

# Watching over the Web: A Substantive Equality Regime for Broadband Applications

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*This Article proposes a “substantive equality” solution for managing access to the Internet for broadband applications. It argues that the currently-proposed solutions, self-regulation and “formal equality,” either afford too much power to broadband operators or are inefficient. The model proposed in this Article accepts that the market is superior to administrative agencies when it comes to choosing which applications deserve priority on the network. Since there can be market failures, however, the Article lays out an adjudicatory enforcement mechanism to evaluate charges of harmful conduct. The adjudication would involve the application of a two-factor test for deciding which party should bear the burden of proof on the question of fairness. This method seeks to bring predictability to application developers concerned about obtaining access, while minimizing regulatory costs to network owners.*

Introduction.....	2
I. The Landscape Faced by Legislators.....	8
A. <i>Internet Technology: A Multi-Layered Group of Networks</i> .....	8
B. <i>Broadband Industry Structure: A Competition Among “Natural” Monopolies</i> .....	10
C. <i>Economic Concepts: Congested Networks in a Vertically Integrated Industry</i> .....	15
1. Network Effects .....	15
2. Economics of Congestion .....	17
3. Vertical Relations .....	20
D. <i>Legal Background</i> .....	23
1. Fifth Amendment.....	24
2. First Amendment .....	25
3. Federalism.....	27
4. Antitrust .....	28
II. Existing Proposals for Governing Access: Self-Regulation or	

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- Network Neutrality ..... 30
  - A. *Self-Regulation: “Keep Your Hands Off the Market!”* ..... 30
    - 1. Summary of the Self-Regulation Approach..... 30
    - 2. Incentives for Efficient Self-Regulation ..... 30
    - 3. Real Costs v. Absent Harms ..... 33
    - 4. Legal Basis for a Pure Market Solution ..... 35
  - B. *“Network Neutrality” Rules: A Formal Equality Solution* ..... 36
    - 1. Summary of the Network Neutrality Approach..... 36
    - 2. A Non-Discrimination Rule of Formal Equality..... 36
    - 3. Rulemaking as the Method of Implementation..... 38
- III. An Adjudicative Approach to Enforcing a Substantive Equality Principle ..... 39
  - A. *A New Legal Standard to Govern Access for Applications*..... 41
  - B. *A Hybrid Model of Administrative Procedure* ..... 41
  - C. *The Two-Factor Test: Primary Market Competition and an Efficient Selection Process*..... 44
  - D. *The Proposed Statute and Its Applications* ..... 48
- IV. Conclusion..... 52

Introduction

While traveling in Tennessee on business, Doug Herring kept calling his wife but the phone calls to their home in Elberta, Alabama wouldn’t go through. The Herrings had switched to Vonage’s broadband voice service a month earlier, but they had never experienced any problems. Soon Mr. Herring discovered the culprit. His broadband provider, a unit of Madison River Communications, had blocked the Vonage application because it competed with Madison River’s phone service—a natural monopoly that today charges four times as much for a similar product.<sup>1</sup> Unwilling to see all its profitable voice customers migrate to Vonage and unable to compete with that service’s value, Madison River simply took it off the table by denying Vonage access to its customers.<sup>2</sup>

Those who say the Internet has no gatekeeper have never heard of the Madison River case. Every time someone sends or receives an email or

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1 The Herrings used Vonage which offers unlimited local and long-distance service for \$24.99/month. See Vonage website at <http://www.vonage.com> (last visited Apr. 9, 2006). GulfTel, the division of Madison River Communications that serves the Herrings’ hometown of Elberta, AL, advertises equivalent service for \$115+/month: unlimited local service for \$26.07/month and unlimited long-distance for \$90.92/month. See GulfTel’s website at <http://www.gulftelephone.com/hservices/index.php> (last visited Apr. 9, 2006).

2 This description of Doug Herring and Madison River Communications was adapted from Amy Schatz & Anne Marie Squeo, *Neutral Ground: As Web Providers’ Clout Grows, Fears Over Access Take Focus*, WALL ST. J., Aug. 8, 2005, at A1.

accesses a web page, the data transmission passes through a private company's infrastructure. That those companies have chosen to leave the gates largely open is due partly to past regulatory policy, somewhat to economic incentives and technology, and perhaps as much to the absence of acute congestion on the Internet. As more applications compete for access, including those affiliated with network owners, the gatekeeping power of operators is enhanced. They must choose whom to favor and whom to disadvantage. These choices will influence investment and innovation throughout the economy.

Many credit the openness of the Internet for its explosive growth as a platform for economic activity and free expression.<sup>3</sup> Unlike print, radio or television, this technology allows seemingly anyone to communicate and transact globally. In the original, narrowband world, the Federal Communications Commission (FCC or "the Commission") reinforced this openness by imposing the existing regulatory framework for telecommunications. Specifically, "common carriage" policies prevented telephone companies from discriminating against data traveling over their pipes.<sup>4</sup>

The emergence of broadband amplified the Internet's benefits and also increased power for network operators.<sup>5</sup> The FCC granted broadband an exemption from common carriage requirements, essentially opening the door for operators to exert more authority as gatekeepers.<sup>6</sup> And the Supreme Court officially upheld this FCC position in *National Cable & Telecommunications Ass'n v. Brand X Internet Services*,<sup>7</sup> granting *Chevron* deference<sup>8</sup> to the

3 See, e.g., S. Comm. on Commerce, Science, and Transportation: Hearing on "Network Neutrality", 109th Congress (2006) (statement of Vinton Cerf, Chief Internet Evangelist, Google Inc.). Cerf claimed that "[t]he remarkable success of the Internet can be traced to a few simple network principles—end-to-end design, layered architecture, and open standards." Others contend that this "openness" was an "unintended side effect of the military objectives (preservation of communication during nuclear attack) of the Internet's original Department of Defense sponsors." Bruce M. Owen & Gregory L. Rosston, *Local Broadband Access: Primum Non Nocere or Primum Processi? A Property Rights Approach* 21 (Progress & Freedom Foundation Conference on Net Neutrality, SIEPR Discussion Paper No. 02-37, July 2003), available at <http://siepr.stanford.edu/papers/pdf/02-37.pdf> (hereinafter *Local Broadband Access*).

4 Telecommunications Act of 1996, 47 U.S.C. § 251 (2000).

5 Although "broadband" is defined differently by various parties, the FCC currently states that broadband consists of "services and facilities with an upstream (customer-to-provider) and downstream (provider-to-customer) transmission speed of 200 [kilobits per second] or greater." Availability of Advanced Telecommunications Capability in the United States, GN Docket No. 04-54 (released Sept. 9, 2004), 19 F.C.C.R. 20,540, 2004 FCC LEXIS 5157, at \*6. Throughout the Article the term "platform operator" will be used interchangeably with "broadband firm," "broadband service provider" (BSP) and "network operator."

6 See, e.g., Jerry A. Hausman, J. Gregory Sidak & Hal J. Singer, *Cable Modems and DSL: Broadband Internet Access for Residential Customers*, 91 AM. ECON. REV. 302, 303-04 (2001).

7 545 U.S. 967 (2005).

8 Under general principles of administrative law, courts will customarily defer to an administrative agency's reasonable interpretation of a statute if the statute is silent or unclear on the subject. This principle is referred to as "*Chevron* deference," named for the court case in which it was first articulated. *Chevron U.S.A. Inc. v. Natural Res. Def. Council, Inc.*, 467 U.S. 837 (1984).

agency's interpretation of the 1996 Telecom Act without taking a position on the wisdom of the policy.<sup>9</sup>

Today, therefore, network operators are well-positioned to exert tremendous influence as Internet gatekeepers. Technological convergence wrought by broadband, which allows previously disparate media to traverse the same network, further empowers network owners to impact multiple industries and regulatory structures.<sup>10</sup> At least two forms of harm could develop from flawed management of the network. First, consumers could lose access to valuable services.<sup>11</sup> Operators might advantage their own broadband services or simply protect legacy products that are threatened by broadband substitutes, even if these services are less valuable to consumers than independent offerings. Second, innovation in applications may be deterred. By discriminating against certain applications, operators will discourage investment in these services.<sup>12</sup>

"Network neutrality" has become the catch phrase for a new regime proposed to regulate access for broadband applications. On both sides of the debate, big businesses have lined up to do battle. On one side, cable and telephone companies favor self-regulation, an unrestrained market solution.<sup>13</sup> Commentators supporting this position argue that the Madison River case was an anomaly and further contend that the costs of regulation would exceed the potential for harm from self-regulation.<sup>14</sup> They claim that the market is the best

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9 Indeed, the Court recognized that the FCC's decision not to designate broadband a "telecommunications service" amounted to a change in the FCC's interpretation of that term but rejected the argument that agency inconsistency is a basis for declining application of *Chevron*, 468 U.S. at 2699-2700.

10 See Daniel F. Spulber & Christopher S. Yoo, *Access to Networks: Economic and Constitutional Connections*, 88 CORNELL L. REV. 885, 889 (2003) (noting that technological convergence "has begun to put pressure on the historical regulatory distinction among voice, video, and data communications").

11 Inferior access is simply a less extreme, and perhaps more prevalent, form of this harm. While consumers will notice if an application is totally unavailable to them, they may be less aware of their broadband provider's conduct when an application has simply been slowed. Indeed, they may blame the performance problems on the application firm even though the source of the issue is the network delivery.

12 Other harms are also possible, specifically where operators limit the ability of users to interact with each other for commercial or expressive purposes. This may occur if network owners clamp down on bandwidth-heavy "peer-to-peer" activity or restrict user-created content or services, such as blogs. While this Article does address commercial activity by users, which is often indistinguishable from services provided by corporate entities, it does not focus on the lost consumer utility from a reduction of free association and free expression. Although such utility loss is nontrivial, these harms are difficult to measure relative to efficiency losses. It is worth noting, however, that the legal mechanism proposed by this Article might still protect such behavior against unfair operator restrictions.

13 See, e.g., Letter from the National Cable & Telecommunications Association (NCTA) to the FCC (Sept. 8, 2003) (on file with author); Adam D. Thierer, "Net Neutrality": *Digital Discrimination or Regulatory Gamesmanship in Cyberspace?*, POLICY ANALYSIS (Cato Inst., Washington, D.C.), Jan. 12, 2004, at 1. Brian Roberts, CEO of Comcast, speaking on a quarterly conference call, stated, "[net neutrality] is a regulation of the Internet, and we're certainly going to try to fight anything like that." Comcast Corporation Q4 2005 Earnings Conference Call Transcript (Feb. 2, 2006), available at <http://internetstockblog.com/article/6476> (last visited Apr. 26, 2006).

14 See Thierer, *supra* note 13.

mechanism for deciding how to treat applications—whether to restrict some, grant others priority and charge for fast delivery. Moreover, they insist that any limitation on the operators’ ability to offer their own applications and manage their own network discourages further investment in broadband infrastructure, and may even violate their constitutional property and free speech rights.<sup>15</sup>

On the other side, web and software firms want to disable the gatekeeping power of broadband firms. They propose that the FCC issue rules requiring operators to treat all applications alike.<sup>16</sup> They aspire to a system that does not distinguish among applications or attachments, similar to the electricity system or the regulatory framework of common carriage governing traditional telecommunications services.<sup>17</sup> Such a regime, in its strongest form, would prohibit broadband firms from placing any restrictions on data traveling through the pipes.<sup>18</sup> Advocates of this “behavioral” approach argue that innovation among applications demands harsh limits on the ability of operators to advantage their own services at the expense of others.<sup>19</sup> Although the FCC has tacitly endorsed the premise that maintaining such access for broadband applications is important, it has stopped short of issuing rules in explicit support of this concept.<sup>20</sup>

Resolution of this debate requires consideration of two interrelated goals:<sup>21</sup> maintaining incentives for firms to invest in network build-out and protecting innovation in applications. An inherent tension exists as applications and operators both struggle for greater power over the network. Operators want to maximize the value of their assets by controlling access to users while application developers seek unimpeded access to the same end users. But this tension is not irresolvable. New applications both generate their own value and contribute to the value of the infrastructure by acting as complements since users’ willingness to pay for broadband access is a function of the applications

15 *Id.* at 16-17 (discussing property rights and the Fifth Amendment); Christopher S. Yoo, *Beyond Network Neutrality*, 19 HARV. J.L. & TECH. 1 (2005) (discussing the First Amendment).

16 See Tim Wu, *Network Neutrality, Broadband Discrimination*, 2 J. ON TELECOMM. & HIGH TECH. L. 141 (2003).

17 See Letter from Tim Wu, Associate Professor, University of Virginia School of Law, & Lawrence Lessig, Professor of Law, Stanford Law School, to Marlene H. Dortch, Secretary, FCC, 8-9 (Aug. 22, 2003), available at [http://www.faculty.virginia.edu/timwu/wu\\_lessig\\_fcc.pdf](http://www.faculty.virginia.edu/timwu/wu_lessig_fcc.pdf).

18 *Id.*

19 A “behavioral” approach addresses the conduct of an operator in contrast to a “structural” solution which might prevent network owners from integrating into adjacent markets where they will compete with other independent application providers. See Barbara van Schewick, *Towards an Economic Framework for Network Neutrality Regulation*, 5 J. ON TELECOMM. & HIGH TECH. L. (forthcoming 2007), available at <http://ssrn.com/abstract=812991>.

20 See FCC, ESTABLISHMENT OF AN APPROPRIATE FRAMEWORK FOR BROADBAND ACCESS TO THE INTERNET OVER WIRELINE FACILITIES (2005).

21 For an example of this debate, see generally Thomas Tauke et al., *Net Neutrality and Net Neutering in a Post-Brand X World: Self Regulation, Policy, Principles and Legal Mandates in the Broadband Marketplace*, PROGRESS ON POINT (Progress & Freedom Found., Washington, D.C.) Dec. 2005.

available to them.<sup>22</sup> Policymakers have the opportunity to strike the right balance of encouraging development of new applications while maintaining strong incentives for infrastructure investment.

Ultimately, Congress must decide how to design such a policy. As an “information economy,” where success depends on knowledge increasingly gained from online media, the United States cannot forsake either applications or operators.<sup>23</sup> Today, the United States has fallen behind other countries in the availability of broadband service, ranking twelfth globally.<sup>24</sup> Pursuing universal adoption of broadband is essential not only to our continued economic growth but also to bridging social inequality.<sup>25</sup> Democracy requires policing Internet gatekeepers as broadband becomes the predominant vehicle for educating voters.<sup>26</sup> Currently, Congress is holding hearings and debating drafts of a bill to update the 1996 Telecommunications Act.<sup>27</sup> It should take this opportunity to articulate how to achieve a level playing field for broadband applications.

This Article offers Congress an alternative regime, distinct from either self-regulation or network neutrality. Starting from the premise that true equality among applications requires differential treatment, this model endorses a substantive equality principle as the governing legal standard. This approach

22 This is a classic two-sided network, described in more detail in Part II. For a detailed understanding of the legal and economic implications of two-sided networks see David S. Evans, *The Antitrust Economics of Two-Sided Markets* (AEI-Brookings Joint Ctr. for Regulatory Studies, Related Publication No. 02-13, Sept. 2002); see also Jean-Charles Rochet & Jean Tirole, *Two-Sided Markets: An Overview* (2004), available at [http://www.frbatlanta.org/filelegacydocs/ep\\_rochetover.pdf](http://www.frbatlanta.org/filelegacydocs/ep_rochetover.pdf); van Schewick, *supra* note 19, at 37 (arguing that “new applications trigger new advances in the [Internet] itself; these advances may in turn spawn the adoption of the [Internet] in additional sectors of the economy or may lead to new or improved applications in sectors that already use the technology”).

23 See President William Jefferson Clinton, State of the Union Address (Jan. 23, 1996) (“[One] hundred years ago we moved from farm to factory. Now we move to an age of technology, information and global competition.”), available at <http://clinton2.nara.gov/WH/New/other/sotu.html> (last visited Apr. 23, 2006). See also, William E. Kennard, Commencement Address at Howard University (May 13, 2000) (“I believe that ensuring all Americans have access to technology is the civil rights challenge of this new millennium.”), available at <http://www.fcc.gov/Speeches/Kennard/2000/spwek012.html>.

24 See Organization for Economic Cooperation and Development (OECD), OECD Broadband Statistics (Dec. 2005), [http://www.oecd.org/document/39/0,2340,en\\_2649\\_34225\\_3645943-1\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/document/39/0,2340,en_2649_34225_3645943-1_1_1_1_1,00.html).

25 See Leila Abboud, *U.S. Lags Behind in High-Speed Internet Access*, WALL ST. J., Apr. 12, 2006, at B2. Broadband networks are vital to the information technology and communications sectors, which represent nearly 10% of the nation’s economy and are growing more than five times as fast as the overall economy. See ECON. & STAT. ADMIN., U.S. DEP’T OF COMMERCE, DIGITAL ECONOMY 2002, 25-27 (Feb. 2002), available at <https://www.esa.doc.gov/reports/DE2002r1.pdf>. For more information, see Reed Hundt, YOU SAY YOU WANT A REVOLUTION: A STORY OF INFORMATION AGE POLITICS (2000). From a democratic perspective, the correlation between broadband usage and race is especially troubling. Fortunately, there is evidence that the difference in usage between whites and minorities (the so-called “digital divide”) has narrowed considerably between 1998 and 2006. Michel Marriott, *Blacks Turn to Internet Highway and Digital Divide Starts to Close*, N.Y. TIMES, Mar. 31, 2006, at A1.

26 See Adam Nagourney, *Internet Injects Sweeping Change into U.S. Politics*, N.Y. TIMES, Apr. 2, 2006, at A1; see also, Adam Cohen, *Why the Democratic Ethic of the World Wide Web May Be About to End*, N.Y. TIMES, May 28, 2006, at D9.

27 See Anne Broache, *Broadband Law Rewrite Planned for 2006*, [http://news.com.com/Broadband+law+rewrite+planned+for+2006/2100-1028\\_3-6036677.html](http://news.com.com/Broadband+law+rewrite+planned+for+2006/2100-1028_3-6036677.html)

accepts that the market is better than administrative agencies at choosing which applications deserve priority. But it also acknowledges that market failures do exist and so a legal principle without an enforcement mechanism will prove inadequate. Therefore, it proposes *ex post* adjudication to evaluate charges of harmful conduct by broadband operators. Grounded by a two-factor test for deciding which party should bear the burden of proof, this method seeks to bring predictability to application developers concerned about obtaining access while minimizing the regulatory costs to network owners.

Part I introduces the business and legal landscape upon which any law must operate. First, it describes the industry structure. Technological and competitive forces as well as the presence of state regulatory bodies impact federal regulation in this field. Second, it highlights the key economic concepts that influence the behavior of the relevant actors. Economic theory suggests that, subject to exceptions, an operator may not have any incentive to discriminate against independent applications, even as it vertically integrates into competitive services. In addition, the ability of users to impose congestion costs on other users constitutes an externality that produces inefficiencies. Third, Part I discusses the constitutional constraints and broader legal background which will shape the choice of policy.

Part II analyzes the two popular models to manage access for broadband applications—a self-regulation approach and a network neutrality regime. The self-regulation response arises from the principle that the market, left unrestrained, will sort out questions of broadband access in the most efficient manner possible. This position attributes the absence of significant anti-competitive behavior in the past to strong economic forces preventing such conduct. The introduction of new services and technology, however, may both enable and encourage network operators to discriminate against unaffiliated content, especially if they possess market power over consumers. The significant direct costs that operators may impose through exclusion of certain applications—namely, raising the price and availability of services—as well as the indirect costs of stifled innovation suggest that self-regulation is inadequate.

Network neutrality proposals endorse a formal equality approach to access, forcing networks to treat all applications exactly alike. Various network neutrality proposals all tend to anticipate a policy that is executed through rulemaking. Not only are the regulatory costs of rulemaking in this context substantial, but the underlying principle of formal equality does not fit well with heterogeneous applications and congested networks. By prohibiting any priority among applications, network neutrality implicitly favors those services that are not affected by time delays. Thus, this regime replaces one market failure with new market distortions that may reduce incentives for investment in certain applications, as well as in broadband.

Finally, Part III develops the substantive equality regime. First, it calls for Congress to codify a substantive equality principle to govern operators' treatment of broadband applications seeking access to the network. Since such

applications are not all alike, formal equality is inadequate for achieving substantively equal treatment. Recognizing that the market generally is better suited for sorting out the appropriate treatment for a specific application, this model permits operators to choose, in the first instance, how to treat applications. To enforce the legal principle of equality, the statute instructs the FCC to issue disclosure rules forcing transparency regarding operators' choices for differential treatment and grants jurisdiction for the Commission to hear complaints of unfair conduct. In order to provide further predictability to the resolution of such matters, the law should direct judges to employ a two-factor test to decide which party should bear the burden of proof. If the plaintiff can show that the operator has market power and did not use a fair method for choosing which applications to prioritize or disfavor, the operator will be forced to overcome a presumption of harm by demonstrating that it still satisfied the law's substantive equality principle. If the plaintiff cannot make this showing, the operator will receive a presumption of legal conduct that must be overcome by the plaintiff in a fact-based inquiry. This method of implementing the legal standard avoids the problems associated with rulemaking while providing a mechanism for the federal government or private parties to challenge what they consider harmful treatment.

## I. The Landscape Faced by Legislators

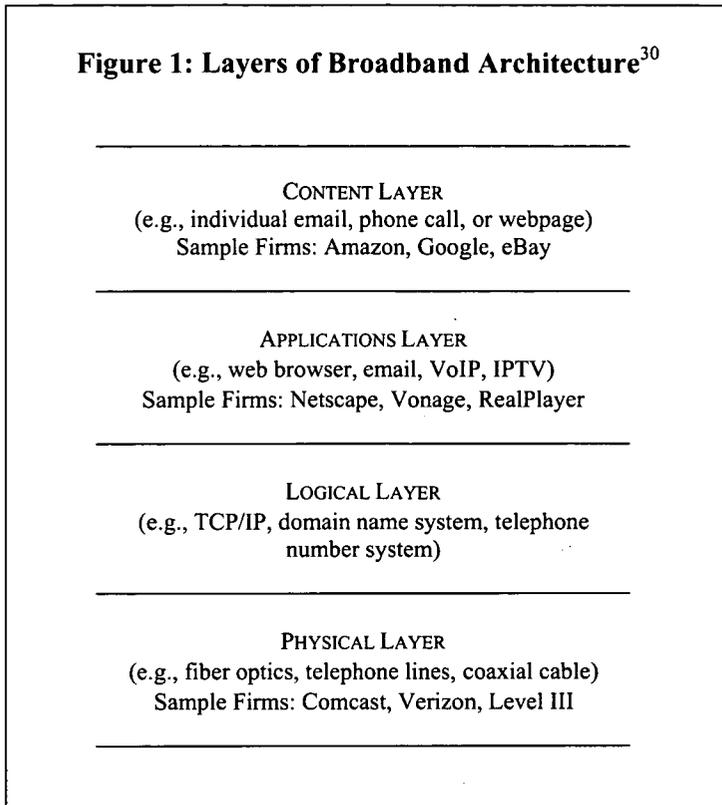
### *A. Internet Technology: A Multi-Layered Group of Networks*

The Internet is comprised of several layers built on top of a physical platform that is itself a network of networks. As Figure 1 indicates, networks may be separated into four horizontal layers and the ability to reduce all media (data, voice and video) into a standard code enables them to all travel over the same physical infrastructure.<sup>28</sup> Distinct entities may operate in each of these layers, but network operators have increasingly extended their presence forward from the physical layer to applications/content.<sup>29</sup>

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28 Traditionally, each medium was delivered through a separate infrastructure. For example, coaxial cable and broadcast signals provided video service. Voice calls were transmitted over copper telephone lines. The logical layer essentially enables all media to travel as standardized data. Network devices translate data, voice or video into packets of binary code that permit computer-to-computer communication without identifying the type of media. The packets are then reassembled into data, voice or video.

29 Imagine a cable company offering broadband access, a streaming media player and its own video content.

**Figure 1: Layers of Broadband Architecture**<sup>30</sup>

The physical layer is itself divisible into three network components, according to the FCC.<sup>31</sup> Backbone providers facilitate long-distance connections between a small number of interconnection points. Middle-mile providers carry data from these interconnection points to distribution facilities. And last-mile providers convey the traffic from these facilities to end users. The networks discussed in this Article are the last-mile (or local) networks because they represent the connection point between users and all the services available through the Internet.

While some scholars have compared broadband networks to electric utilities,<sup>32</sup> such a comparison is not as much a description of today's situation as it is an aspiration of those seeking to limit the gatekeeping power of

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30 The application and content layer can be understood as a single top layer for the purposes of analyzing broadband networks and their owners' forward integration. Thus, in this Article, the term "applications" should be understood to include content. *See generally* Lawrence Lessig, *The Internet Under Siege*, FOREIGN POL'Y, Nov./Dec. 2001, at 56, 59-60.

31 *See* Inquiry Considering the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, Second Report, 15 F.C.C.R. 20,913, 20,923-28 (2000).

32 *See* Owen & Rosston, *supra* note 3, at 14.

operators. First, electronic applications tend to be homogeneous and static in the sense that there has been little differentiation in the way electronics access the electric grid, while broadband applications are constantly developing and may require time-sensitive or standard delivery.<sup>33</sup> This distinction alone belies any sincere attempt to analogize broadband and electricity networks. In addition, electric utilities are so heavily regulated, at both the state and federal level, that it is difficult to equate the two industries.<sup>34</sup> Finally, electric utilities have very little information about, or control over, the last-mile of their distribution networks. Whether this resulted from design or regulation is less important than the fact that today electric utilities do not possess the same functionality as a broadband operator.

Broadband networks, by contrast, are designed to allow their owners to discriminate in the applications traveling through their pipes.<sup>35</sup> One writer explained that “Cisco . . . [has] developed ‘policy-based routers’ that enable [broadband] companies to choose which content flows quickly and which flows slowly.”<sup>36</sup> Such technology gives these broadband companies power more analogous perhaps to a cable television operator who can control its subscribers’ access and content. This analogy to cable television does not work well because of the diversity of applications competing for access on broadband networks, but it does underscore that operators are gatekeepers, a key distinction between broadband and many other networked businesses.<sup>37</sup>

### *B. Broadband Industry Structure: A Competition Among “Natural” Monopolies*

Concentration in the market for broadband access is the most important feature of the industry structure. Concerns about anti-competitive conduct by vertically-integrated firms are heightened when those firms possess monopoly power in the primary market.<sup>38</sup> In other words, vibrant competition in the market for high-speed local broadband access would substantially mitigate any

33 Owen and Rosston point out that competition among electric utilities resulted in the development of a standard that electronics must now meet in order to get access to the electric grid. *Id.* at 15.

34 One must distinguish the broadband businesses from the other entities owned by cable and telephone companies. These units, as the article discusses, have traditionally been regulated as natural monopolies similar in some ways to electric utilities.

35 Although some find the term “discrimination” too harsh, it is not meant to invoke pejorative connotations. *See, e.g.,* Thierer, *supra* note 13, at 2. Whether well-intentioned or not, an operator’s differential treatment of content constitutes discrimination.

36 Lessig, *supra* note 30, at 62.

37 In addition to electric utilities, such networked businesses include roadways, water systems and gas pipelines. While some level of control exists in each of these, none are able to easily monitor and restrict access for attachments or applications.

38 Some observers believe that network operators may have the ability and incentive to discriminate even in a competitive marketplace. Barbara van Schewick, for example, argues that switching costs are sufficiently high for consumers that a network operator may engage in harmful behavior even when alternative providers exist. *See* van Schewick, *supra* note 19.

concerns that the network owners might unfairly compete with search engines, email services, or other application-level providers. Indeed, many scholars have argued that a monopoly in the primary market is a structural precondition for harmful conduct by a vertically integrated firm in an adjacent market.<sup>39</sup> Ultimately, if consumers have many choices and switching costs are low, there is confidence that the market will punish harmful conduct by broadband firms.<sup>40</sup>

The leading broadband technologies, cable modem service and digital subscriber line technology (DSL), emerged out of natural monopolies. A natural monopoly exists if a single firm can supply the entire market at a lower cost than two or more firms.<sup>41</sup> Although some disagreement remains over whether cable networks and local telephone service are natural monopolies, they have long served as quintessential examples of such.<sup>42</sup> Intuitively, the state-protected access to individual households that these firms have gained appears to provide a substantial advantage against new competition. Thus, when cable and telecommunications firms began offering broadband services, they did so from a strong competitive position relative to other technologies, for example wireless or fiber optics. And although some may claim that the field is wide open, it is difficult to deny the significant head start these products received.<sup>43</sup>

Unsurprisingly, these two technologies dominate the market for broadband, together representing 93% of all broadband subscribers nationally.<sup>44</sup> Moreover, as extensions of natural monopolies there is no intra-technology competition, e.g., only one cable modem service provider exists in a city because only one cable company owns the local franchise. Despite the historical monopoly position enjoyed by firms offering cable broadband and DSL, some commentators still insist that the “existence of a natural monopoly does not necessarily preclude competitive entry . . . so long as entry and exit are

39 For a discussion of the Chicago School’s “leverage theory,” see Christopher S. Yoo, *Vertical Integration and Media Regulation in the New Economy*, 19 YALE J. ON REG. 171, 188-91 (2002).

40 While this Article does not fully explore the effect of switching costs, this is an area for further inquiry. If switching costs are high, an operator with relatively limited market share may still exercise significant power because these costs pose barriers to exit for consumers.

41 The concept is generally credited to John Stuart Mill. See JOHN STUART MILL, 2 PRINCIPLES OF POLITICAL ECONOMY 142 (J.A. Hill & Co. 1904) (1848).

42 The electric grid offers another common example of a natural monopoly. Broadband over powerlines seeks to leverage this infrastructure into a broadband access service. For a review of the major studies on this issue of natural monopolies, see Spulber & Yoo, *supra* note 10, at 917 n. 99.

43 For opponents of this view, see Thierer, *supra* note 13, at 1 (claiming that the market is a “competitive free-for-all”).

44 See FCC, Federal Communications Commission Releases Data on High-Speed Services for Internet Access, 2005 WL 1585609 (July 7, 2005) (stating that during the year 2004, broadband lines increased to 37.9 million, comprised of 13.8 million DSL lines, 21.4 million cable lines, 2.7 million other (satellite or wireless)).

easy . . . ”<sup>45</sup> But the absence of new entrants into cable TV or local telephone service supports the logic that sunk costs provide a barrier to entry.

The degree of concentration depends, in part, on whether one measures at the local or national level. Recent consolidation among telecom (e.g., AT&T and BellSouth) and cable companies (e.g., Comcast and Adelphia) may render this distinction moot because we are left with only a few large players in any one community *and* across the nation. Still, antitrust analysis places significant weight on defining the geographic market and since the underlying platform is two-sided there is some basis for both a local and national framework. A leading advocate for a national perspective, Professor Christopher S. Yoo, argues that “network neutrality proposals are designed to limit the exercise of market power not [against] end users, but rather [where] last-mile providers meet ISPs and content/application providers.”<sup>46</sup> Thus, Yoo believes a national market makes more sense because web companies, for example Google, are focused on access to customers in the aggregate, and not just in a specific region.<sup>47</sup> On the other hand, a local definition of the market may make more sense since the harm at issue focuses on operators discriminating against what application reach end users. This matter is substantially mitigated if users can respond to unfair treatment by replacing their broadband providers, but cases like that of Madison River do not seem less problematic simply because services like Vonage can find customers in other states. Today, the FCC defines the market locally and this Article proceeds from that premise.<sup>48</sup>

Using this local perspective, the market for last-mile broadband access appears highly concentrated on average. One metric in modern competition policy is the Hirschman-Herfindahl Index (HHI). HHI is calculated by adding the square of the market share of each competitor, where a total monopoly results in 10,000 ( $100\%^2$ ) and infinite fragmentation yields a score of 0 ( $0\%^2$ ).<sup>49</sup> The DOJ Guidelines indicate that antitrust authorities are unlikely to

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45 Spulber & Yoo, *supra* note 10, at 918. These authors also cite to Richard Posner’s claim that nonrecurring costs of entry are “irrelevant if there are small firms in the market that can grow to be large firms.” RICHARD A. POSNER, *ANTITRUST LAW: AN ECONOMIC PERSPECTIVE* 92 (1976). State licensing, however, would seem to prevent small firms from existing alongside these natural monopolies.

46 Christopher S. Yoo, *Would Mandating Broadband Network Neutrality Help or Hurt Competition? A Comment on the End-to-End Debate*, 3 J. ON TELECOMM. & HIGH TECH. L. 23, 51 (2004).

47 See Yoo, *supra* note 39, at 253-54.

48 See In the Matter of Amendment 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, WT Docket No. 03-6618 (released Apr. 2, 2003), 18 F.C.C.R. 6722, 6774-75 ¶¶ 123-24 (2003); see also van Schewick, *supra* note 19, at 4 n.15 (“The relevant geographic markets for residential high-speed Internet access services are local. That is, a consumer’s choices are limited to those companies that offer high-speed Internet access services in his or her area, and the only way to obtain different choices is to move.”).

49 For example, a market of four firms with market shares of 30%, 30%, 20% and 20%, respectively, would have an HHI of  $900 + 900 + 400 + 400 = 2600$ .

challenge a vertical merger unless HHI exceeds 1800 in the primary market.<sup>50</sup> Such a score results from five to six competitors of equal size. Since local markets are typically dominated by two players—the original natural monopolies of cable and telecommunications—defining the market locally yields HHIs often above 5000.<sup>51</sup> Even using Yoo’s proposed national view, there is a high level of concentration among telecommunications and cable companies which has only increased during the last ten years.<sup>52</sup>

Many point to new technologies as likely to reshape the broadband industry.<sup>53</sup> Although wireless, satellite and powerline technologies have seized some market share in recent years, claims of a “competitive free-for-all” seem overblown.<sup>54</sup> Significant technological, economic and regulatory barriers limit the mass-adoption and full-scale competition of these rival services. Satellite has traditionally been a one-way transmission, i.e., broadcasting from a central point to dishes on people’s homes but not the other way. Additional technology would need to be deployed, essentially a new network, to facilitate interactive satellite communications. The most robust wireless technologies are not yet cheap enough to compete against cable and DSL. WiMax, for example, may cover a large footprint with significant capacity (e.g., 50 Mbps over a 5 mile radius) where each dish costs perhaps five thousand dollars. The problem is that providing enough capacity for each user at peak time in a populated area would require blanketing the geography with dishes which would increase the capital cost per user to prohibitive levels.<sup>55</sup> Finally, broadband over powerlines (BPL) exhibits many of the advantages of cable and DSL—primarily, universal reach and leveraging a natural monopoly’s infrastructure—but obstacles remain. Since the electric distribution industry is considerably more fragmented than cable or local voice, BPL providers (usually independent firms) must negotiate with dozens of utilities in order to establish a sizeable footprint. Absent a federal order preempting state regulators in this field, BPL firms must

50 See U.S. DEP’T OF JUSTICE, 1984 MERGER GUIDELINES, §§ 4.131, 4.212, 49 Fed. Reg. 26,823 (1984), [hereinafter *Guidelines*] (requiring that the relevant markets be concentrated).

51 For example, a market with a cable company claiming 60% of the high-speed market and the telco possessing 40% would result in  $3600 + 1600 = 5200$  HHI.

52 See Eli M. Noam, *Deregulation and Market Concentration: An Analysis of Post-1996 Consolidations*, 3 FED. COMM. L.J. 539, 543 (2006).

53 See Thierer, *supra* note 13, at 14.

54 *Id.* at 1 (“[T]he broadband marketplace . . . is very much a competitive free-for-all, and no one has any idea what the future market will look like with so many new technologies and operators entering the picture.”).

55 Take Nassau County, a heavily populated suburban area in Long Island, NY: According to the U.S. Census, 460,000 households occupy an area of 287 square miles. If a WiMax broadband operator cared only about covering the area with devices that have a radius of five miles, he might only need four if they were well-placed ( $\text{area} = \pi r^2 \sim 3 \cdot 5 \cdot 5 = 75$ ;  $287/75 \sim 4$ ). Assuming the operator got 10% penetration, 46,000 households, and at peak times 25% were online and 25% of them were downloading at any one time, the 200 Mbps provided by the four dishes would still have to service 2,875 households so each household could expect 69 kbps, equivalent to narrowband (i.e., dial-up) service speeds. Providing each household with 3 Mbps, which Comcast currently offers, would require probably 50 dishes, or 100 times as many dishes (since there would be some network planning issues) at which point the cost/subscriber looks far less attractive.

presently negotiate with each utility, which substantially slows the deployment of the service.

Two non-technology based responses appear even less likely to disrupt the current concentration of broadband access. First, municipal broadband programs have been initiated by cities hoping to reap the benefits of broadband penetration among their residents. Although cable and DSL firms owe their positioning partly to state support, these firms have stridently objected to the use of tax dollars funding competition to private enterprise.<sup>56</sup> Using their political clout in Washington, they have managed to get a Congressional bill put forward which would substantially limit such municipal broadband programs.<sup>57</sup> Second, the cable industry's victory in *Brand X* essentially relegates line sharing to extinction.<sup>58</sup> Line sharing meant that unaffiliated ISPs would be permitted access to the last-mile infrastructure of DSL and cable providers—a regime known as “open access.”<sup>59</sup> Since ISPs manage the flow of last-mile network traffic, a line sharing rule provides a structural remedy to discriminatory conduct by the owners of the physical networks. Consumers are granted a greater choice over their gatekeeper and thus vertically integrated operators are less likely to discriminate against certain content. Although economic and legal arguments can be made in support of affiliated ISPs and against line sharing, one must acknowledge that the demise of “open access” strengthens cable and DSL firms.<sup>60</sup> The FCC's support of the *Brand X* ruling and subsequent extension to DSL service is a rejection of “open access.”<sup>61</sup> Although Congress could conceivably undo this result, the political power of operators makes such legislation infeasible. Without such a structural response

56 See *Municipal Provision of Broadband Services and the Merits of HB 1325: Hearing Before the H. Comm. on Utilities and Telecommunications*, 2005 Leg. (Fla. 2005) (statement of Kent Lassman, Research Fellow, H. Comm. on Utilities and Telecommunications) (stating that such investments put taxpayer money at risk and may disadvantage the private sector which does not have access to low-cost capital such as municipal bonds). See also Thomas Lenard, *Government Entry into the Telecom Business: Are the Benefits Commensurate with the Costs?*, PROGRESS ON POINT (Progress & Freedom Found., Washington, D.C.), Feb. 2004, at 1.

57 See Broadband Investment 2nd Consumer Choice Act, S. 1504, 109th Cong. §15(a) (2005), (bill sponsored by Sen. John Ensign (R-NV) would impose a host of conditions on planners of municipal broadband).

58 See *Nat'l Cable & Telecomm. Ass'n v. Brand X Internet Servs.*, 125 U.S. 2688, 2695 (2005).

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

60 The debate over “open access” has been extensive and is beyond the reach of this Article. For the strongest argument in favor of “open access,” see LAWRENCE LESSIG, *THE FUTURE OF IDEAS: THE FATE OF THE COMMONS IN A CONNECTED WORLD* 147-67 (2001). This book builds off an earlier article. See Lemley & Lessig, *supra* note 59. In defense of integrated ISPs and the end of line sharing, see Joseph Farrell & Phillip J. Weiser, *Modularity, Vertical Integration, and Open Access Policies*, 17 HARV. J.L. & TECH. 85 (2003). See also Spulber & Yoo, *supra* note 10 (arguing that open access regulations implicate physical takings jurisprudence by requiring network owners to permit third parties to place equipment on their property).

61 See *Appropriate Framework for Broadband Access to the Internet over Wireline Facilities*, *supra* note 20, at ¶ 9 (defining all wireline broadband Internet access as information services rather than a telecommunications service with common-carrier obligations).

available, policymakers seeking to limit the power of broadband firms must consider a conduct approach.<sup>62</sup>

In reviewing the industry structure, it is worth noting that other layers of the Internet appear significantly more competitive. While some large scale firms exist in applications, e.g., eBay in auctions, their power is still of a different order than that of the platform provider. Not only has no upstream player attempted to integrate backward into the physical layer, but they also do not derive their power from an underlying natural monopoly.<sup>63</sup> Thus, broadband service providers integrating forward confront a highly fragmented market in sharp contrast to the concentration of their primary market.

Although the foregoing illustrates the broadband industry today, its nascent stage of development urges caution against views that it will always look the same. New technologies still offer the potential of competing platforms, especially if BPL receives some expediting at the state level (or through preemption) and if wireless overcomes its economic limitations. For the foreseeable future, however, it appears that most users will have little or no choice among broadband operators. The introduction of switching costs only aggravates the market power of incumbents. Thus, the primary market appears sufficiently concentrated to inquire into the role of private firms as gatekeepers of the Internet, especially as they integrate forward to compete with other applications.

### *C. Economic Concepts: Congested Networks in a Vertically Integrated Industry*

#### 1. Network Effects

A networked business provides a platform and manages interaction among members.<sup>64</sup> A “network effect” arises when one user’s value of participating in a network increases with the addition of more users to the network. The fax machine serves as the paradigmatic case for such a phenomenon. A fax was useless to its first purchaser until a second purchaser enabled the two to communicate. As more users joined, the utility of the fax for the first user increased because she could communicate with more people. This initial user paid nothing to additional users even though their membership created

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<sup>62</sup> See Wu, *supra* note 16.

<sup>63</sup> Google announced plans to support a WiFi deployment in San Francisco. See Verne Kopytoff & Ryan Kim, *Google Offers S.F. Wi-Fi—For Free*, S.F. CHRON., Oct. 1, 2005, at A1. However, Google’s plans contemplate funding a third-party build out of the infrastructure and offering the service to city residents for free. Thus, it serves really as an example of a municipal broadband program rather than a content provider integrating backward into the physical layer.

<sup>64</sup> See generally Thomas R. Eisenmann, *Winner-Take-All in Networked Markets*, HARVARD BUSINESS SCHOOL CASE #N9-806-131 (2006); Eisenmann, *Platform-Mediated Networks: Definitions and Core Concepts*, HARVARD BUSINESS SCHOOL CASE #N9-807-049 (2006); William D. Rahm & Eli Cohen, *Pre-Paid Legal’s Promise: An Insurance Firm or a Matching Network?* 13-16 (Dec. 2005) (unpublished manuscript, on file with author).

incremental value for her.<sup>65</sup> Thus, additional participation yielded a positive externality benefiting the first user.

The two most common network structures are homogenous, as seen in most communications technologies, and heterogeneous (hereinafter, “a two-sided network”).<sup>66</sup> Homogenous structures are simply those in which users exchange roles frequently—the sender of the fax is often the receiver. Economists offer a more technical definition: “[T]he market for interactions between the two sides is one-sided if the volume . . . of transactions realized on the platform depends only on the aggregate price level.”<sup>67</sup> In a homogeneous structure, reallocation of the price between buyers and sellers will not change the volume because buyers and sellers operate in both roles repeatedly.

Two-sided networks, by contrast, have distinct sets of users who consistently play their defined role in transactions. Success with such a network requires not only choosing the right pricing level, but also the appropriate pricing structure since differential pricing of each side can meaningfully impact aggregate volume. For example, video game businesses have a platform (usually a console like Xbox), end users, and game developers. The platform provider must decide what to charge end users for the console and whether to charge application developers for access to the codes that allow games to be produced for that system. The developers will have a higher demand for the platform if there are many end users and the end users will enjoy more value from their participation as the number of games available increases. Thus, platform owners have to solve a “chicken and egg” problem: how much to charge each side in order to seed enough users to create value for the other side, initiating the virtuous circle.<sup>68</sup>

Broadband technology exhibits two network effects because it is both a standard communications infrastructure (“homogenous”) and a platform similar to the video game company with end users and application developers (“heterogeneous” or “two-sided”). As a pure communications vehicle, all users of the network are homogeneous—both senders and recipients of information—who gain value from having more participants on the network with whom to communicate. From another perspective, broadband is a two-sided network because applications and content are complements to technologies like cable modem service and DSL. Companies like Google, Vonage and Amazon will develop more services when they are confident that there are more users whom they can reach. On the other side, the presence of

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65 The incremental increase in willingness-to-pay becomes de minimis after a critical number of users join. However, in theory, an additional email user increases the value of all existing users since it adds another potential party with whom to communicate.

66 Although most scholars term this structure a “one-sided market,” Eisenmann makes a valuable point that not all markets are networks and not all are two-sided (buyers/sellers) so “homogenous” clarifies the issue.

67 Rochet & Tirole, *supra* note 22.

68 See Evans, *supra* note 22.

these applications increases users' willingness-to-pay for broadband and therefore fuels user adoption. Promoting both innovation at the application-level and adoption by users requires managing the network to attract both sides.

Platform owners are in the best position to capture the value of network effects. As the willingness to pay increases among both users and developers, broadband firms can charge each side more. Currently, one side—the developers—do not really pay for access to the platform. The absence of any pricing on this side may result in overconsumption that can produce negative externalities. In addition, the ability of platform owners to integrate forward and compete with applications adds complexity to the use of this network effects theory.

## 2. Economics of Congestion

Frequently referred to as an “information superhighway,” the Internet is subject to congestion much like physical highways. When networks are subject to congestion, negative externalities arise because one customer's usage can degrade the quality of another user's service.<sup>69</sup> Imagine, for example, an airport security line. If a traveler shows up and there is a free station, she walks through. If, instead, the traveler arrives and there are other passengers ahead of her in line, the traveler will feel a cost of that delay. In some cases, the traveler is time-sensitive because delay could cause her to miss her flight. Indeed, she might be willing to pay a fee in order to jump ahead in line. If a mechanism existed to identify relative demand among those passengers waiting in line, the security personnel could attempt to re-order the line based on demand rather than on its current system of first-come, first-serve in order to maximize welfare among travelers.

Congestion exists on the Internet, too. Just like passengers entering airport security, when too many data packets arrive at the last-mile network, they form a queue. The resulting delay in speed reduces the quality of service.<sup>70</sup> A major cause of this congestion is over-consumption by a small set of users. Typically, broadband customers pay a flat-rate monthly fee for unlimited service. The pricing is established in part based on the return that operators demand on the amount of infrastructure they project will be required by the estimated usage of those customers. Statistics confirm that while end users pay a flat-rate monthly fee for service, consumption is not distributed evenly. BellSouth, for example, claims that 1% of users drive 40% of Internet traffic.<sup>71</sup> Since many facilities are shared architectures, i.e., dozens of consumers may access the Internet through

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69 See Christopher S. Yoo, *Network Neutrality and the Economics of Congestion*, 94 GEO. L.J. 1847 (2006). For the classic analysis of how externalities lead to market failure, see ALFRED.C. PIGOU, *THE ECONOMICS OF WELFARE* 172-88 (4th ed. 1948).

70 See Yoo, *supra* note 69, at 1861-62.

71 See Dionne Searcey, *Consumers Could See New Web Rates: Use More, Pay More*, WALL ST. J., Mar. 2, 2006, at B1.

one pipe, “over-consumers” will significantly slow other consumers’ service, as operators do not deploy sufficient capacity to meet demand.<sup>72</sup>

Not only is congestion produced by a disproportionate few, but the costs of this externality are not uniformly distributed. The airport security example helps illustrate how certain users feel the effects of congestion most acutely. Missing her flight was a much greater cost to the late traveler than waiting for an additional person to clear security would have been to the passengers in front of her. In the broadband context, the costs of congestion for time-sensitive applications, such as streaming media or voice over internet protocol (VoIP), are far more severe than the impact to other services, like email. Indeed, VoIP or video products may fail to perform with too much delay, equivalent to missing the flight altogether, while email will simply arrive in the inbox a moment later, where it may languish for hours just like the passengers who have arrived early for their flight. The essential differences in the character of applications would be irrelevant if capacity were infinite, eliminating all congestion. But just as there will always be delays at some security checkpoints no matter how many additional ones are added, so too is there likely to be significant congestion on broadband networks for the foreseeable future.<sup>73</sup>

Two primary responses exist for congestion. The first is usage-based pricing, which is intuitively appealing because the Internet is a club good, i.e., a good shared by more than one person.<sup>74</sup> Reliance on flat-rate pricing often results in inefficiently high levels of congestion and over-consumption of broadband.<sup>75</sup> Original access to the Internet, through dial-up, was accomplished through a “pay as you go” model. The economic intuition is simply that the private cost of consuming an additional unit of capacity is zero under a fixed-rate regime so utility-maximizing users will increase consumption until their marginal utility is zero.<sup>76</sup> In the process, they will create substantial congestion costs for others.

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72 Cable operates on a shared architecture whereby a group of users, e.g., 100, may share the same access pipe that connects to a backhaul point in order to transfer data to/from the Internet.

73 Continued congestion is likely due to two factors. First, there is increasing use of time-sensitive and bandwidth intensive applications. The former cares about getting through quickly and the latter is tantamount to a large tour group trying to get through security ahead of other passengers. Second, investment in new infrastructure tends to be lumpy since demand is uncertain and the fixed costs of expansion are significant. See generally Christopher S. Yoo, *Promoting Broadband Through Network Diversity* 19 (Feb. 6, 2006) (research paper prepared for the National Cable and Telecommunications Association), available at <http://www.ncta.com/DocumentBinary.aspx?id=286> (noting that decisions to expand capacity are complicated by the “lumpiness of network capacity created by the indivisibility of fixed costs and the fact that increasing network capacity typically takes a considerable amount of time”).

74 See Yoo, *supra* note 69, at 1863. Club goods differ from public goods because consumption by an additional person creates congestion costs that cause the quality of service provided to others to deteriorate. See James Buchanan, *An Economic Theory of Clubs*, 32 *ECONOMICA* 1 (1965).

75 The effect of congestion thus operates in tension with the network effect—whereas one effect explains the costs imposed on other users by the addition of a new customer, the other identifies an increase in willingness to pay as more users join (indirectly by spurring demand for application developers).

76 See Yoo, *supra* note 69, at 1864.

Despite the appeal of usage-based pricing, fixed-rate regimes dominate broadband.<sup>77</sup> Many argue that this model contributed to the explosion of Internet usage as consumers could “web surf” without incurring incremental charges.<sup>78</sup> Today, consumers expect “always on” and unlimited fixed-rate service and changing that expectation may be difficult. In addition, metering is required for usage-based pricing and that requires significant transaction costs likely to deter broadband firms. Indeed, every communication on the Internet is broken into smaller packets that are transmitted individually and reassembled at their destination. Thus, each communication requires multiple records. One study estimates that a ten-minute phone call over the Internet would require tens of thousands of records to account for the associated packets.<sup>79</sup> While new equipment may enable broadband providers to dramatically lower this metering cost, it does not appear that usage-based pricing will become economical in the near term.<sup>80</sup>

Instead of usage-based pricing, network owners might mitigate congestion costs by restricting certain applications and prioritizing others. At the extreme, this approach could take the form of blocking certain applications or practices such as unauthorized re-selling of capacity, home networking, attachments, or commercial uses.<sup>81</sup> It is important to see how these uses contribute to substantial congestion. For example, bandwidth resales impose congestion by transforming a single connection into one serving multiple end users.<sup>82</sup> The corollary, returning to the airport security example, would be one ticketholder bringing an entire group with her through the security line. The other members of the group are not contributing whatever fractional share of a ticket goes to

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77 It is important to distinguish tiered-pricing. On the one hand, it does not fully resolve the congestion issue by internalizing costs to the user. On the other hand, its successful implementation requires many of the same monitoring costs. Otherwise, there is no mechanism for enforcing the tiered system.

78 See, e.g., Paul J.J. Welfens & Andre Jungmittag, Effects of an Internet Flat Rate on Growth and Employment in Germany, (February 2000) (unpublished manuscript, on file with author), available at [http://www.digital-law.net/welfens/welfens\\_en.pdf](http://www.digital-law.net/welfens/welfens_en.pdf).

79 See Tim Wilson, *Billing Systems Market Reaps Huge Growth: How Telecom Carriers Handle Phone Bills Can Make or Break Their Customer Base*, TELEPATH, Jan. 5, 1998, at 15, quoted in Yoo, *supra* note 69, at 1875. To understand voice transmission over Internet, imagine that each syllable of a word was broken up into packets and transmitted separately. Thus, “hello” would become “hel” and “lo.” It is important to understand these mechanics to appreciate the transaction costs associated with metering, as well as the time-sensitive quality of voice transmission. If, for example, there was congestion along the stretch of the network that “hel” traveled but not on the path taken by “lo,” then the receiver might hear the packets re-combined as “lohel.”

80 Searcey, *supra* note 71.

81 Comcast has even written letters to customers using a lot of capacity that threaten to terminate service if they do not “dial down [their] usage.” Matthew Fordahl, *Comcast Limits Broadband Usage* (Jan. 30, 2004), <http://www.cbsnews.com/stories/2004/01/30/tech/printable597032.shtml>.

82 A corollary to bandwidth resales is simply illegal “piggybacking” on someone else’s connection. Although prohibited as “theft of service,” it is quite common for people to wirelessly access a broadband network for which a neighbor pays. The only difference between this and broadband resales is that the paying user does not know that she is sharing her connection. The result, i.e., congestion, is still the same. For a discussion of this issue, see Michel Marriott, *Hey Neighbor, Stop Piggybacking on My Wireless*, N.Y. TIMES, Mar. 5, 2006, at A1.

supporting the security line, but they are imposing a cost on other users. Similarly, when someone buys access through their home but shares it with multiple other users, they are paying a fee far less than the demand they are imposing on the network. Prohibiting this activity might preserve fixed-rate pricing while mitigating the externality of congestion by freeing up more capacity.

Alternatively, network owners might become even more sophisticated managers of applications in order to limit the effects of congestion. As previously mentioned, applications pay no fees beyond the typical access charges. Instead of monitoring end users' consumption, network owners could simply require those applications that require time-sensitive delivery to pay for access.<sup>83</sup> The platform would not be forced to meter usage but could use demand from applications as a proxy—an application provider would presumably only pay for time-sensitive delivery if users cared about avoiding delay. Under this system, the time-sensitive application could pay for priority which allows it to perform properly and gives the operator more funds to invest in further capacity. An equivalent scenario would be charging the late traveler in exchange for permitting him to skip to the front of the line. Over time, the airport security office could afford to provide an extra station for business- and first-class travelers who valued avoiding delays, and in the process they would relieve some of the congestion for other passengers too.

Lawmakers considering a regime for managing broadband access must acknowledge the negative externality associated with congestion. Sophisticated technology might enable usage-based pricing to become a cost-effective solution to this problem. In the absence of such a metering response, network operators have an interest in treating applications differently in order to maximize welfare among applications and, ultimately, end users.

### 3. Vertical Relations

Any framework for governing access to broadband applications must not only anticipate the value of network effects and the costs of congestion, but also the implications associated with network owners creating “vertical relations.”<sup>84</sup> These relations include not just integration into applications through merger or organic growth, but also contractual agreements with firms in related markets. The 2001 Southwestern Bell Company (SBC) and Yahoo! pact offers an example of a vertical relation. SBC provides DSL service in over a dozen states. After the SBC-Yahoo! agreement SBC's users received a subscription to Yahoo!, which made Yahoo! the default homepage for all SBC DSL users. Although SBC did not limit its users from accessing content by Yahoo!'s competitors, such an exclusive relationship was not prevented by law.

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83 These applications would presumably pass on the charge to end users.

84 See Farrell & Weiser, *supra* note 60, at 87.

Moreover, Yahoo! might have contracted to receive prioritized delivery on SBC's network such that its data would leap ahead of other competitors' data if congestion required queuing.

Telecommunications regulation and antitrust policy traditionally have diverged in their treatment of vertical relations.<sup>85</sup> In the 1970s, the Chicago School influenced mainstream antitrust thinking to accept that vertical relations could provide efficiency benefits to consumers. In the context of a complements-based business, a strict separation of the application providers and platform owners can lead to costly hold-up hazards or free riding by application firms.<sup>86</sup> Moreover, vertical integration can eliminate double marginalization where two monopolists (one in the application layer and the other in the physical layer) both impose a monopoly markup.<sup>87</sup> Finally, as Professors Clayton Christensen and Michael Raynor have extensively argued, if the interfaces between applications and a platform are not well defined, innovation can be slower and more costly, and integration may be preferable.<sup>88</sup> As a result, courts dealing with antitrust claims often presume such vertical relations are unobjectionable unless a fact-intensive inquiry shows otherwise.<sup>89</sup>

By contrast, starting in the 1970s, the vertically integrated AT&T network was broken up as a result of a policy to develop and protect open interfaces.<sup>90</sup> The philosophy underlying the breakup held that "powerful firms at one level should not be allowed to leverage that power into—or perhaps even participate in—adjacent competitive segments."<sup>91</sup> The 1996 Telecom Act initiated a new regime that promoted competition among local exchange carriers (e.g., the "Baby Bells") and long-distance providers (e.g., AT&T, MCI, and Sprint) for customers, allowing each to integrate and compete in the others' traditional spheres of influence. Recently, mergers of SBC/AT&T, and potentially BellSouth, as well as Verizon/MCI may mark the full-scale reintegration of different network verticals.

Analysis of vertical relations requires evaluating the competitive position of firms at each level.<sup>92</sup> If there is robust competition at the physical layer, concerns about integration are muted because consumers can always switch among broadband providers.<sup>93</sup> As previously discussed, the last-mile broadband market is currently characterized by two dominant natural monopolies present

85 *Id.*

86 See Yoo, *supra* note 39, at 262-64 (noting that vertical integration guards against free riding, hold-up problems, and other strategic behaviors by complementors).

87 See Farrell & Weiser, *supra* note 60, at 6.

88 CLAYTON M. CHRISTENSEN & MICHAEL E. RAYNOR, *THE INNOVATOR'S SOLUTION: CREATING AND SUSTAINING SUCCESSFUL GROWTH* 125-35 (2003).

89 See, e.g., *Continental T.V. Inc. v. GTE Sylvania, Inc.*, 433 U.S. 36, 49-56 (1977).

90 See Farrell & Weiser, *supra* note 60, at 87.

91 *Id.*

92 *Id.*

93 As previously mentioned, the presence of switching costs may complicate this issue further by creating barriers to exit for consumers even where multiple providers are available.

in most, if not all, markets. Cable and DSL may compete against each other, but their statuses are defined by their origins from technologies that had almost exclusive access into residential homes. Such access is prohibitively costly to replicate, thus relatively immune from competition.

Different theories address the likelihood that a monopolist broadband provider will inefficiently discriminate against unaffiliated applications. The “one monopoly rent theory” claims that a monopolist has no incentive to monopolize a complementary product if it is used in fixed proportions with the monopoly good and is competitively supplied.<sup>94</sup> Joseph Farrell and Philip Weiser introduce the concept of internalizing complementary efficiencies to argue that a network owner will only deny access to unaffiliated competitors if it is efficient to do so.<sup>95</sup> It is unsurprising that where a platform provider chooses to focus on maximizing the wealth of its platform, and avoids forward integration, it will seek to maximize competition and innovation among applications so it can leverage the network effect that motivates user demand.<sup>96</sup>

Where a platform monopolist does integrate into the applications market, Farrell and Weiser’s theory claims it will still “welcome value-added innovations by independent firms . . . in order to profit from a more valuable platform.”<sup>97</sup> The argument assumes that providers can extract more value from increased demand for the platform than from their gains through sales of applications. Importantly, the theory allows for some limitations on competition in the applications market which benefit the platform’s users. Restricting some applications to manage congestion is one conceivable example where operators might attempt to limit access for applications in order to maximize welfare for users.

These limitations, however, may result in an inefficient outcome for users when the platform monopolist can gain more from exercising market power in applications than it can from increasing demand for the platform. The classic example occurs where pricing for the platform is regulated, perhaps below the profit-maximizing level, and thus the network owner seeks to monopolize the applications market in order to take additional profits in that market, perhaps inefficiently.<sup>98</sup> This reasoning supports unregulated pricing of broadband access to prevent operators from acting unfairly in the applications market to compensate for platform pricing set below the profit-maximizing level. Another more relevant exception occurs when operators maintain separate legacy businesses threatened by broadband applications. Specifically, VoIP and IPTV

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94 For an illustration, see RICHARD A. POSNER, *ANTITRUST LAW* 198-99 (2d ed. 2001). An issue with broadband is that the applications are not used in fixed proportions to the access provided and thus may create an incentive to monopolize the complementary product to provide flexibility in pricing both components.

95 Farrell & Weiser, *supra* note 60, at 89.

96 *Id.* at 101.

97 *Id.* at 102-03.

98 *Id.* at 105-06.

serve as substitutes, and thus competitive threats, to traditional voice and cable TV frequently offered by the same firms who sell broadband. The *Madison River* case, described at the beginning of this Article, offers the paradigmatic example of a phone company restricting access for a broadband application in order to maintain its more expensive traditional service at the expense of its broadband users. Even if Madison River had offered a competitive VoIP service, it would likely have slowed Vonage in order to maintain its subscriber base of voice customers through a broadband application if its legacy product were no longer viable.

Lawmakers, therefore, must acknowledge the tension that exists in these vertically integrated broadband providers. First, due to network effects, a platform provider has strong incentives to maintain competition in its adjacent markets because robust innovation in applications increases the platform's value. Broadband firms can appropriate some of this increased value in the absence of price regulation. Furthermore, restrictions are not per se inefficient because certain services may impose such severe harm on other users (e.g., viruses) that operators should be encouraged to limit their access.

On the other hand, broadband providers may seek to engage in exclusionary conduct that harms consumers.<sup>99</sup> There are many subtle ways to disadvantage an unaffiliated developer (e.g., an interface design that slows the application or an onerous pricing policy) that can benefit the network owner.<sup>100</sup> An operator may seek to increase its power in the applications market over competitive services by restricting or degrading the independent developer's access to its users. In such situations, a network owner can weaken a rival by shrinking the pool of users that the rival can reach.<sup>101</sup> The prospect of inefficient discrimination by broadband firms requires lawmakers to construct a model that evaluates both the market power of the firm in its primary market and the nature of its differential treatment of applications.

#### D. Legal Background

Developing effective policy in the arena of broadband access requires close attention to several legal principles since the Constitution may limit certain regulatory approaches and since existing legal doctrines may already have some influence over the issue. Sharp conflicts emerge in discussion of the Constitution's position on access. Network owners argue that regulation amounts to an unlawful taking in violation of the Fifth Amendment. Conversely, concerns about broadband firms restricting access to undesirable applications or even specific viewpoints has motivated First Amendment

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99 See generally van Schewick, *supra* note 19.

100 See Joseph Farrell & Michael L. Katz, *Innovation, Rent Extraction and Integration in Systems Markets*, 48 J. INDUS. ECON. 413, 421-26 (2000).

101 Since many applications are subject to scale economies, barring one application's access to users can weaken a complementary product.

arguments in support of government intervention—although the speaking rights of the network owners themselves may pose free speech claims cutting against regulation. The complexity of regulating in this area is amplified by the presence of both federal and state commissions which may require some sensitivity to the role of the federal administrative state. And finally, any model will operate in the shadow of antitrust jurisprudence that already seeks to limit unfair use of market power by dominant industries. While exploring these broad fields of law in detail is beyond the scope of this Article, it is possible to highlight the major issues and the analytical frameworks that lawmakers should consider.

### 1. Fifth Amendment

Many advocates of a deregulatory approach to broadband access have sought to ground the discussion as a property rights debate.<sup>102</sup> Indeed, they have even claimed that supporters of network neutrality are engaged in a “crusade against property rights in broadband networks.”<sup>103</sup> Although it is undeniable that operators have a real property interest in their infrastructure, most proposals for prohibiting discrimination against unaffiliated content do not raise any significant Fifth Amendment concerns.

The Takings Clause analysis depends significantly on whether the regulatory approach includes a physical invasion.<sup>104</sup> Daniel Spulber and Christopher Yoo make this point effectively when they note that “[R]egulation [that] simply adjusts the terms under which parties can contract . . . is subject traditionally to a rather permissive standard of review under the Takings Clause . . . . Compell[ed] access to a physical network, in contrast, . . . [is] subject to the more restrictive standards associated with the Court’s physical takings jurisprudence.”<sup>105</sup> The structural approach of open access—requiring broadband firms to allow the equipment of unaffiliated ISPs on their lines—may entail such a physical invasion, but regulations against discriminatory behavior affect only the “terms” under which operators contract with application developers and end users.<sup>106</sup>

Regulations affecting terms of use rarely constitute a taking. In *Lingle v. Chevron*, the Supreme Court recently clarified how to evaluate a takings challenge.<sup>107</sup> Writing for a unanimous court, Justice O’Connor limited per se

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102 See Owen & Rosston, *supra* note 3.

103 Thierer, *supra* note 13, at 17.

104 Some overlook the importance of “physical invasion” in takings analysis and assume that any policy which restricts an owner’s use of property is subject to a takings challenge. See, e.g., *id.* at 16 (“[E]very discussion of forced access regulatory policy—whether it is structural or behavioral in character—should begin with a discussion of property rights.”).

105 Spulber & Yoo, *supra* note 10, at 933.

106 Although some believe that “open access” proposals that anticipate line sharing by ISPs would constitute takings, the point has not been clearly resolved by the Court. See *id.* at 1021-23.

107 544 U.S. 528 (2005).

takings to two categories: (1) where the government requires an owner to suffer a permanent physical invasion of her property<sup>108</sup> or (2) where a regulation completely deprives an owner of “all economically beneficial use” of her property.<sup>109</sup> Since non-discrimination in broadband access does not contemplate any restriction on charging end users, such a regulation does not deprive network owners of “all economically beneficial use” of their property.<sup>110</sup>

Outside of these two per se categories, the “ad hoc” test laid out in *Penn Central Transportation Co. v. City of New York* governs regulatory takings challenges.<sup>111</sup> The test includes (1) the character of government action, (2) the severity of the economic impact, and (3) the degree of interference with reasonable, investment-backed expectations.<sup>112</sup> An inquiry into the purposes of broadband access regulation shows that a challenge here is likely to fail. First, such a policy intends to increase demand for broadband among both consumers (who will have more content) and application developers (providing them the certainty of reaching users). By increasing demand for the platform, the regulation increases its value and, subsequently, the economic return for the platform owner. Even if operators might improve their return more through discrimination, regulation restricting such activity hardly has a “severe” economic impact and essentially amounts to an adjustment of the “benefits and burdens of economic life for the common good.”<sup>113</sup> The Fifth Amendment, therefore, provides little assistance to critics of non-discrimination policies for access to broadband applications.

## 2. First Amendment

By contrast, proponents of regulation cite constitutional concerns with self-regulation. If broadband networks become the primary means of communication, they ask, does the power of operators to exclude objectionable content threaten freedom of speech? At an abstract level, the First Amendment “focuses on the importance of securing an open environment in which all can

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108 *Id.* at 538 (citing *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419 (1982)).

109 *Id.* (citing *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1019 (1992)).

110 Some critics of access regulations argue that elimination of an unrestrained right to exclude should amount to a taking, even under the law’s restrictive tests. *See, e.g.*, *Owen & Rosston*, *supra* note 3, at 27 (“subtracting without compensation one of the property rights that an investor created (or would create) through a risky investment of funds with an opportunity cost clearly will reduce, *perhaps to zero*, the amount it is rational to invest” (emphasis added)).

111 438 U.S. 104 (1978).

112 *Id.* at 124.

113 *Id.* In addition, it is worth noting the similarity of these regulations with “must carry” provisions applied against cable television companies. In the seminal case on this matter, *Turner Broad. Sys., Inc. v. FCC*, 520 U.S. 180 (1997) [hereinafter *Turner II*], where cable operators were forced to carry certain local broadcast channels, equivalent to mandating access to broadband applications, neither the plaintiffs nor the Court found it necessary to mention the Fifth Amendment implications of such rules.

equally experiment with how to think and speak, and where no one can determine for anyone else what is orthodox.”<sup>114</sup> Some have even argued that “the First Amendment embodies an affirmative right of access to the means of speech, judicially enforceable against a government agency that does not adopt policies that secure access to the means of effective communication.”<sup>115</sup> The courts have not gone this far, but the First Amendment still supplies a basis for regulating fair access to broadband content.

Two separate strains of constitutional jurisprudence may support regulation in this area. First, in *Pruneyard*, the Supreme Court held that the free speech rights of a shopping center owner were not violated by an order to allow patrons of his center to peaceably express their views, even when he disliked them, so long as he continued to open his center to the public and maintained the ability to disclaim those views not his own.<sup>116</sup> Since the broadband network is also private property opened to the public for commercial and expressive purposes, perhaps operator restrictions on objectionable content constitute a violation of the application developer’s rights of free expression. Indeed, a novel argument might be made that the state’s granting of licenses for broadband firms to market their services constitutes state action and, as a result, any burdens placed by operators on users’ rights to free expression may be imputed to the state.<sup>117</sup>

Second, the Court has confirmed the power of Congress to force cable network operators to carry certain television content it deemed important—primarily broadcast channels. Although the *Turner* cases represent an acknowledgment of the free speech rights of operators, the holding established that Congress may limit those rights so long as it can demonstrate important governmental interests and not substantially burden more speech than necessary to further those interests.<sup>118</sup>

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114 Yochai Benkler, *Property, Commons, and the First Amendment: Towards a Core Common Infrastructure* 7 (2001) (white paper for the First Amendment Program Brennan Center for Justice at NYU School of Law).

115 *Id.* at 27, quoting Jerome A. Barron, *Access to the Press—A New First Amendment Right*, 80 HARV. L. REV. 1641 (1967).

116 *Pruneyard Shopping Center v. Robins*, 447 U.S. 74 (1980). Justice Rehnquist writing for the majority said:

Most important, the shopping center by choice of its owner is not limited to the personal use of appellants. It is instead a business establishment that is open to the public to come and go as they please. The views expressed by members of the public in passing out pamphlets or seeking signatures for a petition thus will not likely be identified with those of the owner.

447 U.S. at 87. It should be noted that this case was limited to the question of whether the California court’s decision to recognize the appellee’s right of free expression in the shopping center infringed on the appellant’s First Amendment rights. The case might have been different if the question were whether a government order to accommodate all expression on its property infringed on the property owner’s right of free expression. In addition, it is not clear whether a network owner has a viable method of disclaiming support for the views with which it doesn’t agree and therefore whether its position is tantamount to that of the shopping center owner.

117 Author has found no evidence that this argument has been advanced in legal proceedings.

118 *See Turner II*, 520 U.S. 180.

Although the First Amendment is probably better employed in support of regulation, there are some reasons to believe operators, might win a contest over speech rights. Most notably, Professor Philip Weiser points out that the FCC's classification of broadband as an "information service," upheld by *Brand X*, infuses operators with speaking rights that they would not have as common carriers.<sup>119</sup> Furthermore, a federal district court struck down a line-sharing requirement for ISPs intended to limit operators control over content on the basis that the requirement violated the speaking rights of the operator, who was distinguishable from a common carrier telephone service provider.<sup>120</sup> Although *Pruneyard* and *Turner II* still cast doubt on the use of the First Amendment against broadband access regulations, some advocates would like to see the FCC clarify the issue by expressly disclaiming operators' speaking rights.<sup>121</sup>

### 3. Federalism

Communications have long been overseen by a patchwork of government regulators. Since the establishment of the FCC under the Communications Act of 1934, the federal government has been authorized to regulate interstate and international communications by radio, television, wire, satellite and cable.<sup>122</sup> State and municipal bodies, however, retained an active role through granting cable franchises and setting rates.

Leaving the issue of overseeing broadband access to states is illogical and out of step with recent congressional action. The Telecommunications Act of 1996, for example, sought to promote competition and reduce regulation to "encourage the rapid deployment of new telecommunications technologies."<sup>123</sup> A uniform approach is necessary to achieve this goal, especially given that the footprints of broadband firms frequently exceed state borders. Courts have already demonstrated a willingness to support federal preemption on this issue, but lawmakers should consider more comprehensive legislation in this area.<sup>124</sup>

*Brand X* concluded that the FCC is permitted to classify broadband transmission as an "information service," but also ruled on the full extent of the FCC's authority to regulate such service. Philip Weiser proposes that the FCC

119 Phillip J. Weiser, *Toward a Next Generation Regulatory Strategy*, 35 LOY. U. CHI. L.J. 41, 65 (2003).

120 *Comcast Cablevision of Broward County, Inc. v. Broward County*, 124 F. Supp. 2d 685, 693 (S.D. Fla. 2000) ("The cable operator, unlike a telephone service, does not sell transmission but instead offers a collection of content.")

121 In a conversation with the author, former FCC Chairman Reed Hundt expressed the view that the government should limit speaking rights in the broadband context to users, including presumably application developers. Interview with Reed Hundt, Chairman, Federal Communications Commission (Apr. 13, 2006).

122 47 U.S.C. § 151 et seq. (2000).

123 Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (1996).

124 Spulber & Yoo, *supra* note 10, at 1016.

could be entitled to oversee the Internet “by reference to its need to regulate ‘information platforms’ that can support the delivery of voice, video and text applications.”<sup>125</sup> As he points out, in today’s world, broadband access itself is the platform upon which providers will rely to offer their Internet-delivered content and services. Thus, the content that was previously delivered directly by a physical coaxial cable or copper wire is now transmitted through broadband networks. As this platform replaces the legacy infrastructures, the FCC can only achieve its express statutory purpose if it is empowered to oversee the management of those networks.<sup>126</sup> Either the FCC can employ this regulatory model and seek congressional endorsement later or Congress can affirmatively extend the agency such power in a new bill—since the 1996 Telecom Act only barely anticipated the rise of broadband.<sup>127</sup>

#### 4. Antitrust

Finally, antitrust doctrine, with its purpose of constraining unfair use of market power, serves as a backstop to any regulation in this area. Two cases inform the antitrust analysis of access for broadband applications. The Supreme Court’s landmark decision in *Continental T.V. v. GTE Sylvania, Inc.* replaced per se prohibitions of vertical restrictions with an evaluation under the “rule of reason,” which entails a fact-intensive inquiry into the competitive effects of the restriction.<sup>128</sup> Although the dispute in *Continental T.V.* dealt with the relationship between a manufacturer and its franchise retailers, Justice Powell’s majority opinion embraced the idea that “[v]ertical restrictions promote interbrand competition by allowing the manufacturer to achieve certain efficiencies in the distribution of his products.”<sup>129</sup> Antitrust doctrine continues to presumptively permit vertical relations and thus courts may not take issue with the extension of network owners into the application and content layers of broadband.

On the other hand, where the primary market is highly concentrated, *Continental T.V.* may be less applicable because there is no interbrand

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125 Weiser, *supra* note 119, at 61.

126 *Id.* at 63.

127 *Id.* at 62-63.

128 433 U.S. 36 (1977). Justice Brandeis provided one of the most popular statements of the rule of reason in *Chicago Bd. of Trade v. United States*, 246 U.S. 231 (1918):

The true test of legality is whether the restraint imposed is such as merely regulates and perhaps thereby promotes competition or whether it is such as may suppress or even destroy competition. To determine that question the court must ordinarily consider the facts peculiar to the business to which the restraint is applied; its condition before and after the restraint was imposed; the nature of the restraint and its effect, actual or probable. The history of the restraint, the evil believed to exist, the reason for adopting the particular remedy, the purpose or end sought to be attained, are all relevant facts. This is not because a good intention will save an otherwise objectionable regulation or the reverse; but because knowledge of intent may help the court to interpret facts and to predict consequences.

246 U.S. at 238.

129 *Continental T.V.*, 433 U.S. at 54.

competition to encourage. In such situations, the FCC's Carterfone decision may offer a better analogy.<sup>130</sup> That decision responded to AT&T's prohibition on competitive attachments to its lines—for example, independent makers of phones—and spawned a regulatory regime based on “open access” to the telecommunications network.<sup>131</sup> The FCC also adopted pro-competitive policies for services in markets adjacent to the incumbent telecommunications network, known as “information services.” The intention of these FCC policies was to prevent a monopolist in the primary infrastructure market from leveraging its market power to disadvantage unaffiliated competitors in the secondary services market. While *Brand X* upheld the FCC designation of broadband as an “information service,” it did not displace the regulatory construct from which such a designation was born. In other words, it did not upset the idea that vertical restrictions imposed by a monopolistic platform provider must be regulated.<sup>132</sup> Although the open access paradigm first established by *Carterfone* would not require a network neutrality regime for governing access to broadband applications, it does encourage some regulation to address the potential market failures associated with vertical restrictions. Philip Weiser supports an “antitrust-like approach to regulation” of services such as broadband.<sup>133</sup> Even if lawmakers do not utilize antitrust doctrine in the area of broadband access as explicitly as Weiser suggests, any solution must consider the existing frameworks for addressing vertical restrictions by firms possessing significant primary market power.<sup>134</sup>

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130 Use of the Carterfone Device in Message Toll Telephone Service, 13 F.C.C.2d 420, 424–25 (1968). This decision arose from an antitrust action brought by the developers of the Carterfone against AT&T, as the district court referred the issues related to AT&T's tariff to the FCC for decision. See *Carter v. AT&T*, 250 F. Supp. 188, 190 (N.D. Tex. 1966), *aff'd*, 365 F.2d 486 (5th Cir. 1966).

131 See Weiser, *supra* note 119, at 66.

132 Weiser notes that the core concern behind the *Computer Inquiries*, which offered the “information service” term, was that “incumbent telephone providers would use their power in the telecommunications market to eliminate competition in the adjacent information services market.” *Id.* at 68.

133 *Id.* at 75. Weiser's approach has three elements: 1) “a basic standard developed by after-the-fact judgments” (similar to the rule of reason); 2) sensitivity to the economic efficiencies associated with vertical integration (in light of *Continental T.V.*); and 3) an “awareness that regulatory intervention” must be designed to do “more good than harm” (acknowledging regulatory costs). Weiser specifically notes that his article “does not discuss the exact details of how such an enforcement regime would work,” thus leaving an opening for the approach that I propose below. *Id.* at 76 n.151.

134 *Id.* at 75–76.

## II. Existing Proposals for Governing Access: Self-Regulation or Network Neutrality

### A. Self-Regulation: “Keep Your Hands Off the Market!”

#### 1. Summary of the Self-Regulation Approach

Although a market-oriented solution may mitigate congestion by allowing an operator to prioritize applications efficiently, the presence of concentrated players and the potential for market failure warrants government involvement. The absence of any restrictions may prove too tempting for these gatekeepers, and even limited discrimination may reduce social welfare by chilling innovation.<sup>135</sup> While broadband operators have a real property interest in their infrastructure, this interest should not deter lawmakers. There is no strong legal argument against a legal principle governing operators’ treatment of broadband applications.

#### 2. Incentives for Efficient Self-Regulation

Broadband operators assure policymakers that the absence of significant harm demonstrates the market’s ability to regulate their conduct.<sup>136</sup> And many commentators agree, highlighting the economic forces that motivate network owners to promote competition among applications.<sup>137</sup> They warn that regulation will not only impose significant costs, but will also deter future investment; therefore Congress should codify the customary “hands off” approach that has so far been customary in order to minimize costs and maximize economic development.<sup>138</sup> While this unrestrained market approach has its virtues, it overlooks the opportunities and incentives for vertically integrated providers to leverage their gatekeeping position unfairly at the expense of social welfare.

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135 Ultimately the self-regulation pitch, as described by Owen and Rosston, seems unconvincing. See Owen & Rosston, *supra* note 3, at 32 (“[T]here is no basis to assume that cable or any other technology platform will monopolize the [broadband] service, or that if one does, it will be profitable for that monopolist to exclude equally or more efficient upstream or downstream suppliers.”).

136 See, e.g., Comcast Corporation Q4 2005 Earnings Conference Call Transcript, (Feb. 2, 2006) (statement of Brian Roberts, CEO of Comcast Corporation) (“[W]e continue to believe that proponents of the so-called net neutrality are pursuing a solution in search of a problem.”), available at <http://internetstockblog.com/article/6476> (last visited on Apr. 26, 2006).

137 See, e.g., CLYDE PRESTOWITZ, ECON. STRATEGY INST., AMERICA’S TECHNOLOGY FUTURE AT RISK: BROADBAND AND INVESTMENT STRATEGIES TO REFIRE INNOVATION (2006) (discussing how the Telecommunications Act of 1996 led to economic changes and stimulated competition).

138 See Theirer, *supra* note 13, at 23-24.

A key premise behind self-regulation is that competition in the primary market for broadband is vibrant.<sup>139</sup> Government interference is unnecessary, proponents of self-regulation contend, because consumers can switch platform providers if applications are banned or degraded. Moreover, restrictions on vertical relations would not only prevent operators from earning an adequate return on the capital invested in infrastructure, but would also cut against legal doctrine, which presumes integration into an adjacent market to be reasonable as long as the primary market is competitive. As this Article has discussed, this picture of broadband competition defies the reality in most communities where no more than two operators are likely to serve end users. While the degree of concentration depends on the geographic market and perhaps more on one's market definition, one can hardly refer to the market for broadband as a "competitive free-for-all."<sup>140</sup>

In response to claims of concentration, advocates of a "hands off" approach point to Farrell and Weiser's economic theory—namely the theory that even a platform monopolist will make efficient choices about whether to impose restrictions on applications.<sup>141</sup> In a Cato Institute release, Adam Thierer writes:

[E]ven if current [operators] have significant market power, they still have a strong incentive to carry *more* content and websites to maximize consumer utility and get consumers to spend more money for access to the service. If a carrier attempted to greatly curtail or limit certain types of Web services, it might discourage subscribership and thus reduce profits.<sup>142</sup>

There are even instances, as pointed out above, where an operator may justifiably disfavor certain applications to benefit users. The least controversial form of this conduct is where a network manager blocks viruses which harm users but are most cheaply addressed by the operator.<sup>143</sup> More contentious is when certain applications, such as email, are slowed to allow other time-sensitive ones, such as voice, to get ahead in line.

139 See generally *id.* at 1 (claiming the broadband marketplace is a "competitive free-for-all"); Owen & Rosston, *supra* note 3, at 17 ("[Local broadband service] today is not an entrenched monopoly. In many areas cable companies and telephone companies compete directly for customers, and . . . wireless and satellite may soon become important additional avenues of competitive supply."). Furthermore, Owen and Rosston state that "[t]here is no real basis to assume that [local broadband service] will ultimately turn out to be monopolized." Owen & Rosston, *supra* note 3, at 19.

140 Thierer, *supra* note 13, at 1.

141 See Farrell & Weiser, *supra* note 60, at 89 ("[T]he central analytical tool . . . in our discussion is a Chicago School-style argument we call *internalizing complementary efficiencies* . . . [, which] claims that even a monopolist has incentives to provide access to its platform when it is efficient to do so.").

142 Thierer, *supra* note 13, at 15.

143 The alternative would require every user to purchase more advanced virus protection. Indeed, Professor Tim Wu acknowledges that "operators usually ban . . . network viruses [and while] it is true that this is a departure from network neutrality, because it disfavors a class of applications – those that are disruptive to the network . . . it is clear that the operator has acted to solve a problem of a negative externality . . . [which] few . . . would argue . . . is a bad thing." Wu, *supra* note 16, at 151.

Advocates of self-regulation argue not only that applications should be prioritized based on their demand for delivery, but also that the market is the best judge of which applications should receive preference.<sup>144</sup> Although the market is most likely the best vehicle for identifying and achieving an efficient ordering of applications, it does not follow that operators should possess unrestrained discretion to make these choices. Granting operators the right to set the terms and pricing of access, including how to allocate priority positions, empowers them to engage in a host of self-serving and ultimately inefficient behavior. Some mechanism restraining operators' decisions must exist to prevent both the direct harm of inefficient restrictions placed on valuable applications and the secondary harm of discouraging innovation through the unpredictable choices of network operators.<sup>145</sup>

Returning to the story of Madison River Communications may illustrate the potential for market failure. In mid-2006, GulfTel, a division of Madison River, offered unlimited local and long distance phone service for over \$115/month. Vonage charged \$25/month and many of GulfTel's DSL customers, who paid \$42 each month at the time, could have easily switched to that offering. Assuming that the quality of service was equivalent, customers should have been expected to switch because they would have saved over \$90/month. Although GulfTel's DSL service was more valuable to its users because of the Vonage offering, one can imagine that GulfTel might have raised its DSL price only incrementally, perhaps to \$45/month.<sup>146</sup> By blocking access to Vonage, or even more subtly degrading its service quality, GulfTel may have acted rationally, but the result would have been costly for consumers. It is important to note that similarly perverse incentives may have existed if GulfTel integrated forward to offer its own broadband voice service. Although its service might not have been superior to Vonage's product, it could have offered it for \$50/month and misled consumers to believe its product as better by slowing the delivery of Vonage data or granting priority only to its own service in moments of congestion. In either case, customers may have believed that they had received a deal—saving \$65/month on voice and getting a better product than Vonage. In reality, consumers would have overpaid while GulfTel

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144 See Owen & Rosston, *supra* note 3, at 19-20 (arguing that a neutral system will not only directly harm users of voice and video applications but will also result in an under-supply of innovation in time-sensitive products).

145 No one will invest if there is substantial uncertainty about the terms or price of accessing customers. See van Schewick, *supra* note 19; see also Letter from Tim Wu & Lawrence Lessig to Marlene H. Dortch, *supra* note 17.

146 Although the point of economic indifference for Vonage subscribers is \$90 (simply capturing savings on voice in broadband pricing), GulfTel is not able to charge that amount for two reasons. First, the perceived value of broadband has not increased to \$90/month. Second, not all of GulfTel's DSL customers use Vonage, but without any mechanism for distinguishing those who do and those who do not (except perhaps by looking at which customers have unsubscribed from its phone service), GulfTel would have to charge all of its customers a higher rate. In other words, if 40% of broadband customers switch to Vonage, the 60% of customers still using GulfTel's phone service would be outraged by a \$90 increase in their monthly broadband bill.

benefited both from a more valuable broadband platform, which included the voice application, and from mitigating the lost revenue from its legacy service. In addition, application developers like Vonage would have been less likely to design products in the future because of the risk that broadband operators would unfairly compete with their own services.<sup>147</sup>

### 3. Real Costs v. Absent Harms

Beyond the incentives for efficient self-regulation, a frequent point made by opponents of access regulation is that regulatory costs are real while the harm is illusory. An initial misconception is that regulation comes only in the form of market-shaping rules.<sup>148</sup> Certainly, any mandated access would impose administrative costs. As Justice Breyer has noted, “[e]ven the simplest kind of compelled sharing . . . means that someone must oversee the terms and conditions of that sharing.”<sup>149</sup> And the experience of the 1996 Telecom Act illustrates the enormous quagmire that can be created by imposing access requirements and establishing prices.<sup>150</sup> Furthermore, the rulemaking process provides ample opportunity for gaming, especially when massive industries like cable and telecommunications are involved.<sup>151</sup> Companies in these sectors pour tens of millions of dollars each year into government relations and are not above spinning facts to their advantage.<sup>152</sup> As one scholar notes, “many affected parties will view regulatory intervention as an opportunity to gain an advantage over a competitor and thus will provide misleading information to regulators.”<sup>153</sup> While these concerns are valid, they do not make a comprehensive case against regulation. Rather, they highlight some of the deficiencies of addressing market failures in broadband through rulemaking. None of these criticisms, however, weigh strongly against adjudication of complaints after the fact, an alternative approach explored below.

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147 Broadband video applications will cause similar disruption. Imagine a world of universal broadband. Content companies, like CBS or ABC, would distribute their content, e.g., coverage of sports events or sitcoms, via broadband because they can reach the same subscribers (perhaps more through better customer segmentation) without paying cable fees. All other things being equal, the cable TV model would deteriorate. However, since cable television and cable modem service are owned by the same firms, these operators will have an incentive to either slow the broadband video application to prevent migration from cable TV or charge the content providers for priority access.

148 See van Schweick, *supra* note 19, at 38 (stating that “[t]he costs of network neutrality regulation depend on the chosen form of implementation”).

149 AT&T Corp. v. Iowa Util. Bd., 525 U.S. 366, 428 (1999) (Breyer, J., concurring in part and dissenting in part).

150 See Weiser, *supra* note 119, at 69-70 (noting that the unbundling requirements from the 1996 Telecom Act continue to produce litigation).

151 See *id.* at 76; see also Thierer, *supra* note 13, at 19-21.

152 Indeed, direct contributions to congressional candidates from the Bells and five largest cable companies totaled nearly \$3 million in the first ten months of 2005. Center for Responsive Politics, from Federal Election Commission filings. Funding to industry groups and lobbying firms undoubtedly exceeded this figure by a considerable degree.

153 See Weiser, *supra* note 119, at 76. See also Philip J. Weiser, *Internet Governance, Standard Setting and Self-Regulation*, 28 N. KY. L. REV. 822, 841 (2001).

Costs of regulation should properly be compared against all the harms avoided. Advocates of a market-based solution contend that there are no demonstrated harms.<sup>154</sup> This view overlooks not only cases like Madison River, but also the far greater number of allegations of more subtle degradation of broadband applications that cause users to perceive these independent services as inferior to the operator's service.<sup>155</sup> Furthermore, as operators continue to integrate forward into applications through mergers, organic growth or contractual agreements, there will be an increasing temptation to use their power as gatekeepers to limit the commercial success of their competitors.

In addition, the measure of harm must encompass the secondary effects of lost innovation. A company witnessing the Madison River case may have decided against investing in a new broadband voice service because of the risk that operators would deny it access to users. The loss of that innovation is a harm that must be avoided. Professors Tim Wu and Lawrence Lessig highlighted this point in their submission to the FCC:

The question an innovator, or venture capitalist, asks when deciding whether to develop some new Internet application is not just whether discrimination is occurring today, but whether restrictions might be imposed when the innovation is deployed. If the innovation is likely to excite an incentive to discrimination, and such discrimination could occur, then the mere potential *imposes a burden on innovation today* whether or not there is discrimination now. The possibility of discrimination in the future dampens the incentives to invest today.<sup>156</sup>

The self-regulatory camp argues that any loss in innovation from granting operators unrestricted power is offset by the network owner's investment and innovation. Addressing Wu and Lessig, in particular, Thierer comments that they

obviously feel quite passionate about the question of innovation at the edge of the network. But where is the concern for innovation at the core of the network, or the innovation and investment needed to bring about entirely new network infrastructures? Wu and Lessig are apparently content with the networks of the present and feel comfortable imposing regulations on existing [operators] to ensure that innovation is maximized at the edge of the existing systems.<sup>157</sup>

Two problems exist with this analysis. First, it is unlikely that a handful of broadband firms could produce as much application innovation, in aggregate, as all the firms at the edge of the network. Thus, in seeking to maximize consumer welfare by promoting application innovation, one would first seek to

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154 In an Ex Parte Letter to the FCC, the cable industry wrote that "it is self-evident that regulation should not be imposed merely to prevent a hypothetical threat." Letter from National Cable & Telecommunications Ass'n to the FCC (Sept. 8, 2003) (on file with author). See also Owen and Rosston, *supra* note 3, at 34 (claiming that "there is no evidence that the [proposed harm] (hardware platform owners' controlling access and choosing content) is likely to happen, or that if it did happen it would be harmful to consumers").

155 For a discussion of problems, see High Tech Broadband Coalition Ex Parte Letter to FCC (June 17, 2002) (on file with author). See also Coalition of Broadband Users and Innovators Ex Parte Letter to FCC (Nov. 18, 2002) (on file with author).

156 See Wu & Lessig, *supra* note 17.

157 See Thierer, *supra* note 13, at 18.

provide predictability to investors at the network's edge. Second, in determining the trade-off between granting operators full control over their networks and encouraging application-level innovation, a central question must be resolved: Will limits on network management reduce the incentive to invest in broadband below the necessary level? There are several reasons to believe that operators already possess sufficient incentives to invest in broadband. The market for broadband is clearly greater than the market for any single application and the platform owner can capture the positive externalities associated with each new application, i.e., the increase in consumer demand for broadband. As Lessig and Wu point out, the FCC has "done much . . . to encourage the build-out of a broadband infrastructure."<sup>158</sup> Furthermore, no regulations contemplate preventing broadband firms from forward integrating into applications so they will still be able to compete for application-level revenues, albeit on a level playing field. And finally, as the regulatory approach explored in Part IV suggests, network owners might even charge application developers for priority access—allowing the market to help identify demand and order the queue efficiently.

#### 4. Legal Basis for a Pure Market Solution

The final argument made by the deregulatory camp is a rights-based legal argument. They contend that the networks are private property and broadband providers have contractual relationships with their customers.<sup>159</sup> Any interference with this property or these contracts amounts to unconstitutional state action. Further, since the FCC designation of broadband as an information service grants it "speaking rights," operators argue that regulations on network management amount to a violation of free expression—essentially, the requirement to deliver all media amounts to forced speech. As previously discussed, these arguments do not carry significant weight. In the absence of physical invasion and with substantial opportunities to benefit from selling broadband access, a takings challenge is unlikely to succeed. The terms of the executory contracts between consumers and broadband firms are not immune from government modification. Finally, when so much "speech" is freely transmitted by the operators, it is hard to make a colorable claim that limits on the right to exclude competitive commercial speech should prevail over concerns about users' free expression.<sup>160</sup>

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158 *Id.* at 2.

159 *Id.* at 7-8.

160 *See Pruneyard Shopping Center v. Robins*, 447 U.S. 74 (1980).

## B. “Network Neutrality” Rules: A Formal Equality Solution

### 1. Summary of the Network Neutrality Approach

In its purest form, “network neutrality” would arrogate the gatekeeping function from broadband networks, rendering them a set of dumb, passive pipes.<sup>161</sup> Although proposals vary, and rarely reach this far, they tend to share two features. First, they establish a legal rule of formal equality: all applications should be treated alike regardless of their character.<sup>162</sup> Second, they advocate implementation of this rule through rulemaking.

### 2. A Non-Discrimination Rule of Formal Equality

Most proposals envision a non-discrimination rule with several exceptions.<sup>163</sup> Their rule requires operators to maintain a rigid baseline of “best efforts” delivery from which they can only deviate in cases specified by rulemaking.<sup>164</sup> One anticipates that the exceptions would allow for blocking viruses but would not permit any departure from “best efforts” to mitigate congestion by ordering the queue based on applications’ demand. Returning to the airport security line example discussed earlier in the article, such a rule would amount to permitting the security personnel to remove dangerous persons from the line, but prevent them from rushing the late traveler ahead of those in line who are early for their flights. Doing so would result in the late traveler receiving better treatment than those who arrived to the airport on time, the kind of differential treatment which network neutrality forbids. The problem, which should be evident at this point, is that applications possess inherently different characteristics and while delay will hardly impact some, it will severely limit the performance of others. A description of the implementation of this regime in the broadband context may be useful. Online games both contribute to congestion because they consume significant capacity (imagine a large tour group getting into line) and when played in real-time multi-player formats they can be very sensitive to delay (like the late traveler).<sup>165</sup>

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161 Lessig has been quoted as saying that “a dumb pipe is critical.” Thierer, *supra* note 13, at 13.

162 Lessig and Wu provided the quintessential statement of a network neutrality: “A network that is as neutral as possible is predictable: all applications are treated alike.” Letter from Tim Wu & Lawrence Lessig to Marlene H. Dortch, *supra* note 17, at 3.

163 For examples of these proposals, see *id.* at 13; Wu, *supra* note 16, at 169; FCC Policy Statement, *supra* note 20.

164 “Best efforts” is simply first-come, first-serve delivery which is standard without active management by network operators.

165 If a user simply downloads the game, the application is not really time-sensitive. If, however, several users are playing the same game in real-time then delays in downloading can ruin the experience.

To deal with congestion caused by the bandwidth consumption of gamers, operators have frequently restricted such applications by instructing customers not to use them or simply blocking their delivery.<sup>166</sup> Conventional network neutrality regimes would prohibit such restrictions because they not only deny users access to a valuable application they value, but also discourage innovation in this area.<sup>167</sup> As Lessig and Wu explain, “a carrier concerned about bandwidth consumption [should] police bandwidth usage, not block individual applications. Users interested in a better gaming experience would then need to buy more bandwidth.” Instead of blocking the application, network neutrality would endorse investment in new capacity to eliminate the congestion issue or metering users to allow usage-based pricing. In the absence of such responses, this regime would bind operators from actively seeking to manage applications’ demand for capacity—a result which will leave congestion unchecked but is perhaps the most cost-efficient for broadband operators.

The acceptable responses were both discussed in Part I so only a brief reminder is offered here. Investment in new capacity will never fully address the problem because operators will not deploy infrastructure before demand has clearly outstripped capacity, and in the interim, there will always be some congestion. Furthermore, a network owner will surely pass through any capital investment to the users. Since there is no way to properly measure various users’ consumption, all consumers will bear this charge equally. As a result, the person emailing will not only suffer congestion effects from the online gamer prior to new capacity, but will also then be required to subsidize the online gamer by bearing some of the capital cost motivated solely by the gamer’s use. The second solution, usage-based pricing through metering, simply requires exorbitant transaction costs.<sup>168</sup> To demonstrate the enormous metering costs which usage pricing would entail for broadband, one can look to local telephone service, which is also dominated by flat rate pricing. Studies have indicated that the cost of usage pricing might exceed \$10 billion annually in the local telephone market.<sup>169</sup> Since the Internet involves bits of data rather than switched calls, there is reason to believe that it would be even more expensive to operate a metered system for broadband access.<sup>170</sup> Moreover, the installation

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166 For an explanation of how a broadband carrier would do so, see, e.g., Cisco Systems, Inc., *The Cisco Content Delivery Network Solution for the Enterprise*, Cisco White Paper (April 2002), available at <http://www.cisco.com>; Cosine, Inc., *Digital Subscriber Lines and Managed Network-based Services: A Perfect—and Profitable—Marriage*, Cosine White Paper, available at <http://www.cosine.com>.

167 See Letter from Coalition of Broadband Users and Innovators to the FCC (Nov. 18, 2002), available at <http://www.fcc.gov>.

168 As Christopher Yoo points out, “the economic attractiveness of employing usage-sensitive pricing on the Internet turns on the magnitude of the transaction costs needed to implement such a scheme. If transaction costs are sufficiently high, it may well prove more economical to allow network providers to pursue alternative pricing regimes.” Yoo, *supra* note 69, at 1874.

169 *Id.*

170 *Id.* at 1875.

costs, essentially requiring new modems for all users which tracked usage and transmitted data back to the operator, adds to the overall expense of such a system. When only a fraction of users and applications account for the problem, broadband firms are unlikely to implement a full-scale overhaul in response to network neutrality.<sup>171</sup>

The result of network neutrality, therefore, is to reduce the broadband operator to a fairly passive network manager with negative consequences for applications. Not only will time-sensitive applications be directly impaired by congestion but innovation in such applications is likely to diminish because the governing regime implicitly disfavors services sensitive to delay. In other words, since email (which is time-insensitive) functions effectively in a best efforts regime regardless of congestion while voice (which is time-sensitive) does not, independent developers considering where to invest capital will eschew voice applications whose performance is not easily assured. When advocates claim that neutrality “prevent[s] distortion in the market,” they ignore the fact that it essentially substitutes one distortion for another. Although leaving the gatekeeper to regulate itself may produce some self-interested and inefficient behavior, the alternative also may generate non-optimal behavior—systematically discouraging one type of application whose functionality can be materially harmed by delay.<sup>172</sup> Formal equality, therefore, is not the right principle to govern applications with different essential attributes.

### 3. Rulemaking as the Method of Implementation

Most network neutrality supporters would like to see Congress enact its formal equality principle in a statute which delegates authority to the FCC for enforcement of the legal rule and clarification of exceptions. Several proposals would allow operators to restrict access for applications which interfere with other customers’ use of the network, but the meaning of such an exception in the context of congestion is unclear. As this Article has shown, when demand exceeds capacity on the network, each user’s request for delivery of an application (whether an email, website or voice call) essentially slows the service for other users. Moreover, since some applications are time-sensitive, one person’s usage can totally disrupt another person’s use.<sup>173</sup> Codifying a rule with exceptions has two outcomes: Either there is a costly rulemaking to define

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171 A variant of usage-based pricing is tiered pricing. It requires similar mechanisms for monitoring usage and bringing enforcement actions against violators. As a result, it likely requires transaction costs similar to usage-based systems. For a discussion of tiered pricing, see Wu, *supra* note 16, at 154.

172 Lessig acknowledges this flaw in the network neutrality principle and therefore pushes for greater investments in broadband capacity. LESSIG, *supra* note 60, at 46-47. For another concession of network neutrality’s limits, see Letter from Tim Wu & Lawrence Lessig to Marlene H. Dortch, *supra* note 17, at 3 n.3 (“Of course, it is inevitable that by its design the internet or any communications network will invariably create some favoritism for certain uses. Pure neutrality is more of an aspiration than a fully achievable design principle.”).

173 At certain levels of delay, a voice call simply cannot operate.

detailed exceptions, or the exceptions consume the rule by granting wide discretion to operators.

Section II.A.3, discussing regulatory costs, detailed the expense of rulemaking. To review, there would be significant money spent in lobbying legislators. Further, any notice and comment period offered by an agency would produce direct costs associated with industry groups on all sides. In addition, the courts would likely get involved anyway to review controversies associated with the promulgated regulations. And finally, there may be indirect costs since investment in applications will be skewed by the outcome of these proceedings. If an agency promulgates a rule exempting certain applications from the non-discrimination rule, it will send a signal to developers to avoid investing in these applications. Even if an operator might not use its discretion to unfairly limit such applications, the fact that those services have been singled out is likely to distort innovation away from these areas, at least among unaffiliated developers.<sup>174</sup> While rulemaking process provides clarity, it is too inflexible an approach and far too subject to gaming by broadband operators. It is tantamount to the airport trying to predict years in advance which travelers should receive priority and which passengers may be efficiently delayed—an impossible task when the context is frequently changing. A far better solution, proposed below, would free the agency from making these decisions *ex ante* and allow operators to respond to demand dynamically with a mechanism for monitoring abuses of this power.

### III. An Adjudicative Approach to Enforcing a Substantive Equality Principle

Although popular network neutrality proposals suffer from some weaknesses, they are right to involve the state in governing access for broadband applications. At this point, the need for regulation should be evident: Despite the strong economic incentives pushing operators to maintain a competitive market for applications, there are other interests that may lead them to advantage their own services, imposing costs on consumers and chilling innovation. Self-regulation simply ignores the likelihood that network owners have engaged, and will continue to engage, in harmful exclusionary conduct.

There are two principal drawbacks of network neutrality proposals. First, the underlying legal standard of neutrality, or formal equality, is flawed because it fails to recognize the inherent differences among applications. Without allowing differential treatment, policymakers can never fulfill their

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<sup>174</sup> An exception for WiFi attachments, for example, might simply drive innovation in this area to the broadband operator. Just as GE would not design a toaster that an electric utility could make non-functional, an independent WiFi developer will not invest in home networking devices if the FCC has explicitly granted operators the right to impair their performance. In such a scenario, operators would develop WiFi attachments because they would be unconcerned about the risk of restricted access (they control access). Thus, users would be forced to purchase the operator's WiFi attachments since these would be the only ones the market would supply.

purpose of fostering level competition among applications since formal equality effectively advantages those well-suited to a best efforts delivery method.<sup>175</sup> To the extent that network neutrality proposals anticipate any deviation from best efforts, it is only a downward departure. In other words, they accept that harmful applications, like viruses, may require restricted access, but do not acknowledge that time-sensitive applications require priority to properly perform.<sup>176</sup> Since neutrality prohibits preferential treatment, a pay-for-priority system “would be frowned upon,”<sup>177</sup> despite its potential to generate a more efficient ordering of congested applications.

The second flaw in network neutrality proposals is that they leave only two modes of implementing such a rule with limited exceptions, and neither is desirable. On the one hand, the FCC could engage in notice and comment rulemaking to define the exceptions.<sup>178</sup> As discussed earlier, such a procedure would not only take years to accomplish, but would also likely favor the incumbent broadband operators.<sup>179</sup> The resulting rules would also have the unfortunate effect of ossifying the market for applications, favoring development in protected areas and discouraging investment in applications that fall within the exceptions.<sup>180</sup> On the other hand, the statute itself could compel operators to treat all applications alike unless they obtained a permit from the FCC, presumably through adjudication, which allows them to impose restrictions on certain harmful services.<sup>181</sup> This system would limit the flexibility of the market, since operators would be hamstrung to make even efficient choices for managing the network without first obtaining permission. An alternative model is available that combines a more precise congressional rule of law with agency adjudication of anti-competitive conduct.

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175 Although network neutrality proponents do not often frame their regimes as “best efforts,” it is tautological that only best efforts meets their standard. Any preference or discrimination would both violate neutrality and represent a divergence from best efforts.

176 Wu states his general principle as follows: “[A]bsent evidence of harm to the local network or the interests of other users, broadband carriers should not discriminate in how they treat traffic on their broadband network on the basis of inter-network criteria.” Wu, *supra* note 16, at 168. It is worth noting that Wu earlier admits that “[n]eutrality, as a concept . . . depends entirely on what set of subjects you choose to be neutral among.” *Id.* at 147-48.

177 *Id.* at 168.

178 Wu seems to acknowledge this possibility but implies that he recognizes its costs when he writes, “[the regime depends on] a proposed antidiscrimination principle (a rule, only if necessary).” *Id.* at 165.

179 In discussing problems created by broad standards, such as network neutrality, Judge Henry Friendly noted that “lack of definite standards creates a void into which attempts to influence are bound to rush.” Henry J. Friendly, *The Federal Administrative Agencies: The Need for Better Definitions of Standards*, 75 HARV. L. REV. 863, 881 (1962).

180 Of course, the idea of the FCC shaping the market for applications is only problematic if you accept that the powers of the agency to predict which applications will be valuable to consumers are not as robust as those of the free market.

181 Wu’s concept of imposing a baseline forbidding operators from restricting access for applications “absent a showing of harm” seems to suggest a licensing scheme where operators could obtain the FCC’s permission to block harmful applications. Wu, *supra* note 16, at 165. Under the Administrative Procedure Act, licensing occurs through adjudication. Administrative Procedure Act, 5 U.S.C. § 551 (2000).

### *A. A New Legal Standard to Govern Access for Applications*

At the core of this approach is a non-discrimination rule that seeks substantive equality for applications. Although best efforts delivery (i.e., first-come, first-serve) remains the baseline, this new legal rule permits the operator to depart from this baseline where it is efficient to do so. By contrast, network neutrality requires strict adherence to this baseline with limited, pre-determined exceptions.

An example may help to demonstrate the functional benefits of a substantive equality method. Real-time video conferencing is sensitive to delay unlike other communication applications, such as email. Network neutrality would require packets for a video conferencing application to line up as they arrive, even after email packets. In the absence of congestion, this delay might be insignificant, but at times of peak usage significant delay could disable the conferencing application (imagine a static figure on screen). A regime governed by substantive equality overcomes this problem by allowing operators to prioritize the video packets over the email, deviating from the best efforts baseline to allow each application to operate properly. Although the email may arrive later under this approach, the user is unlikely to notice the difference. Such differential treatment preserves continued performance of both applications, achieving greater efficiency and fairness. By contrast, the neutral regime forces a false choice among communication applications—email appears better in any situation if video does not work.

### *B. A Hybrid Model of Administrative Procedure*

The regime advanced by this Article also entails a different form of administrative procedure than that offered by network neutrality supporters. Rather than using FCC rulemaking to clarify a broad neutrality standard, this model contemplates Congress instructing the agency to enforce the substantive equality principle through adjudication, supplemented by disclosure rules developed through rulemaking. The statute would grant the Commission initial jurisdiction over complaints, allowing federal courts to review the decisions, and provide some direction to judges by including a two-factor test that may determine whether the plaintiff is entitled to a presumption of harm that the operator must rebut. Specifically, if the plaintiff proves the operator possessed market power and failed to use a fair method for choosing how to treat a certain application, the operator must provide factual evidence to show its choice actually achieved substantive equality for applications. Although judges might elaborate these factors, the test is sufficiently precise to bring predictability to the question of whether certain treatment violates the legal standard.

This hybrid form combines clarity and flexibility in a way better suited to the problem of governing broadband access than a more pure procedural method. Scholars and policymakers have long noted the importance of

providing definite legal standards.<sup>182</sup> A legal rule expressed by Congress, and enforced through a “directed”<sup>183</sup> adjudication, provides such clarity: Operators are put on notice of the objective (a level playing field for applications to compete for end users) and permissible means (a best efforts baseline with the discretion to depart from best efforts where it better serves the objective). Such a standard is certainly more definite than many past delegations of power to the FCC.<sup>184</sup> And its location in a statute rather than a regulation not only protects the formulation of the standard from industry manipulation, but also affords it greater preemptive force.<sup>185</sup>

While this Article’s approach primarily employs adjudication to implement the legal standard, there remains a significant role for rulemaking. First, Congress should direct the FCC to issue disclosure rules regarding the network management choices made by operators.<sup>186</sup> Mechanically, any IP address receiving non-“best efforts” treatment, either priority or restricted access, would be filed for public viewing. Such a system permits the FCC, application developers and even end users to monitor behavior. Broadband firms are less likely to engage in harmful conduct if they must make such choices public. The FCC would maintain discretion over the design of such disclosure. Many questions would need to be answered, including how such filings should occur, how long operators must maintain that treatment and what penalties should be imposed for non-disclosure. The FCC’s expertise and ability to seek industry comment through the rulemaking process makes it well-suited to develop such a scheme, which is consistent with past filing mechanisms for rate regulation and infrastructure sharing.<sup>187</sup>

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182 See Friendly, *supra* note 179. Also, in conversation with the author, former FCC Chair Reed Hundt noted that definite standards (usually through rulemaking) are necessary to influence the strategic planning of businesses—they do not respond to vague pronouncements. Interview with Reed Hundt, *supra* note 121.

183 “Directed” is meant to refer to the inclusion of a two-factor test in the statute.

184 The preamble to the 1996 Telecom Act states that the law’s purpose is “[t]o promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies.” Telecommunications Act of 1996, 47 U.S.C. § 609 (2000).

185 Administrative law scholars have frequently pointed out that agencies are more vulnerable to capture than Congress because there are simply fewer people at an agency that one must influence to produce a certain outcome. Although agency regulations are accorded significant deference under the *Chevron* doctrine and may preempt state oversight in the area, courts are more respectful of congressional statements. The Court demonstrated such regard in *Chevron* by announcing that the threshold question for reviewing regulation is “whether Congress has directly spoken to the precise question at issue.” *Chevron U.S.A., Inc. v. Natural Res. Def. Council, Inc.*, 467 U.S. 837, 842 (1984). Although no canon of law appears to require Congress to specify a standard, courts are more likely to inquire into legislative intent where important policy choices are made. See *FDA v. Brown & Williamson Tobacco Corp.*, 529 U.S. 120 (2000).

186 Congress could, of course, issue such rules itself. They would require no greater level of specificity than do income tax provisions, but the legislature’s docket is too full to issue every rule and the FCC does maintain some expertise that would be useful here.

187 This scheme is analogous to the tariff filing responsibilities imposed by Section 203 of the Communications Act of 1934, which the Supreme Court upheld as an essential feature of the regulatory framework. See *Communications Act of 1934*, 47 U.S.C. § 151 (2000); *MCI Telecomm. v. AT&T*, 512

There are further roles for FCC rulemaking that would help facilitate a substantive equality regime for broadband access without undermining the flexibility of the market. For example, Congress may empower the agency to fill in ambiguities about adjudication. Although the two-factor test described below will direct the resolution of adjudication, it does not speak to procedural matters, such as whether an arbitration system should be utilized or what statute of limitations should apply. Rulemaking would be appropriate for all of these functions.

The use of adjudication rather than rulemaking as the primary mechanism for implementing the statute attempts to “give the marketplace more freedom to evolve.”<sup>188</sup> In the ever-changing landscape of broadband applications, it would be impossible for an agency to fashion precise rules regarding what treatment is proper for specific applications.<sup>189</sup> In concert with disclosure rules, the FCC could police conduct that appeared anti-competitive, as the FTC does, or serve as a forum for private parties to bring challenges.<sup>190</sup> Through case-by-case adjudication, the FCC and courts could elaborate the legal standard and provide greater clarity about access for broadband applications.<sup>191</sup>

Frequent criticisms have been levied against the administrative choice of adjudication. Most concern its backward-looking perspective and its focus on a particular controversy rather than on a generally applicable rule. Further criticisms highlight the cost of fleshing out a principle through multiple proceedings rather than a one-time rulemaking. The benefits of adjudication in this context overcome these worries. First, while the Administrative Procedure Act defines rulemaking as an agency’s statement for “future effect,”<sup>192</sup> judicial orders may also have prospective consequences, even if they upset prior expectations about the policy.<sup>193</sup> Second, the model proposed here does not eschew a clear legal standard. It simply encourages Congress to issue that

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U.S. 218, 231 (1994). Writing the majority opinion, Justice Scalia noted that “[r]ate filings are, in fact, the essential characteristic of a rate-regulated industry.” 512 U.S. at 231. Another useful comparison is the requirement to file infrastructure sharing rates imposed by the 1996 Telecom Act. See Telecommunications Act of 1996, 47 U.S.C. § 259(b)(7) (2000).

188 Weiser, *supra* note 119, at 76.

189 As David Shapiro stated, “[t]here are numerous situations in which the only course that is consistent with the legislative purpose is to apply the statute to the facts without attempting to articulate more precise rules governing the applicability of the standard.” David L. Shapiro, *The Choice of Rulemaking or Adjudication in the Development of Administrative Policy*, 78 HARV. L. REV. 921, 928 (1965).

190 This antitrust-like model resembles the approach endorsed by Professor Philip Weiser but differs in two important respects. First, Weiser embraces a broad nondiscrimination standard without distinguishing between formal and substantive equality. Weiser, *supra* note 119, at 75. Second, Weiser puts off an attempt to provide detail for his regime. Weiser, *supra* note 119, at 76 n.151.

191 The *Chevron* doctrine would also apply to such statutory interpretation that occurs through adjudication. See, e.g., *I.N.S. v. Aguirre-Aguirre*, 526 U.S. 415 (1999).

192 Administrative Procedure Act, 5 U.S.C. § 551(4) (2000).

193 Shapiro, *supra* note 189, at 935 (stating that “the most that can be said” of the prospective nature of rulemakings versus adjudication “is that a rule declared in a regulation is more likely than a rule declared in adjudication to be limited in application to determining the legal status of future conduct, although either may operate to defeat expectations justifiably based on prior policy”).

standard rather than delegating such power to an agency. Thus, anxiety that market participants will not be able to plan in response to this regulation is misplaced.<sup>194</sup> Finally, while adjudication requires evidentiary proceedings, rulemaking might prove just as expensive. Not only might the process for narrowing a vague standard like “network neutrality” require years of work, but ensuring compliance will likely beget litigation. As Professor David Shapiro points out, “the issuance of a regulation does not guarantee its effectiveness; it may well be necessary to bring individual violators to book by commencing adjudicatory proceedings against them while others are complying with the law.”<sup>195</sup>

### *C. The Two-Factor Test: Primary Market Competition and an Efficient Selection Process*

Since adjudication may not provide the market with the same clarity as rulemaking, it is important to provide some direction for firms about what kind of treatment is legitimate under this regime. To this end, the proposed statute would offer a burden-shifting approach for judging complaints.<sup>196</sup> Judges reviewing complaints must ask two questions: Does the operator possess significant market power? And was the operator’s choice of treatment fair? If the plaintiff can demonstrate that the operator possesses market power and did not employ a “fair choice” method, the judge will presume harm that an operator can only rebut with evidence that its choice achieved substantive equality. The negative inference is that differential treatment will be considered presumptively legal if the operator possesses no market power (allowing users to switch providers) or if it determines treatment of applications efficiently.<sup>197</sup>

194 A concise version of this criticism can be seen in Shapiro, *supra* note 189, at 940, when he writes that “[r]ulemaking provides accessibility and clarity of formulation whereas adjudication may be opaque for those who are not initiated into “the mysteries of a particular agency and its works.” See also LON L. FULLER, *THE MORALITY OF LAW* 173 (1964) (stating that any attempt to accomplish economic management through adjudication is certain to result in “inefficiency, hypocrisy, moral confusion, and frustration”).

195 Shapiro, *supra* note 189, at 936. One can imagine countless examples, especially in the case of network neutrality proposals, that provide exceptions for operators to restrict access to applications harmful to the network or other users. As this Article discussed earlier, almost any application harms other users in the presence of congestion because it slows their service. Would broadband firms receive blanket protection to restrict applications in this context? This would cut against the entire network neutral approach, but resolving which applications may be restricted because they *really* harm other users or the network could require many adjudicatory hearings.

196 Philip Weiser suggested a blanket presumption that differential treatment was anti-competitive, which the operator may rebut with a legitimate business reason. Weiser, *supra* note 119, at 76. The problem with this approach is that it will overburden operators if strongly enforced because they will need to provide case-specific justifications for each network decision, and it will fail to adequately restrict operators if satisfied with almost any business purpose.

197 Importantly, the law does not presume anti-competitive conduct simply because the operator’s affiliated application has gained a dominant share of the market. Professor Clay Christensen has persuasively shown that there are times when an integrated solution is simply better than a modular approach, and the law should not disrupt a system that serves users well so long as fair means were used to obtain that position. CHRISTENSEN & RAYNOR, *supra* note 88, at 125-35.

The first factor, the existence of “market power,” instructs courts to look at the operator’s position in the market relative to end users.<sup>198</sup> Consumers do not require government assistance to punish a network owner for discriminatory conduct if they can switch broadband providers easily.<sup>199</sup> Judges are capable of designing the proper standard for market power. Indeed, antitrust analysis, including the HHI indexing method discussed in Part I, may offer a useful guide, although judges should not be constrained by standards drawn from other contexts. If the plaintiff fails to show that the operator possesses “market power,” the court should presume the conduct was efficient and end the matter unless the plaintiff can produce compelling facts to the contrary.<sup>200</sup>

Upon resolving this threshold question, a reviewing body should move to the “fair choice” factor. Under this model, the operator gets to choose how to treat each application, i.e., whether to prioritize delivery, restrict delivery, or leave it at best efforts. In its complaint, the plaintiff should identify which specific network decision it deemed unfair so that the court may review the process underlying that choice.<sup>201</sup> If the operator can defend the fairness of its treatment, it will avoid a presumption of harm. If the operator cannot demonstrate “fair choice,” it must overcome the presumption, unless it lacks market power.

The “fair choice” factor will typically assess how an operator allocated priority slots. Recalling the airport security line example, there are unlikely to be charges of unfair conduct if (a) no one is advanced in line or (b) a passenger is denied access entirely. The absence of any priority slots could violate substantive equality, but in the absence of a network neutrality requirement operators will likely manage their network by providing some applications with priority.<sup>202</sup> The presence of disclosure rules reduces the likelihood that operators will depart downward from “best efforts” unless the application clearly harms other users, e.g., a virus.

198 Market power is measured in relation to end users rather than applications to reflect the local geographic perspective of this market analysis. Even critics of broadband regulation appear to implicitly accept its relevance in the presence of market power. Professors Owen and Rosston wrote that “the benefit (if any) of regulation of [local broadband] service is the potential consumer welfare gains from reducing the distortions caused by monopoly power.” Owen & Rosston, *supra* note 3, at 30.

199 Switching costs also impact this issue. While this Article does not fully explore the effect of these costs, it is important to recognize that any judge must evaluate whether an operator has established substantial barriers to exit such that a consumer has limited power to respond to discriminatory behavior in network management. For my purposes, let us assume that switching costs are minimal and that the presence of multiple broadband providers is sufficient for resolving the question of whether an operator has market power.

200 While this Article does not explore the type of facts a plaintiff might present to overcome the presumption of efficient conduct, one can imagine that a grossly unfair choice of treatment, such as restricting access to any application that competes with the operator’s proprietary services, would constitute a violation of substantive equality.

201 Since differential treatment must be disclosed, it is safe to assume that this requirement does not impose a significant burden on plaintiffs. Indeed, if non-disclosure of exclusionary conduct can be shown, the FCC should take additional actions.

202 Even if the operator does not provide an affiliated service with priority, the denial of any priority slots may relate to preserving a legacy service.

Pricing is likely to affect allocations of priority slots, and how pricing is conducted will weigh on judges evaluating the “fair choice” factor.<sup>203</sup> Today, network operators tend not to charge applications for access, managing all unaffiliated services under best efforts and, in some instances, granting their own applications priority. Leading broadband companies have suggested they will soon sell these priority slots.<sup>204</sup> Despite critics’ contentions that selling priority is “double-charging”<sup>205</sup> or will stifle innovation,<sup>206</sup> there is nothing intrinsically wrong with this choice. Pricing can bring some transparency to the cost of access which will allow developers to better evaluate the risks of developing certain applications.<sup>207</sup> It is similar to a traveler who considers whether to pay for business class service to ensure priority in the security line. Indeed, it may actually increase applications’ willingness to participate on the network if broadband providers better attend to their needs in order to gain revenue.<sup>208</sup> Certainly, the airport security line would care far less about advancing time-sensitive travelers if it were forbidden from charging for this service, either ad hoc or through another tier of service. Thus, a “pay for priority” system seems inevitable, especially if congestion persists, and this Article assumes both that it will develop and that it is normatively desirable if conducted fairly.

Many mechanisms exist for pricing priority slots.<sup>209</sup> Network operators could research demand and then post prices, as retailers do.<sup>210</sup> They could also engage in negotiations with major application developers for priority slots,

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203 See Owen & Rosston, *supra* note 3, at 14.

204 See generally Patricia O’Connell, *At SBC, It’s All About ‘Scale and Scope’*, BW ONLINE, Nov. 7, 2005 (Ed Whitacre, CEO of SBC, noted that, “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!”); Adam L. Penenberg, *Internet Freeloaders: Should Google Have to Pay for the Bandwidth it Consumes?*, SLATE, Jan. 17, 2006, <http://www.slate.com/Id/2134397/> (Ivan Seidenberg, CEO of Verizon, explained that “[w]e have to make sure that [application providers] don’t sit on our network and chew up bandwidth. We need to pay for the pipe.”).

205 See Randall Stross, *Hey, Baby Bells: Information Still Wants to Be Free*, N.Y. TIMES, Jan. 15, 2006, at C3.

206 See Penenberg, *supra* note 204.

207 If developers of time-sensitive applications have great uncertainty about whether they will be able to gain priority access to consumers, necessary for their product’s functionality, they may be discouraged from developing the applications in the first place.

208 Since a two-sided network requires the platform operator to attract both sets of distinct users, re-focusing broadband companies on their dual customer base may leverage network effects in a way that promotes universal broadband better.

209 For the purposes of this Article, I assume that network operators would only price a limited amount of slots and that content that did not obtain one of those slots would queue in the traditional “best efforts” approach. It is not clear exactly how many priority positions each operator might offer for sale, but that number should not change the basic analytic framework proposed here.

210 Mechanically, an operator would advertise that high-performance downloads would cost \$X per user, per unit of data transmitted. In theory, any web provider could pay the fee, and the broadband operator would ensure that their data packets received priority. Presumably, the web provider would pass some of that charge through to the end user, although if they operated on an advertising model, as many original Web companies did, they might absorb the “pay for priority” charge in order to maintain their user base.

which BellSouth has already begun exploring.<sup>211</sup> Finally, network operators could conduct online auctions of positions on their network. Auctions are probably the most fair and efficient method of allocating slots.<sup>212</sup> Whereas negotiated pricing will favor large application providers<sup>213</sup> and tends to operate best where both parties have full information,<sup>214</sup> auctions are far more inclusive and are especially effective in discovering the efficient price amid information asymmetries.<sup>215</sup> There is even reason to believe that concentrated players are corruptible—likely to select other large players for priority slots who may pay less but advantage the broadband company in other ways.<sup>216</sup> Bilateral monopolies between large broadband firms and large application companies may result, which could both increase costs for users and stifle innovation.<sup>217</sup>

The purpose of directing adjudication through a two-factor test is not to engineer an answer for every situation, but simply to provide participants with greater clarity about how conduct will be evaluated so that they can plan accordingly. An FCC policy guideline might add further predictability by indicating an acceptance of auctions as a “fair choice” method.<sup>218</sup> Although pricing systems are not yet established, considerable evidence indicates that they will arrive soon. A policy guideline favoring auctions might influence operators to employ this method rather than less efficient mechanisms, like

211 See Dionne Searcey & Amy Schatz, *Phone Companies Set Off a Battle Over Internet Fees*, WALL ST. J., Jan. 6, 2006, at A1. Describing BellSouth’s idea to seek a small percentage of the fee that Movielink.com charges for movie downloads in exchange for faster delivery, BellSouth’s chief technology officer noted that “the application [consumers] want requires performance, and we’ll make that available [for a fee].” *Id.*

212 Much of the discussion of auctions is based on PAUL KLEMPERER, *AUCTIONS: THEORY AND PRACTICE* (2004). Eric Budish, a doctoral candidate in Harvard’s Business Economics program, also provided many helpful comments on this section.

213 The high transaction costs involved in negotiated pricing are also likely to favor large applications. It is far easier for Comcast, for example, to simply approach Yahoo!, Microsoft, and Apple’s iTunes, than to identify the niche sports programming website that has a strong demand for priority delivery.

214 See MAX BAZERMAN & MARGARET NEALE, *NEGOTIATING RATIONALLY* (1992).

215 The heterogeneous nature and sheer number of applications make it impossible for an operator to have full information regarding the economics of possible customers and their willingness to pay for priority.

216 IPO underwriting provides an example of the corruptive nature of negotiated pricing. Investment banks have frequently been accused of pricing offerings at levels that provide large institutional buyers with first day price appreciation, even at the expense of the issuer’s proceeds. This occurs largely because the institutional buyers are significant repeat customers of the bank whereas the issuer is often a less frequent client. Auctions, by contrast, allow investors other than Wall Street insiders to bid on shares, and this was one of the motivating factors behind Google’s choice to issue its IPO shares this way. See Joe Nocera, *Open and Fair: Why Wall St. Hates Auctions*, N.Y. TIMES, Mar. 18, 2006, at C1.

217 Bilateral monopolies of the kind described here would amount to a vertical relation between dominant players in two parts of the value chain. SBC and Yahoo! could have structured their agreement this way so that alternative search engines would have been blocked or restricted from accessing SBC customers.

218 Posted pricing, for example, may not adequately discover demand, but it saves the operator from the corruptibility of negotiations and provides transparency to application developers. Thus, a court could only deem such a method unfair if the plaintiff could show the prices were set to unfairly exclude certain services.

negotiations or posted pricing.<sup>219</sup> Ultimately, judges must decide how best to implement the statute. While the two-factor test seeks to cabin their interpretations of substantively equal treatment for broadband applications, it does not presume to anticipate all the complexity that the market will present.

*D. The Proposed Statute and Its Applications:*

Congress might endorse an alternative principle and procedure through a statute similar to the following:

§\_\_ Promoting Equal Access for Broadband Applications

Broadband Applications have the right to an equal opportunity to access Broadband Users, so long as their performance does not unreasonably harm other Broadband Applications. Accordingly, Broadband Operators shall treat all Broadband Applications alike unless differential treatment better serves the purpose of this Act. To accomplish this goal of substantive equality for all Broadband Applications:

The Commission shall prescribe, within one year after the date of enactment of this Act, regulations requiring Broadband Operators to publicly file any differential treatment imposed on a Broadband Application, including the relevant IP address and type of arrangement showing the rates, terms and conditions of treatment.

To aid in enforcement of this section, the Commission shall hear complaints regarding violations of this Act. The Commission shall presume that any differential treatment is anti-competitive and contrary to the purpose of this Act, if:

The Broadband Operator possesses market power over end users, and

The Broadband Operator has not used an open and fair process for setting access terms, including pricing.

As used in this section,

“Broadband Applications” includes any IP-based service or content provider, which may possess different essential characteristics, particularly related to their performance in congested networks;

“Broadband Users” means residential and business customers of a Broadband Operator;

“Broadband Operator” means a service provider that offers high-speed connections to the Internet using whatever technology, including but not

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219 Evaluating “fair choice” in the absence of a pricing system will likely require a fact-intensive inquiry into the operator’s determination to treat an application in a specific manner.

limited to cable networks, telephone networks, electricity networks, fiber optic connections, and wireless transmission;<sup>220</sup>

“Commission” means the Federal Communications Commission.

This law expresses the substantive equality principle, maintains freedom for broadband firms to manage their network consistent with this principle, and provides parties with a mechanism to enforce the statute against violations. This approach enjoys several economic advantages over network neutrality proposals as well as operating within the constitutional constraints discussed earlier. First, it does not impose rigid rules on operators, but rather allows them to manage their network freely in order to optimize capacity by matching their supply of priority access with demand identified among applications. Consequently, the network owner can minimize the harmful externalities of congestion while leveraging the two-sided network effect in order to maximize the value of its broadband platform. The indirect result should be greater investment in infrastructure by the operators and more innovation by application providers who are able to identify the cost of obtaining priority access by reviewing public filings and thus better plan their development. Since the model requires no physical invasion, such as compelled line-sharing, to manage the gatekeeping power of operators, it does not implicate the Fifth Amendment’s Takings Clause. Finally, although network owners can block access to certain harmful applications, the discussion below should make clear that any viewpoint-based restrictions would clearly violate the statute’s principle of substantive equality for broadband applications. And the speaking rights of the operator itself, as explained in Part I, are unlikely to outweigh the interests of the community in maintaining this forum for expression.

A focus on four paradigmatic harms posed by operators’ gatekeeping power may help illustrate the utility of this law. The problems considered are: (1) restricting access for applications that compete with legacy services (the Madison River issue), (2) prioritizing affiliated applications over unaffiliated services (the “proprietary VoIP” issue), (3) creating an exclusionary bilateral monopoly with an independent provider (the “SBC-Yahoo!” issue) and (4) blocking objectionable content (the “free speech versus virus” issue).

First, there are many legacy services, primarily voice service and cable TV, which broadband operators may seek to protect by degrading the quality of broadband substitutes traveling over their networks. As an initial measure, the law proposed in this Article would require an operator like Madison River to disclose any limitations it places on delivery of data from IP addresses, including that of Vonage. The application provider could proactively search such listings to identify restricted access or it could simply follow-up on

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220 Adapted from the definition provided in Wu, *supra* note 16, at 170.

complaints by users.<sup>221</sup> The law provides a private right of action for Vonage to challenge restrictions imposed by Madison River through whatever adjudicative process the FCC develops for such matters. The judge would determine whether Madison River has market power over users, which it likely does, and evaluate the fairness of its method for deciding which applications should receive differential treatment. Absent a finding of no market power over users or a fair method for deciding to restrict Vonage's access, the judge would impose a presumption against Madison River's conduct. Unless Madison River could meet its burden of proving that its denial of access for Vonage achieved the purposes of the statute, it would be ordered remove the restriction and pay some compensatory damages to Vonage, possibly along with a punitive award.<sup>222</sup>

Although, the Madison River case quite obviously violates the standard, one can imagine a more difficult case where the company had simply slowed the Vonage service without restricting it, or merely failed to provide any prioritization system for independent VoIP services. Assuming that Madison River has a monopoly over broadband in its local market, almost any restriction of a non-harmful application, like VoIP, would constitute a violation of the proposed law. In addition, even the absence of a prioritization scheme might violate the statute since Vonage could make the case that differential treatment was necessary for its application to have equal access to users (recall that delay can impair the performance of Vonage's service). Since no differential treatment exists, it is impossible for Madison River to meet the second factor (an "open and fair process for setting access terms") and thus Vonage would experience presumption in its favor if Madison River had market power. If Vonage prevailed, Madison River would likely be forced to develop a scheme to satisfy the obligations of the law.<sup>223</sup>

The second common problem arises when the operator has developed its own broadband application and seeks to use its power as the gatekeeper to unfairly compete with independent services. This case may be understood as the "proprietary VoIP" issue because most of the cable and DSL providers are currently marketing their own VoIP products to compete with unaffiliated companies, like Vonage. There are two ways that a broadband firm might seek to gain an advantage over competitors' services. First, it could slow the third-

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221 Since the filings would be public, a user could search the listings herself if she was able to obtain the IP address of her application service provider. Of course, it is more likely that she would contact the service provider directly and allow them to handle the situation since they could spread the costs of resolving the problem over all other users similarly afflicted.

222 The presumption of harm is not dispositive. Madison River could still prevail by showing that Vonage's application severely harmed other applications and the only way to achieve a level playing field for all applications would be to remove the Vonage application. Again, such a defense is equivalent to the airport security officer simply removing the dangerous passenger from the line.

223 It is important to remember that such obligations can be satisfied by charging applications for priority positions and therefore "liability" in this case may increase value for the broadband network, even though it will eliminate the barriers Madison River has erected against broadband substitutes for its legacy product.

party product. As with the Madison River case, the disclosure that an operator had departed negatively from the best efforts baseline in its treatment of a competitive service would invoke scrutiny from the FCC and the service provider itself. And any application that suffers from such mistreatment would have confidence that the FCC would declare such conduct illegal under this law. Alternatively, an operator could maintain the baseline delivery of data from the independent VoIP provider and grant its proprietary service the only priority slot on the network. The effect to users would be the same—namely, they would perceive the proprietary service to be higher quality because it received priority delivery even if the independent product might be better. Certainly, such treatment would not satisfy the statute’s stated purpose to grant each application an “equal opportunity to access” users. Moreover, upon review, the operator would surely fail the second factor since its method of allocating priority was hardly “open and fair.”

The third situation is essentially a variant on the second. As discussed earlier, vertical relations may occur through both integration of two levels of the value chain into one firm or through bilateral agreements between two firms in separate levels. When such an agreement between a network owner and an application provider restricts other access to the network for other applications, it poses some of the same problems as an operator unfairly competing with its own application. The “SBC-Yahoo!” designation is not meant to suggest that the well-known partnership between those companies created such a relationship but it is a useful construct through which to discuss potential harm. Imagine if that deal had provided that SBC would only favor Yahoo!’s services over competing search, email, and music services, among others. Although the “hands off” camp would argue the economic incentives, principally lost opportunities from network effects, would always militate against such conduct by SBC it is possible that SBC might agree if Yahoo!’s offer looked very attractive.

To implement such an agreement, SBC might either slow IP addresses of competing applications or grant Yahoo! an exclusive priority slot on its network. Both behaviors strongly resemble the situation in the “proprietary VoIP” example. In each case, customers would perceive the value of non-Yahoo! services to be inferior, regardless of their actual performance under controlled conditions, and developers would be leery of investing in innovation that might compete with Yahoo! because its access to SBC’s users would be compromised. Disclosure would allow third-parties to identify the implementation of this arrangement—either their IP addresses had been singled out for less than “best efforts” delivery or Yahoo!’s IP address had been chosen for better than “best efforts” delivery. With such evidence in hand, developers or the FCC itself could initiate a proceeding to determine whether SBC’s conduct was anti-competitive. Assuming that SBC has market power over its consumers, a judge would review the process by which Yahoo! was chosen to receive preferential treatment. A purely negotiated arrangement is likely to fail

this factor and force SBC to bear the burden of proving its treatment of Yahoo! served the goal of substantive equality for broadband applications. Although a judge might accept the fairness of a private auction, similar to what bankers conduct for asset sales, it is not as likely to pass muster as if SBC had simply posted prices for priority slots or conducted a more public auction (either online or where bidders' identities were concealed).<sup>224</sup>

The outcome at this stage is perhaps not as important as the mechanism created by the law. Through this mechanism, application developers are provided with some predictability that they will be able to obtain equal access on the network and operators are put on notice that they cannot engage in exclusionary vertical relations at the expense of customers. Yahoo! may end up purchasing a priority slot on SBC's network which gives it an advantage relative to competitors, but this poses no legal or economic problem as long as other applications were able to bid on the same slot. Thus, if Yahoo! obtains the slot, it reflects its greater demand for the position and presumably the greater value it believes it can create with priority than its competitors.

Finally, there remains the threat that broadband firms will use their power as gatekeepers to block objectionable applications. As previously discussed, consumer welfare increases when operators block harmful applications, like viruses, because then users need not purchase protection systems individually, but social welfare is impaired when network managers restrict content they dislike and effectively attack freedom of expression. Distinguishing between these two forms of conduct by broadband companies requires judges to interpret "unreasonable harm to other Broadband Applications" in a way that permits denying access to viruses but not to unsavory speech. Although the reference to applications rather than users should allow such an interpretation (nasty words are no different in binary code than nice ones), the FCC may seek to issue a policy guideline to this effect. Ultimately, the goal of fair and efficient broadband networks must induce operators to maintain open platforms for communication while allowing them to protect users from intentionally harmful applications.<sup>225</sup>

#### IV. Conclusion

The goal of any broadband policy must be to promote both deployment of the infrastructure and development of applications. The most efficient way to accomplish this goal is to leverage network effects: encouraging more applications which drive user demand and in turn fuel investment in

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<sup>224</sup> The problem with a private auction is that it is susceptible to the power of bilateral monopolies; in other words, big companies in separate parts of the value chain joining forces at the expense of consumers. This is less likely in an unlimited auction.

<sup>225</sup> Of course, this issue may never arise because virus developers are unlikely to challenge denial of access by a broadband operator.

applications.<sup>226</sup> The increased value of the broadband platform will provide an incentive for owners to deploy further infrastructure and for competitive technologies, such as BPL and wireless, to enter the market.

Current broadband firms threaten this vision because they can use their power as gatekeepers to advantage their own applications and legacy services at the expense of innovation among thousands of independent developers. The Madison River case demonstrates the impact to consumer welfare of leaving this power unchecked. Consumers will face higher costs, and investors in applications will be chilled. The emergence of broadband services as substitutes for existing technologies, and their reliance on priority slots for adequate performance amid congestion, heightens the need to address the gatekeeping role of operators.

Although network neutrality is an intuitively appealing concept, it is the wrong policy. Equal access for broadband applications is the ultimate objective and, in the context of a congested network, such equality can only be obtained through differential treatment. The formal equality principle motivating network neutrality proposals implicitly disfavors time-sensitive applications. Furthermore, the role of government cannot be to issue specific rules about how to manage networks because such an exercise is futile and potentially harmful to the market's development. No one can expect an agency to accurately predict which applications will arise in the future and rigid rules may ossify the market in favor of certain applications, discouraging investment in others. Moreover, the rulemaking process is more subject to industry capture and hold-up than a legal standard codified through a statute and enforced by adjudication.

The most recent staff draft of legislation released by the House Commerce Committee endorses an adjudication method of enforcement but adopts the wrong principle.<sup>227</sup> Specifically, Title II of the proposed bill would give the FCC authority to enforce the principles it articulated in 2005, which expressly sought networks operated in a "neutral manner."<sup>228</sup> The principles themselves are very vague and do not address the key problem of network owners discriminating against unaffiliated applications. Furthermore, the draft expressly limits the FCC's authority over the matter to adjudication,<sup>229</sup> preventing even the issuance of disclosure rules. Finally, the text grants the Commission "exclusive authority to adjudicate any complaint alleging a

226 Subsidies for the infrastructure do not produce the same result. Broadband will have little value without applications because a fiber optic line to the house creates no value on its own.

227 See Third Staff Draft of Telecom Act of 2006, 109th Cong. (2006), available at <http://static.publicknowledge.org/pdf/20060327-house-telecom-print.pdf>.

228 See FCC, *supra* note 20.

229 Third Staff Draft of Telecom Act of 2006, *supra* note 227, §715(b)(1) (2006) ("The Commission's authority to enforce the broadband policy statement . . . is limited to the adjudicatory authority . . . and the Commission shall not have rulemaking authority with respect to such enforcement.").

violation,”<sup>230</sup> which some parties have interpreted to deny judicial review by federal courts.<sup>231</sup> Thus, this law simply emboldens the gatekeepers to exclude whatever they desire, whenever they desire. Not only will it be difficult to track such discriminatory treatment in the absence of disclosure rules, but the legal principles and mechanisms articulated are also inadequate for proper enforcement.

The purpose of this Article is to highlight the harm and suggest an alternative path. The initial view is that our nation needs robust innovation of applications with the least intrusive regulation possible. We can rely neither on self-regulation by powerful and self-interested gatekeepers nor on a costly rulemaking process that ignores the dynamism of the market. Furthermore, any regime must accept that applications have inherent differences that make a rigid baseline unworkable. A deeper discussion is required in order to formulate the precise policy, but two points should be clear. Differential treatment must be part of the solution, and predictions of an agency cannot substitute for the workings of the market. Ignoring these signposts will relegate the United States to continued decline in the levels of broadband participation, a fate that could have serious effects on our economy and social welfare.

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230 *Id.* at §715(b)(2).

231 Public Knowledge, House Draft Telecom Bill Has Weak Net Neutrality Provisions (Mar. 31, 2006), <http://www.publicknowledge.org/news/intheknow/itk-20060331>.