Manifesto*].

65. *Id.*

66. J.H. Reichman, *Legal Hybrids Between the Patent and Copyright Paradigms*, 94 COLUM. LAW REV. 2432 (1994) [hereinafter Reichman, *Legal Hybrids*]. See also, J.H. Reichman & Pamela Samuelson, *Intellectual Property Rights in Data?*, 50 VANDERBILT L. REV. 51 (1997) (proposing a hybrid protection scheme for databases, but a more narrow scheme than the sui generis proposals in the United States and Europe).

67. NII WHITE PAPER, *supra* note 62, at 114-23, 213-24, 230-35.

68. See *id.* at 221-25; Digital Performance Right in Sound Recordings Act, Pub. L. 104-39, 109 Stat. 336 (1995).

69. PERRITT, INFORMATION SUPERHIGHWAY at 464.

*Inc. v. Altai, Inc.*⁷⁰ The filtration approach becomes difficult to apply, however, when a product becomes so successful in the marketplace that competitors can succeed only by copying certain of its features.⁷¹ Perritt therefore suggests that when standard intellectual property doctrines seem to fail or create confusion in the digital environment, innovators can use "alternative protection methods" based on *existing legal, entrepreneurial, and technological principles* to protect their intellectual property.⁷²

For example, the non-copyrightable elements of a compilation such as a database can be protected by contract law, in the form of shrinkwrap licenses. The Seventh Circuit recently upheld the enforceability of such licenses in *ProCD v. Zeidenberg*.⁷³ On the web, shrinkwrap licenses (called "point-and-click," "click-on," or "click-through" licenses in that medium) arguably would have even greater enforceability, since the web site can force the user's browser to display a license before entering the site, requiring the user to take the affirmative action of clicking on a link indicating consent to the license terms.⁷⁴ Perritt also suggests a "reverse passing off" theory for protection of non-copyrightable, sweat-of-the brow digital works that could otherwise be misappropriated by pirates,⁷⁵ and he notes that content providers can use business strategies such as planned obsolescence, fine granularity of information, and marking and tagging to increase practical protection for digital works.⁷⁶ In addition, technology such as encryption and

70. 982 F.2d 693 (2d Cir. 1992). This test is based on the abstraction-filtration-comparison test set forth by Judge Learned Hand over 60 years ago. See *Nicholas v. Universal Pictures Corp.*, 45 F.2d 119 (2d Cir. 1930).

71. See, e.g., *Lotus Dev. Corp. v. Borland Int'l Corp.*, 49 F.3d 807 (1st Cir. 1995) *aff'd per curiam* 116 S. Ct. 804 (1996).

72. See PERRITT, INFORMATION SUPERHIGHWAY at 458-59 (Table 10-1: Protecting Intellectual Property Without Copyright).

73. 86 F.3d 1447 (7th Cir. 1996). Compare Maureen O'Rourke, *Copyright Preemption After the ProCD Case: A Market-Based Approach*, 12 BERKELEY TECH. L.J. 53 (1997) (favoring the supplementation of copyright law by contract law in digital content licensing arrangements) with Niva Elkin-Koren, *Copyright Policy and the Limits of Freedom of Contract*, 12 BERKELEY TECH. L.J. 93 (1997) (arguing that copyright law still has an important role in the licensing of digital content).

74. The terms of the shrinkwrap license in *ProCD* were not visible until after the purchaser broke the seal of the package. However the court reasoned that the license should still be upheld because the user could return the product for a refund if he did not consent to the terms. The court also noted that the license agreement was displayed every time the user ran the software, preventing the user from proceeding without accepting the terms of the license. *Id.* See also UCC Proposed Article 2B-308 Mass Market Licenses (May 3, 1996 Draft).

75. See PERRITT, INFORMATION SUPERHIGHWAY at 442-445. See also *Waldman Publishing Corp. v. Landoll, Inc.*, 43 F.3d 775 (2d Cir. 1994) (finding that the "substantial similarity" standard used to show copyright infringement can also be used for non-copyrightable works to show reverse passing off).

76. These principles are discussed more fully in Part III.A, *supra*. See also PERRITT, INFORMATION SUPERHIGHWAY at 458-464.

password protection will become more effective as appropriate mechanisms are developed for their use, and trademark law will play a much greater role in the protection of works displayed by a computer, since product branding can effectively show the source of a product.⁷⁷ Thus, Perritt argues, digital property rights can be protected in many ways without creating new legal doctrines.

Of the three approaches discussed, Perritt's approach is the wisest course of action, at least for the present time. The *sui generis* approach is attractive on some fundamental level because it attacks the problem head-on, taking a fresh look at the problems presented by digital technology and the market structures affecting incentives to produce intellectual property in the digital era. Arguably, such a fresh look will result in the most fair and efficient rules for protection. However, resorting to a *sui generis* approach creates the danger of an intellectual property regime consisting more of special rules for various technologies than general rules. Various pockets of specialized law have already been carved out for plants,⁷⁸ semiconductor chips,⁷⁹ and pharmaceuticals.⁸⁰ As more and more technologies are added to the fray, such a regime may rapidly become cumbersome and impractical to work with. There likely will be technologies which straddle the line between special categories, and lawyers and courts will struggle to characterize whether a technology is more like prior technology A or prior technology B, instead of focusing on specific intellectual property doctrine. More importantly, though, the time has not yet arrived to implement a *sui generis* approach. Technology is just beginning to address the problem it has created, and technical solutions such as encryption and trusted systems may prove to hold an adequate solution for the easy pirating of digital products.⁸¹ Once new legal regimes are created, they are quite difficult to "undo." The approach suggested by Perritt lends itself to a continued surveillance of the issue so that, for example, the technological protection capabilities that are currently in testing and development stages in the laboratory⁸² will have the opportunity to be tested in the marketplace, where their strengths and weaknesses will be more readily apparent. If market failure

77. *See id.*

78. *See* Plant Variety Protection Act, 7 U.S.C. §§ 1611, 2321-2582 (1994).

79. *See* Semiconductor Chip Protection Act of 1984, 17 U.S.C. §§ 901-914 (1994).

80. *See* Orphan Drug Act, Pub. L. 97-414, 96 Stat. 2049 (amending scattered sections of 21 U.S.C., 26 U.S.C., 35 U.S.C., and 42 U.S.C. (1994)).

81. *See* Mark Stefik, *Shifting the Possible: How Trusted Systems and Digital Property Rights Challenge Us to Rethink Digital Publishing*, 12 BERKELEY TECH. L.J. 137 (1997).

82. For example, one of the technologies being developed is the "trusted printer," which can automatically log a billing transaction every time a document is printed, embed hidden watermarks in the document to foil would-be counterfeiters, and understand and obey "digital rights" language which serves as a catalog of a user's rights in that document. *See id.* at 139-44.

is evident (i.e. if holes in the protection scheme continue to create a disincentive for creative and inventive works to be produced), then the more drastic measure of crafting a new regime can be undertaken.

Perritt's approach is also preferable to that suggested in the second category (a revision, expansion, and in some cases reinterpretation of the copyright law as suggested by the Working Group). The implicit difficulty in relying heavily on copyright law⁸³ to solve the problem of pirating is doing so without also encroaching on the public's fair use rights. Collectively, the proposals set forth in the NII White Paper do not overcome this difficulty. For example, the Working Group's proposals for an exclusive "transmission right" and interpretation of a temporary RAM copy to be a "copy" for copyright purposes seem to signal the end of the "first sale doctrine" as applied to digitally transmitted documents.⁸⁴ The first sale doctrine normally gives a user who lawfully purchases a copy the right to sell or dispose of that particular copy as he wishes, without liability for copyright infringement.⁸⁵ However, under the Working Group's proposal, forwarding your copy of an electronic file to a friend would be an infringement in two ways: the transmission itself would be unlawful, and the temporary copy created in RAM on your computer would also be an unlawful copy. The Working Group also supports the expansion of copyright law to impose strict liability on ISPs for acts of infringement committed by its users,⁸⁶ and the outlawing of decryption technology that may have substantial noninfringing uses.⁸⁷ Again, these policies place unnecessary burdens on the public where none should rightfully exist.

Perritt's approach, on the other hand, balances the public interest with the rights of property owners. He urges that caching should not be considered an infringement for copyright purposes, and in the alternative, fair use should clearly apply.⁸⁸ He also notes that the defense of an

83. The Working Group dismisses patent, trademark, and trade secret doctrines as needing no revision at the present time. See NII WHITE PAPER, *supra* note 62, at 236-37.

84. See *id.* at 28, 213-21. See also, Pamela Samuelson, *The Copyright Grab*, WIRED, Jan. 1996, at 134.

85. See 17 U.S.C. § 109 (1996).

86. Compare *Religious Technology Center v. Netcom On-line Communications Services*, 907 F. Supp. 1361 (1995) (ISPs cannot be held strictly liable for the actions of their users) with NII WHITE PAPER, *supra* note 62, at 114-23 (stating the current law as imposing strict liability on ISPs for the actions of their users). See also Giorgio Bovenzi, *Liabilities of System Operators on the Internet*, 11 BERKELEY TECH. L.J. 93 (1996) (considering potential theories of imposing liability on service providers and system operators for the actions of their system's users).

87. This policy is contrary to the Supreme Court's holding in *Sony Corp. v. Universal Studios, Inc.* 464 U.S. 417 (1984) (copyright owners cannot stop distribution of technology which has substantial noninfringing uses). See also Julie Cohen, *Some Reflections on Copyright Management Systems and Laws Designed to Protect Them*, 12 BERKELEY TECH. L.J. 161 (1997).

implied license could be utilized in the online scenario. If a content provider puts material on the World Wide Web, he is granting an implied license for the file to be cached, since it can only be viewed using web browser software, which creates cached copies of the files it accesses. As a final protection of the public domain, Perritt suggests that the "copyright misuse" doctrine, recently recognized by the 5th Circuit, can prevent copyright owners from usurping the fair use privileges of the public.⁸⁹

Thus, in the vigorously debated area of online intellectual property, Perritt presents a sound argument that existing legal principles, business strategies, and developing technology strike the most appropriate balance between the rights of intellectual property owners and the rights of the public. Thus, once again, he shows that our traditional legal framework need not be discarded in evaluating online issues.

IV. CONCLUSION

It is perhaps a paradox that, while Perritt insists that the legal issues presented by the NII are not new issues requiring special legal treatment, he has written this book on the subject generically called "Cyberlaw" or "Online Law." The grouping of cyberspace issues together in a single book may lead casual observers to believe that the author has made such a categorization for the purposes of establishing a distinct body of law for this technology. Perritt, of course, clearly intended quite the opposite effect and, as discussed above, his cogent analysis amply supports that position.

Law and the Information Superhighway may also be viewed as a paradox because, while it addresses a medium in which instant access to information and fast-paced change are obvious qualities, the book is published in slow-to-deliver and cumbersome-to-update paper form, rather than electronically. Thus, although the book will be supplemented annually via pocket parts,⁹⁰ it will consistently lag behind in this rapidly changing field. One alternative would be to publish the book in digital form, with supplements available online from the publisher, which would

88. See PERRITT, INFORMATION SUPERHIGHWAY at 436. One exception Perritt notes, however, is that limitations should be placed on how cached copies may be used. For example, America Online should not be able to cache copies of a web site which requires a fee to access, and then allow subsequent users to access its cached version for free. *Id.*

89. See PERRITT, 1997 SUPPLEMENT, *supra* note 11, at 58; see also DSC Communications Corp. v. DGI Technologies, Inc., 81 F.3d 597 (5th Cir. 1996) (affirming district court's refusal to enjoin the booting up of allegedly infringing telephone switch microprocessor cards, based on copyright misuse defense).

90. The book's initial publication date was January 5, 1996, and the first pocket part supplement (the substance of which was incorporated in this review), which totalled over 100 pages, was released on December 13, 1996.

allow the seamless integration of supplements with the original text.⁹¹ However, no matter how often the author or publisher updates a book on the subject of the Information Superhighway, whether in paper or digital form, the book will never keep up with the almost-daily developments in this field. Thus, perhaps the task of reporting on these daily changes is best left to web sites such as that of the author's own Center for Information Law and Policy.⁹² Certainly plenty of sources of information are available online, most of them for free.⁹³

In the face of Professor Perritt's thorough treatment of NII legal history and case law, and convincing comparisons of NII issues to analogous legal problems in other, traditional contexts, any potential paradoxes presented by the book are mere sidebars which do little to distract the reader's attention. *Law and the Information Superhighway* is a comprehensive, accurate, and insightful survey of the application of law to the developing information infrastructure, and is a welcome addition to the growing body of literature in this field. Its broad coverage of *all* of the converging communications technologies, not only the Internet, make it a unique and valuable roadmap of the law for any lawyer or non-lawyer who may venture onto the Information Superhighway. Whether Perritt is correct in his view that existing legal categories and paradigms are adequate to resolve the problems presented by the development of the information infrastructure remains to be seen, but his clear presentation of the issues in *Law and the Information Superhighway* will remain useful no matter what unpredictable turns technology and the law may take.

91. Several software companies offer this option for purchasers of their CD-ROM products that require updates (for example, movie review products). See, e.g. *Microsoft Cinemania™ Updates* (visited Feb. 1, 1997) <<http://www.msn.com/cinemania>>.

92. See *Villanova Center for Information Law and Policy* (visited April 2, 1997) <<http://www.law.vill.edu>>.

93. For a "point of entrance" to the virtual library of legal information available online, see *Berkeley Technology Law Journal* (visited May 8, 1997) <<http://server.berkeley.edu/BTLJ>>.