

# Opening Bottlenecks: On Behalf of Mandated Network Neutrality

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## I. INTRODUCTION

How do you think they're going to get to customers? Through a broadband pipe. Cable companies have them. We have them. Now what they would like to do is use my pipes free, but I ain't going to let them do that because we have spent this capital and we have to have a return on it. So there's going to have to be some mechanism for these people who use these pipes to pay for the portion they're using. Why should they be allowed to use my pipes?

The Internet can't be free in that sense, because we and the cable companies have made an investment and for a Google or Yahoo! . . . or Vonage or anybody to expect to use these pipes [for] free is nuts!

In an interview last November, then-SBC Telecommunications CEO Edward Whitacre was exceptionally honest about his company's market position. Representing half of the broadband duopoly,<sup>2</sup> he confessed his industry's disproportionate market power and his intention to seek monopoly rents. SBC spokesman Michael Balmoris quickly insisted the company will not block consumer access to popular Web sites, but Whitacre's words—uttered the same week SBC won regulatory approval to buy AT&T—were, and still are, frightening for many.<sup>3</sup> Other telecommunications executives have since stated either their intention or desire to charge online content providers for the right to reach customers at the fastest speeds.<sup>4</sup> Thanks to recent Federal Communications Commission ("FCC") moves to change the regulatory system for broadband Internet services, this business model is now completely legal.<sup>5</sup> Even if broadband

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1. *At SBC, It's All About "Scale and Scope"*, BUSINESSWEEK ONLINE, Nov. 7, 2005, paras. 25-26, [http://www.businessweek.com/@n34h\\*IUQu7KtOwgA/magazine/content/05\\_45/b3958092.htm](http://www.businessweek.com/@n34h*IUQu7KtOwgA/magazine/content/05_45/b3958092.htm) (containing an excerpt from an interview between Roger O. Crockett and Edward Whitacre, CEO, SBC Telecommunications). Whitacre was then CEO of SBC Telecommunications, which has since merged with and adopted the moniker of AT&T; he is now at the helm of the merged company.

2. While no one company provides broadband nationally, most customers are effectively forced to choose among two broadband providers—a telephone company that offers Digital Subscriber Line ("DSL") service and a cable company that offers cable modem service. This concentration grants these broadband service providers ("BSPs") economic power characteristic of noncompetitive markets. *See infra* Section IV.A.

3. Arshad Mohammed, *SBC Head Ignites Access Debate*, WASH. POST, Nov. 4, 2005, at D01, available at <http://www.washingtonpost.com/wp-dyn/content/article/2005/11/03/AR2005110302211.html>.

4. H.R. REP. NO. 109-470, pt. 1, at 60 (2006). *See also How Real Is the Threat?*, FREEPRESS.NET, <http://www.freepress.net/netfreedom/=threat> (last visited Nov. 1, 2006) (criticizing the heads of major telecommunications companies for their intentions to charge content providers).

5. *See* Herald Feld, *A Network Neutrality Primer*, WETMACHINE, May 3, 2006, <http://www.wetmachine.com/item/500>.

providers never actually blocked access to a single site, a doubtful proposition addressed below, any preferential treatment based on payment would radically reshape the character of the Internet.

Transposed to another sector of the national infrastructure, domestic air travel, this scenario is patently offensive. Imagine showing up for an overbooked flight. “The agent tells you that he’s sorry, but as happens on occasion the flight is oversold and you can’t board. He then informs you that only passengers who are staying at the XYZ hotel in Las Vegas may fly to Las Vegas today because the XYZ hotel has paid his airline an extra fee to make sure XYZ customers get to Las Vegas.”<sup>6</sup> If even one company in the competitive airline industry began this practice, a sizable bipartisan majority in Congress would be justifiably outraged, decrying the practice and declaring that air travel is too important to allow it.

Nonetheless, the majority in Congress appears cool to the proposed legislation that would mandate network neutrality in the very noncompetitive broadband industry. On June 8, 2006, the House passed a sweeping telecommunications reform bill, H.R. 5252,<sup>7</sup> with only nominal network neutrality requirements.<sup>8</sup> In April, the House Committee on Energy and Commerce rejected the network neutrality amendment sponsored by Rep. Ed Markey;<sup>9</sup> the full House did the same just before passing H.R. 5252.<sup>10</sup> The bill strips the FCC of any rulemaking authority on the matter.<sup>11</sup> Many Congressional Democrats,<sup>12</sup> public interest groups,<sup>13</sup> and online content providers<sup>14</sup> are vocally angry.

Senator Ted Stevens has pushed another, substantially different telecommunications reform bill, S. 2686,<sup>15</sup> through committee. Senators

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6. Steve Taylor & Larry Hettick, *Net Neutrality: Is It Fair to Give Preferential Treatment to Those Who Pay For It?*, CONVERGENCE NEWSLETTER, at para. 2, Feb. 20, 2006, <http://www.networkworld.com/newsletters/converg/2006/0220converge1.html?ts>.

7. H.R. 5252, 109th Cong. (2006) [hereinafter *H.R. 5252*].

8. *See id.* at § 201.

9. Verne Kopytoff, *Panel Dumps Net Neutrality: House Committee Drops Amendment Banning Two-Tier Internet*, S.F. CHRON., Apr. 27, 2006, at C1.

10. Marilyn Geewax, *‘Network Neutrality’ Supporters Vow Fight*, ATLANTA JOURNAL-CONSTITUTION, June 10, 2006, at 3F.

11. *H.R. 5252*, *supra* note 7, at § 201.

12. Anne Broache, *Democrats Attack New Bill Over Net Neutrality*, ZDNET NEWS, Mar. 30, 2006, [http://news.zdnet.com/2100-9588\\_22-6056156.html](http://news.zdnet.com/2100-9588_22-6056156.html).

13. Martin H. Bosworth, *Net Neutrality Gets Short Shrift in Congress*, CONSUMERAFFAIRS.COM, Mar. 29, 2006, [http://www.consumeraffairs.com/news04/2006/03/telecom\\_bill.html](http://www.consumeraffairs.com/news04/2006/03/telecom_bill.html).

14. *See* Roy Mark, *‘Clear and Present Danger’ for Telecom Reform Bill*, INTERNETNEWS.COM, Mar. 30, 2006, <http://www.Internetnews.com/bus-news/article.php/3595576>.

15. S. 2686, 109th Cong. (2006) [hereinafter *S. 2686*].

Olympia Snowe and Byron Dorgan offered their network neutrality bill<sup>16</sup> as an amendment, which lost on an 11-11 tie.<sup>17</sup> During debate over the amendment, Stevens gave a speech against the amendment that has since become the object of much online derision.<sup>18</sup> Due in large part to the political sensitivity of the network neutrality debate and the impending election, the bill has not yet been scheduled for a floor vote and probably will not be before the midterm Congressional elections.<sup>19</sup> Yet Congress may reconsider it after the election. To speed its reconciliation with the House version, Stevens has renamed the bill H.R. 5252; if it passes the full Senate, it need not be reintroduced in the House before being heard by a House/Senate Conference Committee. If this bill becomes law without stronger protections for network neutrality, the current architectural and business model of the Internet may become an historical artifact.

In this paper, I argue on behalf of legislation mandating network neutrality, requiring broadband service providers to permit all legal, nondestructive uses of their Internet service on the same financial terms. As part of this principle, BSPs would be permitted to prevent destructive transmissions and preserve network stability. BSPs could continue to charge varying end-user prices based on neutral measures of bandwidth such as maximum bandwidth and total amount of uploads and downloads,

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16. See A Bill to Amend the Communications Act of 1934 to Ensure Net Neutrality, S. 2917, 109th Cong. (2006) [hereinafter *S. 2917*].

17. Tom Abate, *Network Neutrality Amendment Dies: Telecommunications Bill Goes to Senate Without Provision Sought by Web Firms*, S. F. CHRON., June 29, 2006, at C1, available at <http://www.sfgate.com/cgi-bin/article.cgi?f=c/a/2006/06/29/NET.TMP>.

18. See Tim Schneider, *Mr. Stevens' Wild Ride Through a Series of Tubes*, <http://www.publicknowledge.org/node/521> (July 11, 2006, 2:56 CST). Many of those mocking Stevens were already supporters of network neutrality legislation, but Paul Holcomb, the author of one of the better known parodies, a techno music remix of the audio recording, only came to that position after achieving Internet fame. Aaron Rutkoff, *The Internet: A Series of Spoofs*, WALL ST. J. ONLINE, Aug. 8, 2006, [http://online.wsj.com/public/article/SB115403677535519628-C\\_UbKQ17xk88JF6xlQxZh\\_ZmpB4\\_20060906.html?mod=tff\\_main\\_tff\\_top](http://online.wsj.com/public/article/SB115403677535519628-C_UbKQ17xk88JF6xlQxZh_ZmpB4_20060906.html?mod=tff_main_tff_top). Further, many who already supported network neutrality were quickly concerned that the mockery of Stevens was an unnecessary distraction from the political battle. See, e.g., *id.* While interning at Public Knowledge, I recorded the Committee meeting during which Stevens gave his speech. I believed that the speech itself was newsworthy, so I edited out the other Senators' speeches, saved Stevens's speech as an MP3, and pushed for Government Affairs Manager Alex Curtis to post it online, which he did. Alex Curtis, *Senator Stevens Speaks on Net Neutrality*, <http://www.publicknowledge.org/node/497> (June 28, 2006, 4:59 CST). While I have shared a laugh and experienced sheer awe at the Internet phenomenon I helped to create, I quickly began to push for greater decorum and on-point discussion of the policy debate at hand. See, e.g., Posting of Bill Herman to Alex Curtis's Blog, <http://www.publicknowledge.org/node/497> (July 10, 2006, 4:58 CST).

19. See Lisa Caruso, *Lobbying & Law – Outmanned, Outfoxed, Outspent*, NAT'L J., Aug. 12, 2006, at 45.

but not for the right to use certain sites or applications or to use them at full upload/download speed.

While many proclaim the value of a neutral Internet platform and the legal requirements to ensure it, few scholars urge BSPs to build a non-neutral Internet architecture in order to discriminate among nondestructive data. Christopher Yoo, Professor of Law and Director of the Technology & Entertainment Law Program at Vanderbilt University, is the most visible such author—at least in the legal community. In one article<sup>20</sup> Yoo argues BSPs should be permitted to restrict users in any way they see fit, though he contends that restrictions will primarily be intended to manage network congestion.<sup>21</sup> Elsewhere, he argues that a diverse set of specialized BSP networks would be preferable to a redundant set of general-purpose networks and that this anticipated positive development is hindered by a neutrality regime.<sup>22</sup> Unless one subscribes to a *Lochneresque* view of private property rights<sup>23</sup> or to the factually and legally mistaken notion that BSPs enjoy editorial rights over the Internet,<sup>24</sup> these two arguments—congestion and network diversity—are two of the strongest arguments against a neutral Internet. Further, a few high-profile proponents of a generally neutral Internet share the fear of broadband discrimination but are nonetheless opposed to a network neutrality mandate. They believe that regulation should be postponed or that the regulatory cure may be worse than the disease. In arguing for a network neutrality regime, I respond to each of these claims. Because he actually supports a discriminatory Internet architecture, I rebut Yoo throughout as the main voice of opposition, but I reserve space at the end to insist that the disease is still much worse than the cure.

In Part II, I present a generalized description and defense of the networking principles that undergird the calls for network neutrality. In Part III, I discuss some of the past and likely future instances of broadband providers placing undue restrictions on subscribers' network uses. In Part IV, I argue that the present level of competition is insufficient to ensure neutral networks. In Part V, I demonstrate that ad hoc regulation is inadequate to the task of stopping even the grossest anticompetitive acts of network discrimination. Part VI briefly details a regulatory option that

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20. See generally Christopher S. Yoo, *Network Neutrality and the Economics of Congestion*, 94 GEO. L.J. 1847 (2006) [hereinafter Yoo, *Congestion*].

21. *Id.*

22. Christopher S. Yoo, *Beyond Network Neutrality*, 19 Harv. J.L. & Tech. 1 (2005) [hereinafter Yoo, *Beyond*], available at <http://jolt.law.harvard.edu/articles/pdf/v19/19HarvJLTech001.pdf>.

23. See Julie E. Cohen, *Lochner in Cyberspace: The New Economic Orthodoxy of "Rights Management"*, 97 MICH. L REV. 462, 463 (1998).

24. Yoo, *Congestion*, *supra* note 20, at 1905-07.

could better preserve neutrality into the future. In Part VII, I rebut four major counterarguments, including the arguments that a neutrality mandate would leave network administrators with too few tools to deal with network congestion, would prevent an improvement in the form of several diverse networks, should be postponed, or would do more harm via unintended regulatory consequences. I conclude with a brief overview.

## II. IN PRAISE OF NEUTRAL NETWORKS

Computer networks can be designed either to discriminate between applications and data or to faithfully transmit all data regardless of content. While a neutral network is not necessarily desirable in every type of network architecture, the vast majority of stakeholders benefit the most from a generally neutral network. In the first half of this Part, I discuss the importance of a neutral network in encouraging and rewarding valuable, unpredictable online innovation. Second, I detail the role that neutrality serves in preserving important First Amendment values such as free speech and freedom of the press.

### A. *A Stable Platform for Innovation*

We have clear examples of both types of network architectures—intelligent networks designed to carry specific types of information and nondiscriminatory, stupid networks designed to carry any information users send. An excellent example of the former model is the “smart” network administered by AT&T through most of the last century. “[A]t every layer in the distributional chain, the AT&T network had been optimized for voice telephony. But this optimization meant that any effort to change a layer in the AT&T distributional chain would disable other layers. . . . [S]o change became impossibly difficult.”<sup>25</sup> In contrast, those who built the Internet organized it on the latter model.<sup>26</sup> The network is “stupid,” faithfully carrying all data and placing the intelligence at the ends of the network.<sup>27</sup> While “smart” networks predestine certain uses, stupid—or neutral—networks liberate “large amounts of innovative energy.”<sup>28</sup> Neutral networking protocols have unleashed the explosive growth of unforeseeable, symbiotic online innovation in the recent past. From email to the World Wide Web to wikis to peer-to-peer networking, the radical innovations in networking applications have been built upon neutral

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25. LAWRENCE LESSIG, *THE FUTURE OF IDEAS* 38 (2002).

26. *See id.* at 39.

27. *See* David S. Isenberg, *The Dawn of the “Stupid Network,”* *ACM NETWORKER*, Feb./Mar. 1994, at 26-27.

28. *Id.* at 27.

Internet protocols.<sup>29</sup> It is therefore unsurprising that an informal survey of computer technologist Web sites reveals that the community is nearly unanimous in supporting network neutrality.<sup>30</sup>

Over two decades ago, Jerome Saltzer, David Reed, and David Clark authored a clearly articulated case for neutral networking,<sup>31</sup> which is still “amongst the most influential of all communication protocol design guides.”<sup>32</sup> Network engineers still defend this design. “Stupid Networks have three basic advantages over Intelligent Networks—abundant infrastructure; underspecification; and a universal way of dealing with underlying network details, thanks to IP (Internet Protocol), which was designed as an ‘internet-working’ protocol.”<sup>33</sup> Infrastructure is cheaper to add, accelerating expansion and creating abundance. Further, underspecified network architectures and a standard Internet-working protocol empower innovation:

If I have a Stupid Network and I get an idea for a communications application, I just write it. Then I send it to my buddy, and my buddy can install it, too. If we both like it, we can send it to more people. If people really like it, then maybe we can charge for it - or even start our own company.<sup>34</sup>

Perhaps the most significant development on the Internet was the World Wide Web, a user-friendly graphic user interface (“GUI”) and effective means for computers running different operating systems to communicate with each other. The creator of the World Wide Web, Tim Berners-Lee, developed the Web to perpetuate a neutral network built on end-to-end principles.<sup>35</sup> As neutral and therefore uncontrolled platforms, both the

29. See LESSIG, *supra* note 25, at 41.

30. See, e.g., Susan Crawford, *Network Neutrality v. Platform Competition*, SUSAN CRAWFORD BLOG (Oct. 30, 2005, 15:32 EST), [http://scrawford.blogware.com/blog/\\_archive\\_s/2005/10/30/1331319/html](http://scrawford.blogware.com/blog/_archive_s/2005/10/30/1331319/html); Carlo Longino, *Verizon Wireless: Scrap Network Neutrality*, TECHDIRT CORPORATE INTELLIGENCE, Nov. 10, 2005, <http://techdirt.com/news/wireless/article/6123>; *SBC CEO Slammed for Comments*, BROADBANDREPORTS.COM, Nov. 4, 2005, <http://www.dslreports.com/shownews/69175> (featuring comments expressing particular offense at Whitacre’s proposal and defending the norm of neutrality).

31. Jerome H. Saltzer, David P. Reed & David D. Clark, *End-to-End Arguments in System Design*, 2 ACM TRANSACTIONS IN COMP. SYS. 277 (1984), available at <http://web.mit.edu/Saltzer/www/publications/endtoend/endtoend.pdf>.

32. Jean-Patrick Gelas, *References: About “End-to-End” Arguments* (Feb. 2004), available at <http://www.cs.utk.edu/~gelas/references.html>.

33. Isenberg, *supra* note 27, at 27.

34. Isenberg, *supra* note 27, at 29.

35. TIM BERNERS-LEE, *WEAVING THE WEB*, 99 (Harper San Francisco 1999). Berners-Lee writes:

Whether inspired by free-market desires or humanistic ideals, we all felt that control was the wrong perspective. . . . Technically, if there was any centralized point of control, it would rapidly become a bottleneck that restricted the Web’s growth, and the Web would never scale up. Its being “out of control” was very

Internet generally and the Web specifically have spawned a dazzling rate and range of innovation.

Threats to network neutrality could reduce the level and variety of online innovation. Consider the worst-case scenario: a system where all innovation is channeled through—and therefore must meet the interests of—a major telecommunications firm. AT&T formerly prohibited the attachment of all unapproved external devices to the phone system. The “effect was to channel innovation through Bell Labs. Progress would be as Bell Labs determined it.”<sup>36</sup> Broadband providers are unlikely to attempt to recreate the Internet on this model. Yet even modest rollbacks of the end-to-end principle can greatly erode the creative power of the Internet. “Whatever other closed and proprietary networks there might be, polluting the Internet with these systems of control is a certain way to undermine the innovation it inspires.”<sup>37</sup>

Consider the additional value of guaranteed neutrality from the standpoint of innovators and the investment capitalists who fund them. Lessig pleads for a neutrality regime in order to guarantee a stable, predictable platform on which innovators can bank. “Their funding depends on the existence of a stable, addressable market for their products. Such developers would benefit the most from knowing that they can rely on a [consistent] broadband network. . . .”<sup>38</sup>

Just as the electrical grid gives innovators a stable, consistent system on which one can count in developing applications,<sup>39</sup> a neutral broadband network permits innovators to plan based on stable expectations. This leads to greater investment in cutting-edge applications and thus more innovation. Even minor interruptions in the norm of neutrality, however, cause market uncertainty, leaving investors to wonder which applications or sites will be targeted next. This undermines the perceived future value for networking innovations and threatens to reduce investment in research and development and therefore reduce innovation itself.

Yoo insists BSPs will allow innovation because they are in a perfect place to capitalize on the value of any useful progress.<sup>40</sup> Under this model, however, broadband providers have a direct incentive to allow only those

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important.

*Id.*

36. LESSIG, *supra* note 25, at 30.

37. LESSIG, *supra* note 25, at 156.

38. Ex parte Letter of Timothy Wu and Lawrence Lessig, Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities at 4 (Aug. 22, 2003), [http://faculty.virginia.edu/timwu/wu\\_lessig\\_fcc.pdf](http://faculty.virginia.edu/timwu/wu_lessig_fcc.pdf). [hereinafter Ex parte Letter].

39. *Id.*

40. Yoo, *Congestion*, *supra* note 20, at 1888-89.



innovations on which they *can* capitalize.<sup>41</sup> Yoo forgets that mandated nondiscrimination was the policy bedrock on which the Internet revolution was built:

Absent policy-mandated openness, the Regional Bell Operating Companies (RBOCs) and monopoly franchise CATV networks would certainly have explored only the paths of direct benefit to them. It is doubtful that without such policy-mandated openness the Internet Revolution would have occurred.

Indeed, many of the most successful paths challenged the very core of the phone monopoly business as well as the industry's technology and business assumptions. For example, the Internet is largely distance price insensitive, . . . [which]<sup>42</sup> forced profound change for the traditional telephone companies.

If the then-current policy had permitted telephone companies to manage network congestion by blocking or surcharging dialup access numbers,<sup>43</sup> the Internet as we know it may not have come to pass and certainly would not be nearly as revolutionary. This disadvantage also applies, if not as starkly, to a scenario under which telephone companies would have adopted Whitacre's policies of charging Internet companies more than customary telephone interconnection fees. Baby Bells would have had every incentive to choke off Internet service providers ("ISPs") at rates that gave the Bells near-monopoly control of the ISP market, allowing them to charge excessive prices and/or deliver lower quality service. Despite the gains in online access and creativity that have already come to pass, the lack of a neutrality mandate could still today erode the potential for future innovation.

Yoo dismisses the applicability of precedents from the era of

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41. If BSPs begin charging intermediary fees, they will have an incentive to disfavor nonmarket communication behind which there is no sender willing to pay for delivery. To borrow from Benkler's analysis of the cost that strong copyright protection creates for information inputs, major commercial content creators ("Mickey's") would be most able to pay intermediary fees, while individual and group creators who seek no direct market remuneration ("scholarly lawyers" and "Joe Einsteins") would be least able. This would directly favor commercial over noncommercial content. See Yochai Benkler, *Free As the Air to Common Use: First Amendment Constraints on Enclosure of the Public Domain*, 74 N.Y.U. L. REV. 354, 401-12 (1999).

42. Francois Bar, et al., *Defending the Internet Revolution in the Broadband Era: When Doing Nothing is Doing Harm*, E-economy Working Paper 12, at 8 (Aug. 1999), available at <http://e-economy.berkeley.edu/publications/wp/ewp12.pdf>.

43. See Andrew Odlyzko, *Pricing and Architecture of the Internet: Historical Perspectives from Telecommunications and Transportation*, Aug. 29, 2004, at 24, <http://www.dtc.umn.edu/~odlyzko/doc/pricing.architecture.pdf>. He argues:

[F]lat rates for local calling played a key role in the rise of the Internet, by promoting much faster spread of this technology in the U.S. than in other countries.

*Id.*

telephone monopolies, even while acknowledging that they helped spur useful innovations. As he sees it, broadband competition is too stiff for discrimination to occur in today's market.<sup>44</sup> The classic, decades-old telephone attachments cases, such as *Hush-a-Phone*<sup>45</sup> and *Carterfone*,<sup>46</sup> are indeed from a different technological era. Nonetheless, perhaps no regulatory lesson from today's telecommunications order rings louder than the resounding success of government-mandated common carriage in spurring online innovation over the past fifteen years.<sup>47</sup> If we are to turn our backs on this successful strategy, we should do so only in the face of compelling evidence, not just based upon whether the market is different, but that things are so different as to require the exact opposite of what has worked in the recent past. Especially in light of these past successes, Yoo's description of "vibrant" broadband competition borders on laughable. In almost every zip code in the U.S., the broadband market is highly concentrated and certainly on no path toward meaningful competition. This point merits further discussion, which I provide below.<sup>48</sup>

### B. *An Open Channel for Communication*

Most of the debates over network neutrality revolve around innovation. A neutral network is also socially valuable in that it does not discriminate based on the moral, political, or aesthetic value of content. A neutral network is free not only to technological innovation but also to controversial media content that would never be aired on older media platforms such as television and radio. When permitted, telecommunications companies have an incentive to restrict certain speech based exclusively on the claim that offensive content is bad for business.<sup>49</sup> Preserving a neutral network is therefore a clear means of furthering First Amendment values.

The First Amendment stands for more than prohibiting government censorship. First Amendment values are best upheld by ensuring media diversity—not merely content diversity, but a diversity of stakeholders who have editorial control over that content.<sup>50</sup> This is especially true in an era

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44. Yoo, *Congestion*, *supra* note 20, at 1878-1879.

45. *Hush-a-Phone Corp. v. United States*, 238 F.2d 266 (D.C. Cir. 1956).

46. *Use of the Carterfone Device in Message Toll Telephone Service*, 13 F.C.C.2d 420 (1968).

47. *Bar*, *supra* note 42, at 6-10.

48. *See infra*, Part IV.

49. C. Edwin Baker, *Merging Phone and Cable*, 17 HASTINGS COMM. & ENT. L.J. 97, 123 (1994) [hereinafter Baker, *Merging*].

50. *See* C. Edwin Baker, *Commentary, Media Structure, Ownership Policy, and the First Amendment*, 78 S. CAL. L. REV. 733, 734-39 (2005) [hereinafter Baker, *Ownership Policy*]. Baker supports media diversity in the name of the democratic value of diffusing

when gigantic firms with large shares of media markets can dictate the contents of our information ecosystem.<sup>51</sup> For decades, the Court has held that the health of our democracy demands “the widest possible dissemination of information from diverse and antagonistic sources. . . .”<sup>52</sup> While this is subject to other First Amendment values such as editorial discretion,<sup>53</sup> it is upheld as the guiding principle in the current case law regulating cable television.<sup>54</sup> Cable companies certainly have a reasonable claim to editorial discretion, yet they are forced to carry certain programs in the name of a healthy local news sector and greater net diversity of news outlets. The value of diversity is even clearer in the case of BSPs, who disavow any editorial control over the Internet. Wu and Lessig also dismiss the idea of BSPs as editors.<sup>55</sup> This claim can be extended into an even clearer argument for a neutrality regime. At least one First Amendment scholar believes the Constitution *requires* state intervention when state-created telecommunications monopolies obstruct the speech of their customers.<sup>56</sup>

In contrast, Yoo implies that First Amendment values are best upheld by permitting broadband providers to act as editors of the Internet.<sup>57</sup> This elides the utter lack of either a general expectation or industry-wide practice of editorial discretion on the part of ISPs—not to mention the clause tucked into the Communications Decency Act specifically stating that ISPs are not editors.<sup>58</sup> It is more useful to view each content creator or end-user as her own editor of the Internet, subject to other non-ISP exceptions such as workplace norms and content-filtering software.

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editorial power rather than the mistaken belief that more diverse ownership will inherently create more diverse content.

51. See generally, e.g., ROBERT W. MCCHESENEY, *THE PROBLEM OF THE MEDIA: U.S. COMMUNICATION POLITICS IN THE TWENTY-FIRST CENTURY* (2004). [hereinafter MCCHESENEY, *THE PROBLEM*].

52. *Associated Press v. United States*, 326 U.S. 1, 20 (1945).

53. *Miami Herald Publ'g Co. v. Tornillo*, 418 U.S. 241, 261 (1974).

54. *Turner Broad. Sys., Inc. v. FCC (Turner II)*, 520 U.S. 180, 189 (1997).

55. Ex parte Letter, *supra* note 38, at 9. “Primarily, it is the ends—the user of the Internet or a remote speaker—who decide on the content of transmission, not the broadband operator. The only influence the operator has over the content of what it carries is through the act of restricting usage or blocking content.” Ex parte Letter, *supra* note 38, at 9.

56. Baker, *Merging*, *supra* note 49, at 124, n.107.

57. Yoo, *Congestion*, *supra* note 20, at 1905-07.

58. 47 U.S.C. § 230(c)(1) (2000). “No provider or user of an interactive computer service shall be treated as the publisher or speaker of any information provided by another information content provider.” *Id.* The same paragraph does exempt ISPs from civil claims resulting from good-faith efforts to obstruct objectionable materials. *Id.* at § 230(c)(2)(A). Especially when read in light of the immediately preceding clause, however, this content-specific protection from liability is clearly not to be confused with a recognition of editorial rights in general.

Especially in light of the value that the court places on editorial diversity, the First Amendment claim of editorial control for broadband providers is strained indeed.

On the uncensored Internet, “[j]ust about anybody could own a digital printing press, and have worldwide distribution.”<sup>59</sup> Internet communicators can bypass the inherently narrower editorial control of old media, a development embraced by authors of all political stripes.<sup>60</sup> Among other positive outcomes, this opens the political game to outsiders, creating several political outcomes in which government officials who expected little public resistance were suddenly restrained by popular campaigns.<sup>61</sup>

The point is not that we should allow unfettered online communication *merely* because that communication can and does permit those with relatively less power to shape political outcomes; this is just one of the most obvious positive results of a suddenly much more equitable spread of communication power. Cast in more general terms, we as a society should guarantee that every online communicator serves as his or her own uncensored editor because that best upholds the democratic values of free speech and freedom of the press. Now that we have a communication system with the technical capacity to support millions of independent media outlets, we should guarantee that the editorial control over that system stays as widely diversified as possible. A broadband provider should no more be able to stop a customer’s email or blog post due to its political content than a telephone company should be permitted to dictate the content of customers’ conversations.<sup>62</sup> The guarantee that these speech acts be legally unconstrained “is a fundamental aspect of individual liberty.”<sup>63</sup>

Yoo disagrees. He argues that media diversity should, at least

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59. DAN GILLMOR, *WE THE MEDIA: GRASSROOTS JOURNALISM, BY THE PEOPLE, FOR THE PEOPLE* 13 (2004).

60. *See generally, e.g.*, JOE TRIPPI, *THE REVOLUTION WILL NOT BE TELEVISED: DEMOCRACY, THE INTERNET, AND THE OVERTHROW OF EVERYTHING* (2004); HUGH HEWITT, *BLOG: UNDERSTANDING THE INFORMATION REFORMATION THAT’S CHANGING YOUR WORLD* (2005) (arguing that the Internet uniquely permits the dissemination of their preferred brand of left- or right-wing views, respectively, and therefore facilitates widespread political change).

61. *See, e.g.*, BRUCE BIMBER, *INFORMATION AND AMERICAN DEMOCRACY: TECHNOLOGY IN THE EVOLUTION OF POLITICAL POWER* 2-4 (2003) (describing how libertarians used online communication to reverse FDIC policy); MCCHESNEY, *THE PROBLEM*, *supra* note 51, at 280 (discussing how multiple groups of online activists helped reverse FCC policy). The role of information in breaking up “iron triangle” political favoritism is well documented. *See, e.g.*, FRANK R. BAUMGARTNER & BRYAN D. JONES, *AGENDAS AND INSTABILITY IN AMERICAN POLITICS* (1993).

62. *See Baker, Merging, supra* note 49, at 100.

63. Baker, *Merging, supra* note 49, at 100.

generally,<sup>64</sup> take a back seat to economic efficiency. Further, he accuses neutrality proponents of failing to help policymakers decide when we have “enough” diversity and suggests the state should begin permitting the benefits of concentration such as economic efficiency.<sup>65</sup> For example, he acknowledges:

There is not[h]ing incoherent about imposing regulation to promote values other than economic welfare. The problems . . . are more practical than conceptual. Unless protecting the widest possible diversity of sources is a virtue in and of itself that trumps all other values, such a theory must provide a basis for quantifying the noneconomic benefits and for determining when those benefits justify the economic costs.<sup>66</sup>

This is a straw-man representation of neutrality advocates specifically and those who support diversified media ownership generally. It is an artificially high burden of proof to expect them to defend media diversity in the face of *all* other values. Yoo has not demonstrated much risk to other constitutional values that are considered comparable to First Amendment values. His concern is for admittedly minor gains in economic efficiency, which is best achieved under a neutrality regime.<sup>67</sup> As far as the courts are concerned, efficiency weighs little compared to a genuine First Amendment claim. Second, the cited authors provide more than incoherent arguments on behalf of the belief that a diversity of voices is a more important value. For instance, in the article that Yoo cites,<sup>68</sup> Benkler references an earlier article<sup>69</sup> in which he argues:

Justice Breyer recognized that [cable] regulation “extracts a serious First Amendment price.” But, he wrote, that price can be justified by the “basic tenet of [our] national communications policy, namely, that the widest possible dissemination of information from diverse and antagonistic sources is essential to the welfare of the public.” That policy is not an economic policy, but rather “seeks to facilitate the public discussion and informed deliberation, which, as Justice Brandeis pointed out many years ago, democratic government presupposes and the First Amendment seeks to achieve.”<sup>70</sup>

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64. I make this caveat on Yoo’s behalf; he details no exceptions.

65. Yoo, *Beyond*, *supra* note 22, at 53-57.

66. Yoo, *Beyond*, *supra* note 22, at 54 (internal citation omitted).

67. *See infra*, Parts II.A & IV.

68. Yochai Benkler, *From Consumers to Users: Shifting the Deeper Structures of Regulation Toward Sustainable Commons and User Access*, 52 *FED. COMM. L.J.* 561, 565-68, 578 (2000).

69. Yochai Benkler, *Free as the Air to Common Use: First Amendment Constraints on Enclosure of the Public Domain*, 74 *N.Y.U. L. REV.* 354, 376-77 (1999).

70. *Id.* (citing *Turner II*, 520 U.S. at 226-27 (Breyer, J., concurring in part)) (internal citations omitted).

When weighing the First Amendment value of increased diversity against other First Amendment values, communication diversity is the core value guiding communication policy and therefore wins in this highly analogous case. For neutrality proponents and for the *Turner II* Court, economic efficiency is an even less important value.<sup>71</sup> This is certainly true for other well-reasoned communication law and policy scholars who would gladly trade economic efficiency in favor of constitutional values such as a diverse information ecosystem<sup>72</sup> or privacy.<sup>73</sup> Benkler and the *Turner II* Court may be unpersuasive to Yoo, but many have argued quite coherently that economic efficiency is not our country's core value.

Perhaps Yoo finds those who believe in the primacy of a democratically diversified media system to be incoherent because he stubbornly refuses to speak their language. For instance, as he alleges elsewhere, "by valuing speech for its contributions to democracy, these theories adopt a consequentialist approach that is at odds with the autonomy-centered vision that has long dominated free speech theory."<sup>74</sup> Yet even the very footnote in which he makes this claim cites an article by Baker that contends that literally any incremental diversity is better due to the inherently more democratic diversification of editorial power:

For many people (and most theories), true democracy implies as wide as practical a dispersal of power within public discourse. Dispersal of ownership also may promote the availability and consumption of diverse content—but no theorist of whom I am aware believes that this will always be true. But democratic values mean that it makes a huge difference whether any lack of a particular type of diversity is imposed by a few powerful actors or reflects the independent judgments of many different people, for example, owners, with the ultimate power to determine content. The key goal, the key value, served by ownership dispersal is that it directly embodies a fairer, more democratic

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71. Additionally, note that economic efficiency is not necessarily the product of unconstrained market behavior; especially in the case of economically atypical products such as media content, a great degree of regulation is often required to maximize efficiency. See C. EDWIN BAKER, *MEDIA, MARKETS, AND DEMOCRACY* 20 (2002) [hereinafter BAKER, MEDIA].

72. See, e.g., MCCHESENEY, *THE PROBLEM*, *supra* note 51, at 236; Mark Cooper, *Open Access to the Broadband Internet: Technical and Economic Discrimination in Closed, Proprietary Networks*, 71 U. COLO. L. REV. 1011, 1020 (2000); see generally Neil Weinstock Netanel, *Copyright and a Democratic Civil Society*, 106 YALE L.J. 283 (1996) (arguing that copyright law should be crafted to maximize the health of debate in civil society, drawing a contrast between himself and those who seek to maximize copyright's economic efficiency).

73. See OSCAR H. GANDY, JR., *THE PANOPTIC SORT: A POLITICAL ECONOMY OF PERSONAL INFORMATION* (1993).

74. Christopher S. Yoo, *Architectural Censorship and the FCC*, 78 S. CAL. L. REV. 669, 675 n.17 (2005).

allocation of communicative power.<sup>75</sup>

As far as Baker is concerned, promoting maximally democratic control over the media is part of autonomy-enhancing democracy rather than a cog in some “consequentialist” belief; any diversification of communication power promotes procedural democracy. “Without more, and regardless of empirical investigations or controversial economic analyses, this value judgment provides a proper reason to oppose any media merger or to favor any policy designed to increase the number of separate owners of media entities.”<sup>76</sup> Interpretations vary, of course, but that is not unique to the value of procedural democracy. The pseudo-objectivity that Yoo applies to the economic question of the BSP market’s competitiveness, critiqued below, illustrates that both core values in this debate suffer from the same problem.

Epithets of incoherence aside, Yoo is really accusing neutrality proponents of failing to explain why their values outweigh his. On this count, Baker provides quite solid justifications for his reasonable policy stance: promote maximum media ownership wherever possible until and unless other considerations prove overwhelming.<sup>77</sup> On the other hand, Yoo himself fails quite ironically “to engage in even a minimally adequate normative or policy analysis of the issue.”<sup>78</sup> Yoo’s rhetorical move is a clever trick, inverting the burden of proof that he should face. Considering the almost incomparable value of the First Amendment in the U.S. legal canon, and the current case law that defines that value as requiring diversity of opinion, Yoo should be proving why economic efficiency outweighs communications diversity in general or in this particular policy debate. As an even less supportable debate trick, he expects those who support diversity to prove their value claims on his terms—in a quantitative form that translates these values into a form that can be weighed in his economic calculus.<sup>79</sup> Yet he offers no such calculus.

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75. Baker, *Ownership Policy*, *supra* note 50, at 734-35 (internal citations omitted).

76. Baker, *Ownership Policy*, *supra* note 50, at 735.

77. Baker, *Ownership Policy*, *supra* note 50, at 734-41.

78. Baker, *Ownership Policy*, *supra* note 50, at 741 (internal citation omitted).

79. Yoo, *Beyond*, *supra* note 22, at 54. Disappointingly, Yoo relies on economic analysis based in antitrust debates that happened in other industries. He argues, for instance, that, “[o]ver time, courts and commentators began to recognize that because many industries are subject to economies of scale, preserving small producers has a price.” Yoo, *Beyond*, *supra* note 22, at 55. Yet this begs the question of whether, as a society, we should or do value diversity of control in media at a higher level than diversity in other industries—or whether communication should actually be entirely commodified. On this last point, see Baker, *Ownership Policy*, *supra* note 50, at 742-47. Further, adding the production of media content to the list of economic activities that enjoy economies of scale is more than mere understatement; it elides properly economic reasons that justify media exceptionalism and challenges the applicability of general economic regulatory strategies. For almost every type

Unless Yoo believes that the democratic value of diversified communication power could not possibly trump economic efficiency, he has also failed to provide a coherent means of deciding which values should win under which circumstances. He derides his opponents for making such decisions based on an approach that “has remained decidedly ad hoc,”<sup>80</sup> but not even two accurate, valid systems for measuring these abstract values<sup>81</sup> separately could (or should) determine which is more important under which circumstances. A human intermediary would still have to decide upon the exchange rate between the two currencies. Yoo’s demand for a quantifiable *a priori* means of resolving interminable value debates is therefore misguided at best. After all, “it is harder to get agreement about which things are ugly or which actions evil than about which things are rectangular.”<sup>82</sup> If Yoo expects media policy scholars to solve the problem of moral objectivity and create objective justifications for First Amendment principles, he is asking them to solve a philosophical problem deemed insoluble by some of the greatest American philosophers of the last century.<sup>83</sup> There may be no *quantifiable* or even *objective* reason why Comcast should not be granted editorial discretion over their

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of media product, the “first copy” costs of developing and marketing something to reproduce and distribute greatly overwhelms the costs of reproduction and distribution. Unlike almost every other type of product imaginable, media products as a rule feature marginal costs that are almost always lower than average costs. GILLIAN DOYLE, UNDERSTANDING MEDIA ECONOMICS, 13-14 (2002). This public good characteristic of media leads to underproduction of “some media content that an audience wants—content whose value as measured by willingness to pay is greater than its cost.” See BAKER, MEDIA, *supra* note 71, at 20. It can also lead to ruinous competition. BAKER, MEDIA, *supra* note 71, at 30-31. It is careless for Yoo to apply rebuttals to populist antitrust reasoning without discussing these fundamental economic differences between media products and most other products. Further, considering the disproportionately high degree of externalities in the media industry, drawing on precedents primarily reached in other industries is arguably a substantial straw-manning of those who support media regulation that exceeds the antitrust regulation appropriate in other sectors. BAKER, MEDIA, *supra* note 71, at 10-11.

80. Yoo, *Beyond*, *supra* note 22, at 55.

81. Even antitrust suits that consider only the economic efficiency end of Yoo’s proposed two-value equation are notoriously unpredictable. See, e.g., James B. Speta, *FCC Authority to Regulate the Internet: Creating It and Limiting It*, 35 LOY. U. CHI. L.J. 15, 19-20 (2003).

82. RICHARD RORTY, PHILOSOPHY AND SOCIAL HOPE 51 (1999).

83. Rorty, for instance, approvingly describes John Dewey’s defense of democracy:

Dewey offered neither the conservative’s philosophical justification of democracy by reference to eternal values nor the radical’s justification by reference to decreasing alienation. He did not try to justify democracy at all. He saw democracy not as founded upon the nature of man or reason or reality but as a promising experiment engaged in by a particular herd of a particular species of animal . . . Dewey’s conservative critics denounced him for fuzziness, for not giving us a criterion of growth. But Dewey rightly saw that any such criterion would cut the future down to the size of the present.

*Id.* at 119-20.



customers' online speech, but there are still plenty of *coherent* reasons.

### III. BOTTLENECKS AND ROADBLOCKS: ACTUAL AND POTENTIAL THREATS OF DISCRIMINATION

There are several well-documented past and current instances of BSPs preventing their users from making nondestructive uses of their connections; augmenting them is a reasonable fear of some content discrimination and widespread economic discrimination. In perhaps the only such empirical work to date, Tim Wu “surveyed the network designs (to the extent that the information was available) and usage restrictions in subscriber agreements and incorporated acceptable use policies . . .”<sup>84</sup> of the nation’s ten largest cable modem and six largest DSL service providers as of 2002. While many of these network designs and usage restrictions are in place at the time of this writing, the problem has shifted substantially. Today, actual discrimination is at levels high enough to be worrisome, and potential discrimination threatens to grow to catastrophic levels.

In the first subpart, I detail the continuing discrimination against Voice over Internet Protocol (“VoIP”). Second, I examine how the threat to block specific applications such as VoIP and peer-to-peer networking distorts the market for online innovation. Third, I consider content-specific threats to neutrality that may erode customers’ right to serve as their own editors. Finally, I rebut the claim that the lack of endemic discrimination today demonstrates the lack of a need for neutrality regulations going forward.

#### A. *Voice over Internet Protocol (“VoIP”)*

Since Wu’s article, perhaps the most anticompetitive discrimination has been BSPs’ blocking of VoIP traffic. VoIP allows one to make and receive phone calls over a broadband connection without paying interstate long distance fees. Vonage, for instance, offers a VoIP package that includes free long distance to the U.S. and Canada for \$24.99 per month.<sup>85</sup> For BSPs in the voice telephony business, this cuts into their core business model, creating an incentive to discriminate. Even Yoo objects to this type of discrimination. “Another anticompetitive problem that can arise in a convergent world is when a broadband provider bars access to an Internet application that competes directly with its core business. One example is Madison River Communication's attempt to protect its local telephone

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84. Tim Wu, *Network Neutrality, Broadband Discrimination*, 2 J. TELECOMM. & HIGH TECH. L. 141, 156-57 (2003).

85. Vonage, *Vonage: Leading the Internet Phone Revolution, Residential Premium Unlimited Plan*, [http://www.vonage.com/products\\_premium.php](http://www.vonage.com/products_premium.php) (last visited Nov.3, 2006).

business by blocking its DSL customers from using VoIP.”<sup>86</sup> In the ensuing case,<sup>87</sup> the FCC cited Madison for failing to fulfill its duties of common carriage.<sup>88</sup> Madison settled the case for \$15,000 and promised to stop blocking VoIP traffic on its networks.<sup>89</sup> While Madison appears to be holding to its end of the bargain, other telephone companies appear to be preventing or discouraging VoIP use on their networks. Vonage insists that two other BSPs have still blocked their calls,<sup>90</sup> as discussed below.<sup>91</sup> Further, a Canadian BSP has begun surcharging competitors’ VoIP services:

Shaw Communications recommends that users signing up for non-Shaw VoIP services pay a \$10 monthly QoS (Quality of Service) fee to ensure their voice service is reliable. That doesn’t seem like an unreasonable policy. After all, VoIP requires higher QoS treatment than, say, file sharing. The catch in this case is that in addition to being an infrastructure provider, Shaw also offers a cable telephone service, which competes directly with other VoIP offerings. By recommending consumers pay a fee to ensure their non-Shaw VoIP is reliable, Shaw is making its own voice offering more attractive.<sup>92</sup>

Even the “reasonable” part of Shaw’s argument, that VoIP requires better QoS treatment, has more intuitive appeal than basis in empirical reality. Ed Felten, Professor of Computer Science at Princeton University, concludes that home broadband connections are generally fast enough to support VoIP—*despite* unexpected fluctuations in speed.<sup>93</sup> This monthly fee may be nothing more than the sale of digital snake oil, but if customers do need

86. Yoo, *Congestion*, *supra* note 20, at 1899.

87. *In re Madison River Commc’ns, LLC*, *Order*, 20 F.C.C.R. 4295, (2005).

88. *Id.* at para. 1 (citing 47 U.S.C. § 201(b)).

89. *Id.* at para 5.

90. Ben Charny, *Vonage Says Its Calls Are Still Being Blocked*, Mar. 21, 2005, [http://news.com.com/Vonage+says+its+calls+are+still+being+blocked/2100-7352\\_3-5628564.html?part=rss&tag=5628564&subj=news](http://news.com.com/Vonage+says+its+calls+are+still+being+blocked/2100-7352_3-5628564.html?part=rss&tag=5628564&subj=news).

91. *See infra* Part V.

92. Michael Martin, *Government Must Get In the Ring for Net Neutrality Fight*, PCWORLD.CA, Aug. 10, 2006, <http://www.pcworld.ca/news/article/f7dfd9730a01040800afa8552023f80/pg0.htm>.

93. Ed Felten, *Quality of Service: A Quality Argument?*, FREEDOM TO TINKER, Feb. 9, 2006, <http://www.freedom-to-tinker.com/?p=973>:

If speed doesn’t drop entirely to zero but fluctuates, with peaks and valleys, then even the valleys may be high enough to give the app what it needs. This is starting to happen for voice conversations—Skype and other VoIP systems seem to work pretty well without any special QoS support in the network.

We can’t say that QoS is never needed, but experience does teach that it’s easy, especially for non-experts, to overestimate the importance of QoS. That’s why I’m not convinced—though I could be, with more evidence—that QoS is a strong argument against net neutrality rules.

*Id.*

Shaw's QoS, it is likely because Shaw is degrading competing VoIP services. Without strong network neutrality requirements, expect U.S. BSPs to follow Shaw's lead with the goal of avoiding Madison River Communications' fate but still driving up business for extra fees and their own VoIP services.

### B. *Threatened Innovation*

Until the last few years, BSPs relied on simple port blocking to degrade or restrict disfavored applications. Today, network managers have much more sophisticated tools at their disposal. "Since sophisticated, packet-level network-management tools allow administrators to determine the types of traffic flowing across their networks, it's possible for network operators to 'block' or otherwise degrade the service for specific types of traffic."<sup>94</sup> Blocking VoIP is just one such threat. In another, several BSP executives have publicly threatened to block peer-to-peer traffic,<sup>95</sup> just one example of the general problem of threatened innovation. Additionally, many telecommunications executives have publicly threatened to charge extra fees for valuable services simply because they can.<sup>96</sup> As soon as a new application increases the value of network resources (e.g., VPNs) or disproportionately draws upon those resources (e.g., peer-to-peer), BSPs may have the economic incentive to surcharge or degrade those services. BSPs can demand fees from end-users in relation to the perceived value of the new technology or block bandwidth-hogging tools in lieu of upgrading their networks or their billing systems. This systematically favors the technological status quo, reducing the competition for new online innovations and therefore reducing social welfare.

Yoo denies that application suppression and taxation will lead to decreases in welfare. He insists instead that network owners are in an ideal position to capture all of the marginal value of increases in the worth of their networks.<sup>97</sup> Yet even if BSPs allow all innovations to come and seek only to capture any increased value in the network,<sup>98</sup> this greatly reduces the profitability of future innovations and therefore erodes the incentive to innovate. Whitacre's threat to extract the positive value of online progress

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94. Paul Kapustka, *Clearwire May Block VoIP Competitors*, NETWORKINGPIPELINE, Mar. 25, 2005, <http://www.networkingpipeline.com/showArticle.jhtml?articleID=159905772>.

95. E.g., Cynthia Brumfeld, *BellSouth: We Might Want to Block Ports*, IP DEMOCRACY, Oct. 25, 2005, [http://www.ipdemocracy.com/archives/000656bellsouth\\_we\\_might\\_want\\_to\\_block\\_ports.php](http://www.ipdemocracy.com/archives/000656bellsouth_we_might_want_to_block_ports.php).

96. H.R. REP. NO. 109-470, pt. 1, at 60.

97. Yoo, *Congestion*, *supra* note 20, at 1891.

98. This is a dubious claim, considering BSPs' historical willingness to suppress innovations such as VoIP that challenge their current business model.

constitutes a “socially perverse”<sup>99</sup> tax on innovation with unforeseeable and unacceptable deadweight losses. These losses are even higher than the sum of the losses due to each initial lost innovation. Every online innovation builds on earlier online innovations,<sup>100</sup> so innovations that do not happen today are magnified exponentially, creating many more lost innovations and greatly reducing social welfare tomorrow.

By urging regulators to permit discrimination, Yoo turns his back on the very policies that led to the Internet’s success. The threat to peer-to-peer is merely emblematic of what, if left unchecked, will be a looming cloud over the head of generations of tomorrow’s innovators.

### C. Restrictions on Content

In a further violation of network neutrality, broadband providers explicitly reserve the right to censor the content uploaded or downloaded by their customers. This policy statement by Cox Communications is typical: “Cox reserves the right to refuse to post or to remove any information or materials from the Service, in whole or in part, that it, in Cox’s sole discretion, deems to be offensive, indecent, or otherwise objectionable.”<sup>101</sup> AT&T takes it up a notch, reserving the right to block any content for any reason. “AT&T and its designees shall have the right (but not the obligation) to monitor any and all traffic routed though [*sic*] the Service, and in their sole discretion to refuse, block, move or remove any Content that is available via the Service.”<sup>102</sup> Further, in July 2005, “Telus, Canada’s second largest telecommunications company, actively blocked access to Voices for Change, a website supporting the Telecommunications Workers Union.”<sup>103</sup>

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99. See Baker, *Ownership Policy*, *supra* note 50, at 748. Baker highlights the difference between welfare-based economics, which seeks to optimize total social value, and enterprise-based economics. To wit:

Of course, the enterprise’s economist might be sensitive to some of these [broader welfare values] for instrumental, but sometimes socially perverse, reasons. The economist might check for newly created opportunities to externalize costs cheaply or identify someone from whom to collect (internalize) some of the enterprise’s otherwise positive externalities. Neither of these, however, and certainly not the first, should be treated as welfare enhancing or efficient even though beneficial to the firm.

Baker, *Ownership Policy*, *supra* note 50, at 748.

100. LAWRENCE LESSIG, *FREE CULTURE* 67 (2004).

101. Cox Communications, *Acceptable Use Policy, User Content*, <http://www.cox.com/policy/default.asp#> (last updated Feb. 22, 2005).

102. AT&T Worldnet, *AT&T DSL Service Subscriber Agreement*, <http://www.att.net/general-info/terms-dsl-data.html#term> (last visited Nov. 5, 2006) (Find Section 10 titled “ABCs of AT&T Worldnetiquette”. Go to Section “b.” beneath “Content; Your Conduct And Use Of The Service”).

103. Michael Geist, *Telecommunications Policy Review Submission*, at 5, (Aug. 2005)

In the not-too-distant past, dialup ISPs exercised fairly censorious powers over private online speech; they regulated the content of forums,<sup>104</sup> private chat, and email.<sup>105</sup> The fact that BSPs universally reserve the right to exercise that authority over any type of online communication carried over their pipes is unsettling, whether they exercise that right frequently or rarely. “The system of freedom of expression requires institutional arrangements that promote rather than impede people’s opportunities to communicate. Censorship, whether by governmental, private, or structural forces, is presumptively objectionable.”<sup>106</sup> Further, infrequent exercise of this power does not disprove the essential point. As Baker observed in relation to the abuses of media concentration generally, “[a]lthough this power may seldom or never be exercised, no democracy should risk the danger.”<sup>107</sup> Even competition in the market is insufficient to guarantee that last-mile-providers will not engage in censorship. “The owner of the second wire is often likely to engage in the same censorship, for the same reasons, as the owner of the first wire.”<sup>108</sup> In that light, it is best to prevent even the threat of BSP censorship.

#### D. *Why Tomorrow Looks Scarier Than Today*

Congressional opponents of network neutrality insist that the policy is unnecessary because discrimination is relatively rare today.<sup>109</sup> The broadband providers’ candor regarding their intention to begin discriminating, however, should be proof enough that today’s generally nondiscriminatory Internet is in danger.<sup>110</sup> When the boardroom members of several major companies describe a new business model for an industry that imposes massive deadweight losses on the rest of society, Congress should take them seriously and legislate accordingly.

Further, the current historic moment is an anomaly not to be taken as representative. The dial-up Internet was built on telephone networks, and telephone companies were and are regulated as common carriers. Broadband, however, was in a much more nebulous regulatory position

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[http://www.telecomreview.ca/epic/Internet/intprp-gecrt.nsf/vwapj/Geist\\_Michael.pdf/\\$FILE/Geist\\_Michael.pdf](http://www.telecomreview.ca/epic/Internet/intprp-gecrt.nsf/vwapj/Geist_Michael.pdf/$FILE/Geist_Michael.pdf).

104. Mike Taylor, *Conversations with Fred*, MIDDLESEX NEWS, Nov. 6, 1990, available at [http://www.eff.org/Censorship/Online\\_services/?f=prodigy\\_roosevelt\\_dimes.article.txt](http://www.eff.org/Censorship/Online_services/?f=prodigy_roosevelt_dimes.article.txt).

105. Home: Censorship: Online Services, Electronic Frontier Foundation: Defending Freedom in the Digital World (May 26, 1992), [http://www.eff.org/Censorship/Online\\_services/?f=aol\\_secret\\_tos.manual.txt](http://www.eff.org/Censorship/Online_services/?f=aol_secret_tos.manual.txt).

106. Baker, *Merging*, *supra* note 49, at 122.

107. Baker, *Ownership Policy*, *supra* note 50, at 735.

108. Baker, *Merging*, *supra* note 49, at 123.

109. *E.g.*, H.R. REP. NO. 109-470, pt. 1, at 6.

110. *See id.*

until 2005. Through a series of FCC decisions and a Supreme Court decision, cable and DSL providers went from possibly (cable) or presumptively (DSL) regulated as common carriers to virtually unregulated.<sup>111</sup> Cable and telecommunications companies now want specific policy reforms out of Congress, largely embodied in the telecommunications bill that has just passed the House<sup>112</sup> and the somewhat different bill being considered in the Senate<sup>113</sup> as of this writing. Both industries are exceedingly anxious to avoid network neutrality regulations, and in any case they have not yet implemented particularly sophisticated network management technology, so they have avoided anything that could be seen as justifying mandated neutrality.<sup>114</sup> If H.R. 5252 becomes law without network neutrality attached, BSPs are very likely to engage in discriminatory behavior for their own enrichment.

BSPs have explicitly and enthusiastically explained their intentions to begin discriminating, and the history and economics of information carriers in noncompetitive markets suggests the same. In the 1860s, “. . . Western Union, the telegraph monopolist, signed an exclusive deal with the Associated Press. Other wire services were priced-off the network—not blocked, but discriminated against. The result was to build Associated Press into a news monopoly that was not just dangerous for business, but dangerous for American democracy.”<sup>115</sup> AT&T’s refusal to allow nondestructive attachments—until ordered to do so—is another example.<sup>116</sup> When one or two communication companies dominate a market, it is historically unrealistic to expect them to refrain from discrimination without regulation. The FCC has very recently removed the threat of BSP regulation, but the threat of new legislation is keeping BSPs on their best behavior. If that threat passes, expect discrimination to become the norm as Whitacre and others describe.

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111. See *infra* Part IV.A. See generally Arshad Mohammed, *FCC May Let Phone Companies Off DSL Hook*, WASH. POST, Aug. 4, 2005, at D05, available at <http://www.washingtonpost.com/wp-dyn/content/article/2005/08/03/AR2005080302126.html>.

112. See H.R. 5252, *supra* note 7.

113. See S. 2686, *supra* note 15.

114. Edward W. Felten, *Nuts and Bolts of Network Neutrality*, at 11 (Aug. 2006), available at <http://itpolicy.princeton.edu/pub/neutrality.pdf>.

115. *Network Neutrality: Competition, Innovation, and Nondiscriminatory Access: Hearing Before the Task Force on Telecom and Antitrust of the Comm. on the Judiciary*, 109th Cong. 55 (Apr. 25, 2006) (prepared statement of Prof. Timothy Wu) (internal citations omitted).

116. *Id.*

#### IV. CURRENT BROADBAND COMPETITION GUARANTEES LITTLE

Yoo insists that competition in the broadband market is adequate to prevent anticompetitive discrimination on the part of broadband providers.<sup>117</sup> FCC Chairman Kevin J. Martin supports the belief that the last-mile broadband market is competitive, though he reserves the right to mandate neutrality should broadband providers begin placing restrictions on users for reasons other than network management.<sup>118</sup> Both further insist that even greater competition is just around the corner due to technologies such as wireless and Broadband over Power Line (“BPL”) transmission, even though Yoo’s optimistic scenario features at most three differentiated BSPs for most U.S. households,<sup>119</sup> which is still not a competitive market.<sup>120</sup> Any effort to label the current broadband market as competitive is wildly optimistic, to say the least. In most of the country, one or two providers dominate the market and therefore enjoy substantive market power over price and quality of service. While new technologies are expected to dent this system of regional duopolies, the era of truly vibrant competition is many years ahead under the best scenario if it is to come at all—a condition that is hardly guaranteed.

In this Part, I first demonstrate that the broadband market is far from competitive and explain how the system of regional duopolies discredits Yoo’s primary mechanism—consumer choice—for restraining monopolistic behavior. Second, I argue that the only free market mechanism that could preserve a generalized norm of neutrality is the competitive pressure of regional broadband competition at the consumer level—and not, as Yoo suggests, the quest by Web site and application developers for national market share. Third, I briefly describe why new delivery technologies may actually never solve the last-mile problem. Finally, I co-opt Yoo’s cable television analogy, as it provides an excellent policy precedent for regulation to preserve content diversity.

##### A. *Reigning Duopolies Gaining Speed*

The first and only two vehicles for home broadband to enjoy widespread adoption are coaxial cable, which was first deployed to carry television signals, and DSL service, carried over telephone lines. These

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117. Yoo, *Congestion*, *supra* note 20, at 1878-79.

118. See Press Release, Chairman Kevin J. Martin Comments on Commission Policy Statement (Aug. 5, 2005), [http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/DOC-260435A2.pdf](http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-260435A2.pdf) [hereinafter Martin Comments on Policy Statement].

119. See *id.*

120. Even if all three competitors have one-third market shares (33 points), the Herfindahl-Hirschmann Index score is 3267, nearly double the “highly concentrated” threshold of 1800. See *infra* Part IV.A.

vehicles currently serve almost the entire broadband market. “Today, cable and DSL providers control almost 98 percent of the residential and small-business broadband market.”<sup>121</sup> Over one quarter of consumers have just one choice—cable (23 percent) *or* DSL (5 percent).<sup>122</sup> Even in well-populated markets with both services available, typical residential broadband customers have one choice for each type of service. “In many markets, consumers face a duopoly, forced to choose between a single cable provider and single DSL provider—many of which bundle broadband with television or telephone service for a pricier package.”<sup>123</sup>

As measured by widely hailed economic standards, nearly every regional broadband market is very highly concentrated. In measuring market concentration, the Justice Department and the Federal Trade Commission use the Herfindahl-Hirschmann Index (“HHI”). To obtain the HHI, square each firm’s percentage market share and sum the squares; a higher HHI represents a more concentrated market. For instance, consider a very optimistic scenario where four broadband firms in a region each have 25 percent of the market. By taking the square of each firm’s market share (that is, 25 squared, or 625) and adding them all up (625 + 625 + 625 + 625), one obtains an HHI score of 2500. Note that this is the lowest possible HHI for four firms. If two had 40 percent market share each and the others had 10 percent, the HHI would be 3400. An HHI between 1000 and 1800 indicates moderate market concentration; a market over 1800 is highly concentrated.<sup>124</sup> The broadband market in a typical region is over 5000, explained by the FCC:

If we assume that a typical residential (and small business) market consists of the ILEC provider, one cable provider, and one other non-ILEC, and assume that the national figures can be used to represent a typical local market, the HHI is approximately 5200. If we don’t allow for an additional non-ILEC and again assuming that the national numbers of ILEC/RBOC and cable non-ILEC can be used to calculate market shares representative of a typical local broadband market, the HHI ranges between approximately 5500 and 5800.<sup>125</sup>

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121. S. DEREK TURNER, BROADBAND REALITY CHECK: THE FCC IGNORES AMERICA’S DIGITAL DIVIDE 3, FREE PRESS (Aug. 2005), [http://www.freepress.net/docs/broadband\\_report.pdf](http://www.freepress.net/docs/broadband_report.pdf).

122. *Id.* at 15.

123. *Id.*

124. Appendix to Complaint, Herfindahl-Hirschman Index Calculations, *United States v. UPM-Kymmene, OYJ* (N.D. Ill. Apr. 15, 2003) (Civ. No. 03C-2528), *available at* <http://www.usdoj.gov/atr/cases/f200900/200942a.pdf>.

125. Amendment of Parts 1, 21, 73, 74 and 101 of the Commission’s Rules to Facilitate the Provision of Fixed and Mobile Broadband Access, Educational and Other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands, *Notice of Proposed Rulemaking and Memorandum Opinion and Order*, 18 F.C.C.R. 6722, para. 124 (2003).



The typical broadband market has an HHI roughly three times that required for a market to be considered highly concentrated.<sup>126</sup> “Measures of typical local broadband markets, moreover, understate the problem because they ignore the fact that in some local markets there is no competition at all or, where it does exist, it is only available to some of the customers within the market.”<sup>127</sup> If there are any, there are certainly no more than a handful of residential broadband markets that are truly competitive. Making policy decisions based on the assumption of vigorous competition is therefore misguided.

The tepid competition in the broadband market will soon be even weaker. It is technically possible for cable and telecommunications firms to allow other BSPs to offer service over the same set of wires. As part of the common carrier regulatory legacy of telephony provision, telecommunications firms that sell DSL had been required to provide access to competing BSPs. Cable companies, in contrast, were classified as providing “information services” and were therefore free to block competitors from using their lines. An independent BSP, Brand X Internet Services, challenged this classification in federal court in an effort to secure access to customers via cable lines.

Overruling the Ninth Circuit, the Supreme Court ruled that the FCC was within its statutory rights to classify cable as an information service and therefore exclude cable companies from common carriage regulation.<sup>128</sup> Within weeks, the Commission then ruled that DSL was also an information service. Thanks to this reclassification, DSL carriers are no longer subject to the requirement that they share DSL lines with broadband competitors; the FCC required that carriers honor existing agreements for one year, which expired in August, 2006.<sup>129</sup> “Now that these rules have been abandoned, consumers in even the largest markets will be restricted to two choices—the local cable provider or the local DSL provider. This duopoly ensures higher prices, slower connection speeds and poorer customer service.”<sup>130</sup> Considering that unregulated cable BSPs have

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126. This makes Chairman Martin’s claim of a competitive market utterly indefensible.

127. Harvey Reiter, *The Contrasting Policies of the FCC and FERC Regarding the Importance of Open Transmission Networks in Downstream Competitive Markets*, 57 FED. COMM. L.J. 243, 292 (2005) (internal citations omitted).

128. Nat’l Cable & Telecomms. Ass’n v. Brand X Internet Servs., 545 U.S. 967 (2005).

129. See *Appropriate Framework for Broadband Access to the Internet over Wireline Facilities*, Report and Order and Notice of Proposed Rulemaking, 20 F.C.C.R. 14853, para. 1 (2005) [hereinafter *DSL Ruling*]; Marilyn Geewax, *Bells Win Ruling on DSL Service*, ATLANTA JOURNAL-CONSTITUTION, Aug. 6, 2005, at 1F.

130. TURNER, *supra* note 121, at 17. The fact that telecommunications firms did not immediately abandon existing agreements is probably related to the political salience of

historically imposed more restrictions on consumers' use of broadband connections,<sup>131</sup> this deregulation also escalates the likelihood that DSL operators will engage in similar discrimination.

*B. Regional Market Concentration Matters*

High-value Web sites are increasingly dependant on broadband service from regional cable and telecommunications duopolies. In its home territories, this gives AT&T real market leverage to reshape the Internet content and services markets. If superimposed into different contexts, Ed Whitacre's schemes to create vertical partnerships would not be problematic. Ten years ago, when dialup was king and the ISP business was fiercely competitive, America Online ("AOL") discovered that it had no power to demand that its users stay within an AOL-constructed "walled garden" of affiliated content. Competitive pressure forced them to change their business model, permitting access to the entire World Wide Web while providing valuable content and "a friendly destination for Internet newbies and parents concerned about protecting the little ones in cyberspace."<sup>132</sup> Many experienced Internet users have generally concluded that AOL's package of exclusive content is highly substitutable and adds little value relative to basic connectivity. This vertical integration was certainly beneficial for AOL and its partners, but AOL's partners and users could make plenty of use of the Internet without AOL's permission—at the fastest connection speeds, nonetheless. In a competitive market, AOL was powerless to demand fees from Internet companies. Likewise, Texaco has no power to demand a cut of the automobile industry's profits, blocking brands of cars from unaffiliated manufacturers or surcharging their drivers. Like gasoline, Internet access is a homogenous commodity, and if an Internet provider in a competitive market were to block or degrade access to certain sites, customers would go elsewhere. But Whitacre himself notes that he controls one of just two major routes to broadband access in his territory.<sup>133</sup>

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network neutrality. At least one prominent proponent of network neutrality mandates has conceded that anticompetitive behavior has not occurred to date primarily due to the threat of legislation. *See Felten, supra* note 114.

131. *See Wu, supra* note 84, at 157.

132. Edward C. Baig, *AOL Subscribers: Stay and Pay, or Flee and Get Content Free?*, USA TODAY, July 6, 2005, at 3B, available at [http://www.usatoday.com/tech/columnist/edwardbaig/2005-07-06-aol-stay-or-go\\_x.htm](http://www.usatoday.com/tech/columnist/edwardbaig/2005-07-06-aol-stay-or-go_x.htm).

133. Again, cable BSPs are not, and soon DSL BSPs will not be, required to interconnect with other would-be broadband providers as common carriers. *See DSL Ruling, supra* note 129. This lack of common carrier regulation permits infrastructure providers to price other BSPs out of existence.

Imagine that Texaco and BP are the only two gasoline suppliers in a large, isolated state, each operating some of its stores in large swathes in which the other has no presence. In those circumstances, the threat of anticompetitive behavior is more than idle speculation. Texaco and BP would probably raise consumer prices and extract excess profits. If the gasoline industry was controlled by several regional duopolies, however, they might also seek to force automobile manufacturers into making additional payments. This scenario is far-fetched for competitive commodities markets, but it is a close analog to the tiering scheme proposed by Whitacre and other BSP executives, a scheme that could work in duopolistic end-user broadband market.

Yoo portrays a broadband market where “. . . concentration levels fall short of those traditionally associated with anticompetitive concern.”<sup>134</sup> Elsewhere in the same article, however, Yoo expects customer choice—which is *inherently* regional—to stop anticompetitive behavior. “If a sufficient number of competitive options exist, any attempt to use exclusivity in an anticompetitive manner should be disciplined by the market over the long run, as end users who dislike the exclusivity arrangement will simply transfer their subscriptions to a different network.”<sup>135</sup> Here, Yoo ignores clear evidence that the typical broadband market offers one or two choices for home broadband service. The cable-DSL duopoly share of the broadband market has grown from 94.5 percent in 1999 to 97.5 percent in 2004.<sup>136</sup> This leaves customers with little recourse even in light of egregious customer service,<sup>137</sup> let alone broadband discrimination.

Even if *customers* cannot go elsewhere, Yoo claims that it does not really matter to companies like Yahoo! and Amazon. He contends:

[A]pplication and content providers care about the total number of users they can reach. So long as their total potential customer base is sufficiently large, it does not really matter whether they are able to reach users in any particular city. This point is well illustrated by a

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134. Yoo, *Congestion*, *supra* note 20, at 1892.

135. Yoo, *Congestion*, *supra* note 20, at 1899.

136. TURNER, *supra* note 121, at 12.

137. See TURNER, *supra* note 121, at 17. I personally suffered three weeks without a dial tone and three weeks without DSL in the summer of 2005. After dozens of hours speaking with Verizon customer service representatives and supervisors and no less than five no-show service appointments, I filed a written complaint with the Pennsylvania Public Utilities Commission. Miraculously, my service was restored within days. An informal survey of friends, colleagues, and consumer-review Web sites led me to believe that I would receive even worse service at the hands of any of Verizon’s competitors—even in the relatively competitive Philadelphia market. If well-informed customers in densely populated cities begrudgingly stick with a company because there is no better alternative, the industry in question is far from competitive.

series of recent decisions regarding the market for cable television programming. As the FCC and the D.C. Circuit recognized, a television programmer's viability does not depend on its ability to reach viewers in any particular localities, but rather on the total number of viewers it is able to reach nationwide. . . . This in turn implies that the relevant geographic market is a national one, not a local one.<sup>138</sup>

The emphasis on national rather than regional market share is highly problematic. Not all Internet content providers care primarily about national market share. Several prominent regional Web sites exist within the boundaries of any given regional Bell or cable company; giving those broadband providers the power to choke off some of the most lucrative customers would cripple these sites. Most daily newspaper Web sites, for instance, are of little interest to a broader national audience and could easily lose a substantial portion of their most lucrative audiences at Whitacre's whim.

Yoo also underestimates the destructive threat that losing even a sizable minority of the national audience represents for application and Web site developers. The computer industry is rife with network externalities, or changes "in the benefit, or surplus, that an agent derives from a good when the number of other agents consuming the same kind of good changes."<sup>139</sup> In other words, the computer industry is filled with applications (e.g., Microsoft Office, Adobe Photoshop) and networking systems (e.g., eBay, AOL Instant Messenger, MySpace) that become more valuable to users as other users join.<sup>140</sup> This creates successions of "serial" monopolies in each application or service type.<sup>141</sup> Once enough users decide to use such an application or service, it enjoys near-monopoly status for years and new competitors face a steep uphill climb, substantially undermining Yoo's claim that the market for applications and content is of no competitive concern.<sup>142</sup> Even if AT&T or Verizon controls only a substantive fraction of the national broadband audience, this may be enough to decide who does—or does not—enjoy short-term success as the serial monopolist of the day. In this context, exclusivity arrangements are particularly likely to have anticompetitive implications and should therefore be prohibited. The FCC recognized as much in the AOL-Time

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138. Yoo, *Congestion*, *supra* note 20, at 1892-93.

139. S. J. Liebowitz & Stephen E. Margolis, *Network Externalities (Effects)*, <http://www.utdallas.edu/~liebowit/palgrave/network.html> (last visited Nov. 5, 2006).

140. See Gerald R. Faulhaber, *Case 18: Access and Network Effects in the "New Economy": AOL-Time Warner (2000)*, in JOHN E. KWOKA, JR. & LAWRENCE J. WHITE, *THE ANTITRUST REVOLUTION: ECONOMICS, COMPETITION, AND POLICY*, at 453-75 (4th ed. 2004).

141. See *id.* at 472.

142. See Yoo, *Beyond*, *supra* note 22, at 16-17.

Warner case, and this economic theory “seems well within the confines of antitrust in the new economy.”<sup>143</sup> This is just another reason why even some regional discrimination is economically and socially undesirable.

### C. *The Cable Television Precedent*

As part of Yoo’s argument for measuring concentration based on the national broadband market, he draws an analogy with cable television. The economic and legal evidence, however, suggests the value of greater rather than weaker government protection of diversity.

Yoo makes quite an unsound economic comparison by lumping Internet content with cable networks. Cable networks are almost all for-profit enterprises, and they are in such short supply that they can demand licensing fees from cable and satellite systems.<sup>144</sup> In contrast, due to the very low cost of production and distribution relative to other media, millions of people have created online content of nearly every imaginable variety, and virtually every offline media outlet also has an online media presence. So much content is available online that most information producers put content online with no expectation to directly profit from their online presence.

The remarkably low cost of Internet production puts it within the reach of most Americans, skill permitting. A personal Web site costs less than four dollars per month to host; in many cases, Web hosting space is included with a broadband subscription. Millions of people, including people who otherwise produce and distribute no media, host Web sites for fun, for self-expression, or for some higher social purpose. Much of it is for vanity and amusement, but tens of thousands of gifted artists, seasoned experts, and enthusiastic hobbyists post irrefutably valuable content. Including both the fun and the serious reasons to love the Internet, these millions of hours of unpaid labor add incalculable value to our economy, not to mention our enjoyment of life and our democracy.<sup>145</sup> In many endeavors, the dream of nearly frictionless transactions has been leapfrogged by the reality of nearly costless transactions and an entire subeconomy of “peer production and sharing.”<sup>146</sup>

Adding even a small amount to the cost of these millions of nonmarket actors’ participation would cause more deadweight losses.

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143. Faulhaber, *supra* note 140, at 473.

144. *See, e.g.*, JOURNALISM.ORG, AN ANNUAL REPORT ON AMERICAN JOURNALISM, CABLE TV: ECONOMICS (2005), [http://www.stateofthedia.org/2005/narrative\\_cabletv\\_economics.asp?cat=4&media=5](http://www.stateofthedia.org/2005/narrative_cabletv_economics.asp?cat=4&media=5).

145. *See generally*, YOCHAI BENKLER, THE WEALTH OF NETWORKS: HOW SOCIAL PRODUCTION TRANSFORMS MARKETS AND FREEDOM (2006).

146. *Id.* at 59.

Slowing or blocking their Web sites would likewise diminish their willingness to devote their time and energy to building the value of the network for no compensation, again piling up deadweight losses. Yoo supports the attempt by BSPs to capture all of the marginal value of increases in the worth of their networks,<sup>147</sup> but a great deal of this value is produced for no direct economic gain. If BSPs attempt to capture the positive value of things that are not being bought or sold, they will kill the goose that laid the golden egg—or at least seriously reduce her golden egg production.

Yoo's comparison between Internet content and cable television networks is also of highly dubious legal merit. He cites *Time Warner Entertainment Co. v. FCC*<sup>148</sup> in contending that a network's ability to reach a substantive national audience is all that matters. Yet applying this case to a rebuttal of network neutrality is misguided. First, as the *Time Warner* court notes, communication policy has long been sensitive of the need to ensure media diversity:

Statutory authority flows plainly from the instruction that the Commission's regulations "ensure that no cable operator or group of cable operators can unfairly impede, either because of *the size of any individual operator* or because of joint actions of operators of sufficient size, the flow of video programming from the video programmer to the consumer."<sup>149</sup>

Yoo leans on the FCC ruling in this case to argue that, so long as content providers can reach a sizable national audience, local acts of discrimination should not be problematic.<sup>150</sup> Yet the statute<sup>151</sup> on which the court relies comes to almost exactly the opposite conclusion, demanding that no cable system provide preferential treatment to networks in which the cable system has a stake. Specifically, it requires that the FCC "ensure that cable operators affiliated with video programmers do not favor such programmers in determining carriage on their cable systems or do not unreasonably restrict the flow of the video programming of such programmers to other video distributors."<sup>152</sup>

Yoo is defending a broadband policy that takes the exact opposite stance, permitting network owners to discriminate in favor of affiliated

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147. See Yoo, *Congestion*, *supra* note 20, at 1888-89.

148. See generally 240 F.3d 1126 (D.C. Cir. 2001).

149. *Id.* at 1131 (citing 47 U.S.C. § 533(f)(2)(A) (2000)).

150. See Yoo, *Congestion*, *supra* note 20, at 1892. "As the FCC and the D.C. Circuit recognized, a television programmer's viability does not depend on its ability to reach viewers in any particular cities, but rather on the total number of viewers it is able to reach nationwide." Yoo, *Congestion*, *supra* note 20, at 1892.

151. See 47 U.S.C. § 533(f) (2000).

152. *Id.* at § 533(f)(2)(B).

content. Here, as in other cases, the federal government can be, should be, and is even more vigilant against anticompetitive exclusion than in nonmedia industries. Especially considering the substantial First Amendment value in allowing nearly every citizen to speak in an equitable forum to whomever will listen, preserving network neutrality makes as much legal as economic sense.

#### *D. New Technologies Are Improbable Solutions*

Nearly all commentators on all sides of the network neutrality debate would love to see the mainstream success of a third technology, or a “third pipe,” to deliver broadband to the home. Wireless technologies such as WiFi (802.11), long-distance wireless broadband (“WiMax”) (802.16), and cellular broadband technologies have many people hopeful that new entrants will bypass the last-mile bottleneck currently dominated by DSL and cable. The wireless hype received an injection in August 2006, when Sprint Nextel announced it would invest up to \$3 billion to deploy a WiMax network in major metropolitan areas throughout the U.S.<sup>153</sup> The *Wall Street Journal*, which opposes network neutrality mandates, quickly seized on the news to insist that competition is just around the corner and, therefore, network neutrality is unnecessary.<sup>154</sup> The editorial incorrectly implies Sprint will deploy its WiMax network in the unlicensed band of spectrum; Sprint will actually use licensed spectrum for which it has paid handsomely. Protocol-compliant WiMax technology is actually designed for licensed spectrum,<sup>155</sup> which illustrates a substantial barrier to new market entry. The spectrum alone cost Sprint billions, and it only covers one-third of the U.S. population.<sup>156</sup> WiMax is also a largely unproven technology, and most services “apply the ‘pre-standard’ euphemism, which is great unless you expect things to work together. Or expect economies of scale in equipment building.”<sup>157</sup> Further, “in terms of dollars per bit, it has to be more expensive than DSL or cable modems, so don’t look for a pricing breakthrough.”<sup>158</sup>

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153. See, e.g., Paul Taylor, *Sprint Nextel to Invest \$3b in “4G” Network*, FIN. TIMES, US Ed., Aug. 9, 2006, at 15.

154. See *Wi-Fi to the Max*, WALL ST. J., Aug. 9, 2006, at A10.

155. See Glenn Fleishman, *Fundamentally, WiMax is Meant for Licensed Bands*, WI-FI NET NEWS, Aug. 8, 2006, <http://wifinetnews.com/archives/006846.html>.

156. Posting of Mike, *WiMax, Net Neutrality and Basic Factchecking*, TECHDIRT, <http://techdirt.com/articles/20060809/1149258.shtml> (Aug. 9, 2006, 12:02 EST).

157. WSJ Wrong on WiMAX—And Neutrality, [http://paulsblog.pulver.com/archives/2006/08/wsj\\_wrong\\_on\\_wi.html](http://paulsblog.pulver.com/archives/2006/08/wsj_wrong_on_wi.html) (Aug. 9, 2006, 13:09 EST).

158. Robert X. Cringely, *Bound and Gagged: WiMax Isn’t What It Seems, But Then Nothing Else Is, Either*, I, CRINGELY, July 6, 2006, [http://www.pbs.org/cringely/pulpit/2006/pulpit\\_20060706\\_000349.html](http://www.pbs.org/cringely/pulpit/2006/pulpit_20060706_000349.html).

Sprint's plan to blanket major metropolitan areas with wireless coverage based on unproven technology starting in late 2007—an ambitious plan that is still on the drawing board—is hardly the same as a guarantee that typical homes will have three affordable and reliable broadband choices in the near future. Even if they did, the nation's ecstatic embrace of merely a third major entrant will only be joyous in comparison to the broadband duopoly of today. Three companies in a market will still enjoy power over price and service,<sup>159</sup> permitting companies to continue some degree of profiteering via broadband discrimination, and that is under the *Wall Street Journal's* optimistic assumption that the Sprint WiMax network succeeds. Most ex-urban, small-city, and rural customers are still not even on the drawing board for receiving a third truly competitive broadband pipe, let alone meaningful broadband competition.

The remaining wireless solutions are also not likely to provide truly nationwide third-pipe solutions. “Mesh WiFi so far has had a lot of problems scaling. Cellular 3G networks are cutting off any user who uses the system for real broadband uses and satellite broadband remains a joke in comparison to other broadband systems.”<sup>160</sup> WiFi may be the technology with the most real promise. In 2004, for instance, several teenage attendants at the DefCon hacker conference established a WiFi connection at a distance of 55 miles with the aid of a nine-and-a-half foot satellite dish.<sup>161</sup> Google plans to blanket San Francisco with a mesh WiFi network, and several cities, including Philadelphia and Boston, are planning to deploy municipal wireless networks.<sup>162</sup> Yet there are several obstacles to mass WiFi coverage. First, incumbent BSPs have tried to legislate the problem away. Following Philadelphia's announcement that it would blanket the city with WiFi, Verizon successfully pushed for a Pennsylvania law that threatens the ability of other municipalities to get wireless projects off the ground.<sup>163</sup> States including Florida, Texas, and Virginia have since passed similar laws.<sup>164</sup> The Stevens Bill would ban such state laws, expediting municipal provision of wireless broadband,<sup>165</sup> though the House

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159. As noted above, even if all three competitors have one-third market share (33 points), the market's HHI score is 3267, nearly double the “highly concentrated” threshold of 1800.

160. See Posting of Mike, *supra* note 156.

161. See Kim Zetter, *Wi-Fi Shootout in the Desert*, WIRED NEWS, Aug. 3, 2004, available at <http://www.wired.com/news/culture/0,1284,64440,00.html>.

162. See Robert Weisman, *Hub Sets Citywide WiFi Plan*, BOSTON GLOBE, July 31, 2006, at A1.

163. See Matt Richtel, *Pennsylvania Limits Cities in Offering Net Access*, N.Y. TIMES, Dec. 2, 2004, at C6.

164. Declan McCullagh & Anne Broache, *Senate moves to ease municipal Wi-Fi*, ZDNET NEWS, June 29, 2006, [http://news.zdnet.com/2100-1035\\_22-6089345.html](http://news.zdnet.com/2100-1035_22-6089345.html).

165. See *S. 2686*, *supra* note at § 502. The bill does require municipalities to offer



version has no similar provision. Even if the clause becomes law, the cost of deploying such networks will likely deter most municipalities and companies from deploying wireless in the near future, and it will be most economical to deploy in the most densely populated cities with the lowest need for additional broadband suppliers. As with Sprint's WiMax network, municipal WiFi will remain out of reach for a sizable majority of the U.S. for the foreseeable future.

## V. AD HOC REGULATION IS INADEQUATE

In light of admittedly problematic discrimination, as in the Madison River case, Yoo suggests targeted FCC regulations to punish the worst instances of discrimination.<sup>166</sup> Others might argue that antitrust enforcement would provide an adequate remedy,<sup>167</sup> but both Yoo<sup>167</sup> and James B. Speta, who strongly supports neutrality,<sup>168</sup> conclude that antitrust regulation is inadequate.<sup>169</sup> Especially in the rapidly evolving market of online content and services, antitrust enforcement is far too slow a remedy for anticompetitive behavior to save embattled products. In 2003, Microsoft paid \$750 million in cash to settle the antitrust case brought by Netscape.<sup>170</sup> By that time, however, Netscape had slid from the dominant browser by which users accessed the Web to a distant memory, long since stomped out of existence by Microsoft's decision to embed Internet Explorer into Windows.<sup>171</sup>

If it is to keep affected products from sliding into oblivion, any network neutrality regulation should go through the FCC. The Commission can regulate either in an ad hoc fashion or by enforcing a generalized regime of neutrality, especially one backed by new legislation. In this section, I argue ad hoc regulation, especially as set out in H.R. 5252, is inadequate.

Despite Yoo's enthusiasm for the Madison River case, the case is actually a fine example of the inadequacy of ad hoc regulation under the

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private contractors thirty days to bid on the right to build a system with the same or lower user fees. *Id.* Yet communities still have wide latitude in determining pricing, service, and other details, and private sector companies only win the contract if their bid is determined to meet the municipality's specifications by a third party of the municipality's choosing.

166. See Yoo, *Congestion*, *supra* note 20, at 1900.

167. See Yoo, *Beyond*, *supra* note 22, at 69-70.

168. See Speta, *supra* note 81, at 17-21.

169. See also Harold Feld, *Why Antitrust Doesn't Cut It for NN (But Why Google Has to Pretend)*, PUBLIC KNOWLEDGE, July 5, 2006, <http://www.publicknowledge.org/node/511>.

170. Andrew Beach, *Microsoft Settles Internet Feud*, THE SCOTSMAN, May 31, 2003, at 21.

171. See Alex Fryer, *Settlement's Impact Challenged: Little Has Changed, Critics Tell Appeals Court*, SEATTLE TIMES, Nov. 5, 2003, at E1.

Commission's current statutory authority. Madison River is a telecommunications company, so blocking VoIP traffic preserves their long distance telephone business. The two newly implicated companies, however, are recent entrants into the voice telephony game, to say the least. The first company accused by Vonage is Clearwire, a company that sells WiMax<sup>172</sup> in a handful of states. Clearwire reached an exclusivity agreement in March of 2005 with Bell Canada to provide Internet telephony over its networks.<sup>173</sup> The other is an unnamed cable company, which was allegedly still successfully interfering with VoIP traffic a month after the Madison River settlement.<sup>174</sup> Cable companies are increasingly becoming players in the VoIP market,<sup>175</sup> giving them an incentive to degrade or cut off VoIP service from their competitors. In other words, a BSP does not need to be a traditional phone company to have an incentive to block VoIP traffic; the desire to be the only VoIP provider on their broadband networks is incentive enough.

These companies clearly fail to meet Yoo's test for targeted intervention, in which "a broadband provider bars access to an Internet application that competes directly with its core business."<sup>176</sup> Rather, these incumbent BSPs seek to extend their market power in the broadband business to capture potential rents in profitable adjacent markets. Even the potential for such rent-seeking is a deterrent to the investment in and development of innovative online applications.<sup>177</sup> The continued discrimination against VoIP traffic by companies that are not themselves telephone companies shows the potential for such rent-seeking in markets that are new to a given BSP; the list of such markets will only grow.

Second, consider the utter failure of the Madison River settlement to deter these BSPs from obstructing Vonage's calls for competitive reasons.

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172. For a background on WiMAX, see generally *About the WiMAX Forum*, WiMAX FORUM, <http://www.wimaxforum.org/about> (last visited Nov. 5, 2006).

173. Bernard Simon, *Canadian Telecoms Rivals Agree Wireless Venture*, FIN. TIMES, Sept. 19, 2005, at 27.

174. Charny, *supra* note 90.

175. Marguerite Reardon, *Cable Goes for the Quadruple Play*, CNET NEWS.COM, Nov. 7, 2005, [http://news.com.com/Cable+goes+for+the+quadruple+play/2100-1034\\_3-5933340.html](http://news.com.com/Cable+goes+for+the+quadruple+play/2100-1034_3-5933340.html).

176. Yoo, *Congestion*, *supra* note 20, at 1899.

177. Ex parte, *supra* note 38, at 3-5. The authors argue:

A network that is as neutral as possible is predictable: all applications are treated alike. Since the Commission wants to maximize the incentives to invest in broadband applications, it should act now to eliminate the unpredictability created by potential future restrictions on network usage.

The value of network neutrality can be seen clearly in another context: the nation's electric system. Because it remains neutral, the electricity network has served as an important platform for innovation.

Ex parte, *supra* note 38, at 3.

At least one online commentator believed that Clearwire's VoIP certification program was an excuse to continue to block or degrade voice traffic from competitors,<sup>178</sup> a credible claim since Vonage appears to have gotten its voice data through by hiding it from Clearwire.<sup>179</sup> Vonage has not brought complaints to the FCC over these two latest incidents, though this may be due to a fear of setting an unfavorable precedent:

Since Clearwire is not a traditional telephone service provider, it is unclear what, if any, legal recourse Vonage might have. In fact, Clearwire's terms of service claim that its service is "not a telephone service," and as such may limit users' "rights of redress before federal, state or local telecommunications regulatory agencies."<sup>180</sup>

Unlike telephone companies such as Madison River, WiMax and cable companies fall into the relatively unregulated category of "information services" providers and are therefore not subject to common carrier regulations.<sup>181</sup> The FCC therefore has doubtful authority to resolve these cases.

This example alone demonstrates at least the continued potential for discrimination, which serves as a deterrent to investment in online innovation, even if actual discrimination remains rare. Without a generalized norm of a stable platform for innovation, provided so well by the electric grid, for instance,<sup>182</sup> planning and investment is less rational. The diminished potential for online innovations that improve our collective welfare is an excellent example of a market failure that warrants statutory and regulatory intervention. Since unpredictability is a key element of that failure, a principled regulatory stance is a key part of the solution.

The neutrality language in H.R. 5252 exacerbates, rather than quells, the air of uncertainty around online innovation. On August 5, 2005, the FCC adopted a Broadband Policy Statement<sup>183</sup> in which the FCC adopted the following principles:

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178. See Posting by Carlo, *Clearwire To VoIP Providers: Get Certified Or, Oops, You Might Get Blocked*, TECHDIRT, (Sept. 21, 2005, 21:28 EST), [http://www.techdirt.com/article/s/20050921/2128243\\_F.shtml](http://www.techdirt.com/article/s/20050921/2128243_F.shtml).

179. Posting by Mike, *Getting Around Blocks By Playing Packet Hide and Seek*, TECHDIRT, (Apr. 22, 2005, 09:48 EST), [http://techdirt.com/articles/20050422/0946236\\_F.shtml](http://techdirt.com/articles/20050422/0946236_F.shtml).

180. Kapustka, *supra* note 94, at para. 13.

181. See Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities, *Declaratory Ruling and Notice of Proposed Rulemaking*, 17 F.C.C.R. 4798, at paras. 33-71 (2002); Nat'l Cable & Telecomm. Ass'n v. Brand X Internet Servs., 545 U.S. 967 (2005).

182. See Ex parte, *supra* note 38, at 3.

183. See Appropriate Framework for Broadband Access to the Internet over Wireline Facilities, *Policy Statement*, 20 F.C.C.R. 14986 (2005), available at <http://www.publicknowledge.org/pdf/FCC-05-151A1.pdf> [hereinafter Broadband Policy Statement].

- *To encourage broadband deployment and preserve and promote the open and interconnected nature of the public Internet*, consumers are entitled to access the lawful Internet content of their choice.
- *To encourage broadband deployment and preserve and promote the open and interconnected nature of the public Internet*, consumers are entitled to run applications and use services of their choice, subject to the needs of law enforcement.
- *To encourage broadband deployment and preserve and promote the open and interconnected nature of the public Internet*, consumers are entitled to connect their choice of legal devices that do not harm the network.
- *To encourage broadband deployment and preserve and promote the open and interconnected nature of the public Internet*, consumers are entitled to competition among network providers, application and service providers, and content providers.<sup>184</sup>

Yet, as neutrality proponents in the House note in their dissent from the committee report,<sup>185</sup> the policy statement:

is a broadly-worded, imprecise statement of “feel-good” rhetoric intended to guide future agency decision-making but not, as the FCC Chairman indicated, to result in any enforceable protections or specific behavior requirements. It was not adopted subject to the thoroughness of the Administrative Procedures Act’s (APA) notice-and-comment process. It was not adopted with any notion of enforcement attached to it. In essence, the COPE Act requires the FCC to enforce something that is of highly dubious enforceability.<sup>186</sup>

As the dissenting representatives note, the fourth FCC principle is particularly illustrative of this problem. The principle may state that consumers are entitled to competition, but it provides no specifics whatsoever regarding implementation. “How does the FCC enforce that? How can an entity be justly found in violation of that? Competition across all markets is a noble aspiration, but can the lack of it legitimately lead to FCC fines? Simply directing the FCC to enforce this statement may prove unworkable.”<sup>187</sup> Empirically, even clear and simple ad hoc regulation such as in the Madison River case is likely less than effective. The bill’s mandate that the FCC impose four highly ambiguous policy statements on an ad hoc basis, without the power to create clear principles of implementation, is an obvious attempt to create the illusion of addressing concerns of discrimination while weakening the hand of the very agency that would be entrusted with enforcement.

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184. *Id.* at para. 4 (internal citations omitted).

185. H.R. REP. NO. 109-470, pt. 1, at 53 *et seq.* Dissenting Representatives include the Honorable: John D. Dingell, Henry A. Waxman, Edward J. Markey, Anna G. Eshoo, Lois Capps, Michael F. Doyle, Jan Schakowsky, Hilda L. Solis, and Tammy Baldwin.

186. *Id.* at 61.

187. *Id.*

## VI. MANDATING NEUTRALITY

Under S. 2917,<sup>188</sup> sponsored by Senators Olympia Snowe and Byron Dorgan, the FCC would be tasked with enforcing meaningful network neutrality mandates. The bill would require that broadband companies generally treat all data equally:

(a) Duty of Broadband Service Providers.—With respect to any broadband service offered to the public, each broadband service provider shall—

(1) not block, interfere with, discriminate against, impair, or degrade the ability of any person to use a broadband service to access, use, send, post, receive, or offer any lawful content, application, or service made available via the Internet;

(2) not prevent or obstruct a user from attaching or using any device to the network of such broadband service provider, only if such device does not physically damage or substantially degrade the use of such network by other subscribers;

(3) provide and make available to each user information about such user's access to the Internet, and the speed, nature, and limitations of such user's broadband service;

(4) enable any content, application, or service made available via the Internet to be offered, provided, or posted on a basis that—

(A) is reasonable and nondiscriminatory, including with respect to quality of service, access, speed, and bandwidth;

(B) is at least equivalent to the access, speed, quality of service, and bandwidth that such broadband service provider offers to affiliated content, applications, or services made available via the public Internet into the network of such broadband service provider; and

(C) does not impose a charge on the basis of the type of content, applications, or services made available via the Internet into the network of such broadband service provider;

(5) only prioritize content, applications, or services accessed by a user that is made available via the Internet within the network of such broadband service provider based on the type of content, applications, or services and the level of service purchased by the user, without charge for such prioritization; and

(6) not install or utilize network features, functions, or capabilities that impede or hinder compliance with this section.<sup>189</sup>

The bill contains a list of reasonable exemptions. BSPs can still protect their networks and the safety of end-users' computers<sup>190</sup> and offer optional consumer protection services such as anti-spam and parental controls.<sup>191</sup> They can still charge different prices for different levels of service,

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188. See S. 2917, *supra* note 16.

189. S. 2917, *supra* note 16, at § 2(a).

190. S. 2917, *supra* note 16, at § 2(b)(1).

191. S. 2917, *supra* note 16, at § 2(b)(3).

measured by either data transmission speeds or by total amount of data used per billing period.<sup>192</sup> BSPs can still enforce their terms of service<sup>193</sup> and prevent breaches of the law.<sup>194</sup> The bill requires the FCC to establish a mechanism for any aggrieved person to file a formal complaint, and the Commission generally must resolve these claims within ninety days.<sup>195</sup> In addition to other remedies under Title V of the Communications Act of 1934,<sup>196</sup> the FCC can order violators to cease discrimination and to pay damages to a complaining party.<sup>197</sup>

I would offer just two minor improvements by way of clarification. First, the bill is reasonably clear but could be more explicit so that the prohibition on broadband discrimination applies only to last-mile BSPs and not to intermediate transmission facilities, where the market is highly competitive and, due to packet-switching, very unlikely to lead to bottlenecks. It may be the case that, for some services, content or application discrimination is necessary; but senders and receivers should be able to choose freely among intermediate service providers or choose not to use such services. Second, the bill should add an additional clarification for establishments such as schools, libraries, government buildings, and Internet cafes that provide Internet service via computer terminals that are owned by the establishment. In the bill's current exemption permitting BSPs to offer "consumer protection services" such as anti-spam and content filtering software, BSPs are required to offer such services with the proviso that end-users may opt out.<sup>198</sup> In the case of establishments offering patrons access to the Internet on establishment-provided computers, the owner of the computer—not the user—should be able to choose whether or not such software is optional. These are minor clarifications, however, and the bill is fundamentally sound as it stands.

Whether added as an amendment to broader telecommunications reform or passed on its own, S. 2917 would preserve the norm of network neutrality, perpetuating a degree of predictability that would greatly facilitate online innovation, and BSPs would be prevented from censoring speech with which they disagree. Network administrators would still be permitted to prevent harmful activity, comply with legal duties, and neutrally manage bandwidth. Network engineers could still design networks to cope with congestion or to speed up service, for instance,

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192. S. 2917, *supra* note 16, at § 2(b)(2).

193. S. 2917, *supra* note 16, at § 2(b)(4).

194. S. 2917, *supra* note 16, at § 2(b)(5).

195. S. 2917, *supra* note 16, at § 2(e).

196. 47 U.S.C. § 501 *et seq.* (2006).

197. S. 2917, *supra* note 16, at § 2(f).

198. S. 2917, *supra* note 16, at § 2(b)(3).

prioritizing older packets over newer ones, undermining claims that the Internet is not exactly neutral today and that non-neutral engineering is necessary for network management. BSPs could even offer differentiated products at different prices, charging more for connections with higher average, peak, or minimum throughputs or for greater net usage per billing period.

Considering the deep, abiding constitutional and economic values that flourish under a neutrality regime, it would take persuasive counter-arguments to dissuade most from agreeing that this regime would be a good idea—at least in a market as concentrated as the broadband market. I next turn to the alleged disadvantages: network congestion, lack of network diversity, and regulatory malfeasance.

## VII. REBUTTING COUNTER-ARGUMENTS

### A. Network Congestion

The supposed inability of BSPs to effectively manage network congestion is the first of Yoo's two major objections to a neutrality mandate. Even if congestion is a problem, or becomes one,<sup>199</sup> it is more cost-effective to add more bandwidth than it is to discriminate in the middle of the network.<sup>200</sup> Even if additional bandwidth is insufficient or

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199. Neutrality opponents are probably overstating the extent of congestion in opposing mandated neutrality. The application most cited as needing consistent, speedy real-time delivery is VoIP. Yet Felten, *supra* note 93, concludes that current broadband speeds generally have enough bandwidth to support VoIP. *Id.*

200. Farhad Manjoo, *The Corporate Toll on the Internet*, SALON.COM, Apr. 17, 2006, [http://www.salon.com/tech/feature/2006/04/17/toll/index\\_np.html](http://www.salon.com/tech/feature/2006/04/17/toll/index_np.html). Manjoo explains:

Gary Bachula, vice president for external affairs of Internet2, a nonprofit project by universities and corporations to build an extremely fast and large network, argues that managing online traffic just doesn't work very well. At the February Senate hearing, he testified that when Internet2 began setting up its large network, called Abilene, "our engineers started with the assumption that we should find technical ways of prioritizing certain kinds of bits, such as streaming video, or video conferencing, in order to assure that they arrive without delay. As it developed, though, all of our research and practical experience supported the conclusion that it was far more cost effective to simply provide more bandwidth. With enough bandwidth in the network, there is no congestion and video bits do not need preferential treatment."

Today, Bachula continued, "our Abilene network does not give preferential treatment to anyone's bits, but our users routinely experiment with streaming HDTV, hold thousands of high-quality two-way videoconferences simultaneously, and transfer huge files of scientific data around the globe without loss of packets."

*Id.* Of course, BSPs may nonetheless wish to implement a less cost-effective, non-neutral solution in order to create a new revenue model based on broadband discrimination. Relative to an upgrade in bandwidth, BSPs will spend more to manage congestion via packet discrimination, but that service will be of less net economic value than one into which the same capital had been spent upgrading bandwidth. Yoo is thus defending an

cannot be deployed in time to outpace demand, network neutrality is still warranted because BSPs can better manage bandwidth via content-neutral measures of speed of service provided or actual bits used, including maximum speed, minimum speed, and total bandwidth used per billing cycle.

Yoo acknowledges that managing bandwidth congestion is ideally done via usage-sensitive pricing, but he notes that transaction costs may render this option impractical.<sup>201</sup> He suggests that the problem of transaction costs may explain flat-rate local telephone pricing in the U.S.,<sup>202</sup> but he later acknowledges that “the persistence of usage-based pricing of local telephone service in other countries raises questions of the universality of the benefits of flat-rate pricing.”<sup>203</sup> He also suggests, without citing any literature, that transaction costs—as opposed to, say, consumer demand for predictable billing—have led cellular telephone carriers to move away from usage-sensitive pricing.<sup>204</sup> Based on the mere possibility that transaction costs could prohibit the efficient metering of bandwidth, Yoo would permit BSPs to manage congestion by discriminating based on the type of application used or content transmitted.<sup>205</sup>

The argument for congestion management via application discrimination is riddled with holes. First, Yoo never quantifies the expense of bandwidth metering—an ironic failure from a scholar who expects his opponents to quantify a trade-off in political values. He cites no networking literature to hint that metering is cumbersome. Considering that BSPs already log their users’ Web activities, this claim requires empirical support. Second, even if the analogy with telephone metering holds, telephone companies continue to bill by the minute for long distance and to offer plans with cost-per-call rather than flat-rate local calling. Nearly all cellular providers meter each and every call during peak weekday minutes, billing for peak minutes that exceed a user’s pre-purchased allotment—a reasonable business model if BSPs are truly facing a congestion crisis.

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economically inefficient business path resulting in substantial deadweight losses.

201. Yoo, *Congestion*, *supra* note 20, at 1865-72.

202. Yoo, *Congestion*, *supra* note 20, at 1868.

203. Yoo, *Congestion*, *supra* note 20, at 1870.

204. Yoo, *Congestion*, *supra* note 20, at 1870. This argument muddles the distinction between buying tiers of bundled minutes, which still requires accurate metering, and buying unlimited access, as happens with local landline calling in the U.S. There is therefore no likely relationship between transaction costs and changing pricing models for cellular calls. Nearly all carriers still carefully meter both peak and off-peak minutes for each customer, even providing customers with online and handset-based means of checking their current minute usage.

205 Yoo, *Congestion*, *supra* note 20, at 1879-83.



Third, coping with congestion by throttling new technologies retards technological progress. Mandated neutrality for telephone users remained a good idea despite the “unfair” network burden created by dial-up Internet users. If Yoo’s reasoning had ruled the day fifteen years ago, telephone companies would have been permitted to reduce network congestion by discriminating against dial-up ISP numbers, seeking monopoly rents from Internet-using customers.<sup>206</sup> The deadweight losses would have radically reduced Internet use, so much so that Internet use and online innovation would have been substantially lower than they have been to date. The new technology would barely have gotten off the ground if the gatekeepers of the old technology on which it was built had taxed it at a rate of their choosing. The Bells’ real business motive may have been to profit handsomely from others’ innovations, but their rhetoric would have been about managing telephone network congestion.

Yoo does, however, acknowledge that metering costs may not be prohibitive; if they are not, then network restrictions are unwarranted. “This is not to say that all deviations from network neutrality will invariably be innocent. Indeed, under my approach such restrictions would not be justified when the transaction costs of metering bandwidth usage are relatively low.”<sup>207</sup> Both Yoo and neutrality proponents believe that a metered regime is preferable to one that throttles or surcharges specific applications. Payments should ideally reflect objective measures of bandwidth, based on total bandwidth use and/or download/upload speeds. Maximum speed is a good substitute for total use—much more so than application-specific port blocking. Application-specific blocks can be creatively engineered around; in at least one instance, Vonage was able to get its traffic around a BSP’s apparent attempt to block its traffic simply by using other ports.<sup>208</sup> In contrast, instant bandwidth capacity is an effective means of price discrimination:

[S]ervice providers can keep endlessly upgrading their customers’ connections, and use increasing speeds as a market segmentation device. The significance of the low utilization of data networks . . . is that what matters to users is not getting lots of bits, but getting a

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206. Yoo would object to this characterization, at least in part; he insists that the era of healthy broadband competition is upon us and we therefore need not bother with legal precedents set in the era of RBOC monopolies. See Yoo, *Congestion*, *supra* note 20, at 1878-79. Recall from above, however, that local broadband markets are anything but competitive. See *supra*, Part IV. Yoo’s hypothetical objection would therefore need to explain why a near-total broadband duopoly is sufficiently different from total monopoly to guarantee that the next “unfair,” revolutionary use of networking resources is permitted to thrive without threat of discrimination.

207. Yoo, *Congestion*, *supra* note 20, at 1899.

208. Mark Sullivan, *Vonage Hits ISP Resistance*, LIGHT READING, Mar. 30, 2005, [http://www.lightreading.com/document.asp?doc\\_id=71020&site=lightreading](http://www.lightreading.com/document.asp?doc_id=71020&site=lightreading).

moderate amount of bits quickly, in other words low transaction latency.<sup>209</sup>

Network owners already can and do price discriminate based on maximum speed and/or total per-month usage. Maximum download speed is the most common basis for price discrimination. Verizon offers DSL service at two tiers of connection speeds,<sup>210</sup> as does AT&T.<sup>211</sup> Verizon has also deployed fiber optic networking in limited areas, featuring three tiers of download speeds at prices starting at \$34.95 per month,<sup>212</sup> for a total of five Verizon tiers.

As Odlyzko argues, networks are generally underutilized,<sup>213</sup> the problem is, therefore, not total bandwidth use but congestion during online rush hours. In dealing with this problem, charging more for a higher maximum or higher minimum is a more effective means of allocating scarce bandwidth based on willingness to pay; higher-cost connections generally deliver higher throughput during both rush hour and down times. Yet even if total bandwidth use matters greatly, network congestion can be and is managed along those lines as well. Several BSPs, especially cable companies, enforce caps on the total bandwidth usage per billing period. Cox Communications, for instance, provides three tiers of service that distinguish users based on instant bandwidth *and* total per-month usage.<sup>214</sup> While Comcast is less explicit with their customers, they also enforce caps on end-users' total bandwidth. The trouble of monitoring total bandwidth cannot be beyond the budgets of many BSPs; University of Connecticut students who live in the residence halls are subject to caps of seven gigabytes of total per-week bandwidth usage on their residential T1 lines.<sup>215</sup> These are profoundly captive "customers" whose service fees are built into their boarding charges. The school could block specific applications such as peer-to-peer applications with little economic loss, yet they find it perfectly feasible to enforce reasonable network usage via a

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209. Odlyzko specifically lectures BSPs for mistakenly seeking to create vertically integrated streaming media centers when ever-faster broadband pipes serve the clearest route to finely detailed price discrimination. Odlyzko, *supra* note 43, at 28.

210. See Verizon, *Packages and Prices*, <http://www22.verizon.com/ForHomeDSL/channels/dsl/packages/default.asp> (last visited Nov. 5, 2006).

211. See AT&T, *Internet Services*, <https://swot.sbc.com/swot/dslMassMarketCatalog.do?do=view&serviceType=DYNAMICIP> (last visited Nov. 5, 2006).

212. See Verizon, *Verizon FiOS: Packages and Prices*, <http://www22.verizon.com/content/ConsumerFios?LOBCode=C&PromoTCode=DNI01&PromoSrcCode=B&POEId=TL1HP> (last visited Nov. 5, 2006).

213. Odlyzko, *supra* note 43, at 28.

214. See Cox Communications, *Limitations of Service*, <http://www.cox.com/policy/limitations.asp> (last visited Nov. 5, 2006).

215. See University of Connecticut, *Bandwidth Usage*, <http://www.security.uconn.edu/guides/bandwidth.html> (last visited Nov. 5, 2006).

per-week bandwidth cap. If the University of Connecticut can meter bandwidth, it is certainly feasible for Verizon to do so. Therefore, since “the transaction costs of metering bandwidth usage are relatively low,”<sup>216</sup> Yoo’s own reasoning leads us to conclude that BSP-imposed limits on specific applications are unwarranted.

### B. Network Diversity

Yoo insists that the Internet of the future may be more innovative if networking resources are divided into a set of separate functions. He acknowledges that the norm of the neutral network has caused the exponential innovation of the recent past, but insists that changes in the Internet require rethinking neutrality. “Given the Internet’s meteoric success, it is tempting to treat the status quo as the relevant baseline and to place the burden on those who would deviate from it . . . In recent years, however, the environment in which the Internet operates has changed radically.”<sup>217</sup> In light of these changes, Yoo anticipates a plethora of network designs among last-mile providers, each optimized to a different niche market:

Indeed, it is conceivable that network diversity might make it possible for three different last-mile networks to coexist: one optimized for traditional Internet applications such as e-mail and website access, another incorporating security features to facilitate e-commerce and to guard against viruses and other hostile aspects of Internet life, and a third that prioritizes packets in the manner needed to facilitate time-sensitive applications such as streaming media and VoIP.<sup>218</sup>

Yet Yoo references little if any technical literature to support this vision of special purpose last-mile networks.<sup>219</sup> Quite the contrary, one of his sources, the Blumenthal and Clark piece that describes the Internet’s recent changes,<sup>220</sup> sounds a call to preserve neutrality, not to create multiple, special-purpose networks. Here is the very last sentence of their article: “We argue that the open, general nature of the Net, which derived from the end-to-end arguments, is a valuable characteristic that encourages

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216. Yoo, *Congestion*, *supra* note 20, at 1899.

217. Yoo, *Beyond*, *supra* note 22, at 21 (internal citations omitted).

218. Yoo, *Beyond*, *supra* note 22, at 31.

219. Having consulted innumerable online resources and several current or former IT professionals in preparation for this Article, I have concluded that the vast majority of those with the technical skills to develop—or even implement—the next great online innovation support a generalized Internet protocol, and they fear rather than welcome BSP violations of network neutrality.

220. Marjory S. Blumenthal & David D. Clark, *Rethinking the Design of the Internet: The End-to-End Arguments vs. the Brave New World*, 1 ACM TRANSACTIONS ON INTERNET TECH. 70 (2001).

innovation, and that this flexibility should be preserved.”<sup>221</sup> Blumenthal and Clark are two of the most established Internet architects and researchers in history,<sup>222</sup> and they draw exactly the opposite conclusion as Yoo, pleading for the preservation of the architectural norm of a generally neutral Internet.

While supporting neither the legal nor the technical regime described by Yoo, Blumenthal and Clark do acknowledge that deviations from that principle can also be useful. “[F]rom the beginning, the end-to-end arguments revolved around requirements that could be implemented correctly at the end-points; if implementation inside the network is the only way to accomplish the requirement, then an end-to-end argument isn’t appropriate in the first place.”<sup>223</sup> For instance, the authors note that locally cached, two-stage delivery via intermediate servers is particularly useful for streaming media content.<sup>224</sup> Yet the potential benefits of deviations from the end-to-end principle seminally developed by Saltzer, Reed, and Clark<sup>225</sup> do not disprove the value of the neutrality regime proposed by Snowe and Dorgan. The proposed rules would prevent BSPs from obstructing nondestructive communications, whether by blocking packets entirely or relegating them to the slow lane—especially due to a failure to pay for priority delivery. These rules certainly would not prevent BSPs from adding additional, useful functionality such as intermediate caching. The text of the ban itself is clear enough on this point, but Snowe and Dorgan’s first exception is even clearer. It specifically grants network owners the power to manage their “network in a manner that does not distinguish based on the source or ownership of content, application, or service . . .”<sup>226</sup> If BSPs want to introduce tools like intermediate caching, they certainly may do so as long as the tools are open to all senders without charge.

Blumenthal and Clark believe BSPs, in seeking vertically integrated business models, are perhaps the single greatest looming threat to online innovation. “The concern here, however, is that investment in closed islands of enhanced service, combined with investment in content servers within each island, decreases the motivation for investment in the

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221. *Id.* at 99.

222. From 1987 to 2003, Blumenthal was Executive Director of the Computer Science and Telecommunications Board of the National Research Council. Clark is currently a Senior Research Scientist at the Massachusetts Institute of Technology Computer Science and Artificial Intelligence Laboratory. From 1981 to 1989, he acted as Chief Protocol Architect in the development of the Internet and chaired the Internet Activities Board.

223. Blumenthal & Clark, *supra* note 220, at 80 (internal citation omitted).

224. See Blumenthal & Clark, *supra* note 220, at 83.

225. See Saltzer et al., *supra* note 31, at 282-84.

226. *S. 2917*, *supra* note 16, at § 2(b)(1).

alternative of open end-to-end services. Once started down one path of investment, the alternative may be harder to achieve.”<sup>227</sup> This sincere fear rebuts Yoo’s reasoning nicely; online innovation will not be fostered, but rather slowed by any attempt by BSPs to create and market competing packages of “closed islands” of services. BSPs will have tremendous incentives to invest in the delivery of content inside their “closed island” and to neglect their delivery of the general-purpose Internet. Even worse, this may become a positive feedback loop. The sharper the difference in quality, the more BSPs can charge online providers for access to the top tier of delivery; the more they can charge for the right to send information quickly, the more incentive they have to neglect the general-purpose Internet.

If this scenario transpires, Yoo insists, inefficient restrictions placed on network traffic by incumbents will only empower entry by new BSPs.<sup>228</sup> Yet this analysis is seriously flawed for at least two reasons. First, Yoo incorrectly assumes that new BSPs will enter and succeed due to unique packages of proprietary content and applications. Yet as Odlyzko explains:

[T]here is far more money in providing basic connectivity. That is what people have always valued far more, and have been prepared to pay more for. (The far greater revenues of cellular carriers in the U.S. than of cable TV providers is just one example . . . .) But while content delivery does lend itself to a closed network, connectivity does not.<sup>229</sup>

Unlike the NFL Network’s ability to boost satellite TV subscriptions,<sup>230</sup> AOL has realized exclusive content drives few Internet service subscriptions and is therefore sharing nearly all of its offerings on the free Internet in an effort to gain advertising revenue.<sup>231</sup>

Yoo’s prediction of new market entrants also elides two major barriers to market entry: a substantial first-mover advantage, exacerbated by substantial sunk costs. If a firm enters a market first, serving as a monopoly, a second firm faces a substantive disadvantage in entering that market.<sup>232</sup> Because there is far greater money in connectivity, that will always provide the greatest incentive for new market entrants. Yet the first

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227. Blumenthal & Clark, *supra* note 220, at 73.

228. See Yoo, *Beyond*, *supra* note 22, at 48-53.

229. Odlyzko, *supra* note 43, at 28. While Odlyzko explains why open networks will tend to win, note that the reasoning discussed in this Article demonstrates why the exceptions are both common enough and, even when rare, bad enough to warrant intervention. See discussion, *supra* Parts I-II.

230. See, e.g., Richard Sandomir, *Battling Time Warner, NFL Network Gains Ground*, N.Y. TIMES, Aug. 8, 2006, at D2.

231. See, e.g., *AOL Gets the Message*, L.A. TIMES, July 15, 2006, at B16.

232. ROBERT S. PINDYCK & DANIEL R. RUBINFELD, MICROECONOMICS (6th Ed.) 447-48 (2005).

one or two firms in a regional broadband market will already have a vast majority of the market locked up, even at inefficient prices. Even if we suppose that broadband is a frictionless commodity market, new entrants can erode those profits, but they can rarely afford to charge low enough prices to achieve a market share comparable to that of the current monopolist.<sup>233</sup> The telecommunications market, of course, is far from frictionless; it involves substantial sunk costs.<sup>234</sup> Verizon has already laid the cables and must only maintain them; a new BSP faces substantial build-out costs, and Verizon can likely afford to match or beat their prices. This built-in disincentive to new market entry erodes the potential for new market entrants to discipline inefficient monopolistic practices. Decades of bipartisan FCC policymaking recognized this:

Indeed, under both Republican and Democratic Administrations, the FCC respected the efficiency and possible inevitability of natural monopoly in the market of physical, fixed wire links to households. . . . The FCC's goal has routinely been not to insist that competitors always bypass bottlenecks, such as by building redundant local access, but instead that bottlenecks be shared where that would be a means to the end of competition in services offered to end users.<sup>235</sup>

Yoo's prediction, an immediate future populated by a diverse array of broadband networks featuring highly customized features and content, defies both history and accepted economic theory.

### C. Better to Wait and See

Several opponents of network neutrality believe that the best approach is to wait and see. They are genuinely scared of broadband discrimination, but they would rather regulate after the situation has evolved further. The alleged disadvantage is that regulating now removes the chance to create better regulation later, and it accrues the unforeseen consequences described below.<sup>236</sup> Felten provides a particularly visible and eloquent example of this argument. He agrees that neutrality is generally desirable as an engineering principle, but he wishes the threat of regulation

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233. *Id.* at 448.

234. Jordi Gual, *Market Definition in the Telecoms Industry*, CENTRE FOR ECONOMIC POLICY RESEARCH, July 2003, <http://www.cepr.org/pubs/dps/DP3988.asp>. Wireless transmission potentially involves far fewer sunk costs, but the current structure of spectrum auctions creates unnecessary sunk costs for much of the available spectrum. See Eli Noam, *Beyond Spectrum Auctions: Taking the next step to open spectrum access*, 21 TELECOMM. POL'Y 461, 461 (1997). Standards-compliant WiMax, of the type Sprint intends to deploy, is built for use in licensed spectrum. See discussion, *supra* notes 153-55. Cellular broadband also operates in licensed frequencies.

235. Reed Hundt, *The Ineluctable Modality of Broadband*, 21 YALE J. ON REG. 239, 249 (2004).

236. See discussion, *infra* Part VII.D.

could indefinitely continue to deter discrimination:

There is a good policy argument in favor of doing nothing and letting the situation develop further. The present situation, with the network neutrality issue on the table in Washington but no rules yet adopted, is in many ways ideal. ISPs, knowing that discriminating now would make regulation seem more necessary, are on their best behavior; and with no rules yet adopted we don't have to face the difficult issues of line-drawing and enforcement. Enacting strong regulation now would risk side-effects, and passing toothless regulation now would remove the threat of regulation. If it is possible to maintain the threat of regulation while leaving the issue unresolved, time will teach us more about what regulation, if any, is needed.<sup>237</sup>

Unfortunately, the threat of regulation cannot indefinitely postpone the need for actual regulation. In the U.S. political system, most policy topics at most times will be of interest to a small number of policymakers, such as those on a relevant Congressional subcommittee or regulatory commission. This leads to periods of extended policy stability. Yet, as Baumgartner and Jones explain, this “stability is punctuated with periods of volatile change”<sup>238</sup> in a given policy domain. One major source of change, they argue, is “an appeal by the disfavored side in a policy subsystem, or those excluded entirely from the arrangement, to broader political processes—Congress, the president, political parties, and public opinion.”<sup>239</sup>

A key variable in the process is attention. Human attention serves as a bottleneck on policy action, and institutional constraints further tighten the bottleneck. Specialized venues such as the FCC will be able to follow most of the issues under their supervision with adequate attention, but most of the time the “broader political processes” pay no attention to those issues. Elected representatives have so many constituencies clamoring for their attention that even deciding which problems to attend to over the course of an entire legislative session is a momentous task that necessarily leaves out the vast majority of potential problems. The public, too, can pay attention to just a small fraction of the important issues of the day; few advocacy groups can keep ordinary citizens engaged for long enough to apply sustained political pressure. Hence, most policy issues will be dealt with by leaving the status quo in place—even in the face of mounting evidence that the status quo has failed. Once enough evidence mounts that individuals or institutions discover or rediscover it, however, the reaction is disproportionate. The flip side of the human inability to pay attention to

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237. Felten, *supra* note 114, at 10.

238. FRANK R. BAUMGARTNER & BRYAN D. JONES, *AGENDAS AND INSTABILITY IN AMERICAN POLITICS* 4 (1993).

239. BRYAN D. JONES & FRANK R. BAUMGARTNER, *THE POLITICS OF ATTENTION: HOW GOVERNMENT PRIORITIZES PROBLEMS* 5 (2005).

many things at once is the depth with which we do pay attention to something once it catches our gaze. This creates the cycle of punctuated equilibriums. Congress and the President leave the status quo more or less alone until they and the public pay attention to an issue, and that attention is a necessary condition for major policy changes.

In the U.S., passing new legislation is far more difficult than winning policy changes at the regulatory level, so it is best to pass legislation while this issue has the attention of the Congress and the public. In contrast, regulatory fights are much more winnable for the lesser-funded side in a political conflict.<sup>240</sup> FCC decisions are built on statutory parameters, and “[c]hanges in deeper-level rules usually are more difficult and more costly to accomplish.”<sup>241</sup>

Broadband Internet service has come of age without Congress paying much attention to its governance, delegating regulatory decisions to the FCC. In the last five years, the Commission has changed the rules for broadband so that it is now virtually unregulated, leaving the door open to profiteering and discrimination. In 2006, however, the issue of broadband regulation has captured the nation’s attention.<sup>242</sup> That attention cannot and will not remain indefinitely.

If network neutrality fails to become law, nonprofit, educational, and citizen groups—those who have led the call for network neutrality—will all lose some degree of communication power on the tiered Internet. This will erode their collective ability to make the call for reform in the future. If network neutrality is the right policy, the time to strike is now.<sup>243</sup> Without strong neutrality mandates, the Internet will be profoundly different by the time there is enough public attention to force the issue again—if that day ever returns.

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240. See, e.g., Bill D. Herman & Oscar H. Gandy, Jr., *Catch 1201: A Legislative History and Content Analysis of the DMCA Exemption Proceedings*, 24 CARDOZO ARTS & ENT. L.J. 121. Herman and Gandy argue, *inter alia*, that the U.S. Copyright Office is a relatively captured agency. Nonetheless, they identify several instances in which the Office used its authority under 17 U.S.C. § 1201(a)(1) to side with nonprofits or individuals, despite objections from copyright holders.

241. Elinor Ostrom, *Institutional Rational Choice: An Assessment of the Institutional Analysis and Development Framework* in THEORIES OF THE POLICY PROCESS, 35, 59 (Paul A. Sabatier ed., 1999).

242. Dionne Searcey & Amy Schatz, ‘Net Neutrality’ Debate Is Roiling the Internet, PITTSBURGH POST-GAZETTE, June 14, 2006, available at <http://www.post-gazette.com/pg/06165/698166-96.stm>.

243. See generally Bill Herman, *Responding to Felten’s Net Neutrality Paper*, PUBLIC KNOWLEDGE, July 12, 2006, <http://www.publicknowledge.org/node/523>; Bill Herman, *Responding to Felten (& Co.), Squared*, PUBLIC KNOWLEDGE, July 13, 2006, <http://www.publicknowledge.org/node/528>.



#### *D. Unintended Regulatory Consequences*

While Yoo might agree, other authors have carried the banner that network neutrality is undesirable because the actual implementation of any network neutrality regime will create regulatory nightmares. Many of these authors support a generally neutral Internet as preferable, yet they conclude that the regulatory cure is too likely to be worse than the discriminatory disease. Some fear that the unintended consequences of regulation will erode the value of the Internet. A few authors go so far as to implicitly and preemptively accuse the FCC of malfeasance. I share the moderate critics' fear that regulation will have unforeseeable consequences, and I share some degree of the harshest critics' fear that the FCC may not implement neutrality in the fairest manner possible. Nonetheless, the odds are thin that the unforeseen consequences or the Commission's implementation will be worse than the profiteering discrimination that will come without network neutrality mandates.

Four noted scholars gathered at the Wharton School at the University of Pennsylvania in June, 2006, and generally agreed that the unintended consequences outweigh the benefits.<sup>244</sup> The group included: David Farber, Distinguished Career Professor of Computer Science and Public Policy at the Carnegie Mellon University; Gerald Faulhaber, Professor of Business and Public Policy at the Wharton School, and Professor of Law, University of Pennsylvania; Michael Katz, Sarin Chair in Strategy and Leadership, Haas School of Business, and Professor of Economics, University of California, Berkeley; and Christopher Yoo. Farber describes the meeting as an attempt "to provide an unbiased interdisciplinary analysis of network neutrality."<sup>245</sup> They concluded, in part, that neutrality mandates "threaten to restrict a wide range of innovative services without providing compensating customer benefits. The problem is that it can be difficult, if not impossible, to determine in advance whether a particular practice would promote or harm competition."<sup>246</sup> In other words, network neutrality regulations would prevent both undesirable and desirable innovations in network engineering and broadband business models. They recommend relying on antitrust law because it can be more neatly tailored to specific

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244. Posting of David Farber to ip@v2lbox.com, [IP] "Common Sense About Network Neutrality", <http://www.interesting-people.org/archives/interesting-people/200606/msg00014.html> (June 2, 2006, 16:12 EST).

245. *Id.* All four are extremely qualified to investigate the matter, but the claim to "unbiased" investigation is of questionable credibility. Faulhaber, Katz, and Yoo have received research or consulting money from telecommunications and cable companies. Posting of Jeff Chester to Digital Destiny, *Dave Farber, Net Neutrality, and the Verizon Connection*, <http://www.democraticmedia.org/jcblog/?p=64> (Aug. 1, 2006, 15:04 EST).

246. Farber, *supra* note 244.

violations,<sup>247</sup> itself a problematic solution addressed above.<sup>248</sup>

An even more stridently anti-regulation writer is Timothy B. Lee, policy analyst at the Show-Me Institute—not to be confused with Tim Berners-Lee, the world-famous inventor of the Web and a strong supporter of network neutrality mandates.<sup>249</sup> Timothy B. Lee insists that BSPs will have more sway than any other group in hearings before the FCC and will therefore “turn the regulatory process to their advantage.”<sup>250</sup> He draws from a vivid historical example of the Interstate Commerce Commission (“ICC”), founded in 1887. “After President Grover Cleveland appointed Thomas M. Cooley, a railroad ally, as its first chairman, the commission quickly fell under the control of the railroads, gradually transforming the American transportation industry into a cartel.”<sup>251</sup>

Yet this historic analogy, and its applicability to the network neutrality problem, is highly problematic. Even the ICC, the most cliché example of regulatory capture,<sup>252</sup> was not necessarily a bad policy decision when compared with the alternative of allowing market abuses to continue unabated. One study concludes “that the legislation did not provide railroads with a cartel manager but was instead a compromise among many contending interests.”<sup>253</sup> In contrast with Lee’s very simplistic story of capture by a single interest group, “a multiple-interest-group perspective is frequently necessary to understand the inception of regulation.”<sup>254</sup>

BSPs are certainly the most well-organized interest group involved on this issue; they have the most political clout, and they spend several times more on lobbying and campaign contributions than do Internet companies.<sup>255</sup> Yet many groups beside BSPs are involved in the network neutrality debate, including: technology law advocates such as Public

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247. Farber, *supra* note 244. In describing the group’s conclusions, Faulhaber concludes that an antitrust settlement, “takes much less time than the FCC.” *Getting a Fix on Network Neutrality*, KNOWLEDGE@WHARTON, June 14, 2006, <http://knowledge.wharton.upenn.edu/articleid=1497&CFID=1323070&CFTOKEN=86579601>. The timeframe of years in the Netscape antitrust case contrasts sharply with the 90-day window in the Snowe-Dorgan bill, however, suggesting that Faulhaber has it backwards.

248. See discussion, *supra* Part V.

249. Posting by Tim Berners-Lee to timbl’s blog, *Net Neutrality: This is Serious, Decentralized Information Group*, <http://dig.csail.mit.edu/breadcrumbs/node/144> (June 21, 2006, 16:35 EST).

250. Timothy B. Lee, *Entangling the Web*, N.Y. TIMES, Aug. 3, 2006, at A22.

251. *Id.*

252. LAWRENCE S. ROTHENBERG, REGULATION, ORGANIZATIONS, AND POLITICS: MOTOR FREIGHT POLICY AT THE INTERSTATE COMMERCE COMMISSION 3 (1994).

253. Thomas W. Gilligan et al., *Regulation and the Theory of Legislative Choice: The Interstate Commerce Act of 1887*, 32 J. L. & ECON. 35, 36 (1989).

254. *Id.* at 60.

255. See Caruso, *supra* note 19.

Knowledge, Free Press, and the Center for Democracy and Technology; political groups such as MoveOn and the Christian Coalition; and dotcoms such as Google, Amazon, and eBay. The actual implementation of neutrality mandates will therefore likely represent a compromise between these interests.

Lee, however, insists that the FCC will do worse than fail to do the unqualified bidding of neutrality proponents. His:

big fear is not so much that the FCC will screw up the regulation of the Baby Bells (it's hard to imagine that market being any more screwed up) but that FCC regulation will metastasize into a generalized barrier to entry for offering broadband access—that the incumbents will find a way to interpret the law in a way that's difficult for new entrants to comply with.<sup>256</sup>

Lee insists that the FCC currently has “no authority” that would allow it to prevent new entrants to the broadband market.<sup>257</sup> This is a half-truth at best. The FCC was formed and continues to serve as a means of regulating the airwaves,<sup>258</sup> and wireless transmission is the single best hope for establishing a third commonly adopted vehicle for broadband delivery. The FCC is therefore already in a position to limit the ability of new BSPs to spring up. Instead, the Commission has made several policy changes to facilitate wireless Internet transmissions.<sup>259</sup> Power lines are another potential vehicle for broadband delivery. Several groups, including broadcasters—long reputed as having captured the FCC<sup>260</sup>—asked the FCC to rule that broadband-over-power-lines (“BPL”) creates interference with their transmissions and to limit or disallow the service. Instead, the FCC “affirmed that BPL providers have the right to provide data access using power transmission lines, provided they don't interfere with existing radio services.”<sup>261</sup> Despite concerns about the FCC's rulemaking in other areas,<sup>262</sup> the Commission is not a fully captured agency but rather supports

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256. Timothy B. Lee, *Regulatory Firewall*, TECHNOLOGY LIBERATION FRONT, July 14, 2006, <http://www.techliberation.com/archives/040158.php>.

257. *Id.*

258. See, e.g., ROBERT W. MCCHESENEY, TELECOMMUNICATIONS, MASS MEDIA, AND DEMOCRACY: THE BATTLE FOR THE CONTROL OF U.S. BROADCASTING, 1928-1935 (1993).

259. Robert Primosch, *FCC Creating New Opportunities for Wireless Broadband*, THE WIRELESS INTERNET INSTITUTE, June 23, 2004, <http://www.w2i.org/pages/oped/2004/0623.html>.

260. Thomas W. Hazlett & Matthew L. Spitzer, *Digital Television and the Quid Pro Quo*, 2 BUS. & POL. 115 (2000), available at <http://www.bepress.com/bap/vol2/iss2/art2>.

261. Wayne Rash, *FCC Supports Broadband over Power Lines*, EXTREME TECH, Aug. 3, 2006, <http://www.extremetech.com/article2/0,1697,1998734,00.asp>. See Amendment of Part 15 regarding new requirements and measurement guidelines for Access Broadband over Power Line Systems, FCC 06-113 (Aug. 7, 2006), [http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/FCC-06-113A1.pdf](http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-06-113A1.pdf).

262. Hazlett & Spitzer provide a reasonable recap of the argument that the FCC does not

competition in the broadband industry.

The realistic version of Lee's story of regulatory captures is therefore that the Commission will fail to give network neutrality regulations real teeth. BSPs will violate network neutrality principles, the Commission will slap their wrists, and BSPs will only temporarily stop engaging in anticompetitive packet discrimination. Even then, the threat of regulatory sanction will generally prevent BSPs from flagrantly discriminating between Internet content for excess profits.<sup>263</sup> This scenario is markedly preferable to a broadband market where BSPs deliberately and willfully slow some websites and applications, speeding others and charging tolls for the fast lane. A regime in which BSPs are still implicitly allowed to discriminate is far better than one in which they may charge for such discrimination, because discrimination will still be rare in the former scenario. Only services that compete with BSPs' core business models will be endangered, and the FCC has already shown its willingness to act in those cases.<sup>264</sup> This is the realistically negative scenario, and it looks vastly preferable to BSPs' new business model.

## VII. CONCLUDING BITS

The principle of generalized network neutrality is responsible for the Internet revolution, and it would be poor policymaking to allow BSPs to erode that principle in the name of better profit margins. Widespread broadband discrimination would cause substantial economic and social losses. The continued and varied forms of discrimination are noteworthy and regrettable, but the impending threat of unrestrained profiteering is much worse. By threatening to ban, block, or extract the value from online communication, BSPs reduce the incentive to create new technologies, and they threaten to erode the remarkable ethos of unpaid online production. Even if rare, the mere possibility of BSP censorship is a clear danger to First Amendment values.

In the face of such actual and potential discrimination, it would be wonderful if consumers could switch providers in a competitive market; unfortunately, the broadband market is characterized by regional duopolies, a problem that will likely continue in the foreseeable future. Unless

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force broadcasters to meet their statutory public interest obligations. *See* Hazlett & Spitzer, *supra* note 261. Others argue that the Commission is too eager to disassemble limitations on media ownership. *See, e.g.,* MCCHESENEY, *THE PROBLEM*, *supra* note 51.

263. Even in the scenario in which the FCC virtually never enforces the Snowe-Dorgan Bill, Verizon will still be prevented from sending Google a monthly bill—a *written record* demanding payment for its violations of federal law—for Verizon's not throttling Google's data.

264. Madison River Communications, L.L.C., *Order and Consent Decree*, 20 F.C.C.R. 4295 (2005).

Congress orders the FCC to enforce network neutrality, innovators and consumers will be at the whim of a few large broadband providers. As outlined above, however, Congress could work to provide a reasonable guarantee that BSPs will not interfere with nondestructive communication.

The Snowe-Dorgan Bill will not prevent BSPs from successfully managing their networks; it provides reasonable and explicit exceptions for preventing destructive uses, and it does not preclude useful deviations from a pure end-to-end design such as local caching. In an era where BSPs ranging in size from state universities to major commercial BSPs already monitor their users' total per-week or per-month bandwidth usage, BSPs should be expected to impose bandwidth limits neutrally rather than picking technological winners and losers. Further, the Bill will not prevent the healthy evolution of networking technologies. While the FCC is an imperfect regulatory body, the negative impacts from the looming threat of discrimination far outweigh the negative impacts of any realistic disadvantage based on imperfect regulatory capture. Preventing broadband discrimination, even imperfectly, will greatly improve the economic and social value of the Internet for years to come.

Decades of bipartisan regulatory tradition forced telecommunications companies to provide access to their lines on a nondiscriminatory basis, doing so for purposes both economic and democratic. This tradition brought us the rapid adoption of the Internet, widely hailed as an unprecedented source of uncontrolled innovation and uncensored speech.

At the time of this writing, the future of the broadband Internet has yet to be written. If Congress fails to preserve network neutrality, that future may be channeled through the short-term interests of a few powerful broadband companies. In contrast, if strong regulation forces broadband companies to leave their bottlenecks open to all data, regardless of application or content, the unexpected innovations in applications and content will continue to astound us for years to come.

