Telecommunications & Electronic Media

Net Neutrality vs. Net Reality: Why an Evidence-Based Approach to Enforcement, And Not More Regulation, Could Protect Innovation on the Web

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Related Links:

- Senate Committee on Commerce, Science, and Transportation, Hearing on "Network Neutrality" (testimony of Vinton G. Cerf), 109th Cong., 1st sess., 2006: http://commerce.senate.gov/pdf/cerf-020706.pdf
- Angele A. Gilroy, Congressional Research Service, R40616, Access to Broadband Networks: The Net Neutrality Debate (2013): http://www.fas.org/sgp/crs/misc/R40616.pdf

People have discussed the purpose, structure, and governance of the Internet since its earliest days. More recently, this discussion has sharpened into a debate about whether and how to enforce network neutrality—*i.e.*, access to the Internet on equal terms for all content providers and consumers. Some content providers want the government to adopt regulations to guarantee them fair access to the Internet. Some network owners, like Verizon or Comcast, disagree and think such regulations are unnecessary and could stifle innovation on the Internet. This debate is taking place at a time of radical change in how we access and use the Internet. The convergence of telecommunications technologies means that today we listen to the radio, watch television, and talk with friends and family on the Internet. This new reality stands in stark contrast to the archaic regulatory framework under the Communications Act of 1934, as amended,[1] which treats each form of communication separately.

With the Federal Communications Commission's (FCC) regulatory approach to network neutrality again being challenged by network owners in the U.S. Court of Appeals for the D.C. Circuit, I think now is the right time for us to seriously consider alternatives. From my perspective, we do not need another layer of regulations issued under the Communications Act. Doing this in the face of a dynamic and robust online environment would contradict my understanding of good government and could impede development of the Internet. We should instead focus on informed, flexible, and fact-based enforcement of our existing competition and consumer protection norms by expert government agencies, supplemented with private self-regulation of technical standards through consensus-based multi-stakeholder organizations of engineers, consumers, and businesspeople. To the extent the government is involved, the Federal Trade Commission (FTC) model of enforcement, advocacy, and industry education is the better model that will allow free markets the breathing room they need to prosper.

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I. Framing The Net Neutrality Debate

A. Design Characteristics Shaping The Debate

Like many of our modern technologies, the Internet began as a Department of Defense research project.[2] Three core design principles from those days are still relevant for today's policy decisions: first, the Internet is intentionally decentralized and redundant; second, communications over the Internet are packet-switched, meaning each message is broken apart and its many pieces travel separately across the web before being re-assembled at the message's final destination; and, third, the Internet uses "end-to-end architecture" that carries content from servers at the "edge" of the Internet on a "first-in, first-out" or "best efforts" basis.[3]

B. Proponents of Net Neutrality Regulation

Network neutrality advocates see the success of content and applications providers like Google, Yelp, or Facebook arising from the core design principles, especially end-to-end architecture. As Professors Mark Lemley and Lawrence Lessig have explained: "While the e2e [end-to-end] design principle was first adopted for technical reasons, it has important social and competitive features as well. e2e expands the competitive horizon by enabling a wider variety of applications to connect to and to use the network."[4] They think "[the] strong presumption [should be] in favor of preserving the architectural features that have produced this extraordinary innovation."[5] Net neutrality proponents want rules that protect these core design attributes by proscribing certain types of behavior by network owners.

Many successful "edge" providers are concerned that owners of the underlying infrastructure could engage in anticompetitive hold-up, either by cutting off access to users or to other networks, by charging high prices for transport or by providing better services to one content provider instead of its competitor either for a fee or because of a financial affiliation.[6] As explained at an FTC-sponsored conference several years ago, content providers worry about "(1) blockage, degradation, and prioritization of content or applications; (2) vertical integration by ISPs [internet service providers] and other network providers into content and applications; . . . and [3] the diminution of political and other free expression on the Internet."[7] This

philosophy of rule-based prohibitions to address mainly vertical concerns is the main force propelling the FCC's efforts on net neutrality.[8]

C. Opponents of Net Neutrality Regulation

Opponents of net neutrality rules are concerned that regulation, by its nature, is inflexible and would penalize innovation in an attempt to maintain the original design principles of the Internet.[9] They argue that among the core engines of growth on the Internet has been the latitude to experiment with new and different business models.[10] They point out that many once-successful Internet businesses were vertically-integrated and arguably would violate modern network neutrality regulations were they still in business today. Adopting rigid network neutrality rules would freeze the existing business environment into place and potentially prevent experimentation with different technologies and types of vertically-integrated businesses or business practices. It also could derogate many of the efficiencies of vertical integration (like eliminating double marginalization problems) and skew investment incentives. Instead of allowing the free market to guide investment dollars where needed and businesses to charge based on the best use of potentially dear resources, like bandwidth, the government would dictate many of these decisions. Network operators and ISPs advocate for more fact-intensive and flexible enforcement of widely-acknowledged legal and economic norms. They question whether a systemic problem requiring expansive solutions even exists.[11]

II. Competing Regulatory Solutions

A. The FCC Approach To Net Neutrality

The FCC historically has taken a segmented approach to regulating different communications media, as contemplated by the Communications Act.[12] Title I of the Act gives the FCC general jurisdiction over certain communications, but offers little specific jurisdictional guidance for the FCC.[13] The other titles of the Act spell out more clearly the agency's authority and its treatment of communications based on their method of transmission, rather than content. Thus, the Act classifies certain businesses as "common carriers" and outlines different requirements based on whether they provide, for example, wireline telephone services (Title II);[14] transmission services over the radio spectrum, such as broadcast television, radio, and wireless telephony (Title III);[15] or "cable services" like cable television (Title VI).[16] With the convergence of these various technologies—for instance, Voice Over Internet Protocol competing with circuit-switched telephony or Internet Protocol Television competing with broadcast and cable—this silo approach to regulation makes less sense today.

The convergence has caused the FCC to take several steps to harmonize its treatment of communications media. For example, in 2002 the agency issued the *Cable Modem Order*, which deemed cable modem service to be neither a separate "telecommunications service" under Title II nor "cable service" under Title VI.[17] This removed cable modem service from common carrier status and allowed for less strict regulation. The Supreme Court in 2005 upheld this decision and agreed that cable modem access is an interstate "information service" subject only to Title I.[18] The FCC then extended similar treatment to broadband access over telephone-based digital subscriber or "DSL" lines.[19]

These reclassifications permitted the FCC to deregulate Internet access while asserting ancillary jurisdiction over broadband providers under provisions like section 4(i) of the Act, 47 U.S.C. § 154(i). In 2005, the FCC acted on this putative authority and issued an Internet Policy Statement outlining certain Internet freedoms "to ensure that broadband networks are widely deployed, open, affordable, and accessible to all consumers."[20] In 2008, the FCC alleged Comcast violated this policy by slowing customers' use of peer-to-peer networking applications and then ordered it to cease and desist.[21] Comcast complied with the order, but challenged the FCC's exercise of authority over network management practices.[22] The D.C. Circuit sided with Comcast, concluding the FCC's actions were "flatly inconsistent" with the law, in large part because the agency had tied its ancillary jurisdiction over Comcast's actions mainly to policy statements in the Act rather than to sections with express statutory delegations of authority.[23]

With its authority over broadband providers called into question, Chairman Genachowski proposed a "Third Way" to shore up the FCC's position. This would require the agency to reclassify the transmission component of "broadband services" as "telecommunications services," which in theory would allow it to exercise direct jurisdiction over network management under Title II.[24] The Third Way proposal was met with widespread concern from Congress, which led the FCC to point to yet other bases for its network neutrality jurisdiction—Section 706 of the Telecommunications Act of 1996 and ancillary jurisdiction related to additional specific sections of Titles II, III, and VI.[25] The agency then adopted an Open Internet Order in December 2010 with new network neutrality rules. Generally, those rules provide: (1) ISPs must be transparent and disclose their network management practices; (2) both wireless and fixed network owners may not block lawful applications or services, except for purposes of reasonable network management; and (3) fixed broadband providers may not unreasonably discriminate, including by way of degrading quality or speed of a consumer's access or as to particular websites or services.[26] Verizon and others are challenging these rules and the FCC's jurisdiction in the D.C. Circuit.[27]

B. The FTC Approach to Enforcement

The FTC is empowered to take a different approach in fulfilling its legislative mandate. In contrast to the "check-the-box" regulatory design of the Communications Act, the existing antitrust and competition laws,[28] including mainly Section 5 of the FTC Act, 15 U.S.C. §45, allow for a flexible and fact-intensive approach to enforcement. The FTC Act is general and more normative in its design, prohibiting things like "unfair methods of competition" and "unfair or deceptive acts or practices." This statutory paradigm allows the FTC the prosecutorial flexibility to try to achieve the greatest social welfare possible. At the FTC, a consumer complaint or a merger filing can serve as the basis for an initial theory of harm, which is then investigated, analyzed using the best available legal and economic tools, tested against the evidence, modified, and

re-tested. With this evidence-based process, we can conclude either that the initial theory and subsequent iterations were deficient and drop the matter or decide there is reason to believe a violation of law exists and pursue the matter further. This enforcement paradigm allows us to approach each complaint or issue anew and to apply broad norms to the facts before us.

C. A Growing Role for the FTC

Technological convergence and the litigation about FCC jurisdiction have raised questions about the nature of governing the Internet and the viability of the FCC's approach to network neutrality.[29] And, as questions grow about the FCC's role in this space, more people are looking to the FTC and its evidence-based enforcement approach as an answer. Although the FTC Act exempts "common carriers" from its jurisdiction, to the extent broadband services are classified as information services, the agency can play a meaningful role in shaping policy on the Internet.[30] Indeed, the FTC already plays a significant role in the Internet space, from enforcing legislation like the Children's Online Privacy Protection Act[31] to reviewing mergers and acquisitions like Google/AdMob or AOL/TimeWarner and investigating competition issues relating to Internet search engines or smartphone patents. The FTC's flexible, normative, and rigorously fact-based approach to enforcement is a perfect fit for overseeing the dynamic businesses tied to the Internet. But before offering solutions, maybe we should first ask—is there the problem?

III. Wait…Is There Really a Problem Here?

A. The Legacy Structure of the Internet

Much of the network neutrality debate hinges on the idea that there are bottlenecks on the Internet that allow network owners to exercise market power. Given the core design principles, rampant growth, and intense competition shaping the Internet ecosystem, I am skeptical about claims of a widespread problem. It seems the debate may rely on assumptions about the network's structure and capacity that, even if they had once been true, are increasingly less so because of the rapid growth in wireless broadband and the proliferation of new fixed broadband technologies.

The Internet in the United States was originally structured as a multi-tiered hierarchy, making it conceivable that some providers could have maintained disproportionate market power. Until the 1990s, the Internet had basically three levels, including from the top down: (1) a national backbone of sixteen interconnected research facilities forming the original NSFNET (later replaced by private backbone providers interconnected at four public network access points or NAPs); (2) several regional networks connected to the backbone facility closest to them; and (3) numerous local or "last mile" providers, which connected consumers' homes or businesses with the regional networks through local distribution facilities.[32] Many of the last mile providers were legacy local cable and telephone networks, potentially giving them "termination monopolies" with the power to lock-in customers and discriminate at will.[33]

B. The Changing Structure of the Internet

Although the legacy structure of the Internet remains relevant and still influences the debate, the forces of the free market are changing it rapidly. At least five different trends are reshaping network access and in the process undermining the possibility of significant bottlenecks. Each of these bears on the question of network neutrality and the nature of governance on the Internet.

First, growth in mobile broadband is now outpacing all other modes of access and is becoming the default means by which people interact with the Internet, especially outside the United States. The FCC noted that "[w]ireless broadband subscriptions topped 500 million in [Organisation for Economic Co-operation and Development or OECD] countries [at] the end of 2010 (compared to 300 million fixed broadband subscriptions)."[34] In addition, "[a]ccording to Cisco, global mobile data in 2011 (597 petabytes per month) more than doubled for the fourth consecutive year. Cisco also reports all mobile data traffic generated in 2011 was 'eight times the size of the entire global Internet in 2000.'"[35]

This move to mobile has yielded major benefits to the American economy: mobile applications now support nearly 500,000 domestic jobs; the wireless industry contributes about $150 billion annually to our GDP; and mobile infrastructure supports innovators vertically in other industries across the economy like education, healthcare, and public safety.[36] American-created operating systems now power over 80% of the world's smartphones, up from 25% three years ago.[37] The United States has retaken the lead in mobile infrastructure, with annual private investment in both wired and wireless broadband networks up 30% since 2009.[38] We in the United States now have the most 3G subscribers in the world and 69% of the world's 4G LTE subscribers. Deloitte estimates that 4G investment and innovation will create 770,000 new jobs by 2016.[39]

Wireless networks are competing fiercely against the legacy wireline and cable last mile systems. While mobile broadband is most directly competitive in lower bandwidth services like email, it is an effective way to get people broadband access cheaply and quickly, especially in rural areas or underserved urban communities. The FCC has observed that "aggressive LTE network build-out by U.S. providers has been a driving force in customer take-up and we anticipate that this trend will continue. Analysts anticipate that globally, LTE subscribership will reach at least 400 million by 2016."[40] In addition, "of Americans with mobile phones, 31% only or mostly use the Internet on their mobiles. More than a third of the people in the US don't have Internet access at home, but nine out of ten have a mobile phone."[41] The proliferation of economically-beneficial mobile broadband access, especially 4G LTE, is a major development undercutting the possibility of a widespread network neutrality problem requiring regulation.

Second, backbone facilities and regional networks have established numerous additional interconnection points, altering the old three-tiered Internet hierarchy and creating further redundancy in the system. Regional networks now engage in

secondary peering and multihoming, by which they can route their traffic directly either to another regional network, avoiding the national backbone altogether, or directly to another node on the national backbone.[42] These relationships allow for more efficient use of the Internet and mitigate concerns over concentration of market power in termination monopolies or other bottleneck providers.

Third, new network technologies are enabling content providers to exercise greater control over delivery, both long-distance and at the last mile. For example, more content and applications companies are turning to new content delivery networks (CDNs).[43] CDNs are networks connecting content providers with local caches near last mile networks.[44] Content providers can direct certain consumer queries to the nearest CDNs, which reduces use of long-distance networks, saving content providers money and mitigating the possibility of hold-up.[45] These networks are built and operated both by large content companies like Google and by standalone CDN services like Akamai.[46] Content providers also are constructing or renting server space around the country and entering peering relationships as part of private networks to minimize use of the backbone and to save on transit costs.[47]

The magnitude of this trend—content providers turning into infrastructure owners—is significant. Google has been particularly aggressive about building a global delivery network, with a recent paper at the OECD noting "Google . . . carried about 6% of Internet traffic in 2009 . . ."[48] Google now is moving into last mile provision with its Google Fiber test project in Kansas City, which is a local network that offers access speeds on average 100 times faster than today's broadband – up to one gigabit upload and download.[49] This build-out has spurred a wave of new content and applications start-ups in Kansas City and is transforming the area into a technology hub.[50]

CDNs and server networks also help content providers improve and maintain the quality of their services. Thus, "[p]roviders of online services, such as the BBC, Google, Netflix, and Hulu, seek to improve the quality of the experience they provide to their customers. More direct delivery, fewer intermediate hops, and local caching reduce latency and improve the quality of service."[51] This vertical expansion and integration by content providers has prompted competitive responses from legacy backbone network providers, which are offering CDNs,[52] and from ISPs, some of which now offer local caching services to companies.[53]

Fourth, Internet capacity continues to grow at roughly 50% per year. TeleGeography estimates that since 2008 available bandwidth has grown 400% globally.[54] And an FCC study showed that supply has been roughly matching demand, with internet access performance improving each year—wireline ISPs last year averaged 96 percent of advertised download speeds during peak usage periods.[55] And speeds are getting faster. From 2011 to 2012, the same FCC study showed that the experienced speed for users in the United States increased 38%.[56] The market appears to be handling growth in demand without much regulatory interference. And the capacity growth should accelerate with the FCC's proposal to repurpose unused television broadcast spectrum and television white space for use by wireless broadband devices.[57]

But while better speed and service during peak periods point to successful competition, consumer demand typically grows along with ease of access.[58] On the wireless front, the FCC has said that smartphones use 35 times more spectrum than traditional cell phones and tablets use even more—121 times as much. Existing American mobile infrastructure is operating at the highest utilization rates in the world.[59] This steep expansion of demand, along with the Internet's interconnected architecture and the physical limits of our spectrum and other transmission resources, means congestion management likely will remain an issue for years to come.

But, as in any other industry, free-market price-setting should be the default mechanism to allocate resources and incentivize development of congestion solutions. Tiered pricing or pricing flexibility for network operators helps sort out higher priority from lower priority uses of relatively scarce resources. Enforcing a one price, all-you-can-eat approach to network access will distort investment incentives and allow free-riding by heavy users. The FCC agrees with this concern, which is noted in the Net Neutrality Order.[60] FCC Chairman Genachowski recently supported broadband network owners imposing data caps and charging tiered pricing based on usage, over the objections of services like NetFlix that this would be discriminatory and hurt their business.[61] In my opinion, this is a step in the right direction.

Fifth, private parties have developed sophisticated and increasingly global multistakeholder organizations (MSOs) to help govern the Internet.[62] Some MSOs are spun-off from government agencies, like the Internet Corporation for Assigned Names and Numbers (ICANN), which assigns Internet domain names.[63] But most operate independently of any governmental authority, having developed naturally out of early discussions among industry participants to address technical problems or manage scarce resources.[64] MSOs generally are open to everyone, like the Internet Engineering Task Force, which has no formal membership, and promulgate things like standards, best practices, and codes of conduct.[65] And at least one such industry technical advisory group is focused on network neutrality issues.[66]

While these organizations are not perfect, they have successfully managed the Internet's complex and thorny problems with bottom up, consensus-based decisionmaking of the most interested and arguably best-situated parties—engineers and businesspeople. They also operate as a way to engage interested parties globally and to erode support for the movement by some foreign governments to impose centralized governance through organizations like the International Telecommunications Union of the United Nations. For this paper, the important point about MSOs is that they help mitigate the possibility of concentrated market power with their broad participation, consensus-based organizational structures, and adherence to principles like openness, transparency, and accountability.

C. Few Documented Cases of Foreclosure Exist

Despite all the talk of vertical foreclosure by network neutrality advocates, concerns about widespread vertical restraints and foreclosure have not materialized. During the more than ten years of active debate on network neutrality, only a handful

of highly-publicized instances have arisen, including: *Comcast-BitTorrent* (2007),[67] in which Comcast allegedly throttled access to BitTorrent file-sharing programs; *Madison River* (2005),[68] in which a local internet service and phone provider settled allegations it was blocking Vonage's VOIP service; and *Cogent-Sprint*, in which Sprint disconnected its network from another over a dispute related to their peering relationship (although most customers were unaffected because Sprint and Cogent multihome with other networks and could direct traffic around one another).[69] These relatively few disputes tell me that the design characteristics and changes to the network's structure, along with increasing use of MSOs, together tend to mitigate the possibility of consumer harm or durable market power. Certainly, we need to be vigilant about vertical restraints and foreclosure, but the limited number of known transgressions to date strongly suggests an enforcement approach would be more appropriate, and less invasive, than new regulations. We should continue to focus on encouraging businesses to expand network capacity and abide by our existing antitrust and consumer protection laws. We should think twice before fundamentally changing something that appears to be working so well for so many.

IV. The Rule of Reason Applies Here

Applying antitrust principles to the facts we see in the Internet ecosystem—growth, innovation, procompetitive efficiencies, significant consumer benefits, largely successful industry self-regulation, few reported cases of abuse—strongly suggests we do not have the type of widespread problem here that would merit categorical treatment. The U.S. Supreme Court limits per se condemnation in the antitrust context to "plainly" or "manifestly" anticompetitive conduct.[70] The Court has been clear that categorical treatment applies only where a "practice facially appears to be one that would always or almost always tend to restrict competition and decrease output" instead of "one designed to 'increase economic efficiency and render markets more, rather than less, competitive.'"[71] It would be tough to argue that the network neutrality concerns about blocking and discrimination as a rule constitute facially anticompetitive conduct.

Moreover, blocking and discrimination are vertical issues requiring nuanced rule of reason analysis to balance their benefits and harms to competition and consumers. Courts and antitrust enforcers have spent years investigating and evaluating the competitive implications of vertical restraints, including those on the Internet. They have found vertical relationships yield procompetitive benefits, like reducing double marginalization, mitigating free riding, and encouraging investment.[72] A review of the economics literature by current and former FTC and DOJ economists showed that most evaluations of vertical integrations did not present material evidence of net anticompetitive harm.[73]

Many real world examples exist of vertically-integrated firms that have thrived (or failed) on the Internet and, in the process, contributed to significant advancements in the industry. For instance, everybody reading this likely remembers that, in the 1990s, America Online (AOL) was an important user-friendly "on-ramp" for people to first view the Internet. It distributed "'more than 250 million disks bearing AOL software to the mass market.'"[74] At its peak in 2002, AOL had roughly 35 million subscribers.[75] AOL was a closed platform with exclusive content for users. It charged companies like TIME Magazine and The New York Times for access to the AOL universe of sites and simultaneously developed and sometimes favored affiliated content, which was a noted part of its strategy.[76] And, of course, AOL bought Time Warner in 2001 and fully-integrated its content and delivery, something it had been working on for years through strategic relationships with GTE, Ameritech Communications, Bell Atlantic and other DSL providers.[77] As a powerful, vertically-integrated content and network platform, AOL engaged in exactly the type of content discrimination that arguably would violate the FCC's net neutrality rules. Today, of course, Time Warner has spun off AOL and it is a relatively small competitor. The AOL example, and there are many others, confirms what most economists think—that there are procompetitive benefits to vertical integration. Categorical rules prohibiting network neutrality and vertical integration therefore are likely inappropriate.

The better way to analyze vertical restraints on the Internet is the rule of reason (or, for vertical combinations, the Clayton Act merger review standards). We should evaluate allegations of vertical integration, foreclosure, or price discrimination on the Internet the same way we do everywhere else—by balancing the procompetitive benefits against the anticompetitive harms of those restraints. The lawfulness of "non-neutral" conduct should flow from its net effect on competition and consumers.[78]

V. Conclusion

The Internet has evolved in one generation from a network of electronically interlinked research facilities in the United States to one of the most dynamic forces in the global economy, in the process reshaping entire industries and even changing the way we interact on a personal level. The FCC's efforts to create network neutrality rules notwithstanding, the federal government has largely stood back and allowed this phenomenon to occur without imposing much regulation. And, as we have seen over the years with AOL, Microsoft, Google, Facebook, Apple, and many, many, others, the industry left largely to its own devices has experimented with countless business and technological models, many to great effect. Google for example follows an open model, while Apple almost religiously adheres to a closed system. Each is successful. And, in its own way, each is valuable to the Internet business ecosystem and to consumers.

I see this freedom to experiment as central to the continued success of the Internet. As we move forward into a new age of technological convergence and the Internet of things, we cannot fall into the trap of legislating or regulating based on an antiquated or static understanding of the Internet. We made that mistake once with the Communications Act and see the implications today in the FCC's sometimes awkward proposals to regulate the Internet—such as Chairman Genachowski's "Third Way" idea. Instead, we should follow flexible, normative, and cautious enforcement of the competition and consumer protection laws coupled with self-regulation by open, consensus-based, multi-stakeholder organizations of engineers, consumer groups, and businesspeople. This type of informed

action will allow free markets to serve the greatest good, while still maintaining a federal role in protecting the rights of consumers and a level playing field for competitors.

Endnotes

1 47 U.S.C. § 151 *et seq.*

2 Barry M. Leiner et al., A Brief History of the Internet, Internet Society, http://www.isoc.org/internet/history/brief.shtml (last visited October 26, 2012); *see also* Philip J. Weiser & Jon Sallet, *The Case for Innovation Policy: Key Principles for National Success*, at 3 (Sept. 2011), *available at* http://www.siliconflatirons.com/documents/publications/report/CaseForInnovationPolicy.pdf.

3 *See* David D. Clark, *The Design Philosophy of the DARPA Internet Protocols*, Computer Comm. Rev., Aug. 1988, at 106–107, *available at* http://nms.csail.mit.edu/6829-papers/darpa-internet.pdf; Fed. Trade Comm'n, Broadband Connectivity Competition Policy 17 (2007) [hereinafter *Net Neutrality Report*], *available at* http://www.ftc.gov/reports/broadband/v070000report.pdf; *see also* J.H. Saltzer et al., *End-to-End Argument in System Design*, 2 ACM Transactions on Computer Sys. 277 (1984).

4 Mark A. Lemley & Lawrence Lessig, *The End of End-to-End: Preserving the Architecture of the Internet in the Broadband Era*, 48 UCLA L. Rev. 925, 931 (2001).

5 *Id.* at 929.

6 Lawrence Lessig, *The Internet Under Siege*, Foreign Pol'y, Nov.-Dec. 2001, at 56.

7 *Net Neutrality Report, supra* note 3, at 5.

8 *In re* Preserving the Open Internet Broadband Indus. Practices, 25 FCC Rcd. 17,905, 17,918, ¶23 (2010) [hereinafter *Net Neutrality Order*] (emphasis added) (footnotes omitted), *available at* http://www.fcc.gov/document/preserving-open-internet-broadband-industry-practices-1 (stating "A broadband provider may act to benefit edge providers that have paid it to exclude rivals (for example, if one online video site were to contract with a broadband provider to deny a rival video site access to the broadband provider's subscribers). End users would be harmed by the inability to access desired content, and this conduct could lead to reduced innovation and fewer new services.").

9 *Id.*

10 Thomas W. Hazlett and Joshua A. Wright, *The Law and Economics of Network Neutrality*, 45 Ind. L. Rev. 767 (2012); *see also* Christopher Yoo, *What Can Antitrust Contribute to the Network Neutrality Debate?*, 1 Int'l J. Comm. 493, 517 (2007).

11 *Net Neutrality Report, supra* note 3, at 6.

12 47 U.S.C. § 151 *et seq.*

13 *Id.* § 151 *et seq.*

14 *Id.* § 201 *et seq.*

15 *Id.* § 301 *et seq.*

16 *Id.* § 521 *et seq.*

17 *In re High-Speed Access to the Internet Over Cable and Other Facilities*, 17 FCC Rcd. 4798, 4802 ¶¶ 75–76, 4822–23 ¶¶ 38–39, (2002)[hereinafter 2002 *Cable Modem Order*].

18 National Cable & Telecommunications Association v. Brand X Internet Services, 545 U.S. 967, 1000 (2005) ("Brand X"), *affirming* the 2002 *Cable Modem Order*.

19 *In re* Appropriate Framework for Broadband Access to the Internet Over Wireline Facilities, 20 FCC Rcd. 14986 (2005) (policy statement).

20 *Id.* at 3; *see also In re* Appropriate Regulatory Treatment for Broadband Access to the Internet over Wireless Networks, 22 FCC Rcd. 5901, 5901–02 (2007) (declaratory ruling).

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

22 *See id.*; Cecilia Kang, *Court Rules for Comcast over FCC in 'Net Neutrality' Case*, Wash. Post, Apr. 7, 2010, http://www.washingtonpost.com/wp-dyn/content/article/2010/04/06/AR2010040600742.html.

23 *Comcast*, 600 F.3d at 655, 661. A detailed discussion of the FCC's claims of jurisdiction are outside the scope of this article.

24 Julius Genachowski, *The Third Way: A Narrowly Tailored Broadband Framework* (May 6, 2010), *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-297944A1.pdf.

25 Robert M. McDowell, Op-Ed., *The FCC's Threat to Internet Freedom*, Wall St. J., Dec. 20, 2010, http://online.wsj.com/article/ SB20001424052748703395204576023452250748540.html.

26 FCC, *Summary of Open Internet Rules*, *available at* http://www.fcc.gov/openinternet (last visited Mar. 4, 2013); see *Net Neutrality Order*, *supra* note 8, at 17,905; Babette E.L. Boliek, *FCC Regulation Versus Antitrust: How Net Neutrality Is Defining the Boundaries*, 52 B. C. L. Rev. 1627, 1632 (2011) (citing to FCC Commissioner concerns about jurisdiction). The rules treat fixed and wireless providers differently in some respects.

27 *See, e.g.*, Verizon v. FCC, No. 11-1355 (D.C. Cir. 2011).

28 Enforcement of consumer protection laws where appropriate also would play an important role in guarding against some of the concerns of network neutrality regulation advocates, including clear and conspicuous disclosures and security and privacy issues. *See Net Neutrality Report, supra* note 3, at 130.

29 2002 *Cable Modem Order*, *supra* note 17, at 4822–23 ¶¶ 38–39; *see* 47 U.S.C. §§ 153 (20), 153 (43) & 153 (46) (2009) (defining "information service," "telecommunications," and "telecommunications service").

30 15 U.S.C. § 45 (a)(2).

31 15 U.S.C. §§ 6501-6508; *see also* The Children's Online Privacy Protection Rule, 16 C.F.R. § 312 (2013).

32 Christopher Yoo, *Innovations in the Internet's Architecture That Challenge the Status Quo*, 8 J. Tel. & High Tech. L. 79, 81–85 (2010) (explaining the origin and evolution of the Internet's physical infrastructure in the United States).

33 *See, e.g.*, U.S. Dep't of Justice, Voice, Video and Broadband: The Changing Competitive Landscape and Its Impact on Consumers 19 (Nov. 2008) (noting "[t]he principal competitors providing residential broadband services are the incumbent telephone and cable companies."), *available at* http://www.justice.gov/atr/public/reports/239284.pdf.

34 FCC, International Broadband Data Report (Third), No. 10-171, at 7 (Aug. 21, 2012) [hereinafter *International Broadband Report*], *available at* http://transition.fcc.gov/Daily_Releases/Daily_Business/2012/db0821/DA-12-1334A1.pdf.

35 *Id.* (citations omitted).

36 Chairman Julius Genachowski, Prepared Remarks of FCC Chairman Julius Genachowski to the President's Council of Advisors on Science and Technology (July 20, 2012), *available at* http://transition.fcc.gov/Daily_Releases/Daily_Business/2012/db0723/DOC-315355A1.pdf; *see also* FCC, Measuring Broadband America, A Report On Consumer Wireline Broadband Performance in the U.S. (July 2012) [hereinafter *FCC Broadband Report*], *available at* http://transition.fcc.gov/cgb/measuringbroadbandreport/2012/Measuring-Broadband-America.pdf.

37 *Genachowski Remarks*, *supra* note 36, at 1.

38 *International Broadband Report*, *supra* note 34, at 7.

39 *Genachowski Remarks*, *supra* note 36, at 1.

40 *Id.* at 2.

41 *See* Olof Schybergson, *The Trend that Terrifies Big Tech*, Fortune (Aug. 21, 2012), *available at* http://tech.fortune.cnn.com/2012/08/21/mobile/.

42 *See generally* Yoo, *supra* note 32, at 86–90.

43 *Id.* at 86–88.

44 Dennis Weller & Bill Woodcock, *Internet Traffic Exchange, Market Developments and Policy Challenges*, OECD Digital Economy Papers, No. 207, at 27 (OECD 2012), *available at* http://www.oecd-ilibrary.org/science-and-technology/internet-traffic-exchange_5k918gpt130q-en.

45 *Id.*; *see also* Yoo, *Status Quo*, *supra* note 32, at 88–90.

46 *See* Hazlett and Wright, *supra* note 10, at 780. Professor Hazlett and then-Professor (now Commissioner) Wright noted in a recent paper that "[c]ontent

companies like Google [are] constructing their own global delivery networks; others purchase such speed-enhancements through content delivery networks (CDNs) like Akamai, BitGravity, or Limelight Networks." *Id.*

47 Yoo, *Status Quo*, *supra* note 32, at 88.

48 Weller & Woodcock, *supra* note 44, at 27.

49 *See* Google, *About Google Fiber*, https://fiber.google.com/about/ (last visited Mar. 4, 2013).

50 Danny Schreiber, *Brad Feld Buys KC House with Google Fiber, Opens Contest to Live In It*, Silicon Prairie News (Feb. 13, 2013), http://www.siliconprairienews.com/2013/02/brad-feld-buys-kc-house-with-google-fiber-opens-contest-to-live-in-it.

51 Weller & Woodcock, *supra* note 44, at 27.

52 *Id.*

53 Hazlett and Wright, *supra* note 10, at 780.

54 *See* Telegeography, *Global Internet Capacity Reaches 77Tbps Despite Slowdown* (Sep. 6, 2012), *available at* http://www.telegeography.com/products/commsupdate/articles/2012/09/06/global-internet-capacity-reaches-77tbps-despite-slowdown/.

55 *FCC Broadband Report*, *supra* note 36, at 5.

56 *Id.* at 6.

57 Press Release, FCC, FCC Launches First-In-The-World Incentive Auction to Repurpose Broadcast Television Spectrum for Mobile Broadband; Auction Set to Unleash Wave of Economic & Innovation Opportunities for U.S. (September 28, 2012), *available at* http://www.fcc.gov/document/fcc-initiates-incentive-auction-process.

58 *FCC Broadband Report*, *supra* note 36, at 43–44.

59 Chairman Julius Genachowski, Remarks of Chairman Genachowski on the Office of Engineering and Technology and the Wireless Telecommunications Bureau Presentation on White Spaces for Wireless Broadband (July 19, 2012), *available at* http://www.fcc.gov/document/chairmans-remarks-white-spaces-wireless-broadband.

60 *Net Neutrality Order*, *supra* note 8, at ¶72 (stating "However, prohibiting tiered or usage-based pricing and requiring all subscribers to pay the same amount for broadband service, regardless of the performance or usage of the service, would force lighter end users of the network to subsidize heavier end users.").

61 *See* Cecilia Kang, *FCC Chairman Supports Broadband Data Caps Amid Netflix Protests*, Wash. Post Tech Blog (May 22, 2012, 11:16 AM), http://www.washingtonpost.com/blogs/post-tech/post/fcc-chairman-supports-broadband-data-caps-amid-netflix-protests/2012/05/22/gIQAfdN9hU_blog.html.

62 Joe Waz & Philip Weiser, *Internet Governance: The Role of Multistakeholder Organizations* 10 J. on Telecomm. & High Tech L. 331 (Dec. 2012).

63 *Id.* at 335 n.11, 339.

64 *Id.* at 335.

65 *Id.* at 337.

66 *See* Broadband Internet Technical Advisory Group, *BITAG History*, http://www.bitag.org/bitag_organization.php?action=history (last visited Mar. 4, 2013).

67 Formal Complaint of Free Press and Public Knowledge Against Comcast Corporation for Secretly Degrading Peer-to-Peer Applications, 23 FCC Rcd. 13028, 2008 WL 3862114 (Aug. 20, 2008) (memorandum opinion and order), *overruled by* Comcast v. FCC, 600 F.3d 642 (D.C. Cir. 2010).

68 Madison River Comm'ns LLC, 20 FCC Rcd. 4295 (Mar. 3, 2005) (consent decree), *available at* http://transition.fcc.gov/eb/Orders/ 2005/DA-05-543A2.html.

69 Todd Underwood, *Wrestling With the Zombie: Sprint Depeers Cogent, Internet Partitioned* (Oct. 31, 2008, 10:07 AM), Renesys Blog, http://www.renesys.com/blog/2008/10/wrestling-with-the-zombie-spri.shtml.

70 Broadcast Music, Inc. v. CBS, 441 U.S. 1, 8 (1979); *accord* Continental T.V., Inc. v. GTE Sylvania Inc., 433 U.S. 36, 50 (1977) (noting that per se treatment is only proper for "conduct that is manifestly anticompetitive.").

71 *Broadcast Music*, 441 U.S. at 19–20.

72 Hazlett and Wright, *supra* note 10, at 796.

73 *Id.* at 801 (quoting James C. Cooper, et al., *Vertical Antitrust Policy as a Problem of Inference*, 23 Int'l J. Indus. Org. 639, 658 (2005)).

74 Hazlett & Wright, *supra* note 10, at 795 (quoting Kara Swisher, Aol.com: How Steve Case Beat Bill Gates, Nailed the Netheads, and Made Millions in the War for the Web 99 (1998)).

75 Form 10-K, AOL Time Warner (2002), at 3, *available at* http://www.uic.edu/classes/actg/actg500rr/Notes/05-AOL-Time-Warner-10K-2002.pdf.

76 *See id*; Stanford Graduate School of Business, *AOL: The Emergence of An Internet Media Company*, Case SM-75, at 9–12 (Mar. 20, 2001) [hereinafter *AOL Case Study*], *available at* https://gsbapps.stanford.edu/cases/ documents/SM75.pdf; Hazlett & Wright, *supra* note 10, at 795.

77 *AOL Case Study*, *supra* note 76, at 3–4 (citations omitted).

78 Hazlett and Wright, *supra* note 10, at 767.