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NATHANIEL TRELEASE, *PRESIDENT, WEBCREDENZA, INC., DENVER, COLORADO*. B.S., UNIVERSITY OF WYOMING; J.D., UNIVERSITY OF WYOMING; LL.M., UNIVERSITY OF DENVER.

THE HONORABLE TIMOTHY M. TYMKOVICH, *JUDGE, U.S. COURT OF APPEALS FOR THE TENTH CIRCUIT, DENVER, COLORADO*. B.A., COLORADO COLLEGE; J.D., UNIVERSITY OF COLORADO.

NINA WANG, *PARTNER, FAEGRE & BENSON LLP, DENVER, COLORADO*. A.B., WASHINGTON UNIVERSITY; J.D., HARVARD UNIVERSITY.

PAUL WASHINGTON, *PRESIDENT, LJS HOLDINGS LLC, BOULDER, COLORADO*. B.S., UNIVERSITY OF CALIFORNIA, BERKLEY; J.D., UNIVERSITY OF CALIFORNIA, BERKLEY.

LISA WAYNE, *ATTORNEY AT LAW, WILLIAM MURPHY & ASSOCIATES, BALTIMORE, MARYLAND*. B.A., UNIVERSITY OF COLORADO, J.D., PEPPERDINE UNIVERSITY.

MAUREEN WESTON, *PROFESSOR OF LAW, PEPPERDINE UNIVERSITY SCHOOL OF LAW*. B.A., UNIVERSITY OF DENVER; J.D., UNIVERSITY OF COLORADO.

Research Associates

KEVIN L. DORAN, *RESEARCH FELLOW, CENTER FOR ENERGY & ENVIRONMENTAL SECURITY (CEES)*. B.A., ANDREWS UNIVERSITY; J.D., UNIVERSITY OF COLORADO.

DOUGLAS S. KENNEY, *RESEARCH ASSOCIATE, NATURAL RESOURCES LAW CENTER*. B.A., UNIVERSITY OF COLORADO; M.S., UNIVERSITY OF MICHIGAN SCHOOL OF NATURAL RESOURCES AND ENVIRONMENT; PH.D., CORNELL UNIVERSITY.

KATHRYN M. MUTZ, *RESEARCH ASSOCIATE, NATURAL RESOURCES LAW CENTER*. B.A., UNIVERSITY OF CHICAGO; M.S., UTAH

STATE UNIVERSITY; J.D., UNIVERSITY OF COLORADO.

ADAM REED, *RESEARCH FELLOW, CENTER FOR ENERGY & ENVIRONMENTAL SECURITY (CEES)*. B.A., SOUTHERN METHODIST UNIVERSITY; J.D., UNIVERSITY OF COLORADO.

JILL RENNERT, *RESEARCH ASSOCIATE, SILICON FLATIRONS TELECOMMUNICATIONS PROGRAM*.

JULIE TEEL, *SENIOR RESEARCH ASSOCIATE, CENTER FOR ENERGY & ENVIRONMENTAL SECURITY*. B.S., UNIVERSITY OF CALIFORNIA, BERKELEY; J.D., NEW YORK UNIVERSITY.

JILL VAN MATRE, *RESEARCH ASSOCIATE, SILICON FLATIRONS TELECOMMUNICATIONS PROGRAM*. B.S., INDIANA UNIVERSITY; J.D., UNIVERSITY OF COLORADO.

FROM THE EDITOR

We are pleased to present the first issue of the seventh volume of the *Journal on Telecommunications & High Technology Law*. This issue features articles from the Silicon Flatirons Digital Broadband Migration Conference, which focused on “Information Policy for the Next Administration.” Impressively, President-elect Obama’s transition team included three of the Conference’s speakers, Kevin Werbach, Peter Swire and Arti Rai, as well as the Conference’s exceptional leader, Phil Weiser. The forward thinking articles in this issue not only highlight policy challenges that the new administration will face, but also offer thoughtful solutions. Articles by Rob Atkinson, Jon Nuechterlein and Professor Werbach discuss differing approaches to broadband policy. Dr. Atkinson offers the views from both an economist and an engineer, while Mr. Nuechterlein discusses which agency is in the best position to regulate antitrust elements of net neutrality and Professor Werbach outlines a national broadband strategy. Professor Stuart Benjamin focuses his article on spectrum policy and Professor Swire and Professor Orin Kerr consider privacy, security and government surveillance in today’s information age. We are also pleased to present a student note from Paul Shoning, an Articles Editor for the *Journal*. He eloquently argues a broadband duopoly may be sufficient to protect consumer interests.

I give many thanks to these authors for their submissions to the journal along with our Articles Editors, Brian Wolf, Paul Shoning, Amy Kramer and Daniel Estes, for steering the articles through the production process. Our Casenote and Comment editors, lead by Dana Jozefczyk, include Kylie Crandall, Jason Sharman and Charles Swanson, who not only chose our members for this year, but also helped guide the members writings for possible publication in future issues. Our flexible Associate Editors, Kianna Ferguson, Shanelle Kindel, Ann Lee and Derrick White, are always willing to lend a helping hand. Finally, our Executive Board, Kyaw Tin, Erin McLauthlin, John Bergmayer and Chris Larson, are truly an amazing. These four individuals are independently gifted and collaboratively remarkable.

I also thank Dale Hatfield, Brad Bernthal, Harry Surden, Martha Utchenuk and the Silicon Flatirons Advisory Board for their support of the *Journal*.

Finally, we owe so much to our advisors, Professors Paul Ohm and

Phil Weiser. Both Paul and Phil are passionate professors whose enthusiasm inevitably rub off on their students. Without their encouragement and leadership, the Journal could not continue to grow and offer such fantastic issues.

We hope you enjoy this issue.

Hiwot Molla
Editor-in-Chief

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THE ROLE OF COMPETITION IN A NATIONAL BROADBAND POLICY

ROBERT D. ATKINSON*

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INTRODUCTION

There is perhaps no issue more central to the debate about broadband policy than the state and role of competition. Indeed, the issue of competition drives many of the debates over broadband, including net neutrality, wireless spectrum auctions, municipal broadband, and unbundling proposals. Although some advocates claim that the current state of broadband competition is more than adequate, others decry market conditions and seek proactive public policies to spur more competition. Yet almost everyone involved in broadband policy in Washington, D.C., agrees that regardless of the current state of competition, more competition is better. The stated reason is that more

* Dr. Robert D. Atkinson is the founder and president of the Information Technology and Innovation Foundation, a Washington, D.C.-based technology policy think tank and has been involved in telecommunications policy debates in Washington for over a decade. For more information on the author, see ITIF: Staff, <http://www.itif.org/?s=staff>. The author wishes to thank the following individuals for comments on earlier drafts: Dan Correa, Julie Hedlund, Jon Peha, and Phil Weiser.

competition leads to lower prices, higher speeds, broader deployment, more innovation, and better customer service.

Yet the Washington consensus in favor of more broadband competition ignores the fact that broadband displays natural monopoly or duopoly characteristics. Because of the nature of the broadband industry, there are significant tradeoffs between more competition and the goals of efficiency, innovation, lower prices, and higher speeds and broader deployment. Thus, it is a mistake for policymakers to assume that if they simply “push the competition lever,” all the problems with broadband policy will be solved. Some problems will recede, but others are likely to emerge. The bottom line is that if policymakers want to maximize not only societal welfare but also consumer welfare, they must balance the push for more competition with the need to create an efficient broadband industry structure.

This paper starts by reviewing the affordability of broadband in the United States. It then postulates two starkly different views toward broadband competition: the “engineer’s view” and the “economist’s view.” Finally, it reviews the four main policy options toward broadband competition: 1) keep the same number of “pipes,” 2) spur the deployment of more pipes, 3) force incumbents to open up existing pipes to competitors, and 4) regulate “duopoly” pipes. Although each policy track will achieve some benefits, each also brings with it costs and risks. Policymakers need to balance the desire for more competition to enhance consumer welfare in the broadband realm with the need for the most efficient broadband industry structure.

I. IS BROADBAND AFFORDABLE IN THE UNITED STATES?

Before discussing the role of competition in keeping broadband prices low, it is worth first assessing broadband pricing in the United States. Achieving the goal of nearly universal high-speed broadband adoption in the United States will require, among other things, that most families can afford broadband. Competition is said to be a key aspect of broadband affordability.

In terms of price per megabit-per-second (Mbps), broadband prices have fallen in the United States over the last decade. Thus, for example, Verizon customers can purchase 768 kilobits-per-second (kbps) DSL service for just \$14.99 a month, about 60 percent of the price of what 56 kbps dial-up service was 10 years ago.¹

Still, the United States performs better in terms of broadband

1. Compare Shane Greenstein, *Innovation and the Evolution of Market Structure for Internet Access in the United States*, in *THE INTERNET AND AMERICAN BUSINESS* (William Aspray & Paul E. Ceruzzi eds., 2008), which states that the average price for dial-up service was around 20 dollars per month in 1998. In 2008 dollars, this is equivalent to \$26.

adoption (ranking 10th) in comparison with 29 other Organization for Economic Co-operation and Development (OECD) nations than it does in terms of broadband pricing (ranking 18th).² As shown in Table 1, Japan, France, Sweden and Korea offer broadband at the lowest prices, measured as the lowest available advertised monthly rate per Mbps. It is no surprise that Japan, Sweden and Korea are at the top in large part because of extensive high-speed fiber optic broadband services. Many Japanese residents, for example, are able to subscribe to 100 Mbps service for less than \$40 per month.³

2. See DANIEL K. CORREA, INFO. TECH. AND INNOVATION FOUND., *ASSESSING BROADBAND IN AMERICA 5* (2007), <http://www.itif.org/files/BroadbandRankings.pdf>, which measures take-up on a per-household basis, leading the United States to rank 10th, instead of 15th on a per capita basis. (The calculations from that report have been updated with the latest OECD data, released in October 2007. See Org. for Econ. Co-operation & Dev., Broadband Portal, <http://www.oecd.org/sti/ict/broadband>.)

3. ROBERT D. ATKINSON ET AL., INFO. TECH. AND INNOVATION FOUND., *EXPLAINING INT'L BROADBAND LEADERSHIP* app. at D1 (2008), <http://www.itif.org/files/ExplainingBBLeadership.pdf>. Table based on data from Directorate for Sci., Tech. and Indus., Org. for Econ. Co-operation & Dev., *Broadband Statistics: Range of Broadband Prices per Mbit/s in October 2007 Worksheet Data* (2007), <http://www.oecd.org/dataoecd/22/43/39574979.xls>.

TABLE 1: RANKING OF OECD NATIONS BY LOWEST
AVAILABLE PRICE PER MBPS

| Nation | \$/Month per Mbps (USD PPP) |
|-----------------|--|
| Japan | 0.13 |
| France | 0.33 |
| Sweden | 0.35 |
| Korea | 0.37 |
| Finland | 0.42 |
| Australia | 0.94 |
| New Zealand | 1.05 |
| Germany | 1.10 |
| Portugal | 1.24 |
| United Kingdom | 1.24 |
| Greece | 1.41 |
| Denmark | 1.65 |
| Luxembourg | 1.85 |
| Netherlands | 1.90 |
| Italy | 1.97 |
| Spain | 2.27 |
| Norway | 2.74 |
| United States | 2.83 |
| Switzerland | 3.40 |
| Belgium | 3.58 |
| Canada | 3.81 |
| Austria | 4.48 |
| Hungary | 4.67 |
| Ireland | 4.72 |
| Iceland | 4.93 |
| Poland | 6.47 |
| Slovak Republic | 9.38 |
| Czech Republic | 9.70 |
| Turkey | 15.75 |
| Mexico | 18.41 |

II. COMPETITION ÜBER ALLES?

So what is the role of competition in driving broadband price performance? In the last decade, the Washington telecommunications

consensus has focused first and foremost on competition as the driver of all things good in the telecommunications space. Almost everyone involved in broadband policy agrees that regardless of the current state of competition, more competition is better.

To be sure, competition has much to commend it. It provides consumers with choice. It spurs companies to improve service quality, including customer service. It helps keep prices down. The experience of other industries—including banking, airlines, and trucking—where regulation was reduced or eliminated and competition enabled makes it clear that the benefits of competition to consumers can indeed be profound.⁴

When applied to the goal of achieving a universal and affordable broadband network, the focus of the Washington telecommunications consensus is clear: spur more competition by encouraging alternative “pipes” (e.g., opening up more spectrum for broadband data transmission; establishing rules to enable broadband over power lines; fostering municipally owned networks); and/or by requiring incumbent providers (e.g., telecommunications and cable companies) to open up their networks for competitors to ride on.⁵

But is telecommunications—and, in particular, broadband—like banking, airlines, and trucking? Or is it more like municipal water, electricity, and gas service, where there is not only no competition in the “last mile” but no serious proposals to introduce it? In other words, is broadband more like a natural monopoly or a service provided in highly competitive markets? This question has in fact been at the center of debates over telecommunications for many years—and should also be at the center of the broadband debate.

III. DIFFERING PERSPECTIVES ON BROADBAND SERVICE: ENGINEERS VS. ECONOMISTS

Whether one thinks broadband is more like a natural monopoly or a service provided in highly competitive markets depends in part on whether one brings an engineer’s or an economist’s perspective to the question.

4. See, e.g., Clifford Winston, *U.S. Industry Adjustment to Economic Deregulation*, 12.3 *J. ECON. PERSP.* 89 (1998).

5. See, e.g., Robert D. Atkinson, *Framing a National Broadband Policy*, 16 *COMMLAW CONSPICUOUS* 145, 175 (2007); Donna N. Lampert, *No Sight Like Hindsight: The 1996 Act and the View Ten Years Later*, 58 *FED. COMM. L.J.* 519, 521, 525 (2006).

A. *The Engineer's Perspective*

Here's what many engineers will say: It is expensive to build a standard broadband network to homes, and even more expensive to build a high performance one with large data capacity (e.g., fiber optic). Given these economics and since Internet protocol networks are just transmitting bits from applications that reside outside the network, why not just build one network? Most homes have just one electricity wire, one water pipe, one gas pipe, and one sewage line, because building a duplicative "pipe" for any of these services would cost an enormous amount of money, significantly outweighing any consumer benefits from more competition.⁶ Like these services, broadband networks are a natural monopoly; hence, encouraging the deployment of more than one will lead to a waste of societal resources.⁷

Figure 1 illustrates the engineer's view of the broadband world. Total network costs involve fixed costs that must be paid to serve a neighborhood regardless of the number of subscribers. Marginal costs vary depending on the number of customers. Advertising is usually a fixed cost; customer service is a marginal one. Most central office expenses and wiring to the neighborhood constitute a fixed cost, whereas wiring a customer's home from the street constitute a marginal cost. Most of the total broadband network costs are fixed, so building multiple networks to serve the same neighborhood increases overall costs—and hence prices. In the engineer's ideal world, therefore, it would be best to have just one very high-speed "pipe" to the home.

6. Compare Deborah Yao, *Verizon Copper Cutoff Worries Some Users, Small Rivals*, USA TODAY, July 8, 2007, http://www.usatoday.com/tech/products/services/2007-07-08-verizon_N.htm, discussing the related issue of whether incumbent telephone companies must keep their legacy copper network after a customer switches to fiber. An engineer's view of the issue is that they should not, because the maintenance costs can be significant and are passed along to all customers.

7. ALAN MCADAMS, IEEE-USA, REPORT FROM THE WORKSHOP: THIS DECADE'S (R)EVOLUTIONARY TELECOMMUNICATIONS PARADIGM 5 (2003), <http://www.ieeeusa.org/volunteers/committees/ccp/docs/Broadband03report.pdf>.

FIGURE 1: THE ENGINEER'S VIEW OF BROADBAND INFRASTRUCTURE

| With Competition: Total Costs 400x | | | Without Competition: Total Costs 700x | | | | | | | |
|------------------------------------|----------------|-----------------------|---------------------------------------|--|-----------------------|--|--|-----------------------|-----------------------|----------------|
| 700x | Marginal Costs | Broadband Provider #3 | | | | | | | | |
| | Fixed Costs | | | | | | | | | |
| 500x | Marginal Costs | | | | Broadband Provider #2 | | | | | |
| | Fixed Costs | | | | | | | | | |
| 300x | Marginal Costs | | | | | | | Broadband Provider #1 | Broadband Provider #1 | Marginal Costs |
| | Fixed Costs | | | | | | | | | Fixed Costs |

Engineers have one other belief: More computer processing capacity, more storage, and more data transmission capacity is always a good investment. You can never get enough. Engineers cite the history of computing and telecommunications, which always quickly took advantage of increased processing, storage, and speed. As a result, engineers argue: Why not future-proof networks by building very fast pipes (often fiber)? Indeed, the Institute of Electrical and Electronics Engineers states “only too much [bandwidth] is enough.”⁸

B. *The Economist's Perspective*

If engineers favor one pipe and abundance of bandwidth, economists favor multiple pipes and scarcity of bandwidth. Most economists argue that competition brings important consumer benefits by forcing companies to cut costs, improve service, and reduce “excessive” profits. Without competition, economists argue, companies get lazy, limit their innovation, provide poor service, and reap monopoly profits.⁹

8. *Id.* at 11.

9. See Anusua Datta, *Divestiture and Its Implications for Innovation and Productivity Growth in U.S. Telecommunications*, 69 S. ECON. J. 644 (2003); Chris Doyle, *Promoting Efficient Competition in Telecommunications*, 159.1 NAT'L INST. ECON. REV. 82 (1997);

As shown in Figure 2, economists see competition as reducing not just marginal costs but fixed costs as well. Robust broadband competition reduces excessive profits and forces companies to cut marginal and fixed costs through innovation and the drive to gain greater efficiencies. According to their logic, more competitors are better because they will make the competitive environment more intense, driving more efficiency, experimentation, and innovation.¹⁰

This was the logic behind the 1996 Telecommunications Act's focus on competition and the Federal Communication Commission's (FCC's) actions to implement it. As the FCC stated:

Although Congress did not express explicitly a preference for one particular competitive arrangement, it recognized implicitly that the purchase of unbundled network elements would, at least in some situations, serve as a transitional arrangement until fledgling competitors could develop a customer base and complete the construction of their own networks.¹¹

The FCC, at least during the Clinton administration, sought to create competition by intermodal competition through a transitional strategy of letting competitors get started by using incumbent's networks. During the Bush administration, the FCC has also focused spurring intermodal competition, but by limiting unbundling.

Yet even the most ardent advocate of competition will probably admit that competition can be excessive if it leads to a market structure in which average establishment and firm size are below optimal levels. If the most efficient automobile factory has to produce at least 100,000 cars a year (below this level, the plant gains fewer economies of scale), for example, then a fragmented and competitive market composed of firms producing 50,000 cars each would be inefficient and lead to higher costs and higher prices.¹² Excessive competition can also reduce profits to a level that makes it difficult for firms in an industry to make adequate investments in efficiency and new products or services.

Harald Gruber, *Competition and Innovation: The Diffusion of Mobile Telecommunications in Central and Eastern Europe*, 13.1 INFO. ECON. & POL'Y 19 (2001).

10. See Howard A. Shelanski, *Competition and Regulation in Broadband Communications*, in BROADBAND: SHOULD WE REGULATE HIGH-SPEED INTERNET ACCESS? 157 (Robert W. Crandall & James H. Alleman eds., 2002).

11. Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, *Third Report & Order & Fourth Further Notice of Proposed Rulemaking*, 15 FCC Rcd. 3696, 3700 (1999).

12. Most economists would argue that the market would prevent this from happening by enabling more efficient firms to gain market share, putting out of business inefficient producers, but the real world does not always approximate the textbook world.

FIGURE 2: THE ECONOMIST'S PERSPECTIVE OF BROADBAND INFRASTRUCTURE

| With Competition: Total Costs 400x | | | Without Competition: Total Costs 400x | |
|------------------------------------|---------|-----------------------|---------------------------------------|-----------------------|
| 400x | Profits | Broadband Provider #3 | Profits | Broadband Provider #1 |
| | Costs | | Costs | |
| | Profits | | | |
| | Costs | | | |
| | Profits | | | |
| | Costs | | | |

Whereas engineers can't get enough speed and see a fiber-enriched world as the ideal, economists are skeptical of getting too far out in front of the market. They often argue that consumers may not actually need all the speed that a fiber network provides (either because technologies like compression will obviate the need or that consumers won't be interested in applications needing high speeds and therefore will not pay extra for faster broadband). Moreover, many economists are loath to have government pick the best technology (e.g., fiber) and worry that doing so will preclude the developments of other potentially superior (in performance and/or price) technologies.¹³

C. *Who's Right?*

So who's right: the engineers or the economists? In fact, both are. Both engineers and economists bring important perspectives to the issue, and ignoring either set will lead us to the wrong policy conclusions.

13. See, for example, Andrew Odlyzko, *The Many Paradoxes of Broadband*, 8.9 FIRST MONDAY (2003), <http://www.uic.edu/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/1072/992>, which notes that "[t]echnological predictions have always been hard, of course, and much of what broadband proponents say has to be treated cautiously."

Engineers are right in noting that there are elements of broadband infrastructure that have natural monopoly aspects, as do water, gas, and sewer pipes, and electric lines to the home. What is striking is that even during the height of the electricity deregulation movement in the 1990s, almost no advocates, even the most free-market oriented, proposed deregulating the local electricity distribution network. Most saw this network rightly as a natural monopoly where the most efficient structure was one set of pipes/wires to each home.

To be sure, competition might bring benefits in production but this was because production does not exhibit natural monopoly characteristics. If public policies somehow spurred the construction of a second set of electric wires to every home in America, society as a whole—largely through ratepayers, or if funded by government incentives then by taxpayers—would bear the added costs. There is no “free lunch.”

The same holds true for broadband networks. If in the face of more competitors, broadband providers are forced to amortize the fixed costs of their networks over significantly fewer customers, total broadband costs will rise—and prices will almost certainly have to rise as well, even if profits are squeezed and efficiencies maximized. The only way this situation could be averted would be if a new entrant was not successful in gaining any broadband customers. In this case, overall broadband costs would still increase but the costs would be borne by the new entrant’s bondholders and stockholders. If all new entrants gained customers, however, then the incumbents by definition would have fewer customers and hence less revenue to amortize the costs of their networks. And while the lower revenues would likely lower company profits, they would also likely necessitate higher prices to cover fixed costs.

Yet economists are right in pointing to the potentially significant problems with monopolies or duopolies and reminding us that competition can spur innovation, as well as increased efficiency and consumer welfare. After all, we just have to remember the bad old days of the “Ma Bell” monopoly, where customer service and choice was often problematic and innovation in the marketplace was limited.¹⁴ In the broadband world, too little competition can lead to slower rollout of more advanced networks.

The issue, then, becomes one of how to attain the right balance between the cost-efficiency of fewer networks and the competitive

14. See Walter G. Bolter & James W. McConnaughey, *Innovation and New Services, in AFTER THE BREAKUP: ASSESSING THE NEW POST-AT&T DIVESTITURE ERA* 285 (Barry G. Cole ed., 1991), which argues that while it is true that AT&T supported Bell Labs, which in turn performed groundbreaking innovation, the innovation that reached the customer was somewhat limited.

benefits of more networks. Before considering this issue, it is important to realize that the current state of competition in the United States is due largely to historical telephony and cable television (CATV) monopolies that enabled providers to build their networks to a large share of households: CATV passes upwards of 90 percent of homes, and DSL and/or telecommunications fiber is available to approximately 79 percent of households where incumbent local-exchange carriers (ILECs) offer local telephone service.¹⁵ The evolution of technology just happened to allow both networks to relatively easily transmit IP-switched data on their networks. The situation in the United States is in marked contrast to that in many other parts of the world, including Japan and much of Europe, where the cable plant is less built out and where intermodal competition is more limited.

Even if in an ideal world, a one-pipe solution in the United States could ultimately result in lower total network costs (e.g., especially if that one provider—cable or telephone company—laid fiber to most households) than what we have today, it is not clear how that solution would come about. Clearly, the FCC or state public utility commissions would not, and should not, be in a position to anoint one winner while shutting other technologies or companies out of the market.

So is existing broadband competition in the United States adequate? In most local markets, there are only two principal competitors: telephone and cable broadband. Indeed, for the foreseeable future, the “last mile” of broadband services is, for most consumers, at best a duopoly, and sometimes a monopoly. To be sure, the FCC reports that 87.5 percent of zip codes have three or more broadband providers.¹⁶ But the FCC’s inclusion of satellite broadband services in this measure misrepresents the actual competitiveness of the market. Satellite is generally not a full substitute for DSL or cable modem service, because it has higher prices, slower speeds, and high latency. Consequently, the reality is that most Americans with a choice of cable modem, DSL, and satellite really have a choice between “two and a half” providers of broadband service.¹⁷

15. FCC, INDUS. ANALYSIS & TECH. DIV., HIGH-SPEED SERVICES FOR INTERNET ACCESS: STATUS AS OF JUNE 30, 2006 3 (2006), http://fjallfoss.fcc.gov/edocs_public/attachmatch/DOC-270128A1.pdf.

16. *Id.* at tbl.16.

17. See U.S. GOV’T ACCOUNTABILITY OFFICE, BROADBAND DEPLOYMENT IS EXTENSIVE THROUGHOUT THE UNITED STATES, BUT IT IS DIFFICULT TO ASSESS THE EXTENT OF DEPLOYMENT GAPS IN RURAL AREAS 17-18 (2006), <http://www.gao.gov/new.items/d06426.pdf> 2006, confirming that the number of broadband providers available to consumers is far below what the FCC’s broadband statistics suggest. The GAO found that the median number of providers available to households surveyed was only

In assessing the state of broadband competition today, it is important to realize that not every home has to be served by every provider in an area for that household to realize the benefits of competition. Thus, for example, there are homes located in the Washington, D.C. metropolitan area that cannot get DSL service but can get cable modem service (and vice versa) yet, because the incumbent cable companies have to price their offerings based on competition in the entire metropolitan area, households without access to DSL still benefit from competition.

This consideration is important when considering proposals to require cable or telephone companies to build-out in their service areas. These proposals are often justified on the basis of providing competition and lower prices to those households that would not get service (or get it as soon) without a mandate. But if there is competition in the overall local market—indeed this seems to be the case as pricing plans are often statewide or multistate—then individual households with access to fewer providers will still benefit from competition. It is important to note, however, that this statement is less true if incumbents are able to offer discounts to those households with choice; if this is the case, households with fewer or no choices will gain fewer benefits of competition.

IV. POLICY OPTIONS

Given these factors and conditions, what is the appropriate role for U.S. public policy towards broadband competition? There are essentially four different policy approaches.

A. Keep the Same Number of Pipes

Given that most U.S. households are served by “two and a half” broadband providers, is this the right number? In the short term, it appears to be. The fact that cable and telephone company broadband providers are competing quite intensely to gain new customers and hold onto existing ones appears to compensate for the fact that the market is largely a duopoly. And indeed, with less than half of all households currently subscribing to broadband, it is likely that cable and telephone companies will continue their vigorous competition to sign up new customers. To get new customers, these companies are rolling out new technologies and introducing low-price offers, including bundled package offers.¹⁸

two, even though the FCC reported a median of eight providers for the relevant zip codes.

18. For example, Verizon is rolling out its FiOS fiber optic network. Comcast recently announced plans to deploy in the future high-speed DOCSIS 3.0 channel bonding technology.

But what happens in the future when most households have adopted broadband? And what if some customers are reluctant in the face of difficulties associated with switching broadband providers to switch providers?¹⁹ In this case, it is possible that broadband providers may be able to exercise more market power.

B. *Spur Deployment of More Pipes*

In the face of a market with “two and a half” pipes, many policymakers see promoting more pipes into the home as the silver bullet. In some cases, proposed policies would simply remove barriers to competition. In other cases, policies would proactively support additional networks.

One of the leading rationales used by supporters of municipal broadband networks (either wireless or wired) is that a publicly subsidized (whether publicly or privately owned) additional network will boost competition, driving down prices and making it easier for residents to afford broadband.²⁰ It is not clear, though, that this will be the case. Leaving aside the question of whether publicly owned broadband can operate as efficiently, it is clear, as described above, that an additional network will mean fewer subscribers for incumbent providers.²¹ And even if some of the lost revenue goes directly to lower profits, it is unlikely that all of it will, with the result that the provider will either have to raise prices or invest less capital to upgrade to next generation networks.

This impact of more competition on investment is particularly important. Noted economist Joseph Schumpeter talked about the advantage of innovation in creating temporary monopoly profits, which in turn let companies invest the sizeable amounts of capital needed in more technological innovation.²² If competition becomes as fierce in broadband as it is in the long-distance voice business, the effect will surely be to reduce the amount of capital needed to deploy next generation high-speed networks.²³

19. Some broadband subscribers, for example, use their providers' e-mail services for their e-mail address (e.g., johnsmith@verizon.com). This makes switching broadband providers more difficult for these subscribers than for broadband subscribers who use platform-independent e-mail services (e.g. johnsmith@hotmail.com).

20. See Craig Dingwall, *Municipal Broadband: Challenges and Perspectives*, 59 FED. COMM. L.J. 67 (2006), which contains more information on municipal provisions.

21. See George S. Ford, *Competition After Unbundling: Entry, Industry Structure, and Convergence*, 59 FED. COMM. L.J. 331 (2007), which models how reduced market size reduces the number of profitable providers

22. JOSEPH A. SCHUMPETER, *CAPITALISM, SOCIALISM, AND DEMOCRACY* (Harper & Row 1950) (1942).

23. See Vishesh Kumar, *Is Faster Access to the Internet Needed?*, WALL ST. J., Apr. 10,

Although public policy should not proactively subsidize the deployment of additional networks, conversely it should not erect or maintain barriers to the emergence in the market of additional networks. With respect to spectrum, this means freeing up inefficiently used or underutilized spectrum, including spectrum in so-called “white spaces,” while letting the marketplace (with the exception of first responder and national defense uses) decide on its highest and best use.

In the FCC’s auction of 700 MHz spectrum, for example, it is likely that much of that spectrum will be used for IP data transmission. Given that there are areas that cannot get either DSL or cable modem service, developing a “first” pipe in those areas is important. In many places it appears that fixed wireless may be the most cost-effective technology, so it is important to have public policies, particularly with respect to spectrum, to help enable this. But it would be just as wrong to limit such spectrum from being used for broadband services as it would be to mandate its use for broadband. The market should determine its use. With respect to broadband over power lines (BPL), the policy should be to remove unnecessary regulatory obstacles to deployment. But policy should not tilt the playing field to promote BPL, or any particular technology.

This principle should also be applied to the universal service fund (USF). Currently, in the name of promoting competition, almost \$1 billion in USF funds are invested yearly on competitive, duplicative voice providers in high-cost areas.²⁴ Instead of using these limited funds to subsidize the building of a parallel network, it would be better to use the funds to subsidize the build-out of incumbent broadband networks to more places with higher speeds. If broadband becomes explicitly eligible for USF payments, then policymakers will have to address the issue of how many providers to fund in an area. If policymakers decide that mobility is a distinctly valuable service that deserves public subsidies in high-cost areas, then subsidies to both wireless and wireline phone service in the same area could make sense. But investing limited USF funds in order to promote competition, as opposed to distinct services, means that there will be fewer resources to expand broadband to the places that need it most. The government should not *a priori* select a particular kind of technology to invest in. Rather, that choice should be left to the marketplace. The key though is to not fund multiple providers in one location.

2008, at B5, which notes that Verizon’s FiOS strategy will cost the company \$23 billion over several years, but that Comcast’s DOCSIS 3.0 investment is estimated to cost less. Whether such high-speed networks will be rolled out in most places, though, remains to be seen.

24. UNIVERSAL SERV. ADMIN. CO., 2006 ANNUAL REPORT: REACHING OUT (2007), http://www.usac.org/_res/documents/about/pdf/usac-annual-report-2006.pdf.

In sum, the right policy regarding more pipes is: “Enable, but don’t promote.” For example, if policymakers provide tax incentives for broadband (either to spur deployment to high-cost areas or deployment of next generation high-speed networks), the incentives should be available to all providers—and not, as some have argued, available only to the providers of additional *new* pipes.

C. *Regulate Open Pipes*

Many people who advocate more broadband competition but are pessimistic about more pipes being built (either through market forces alone or with public promotion) see unbundling of incumbent pipes as the answer.²⁵

Indeed, the European Union has pushed this approach as the core of its broadband strategy, requiring member nations to craft regulations unbundling the incumbent copper telephone loops. It appears that the European Union will soon mandate that all nations adopt “virtual separation” arrangements, as described below. This strategy has met with some success. For example, OECD reports that the company with the best “triple play” in the world—France’s Free Telecom—rides on the DSL pipes of incumbent France Telecom.²⁶ Likewise, Japan’s fast and cheap DSL broadband service Yahoo! rides on the wires of incumbent NTT.

There are various models of open pipes. In most nations, competitors get access to the incumbent’s copper loop at regulated prices and terms. In these and other cases, competitors lease some parts of the incumbent’s network, usually the pipe itself, and install their own switches and other equipment. But at least one nation, the United Kingdom, has moved to a virtual separation model, in which the incumbent British Telecom was required to create “separate” retail and wholesale divisions. The wholesale division manages the “pipes,” and the retail division sells broadband and other services in competition with many other broadband service providers.

Many advocates of the unbundling model, particularly in the United States in the 1990s, saw mandatory unbundling as a transitional state until competitive providers built their own networks. But the anticipated building of networks did not occur, and it appears that even if the regulatory framework of the 1990s had been extended by the FCC after 2000, the building would not have occurred. The reason goes to the

25. See, e.g., Lampert, *supra* note 5, at 519-23.

26. ORG. FOR ECON. CO-OPERATION & DEV., MULTIPLE PLAY: PRICING AND POLICY TRENDS 20 (2006), <http://www.oecd.org/dataoecd/47/32/36546318.pdf>.

engineer's insight: It makes little economic sense for homes to have multiple telephone or broadband lines (unless those lines were already there and could be easily configured for phone or broadband, as was the case in cable TV).²⁷ The costs of such a model would be prohibitive. Thus, except perhaps in the most densely populated and high income neighborhoods, unbundling or open pipes could never be a transitional model to get to facilities-based competition.

Moreover, unbundling has both benefits and costs. First, on the plus side, unbundling is a relatively quick way to increase competition. This is one reason why many nations, particularly those where intermodal competition was limited, have chosen an open pipe model. Some continental European nations have much less intermodal competition than the United States and Canada, as illustrated by the fact that the United States and Canada score much lower on a two-firm Herfindahl-Hirschman Index (HHI) of cable and telecommunications (DSL and fiber) (0.50) than France (0.91) and Germany (0.91).²⁸ Second, intramodal competition can lead to lower prices, particularly compared to higher costs of promoting facilities-based competition. This is particularly true if national regulators force the incumbent to sell at below costs, as they appear to have done in several nations.²⁹ Third, it can enable other benefits of competition, including greater consumer choice.

On the negative side, though, unbundling reduces incentives of incumbents to invest in larger pipes.³⁰ If the incumbent has to resell the pipe, particularly at very low prices, there is less incentive to invest a large amount of capital in a better pipe (e.g., fiber). Indeed, there is a risk that Europe could be in a "DSL-cul-de-sac" with robust competition on

27. Providing broadband service to businesses in crowded downtowns is another matter. There densities and demand are high enough to support multiple providers.

28. The Herfindahl-Hirschman Index (HHI) is a measure of firm concentration in an industry, calculated as the sum of the squares of each firm's market share. HHI scores range from 0 to 1, with higher scores indicating an industry dominated by a small number of firms. The HHI for an industry monopolized by a single firm is 1. To gain a better understanding of the importance of platform competition for broadband in OECD countries, we calculated the HHI for each country's mix of broadband technologies. For this measure, we used the OECD's latest data. See ORG. FOR ECON. CO-OPERATION & DEV., OECD Broadband Portal, <http://www.oecd.org/sti/ict/broadband>. The OECD data include four broadband technologies (DSL, cable, fiber, and other), only two of which—DSL and cable—have significant market share in most countries. For this reason we have calculated the HHI for DSL and cable alone, and scores fall between 0.5 and 1 (0.5 represents a case in which both platforms have equal market share).

29. ROBERT D. ATKINSON, DANIEL K. CORREA, & JULIE A. HEDLUND, EXPLAINING INTERNATIONAL BROADBAND LEADERSHIP app. D: Japan (2008), <http://www.itif.org/files/ExplainingBBLeadership.pdf>.

30. Jerry A. Hausman & J. Gregory Sidak, *Did Mandatory Unbundling Achieve Its Purpose? Empirical Evidence from Five Countries*, 1 J. COMPETITION L. & ECON 173 (2005).

copper lines, but little investment in next generation lines. (Because of shorter copper loops in Europe, this is a strategy that can at least for the foreseeable future generate more than adequate speeds. For example, Free Telecom offers speeds of around 20 Mbps.) In addition, the unbundling model (at the least the continental European model) requires regulators to be much more interventionist, including setting prices. But if they price access to the network too low, they limit investment. If they set the price too high, they limit competition.

In some ways, Japan has appeared to square the circle of getting the benefits of competition with the incentives to deploy big fast pipes. More than 70 percent of the Japanese households served by NTT East now can subscribe to 100 Mbps (advertised speed) fiber optic service.³¹ Yet NTT must resell these lines to competitors.³² NTT deployed fiber for several reasons. In part, NTT responded to financial incentives from the government to deploy fiber and direction from the government to do so. The fact that NTT is approximately 40 percent government owned makes them more likely to respond to such government direction and to be able to pay less attention than U.S. firms do to the capital markets.³³ Finally, unlike the very low prices for which it had to lease its copper lines, the prices set for accessing fiber were higher.

Another nation that has been able to combine the engineer's view with the economist's is Sweden. There, some municipalities control the right to lay the underground cable. In Stockholm, Stokab, a publicly chartered corporation is the only entity with the right to lay wires and has deployed a fiber network to most buildings in the city. This corporation leases dark fiber to whatever company—ILEC or competitive local-exchange carrier (CLEC)—wants it. Thus, for example, one large CLEC, B2, uses this fiber, installing routers and modems on either end, to provide up to 100 Mbps broadband to Stockholm residents and businesses.³⁴ The advantage of the Stockholm model is that it limits infrastructure costs—private sector fiber and cable deployment was previously largely nonexistent—while at the same time spurring competition. It should be noted that this model is different than many of the munifiber projects in the United States (such as in Lafayette, La.), which are overbuilder projects,³⁵ spending money to build a third

31. Atkinson, Correa, & Hedlund, *supra* note 29, at app. D: Japan.

32. See Info. Tech. & Innovation Found., ITIF Policy Forum: Understanding the Japanese Broadband Miracle, <http://www.itif.org/index.php?id=38>, for a video of Mr. Takeshi Eberhara, Senior Director, Corporate Strategy Department, NTT, stating that NTT must resell its fiber lines to CLECs.

33. Atkinson, Correa, & Hedlund, *supra* note 29, at app. D: Japan.

34. Interview with B2 official in Stockholm, Swed. (Mar. 2007).

35. Linda Haugsted, *Louisiana OK's Curbs on Overbuilds*, *Multichannel News*, June 28,

pipe and provide their own broadband service. In contrast, the Stockholm model involves just one pipe over an open network.

D. Regulate Duopoly Pipes

The final policy option would be simply to assume that there will be limited broadband competition in the United States—a duopoly at best—and that some form of regulation is needed. Regulation has the advantage of limiting any current or potential abuse of market power. As noted above, however, regulation can also reduce incentives for investment. Moreover, at least for the foreseeable future, there appears to be considerable competition between cable and DSL providers in terms of attracting customers. In addition, there can be the significant institutional challenge of managing rate regulation or allowing new entry once a monopoly is embraced. A “softer” alternative to regulation, but one that would still be premised on a mature duopoly market, would be to use existing antitrust and consumer protection rules more aggressively to limit abuses.

CONCLUSION

As Congress, the FCC, and states consider broadband policies over the next few years, the issue of competition is sure to play a central role in their deliberations. This paper argues that competition is not an end in itself but rather a means by which the economic system produces the benefits citizens desire. Moreover, increased broadband competition is by no means a panacea for solving perceived or real limitations in the nation’s broadband infrastructure. As a result, policymakers need to balance the desire for more competition to enhance consumer welfare in the broadband realm with the need for the most efficient broadband industry structure.

ANTITRUST OVERSIGHT OF AN ANTITRUST DISPUTE: AN INSTITUTIONAL PERSPECTIVE ON THE NET NEUTRALITY DEBATE

JONATHAN E. NUECHTERLEIN*

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* Partner, Wilmer Cutler Pickering Hale & Dorr LLP; B.A., Yale College (1986), J.D., Yale Law School (1990). I am grateful to Lynn Charytan, Bob Hahn, Tom Hazlett, Bill Lake, Paul Larkin, and Phil Weiser for their helpful comments, to Mary Beth Caswell for her expert research assistance, to Brian Wolf for shepherding the article through the publication process, and to participants in the February 2008 Silicon Flatirons “Digital Broadband Migration” conference in Boulder, Colorado, where an earlier draft of this article was presented. Although I have represented broadband companies on net neutrality issues, the views expressed here are my own.

INTRODUCTION

Several years after its first appearance in the telecommunications lexicon, the term “net neutrality” remains elusive, in part because its meaning varies with the speaker and the speaker’s agenda. But at the highest level of generality, the term describes two distinct types of proposed regulation of broadband Internet access providers. Under one type of proposal, regulators would draw and enforce a line between acceptable network management practices and unacceptable “blocking” or “degradation” of disfavored Internet applications and content. Under the other, regulators would ban a broadband Internet access provider from reaching commercial agreements with particular applications and content providers to provide the sophisticated performance-enhancement techniques needed to support unusually performance-sensitive applications and content, such as real-time video streaming or multiplayer online videogames. (In a variation on this second theme, regulators would permit such agreements but subject them to “nondiscrimination” requirements.) These two types of proposals are distinct but complementary: net neutrality proponents typically advocate *both* the anti-blocking rule *and* a ban on (or close regulation of) business-to-business relationships between broadband networks and applications or content providers.

Such proposals will likely be, one way or the other, a principal focus of telecommunications policy for the next decade. They have captured the attention of Congress, where several bills on the topic have been introduced;¹ of President-elect Barack Obama, who, as a candidate, advocated a strong form of net neutrality regulation;² of legal, economic, and technology scholars across the ideological spectrum;³ and—of

1. *See, e.g.*, Internet Freedom Preservation Act, S. 215, 110th Cong. § 12(a)(4)(C), (5) (2007); H.R. 5273, 109th Cong. § 4(a)(6), (7) (2006); H.R. 5417, 109th Cong. § 3 (2006).

2. The issue even played a role in the 2008 Democratic nomination contest, as Senator Hillary Clinton’s campaign fought off accusations that, if elected, she would not make net neutrality regulation a priority. *See, e.g.*, Roy Mark, *Clinton Defends Net Neutrality Position*, EWEEK, Nov. 15, 2007, <http://www.eweek.com/c/a/IT-Infrastructure/Clinton-Defends-Net-Neutrality-Position> (“Sen. Hillary Clinton[’]s campaign said Nov. 15 her long silence on network neutrality should not be interpreted as waning support for the idea of mandating that broadband providers treat all network use in a nondiscriminatory manner. . . . ‘Hillary Clinton has been and continues to be a strong supporter of net neutrality,’ Jin Chon, a spokesperson for the Clinton campaign, told eWEEK. . . . Clinton’s silence was the subject of a Nov. 15 teleconference involving several top-ranking Obama campaign officials. The conference came the day after Obama told a large crowd at Google[’]s California headquarters, ‘I will take a backseat to no one in my commitment to network neutrality.’”). Senator Clinton and then-Senator Obama had both cosponsored net neutrality legislation that contains what I describe, in Part I.B below, as the “strong” form of access-tiering restrictions.

3. For representative treatments, see J. Gregory Sidak, *A Consumer-Welfare Approach to Network Neutrality Regulation of the Internet*, 2 J. COMPETITION L. & ECON. 349 (2006); Philip J. Weiser, *The Next Frontier for Network Neutrality*, 60 ADMIN. L. REV. 273 (2008);

principal interest here—two key federal agencies: the Federal Communications Commission (FCC) and the Federal Trade Commission (FTC).

Most discussions of net neutrality focus on the merits of the debate: on the substantive costs and benefits of government intervention in the broadband market. This paper focuses instead on the comparatively neglected *institutional* dimension of the debate: an inquiry into which federal agencies are best positioned to resolve net neutrality disputes when they arise. As I argue below, the net neutrality controversy is best understood as a classic antitrust dispute about “vertical leveraging,” and the institutions most likely to appreciate the economic complexities of that dispute are the nation’s specialized antitrust agencies: the Department of Justice (DoJ) and the FTC. Because these agencies regulate the economy at large rather than a single industry, they are less vulnerable than the FCC to capture by industry or interest-group factions; they are less likely to develop industry-specific bureaucracies with incentives to keep themselves relevant through over-regulation; and, because of their firm grounding in antitrust enforcement, they are more likely to resolve competition-oriented disputes dispassionately and on their economic merits. I would thus revive in this context the competition-policy model that prevailed for much of the final quarter of the last century: a regime in which antitrust authorities, rather than industry-specific regulators, take the lead in addressing vertical-leveraging claims against providers of telecommunications transmission platforms.

This paper is divided into three main parts. Part I gives a brief primer on the contours of the net neutrality dispute and explains why, at bottom, net neutrality proposals could make sense only as claims about the proper application of antitrust-oriented concepts to the broadband marketplace. Part II then addresses the present institutional arrangements for addressing the net neutrality dispute, why those arrangements are redundant, and why such redundancy is problematic.

Timothy Wu & Christopher Yoo, *Keeping the Internet Neutral?: Tim Wu and Christopher Yoo Debate*, 59 FED. COMM. L.J. 575 (2007); Timothy Wu, *Why Have a Telecommunications Law? Anti-Discrimination Norms in Communications*, 5 J. TELECOMM. & HIGH TECH. L. 15 (2006); Christopher S. Yoo, *Beyond Network Neutrality*, 19 HARV. J.L. & TECH. 1 (2005); Robert W. Hahn & Scott Wallsten, *The Economics of Net Neutrality*, (AEI-Brookings Joint Ctr., Working Paper No. RP06-13, Apr. 2006), *available at* <http://ssrn.com/abstract=943757>; ROBERT D. ATKINSON & PHILIP J. WEISER, INFORMATION TECH. & INNOVATION FOUNDATION, A “THIRD WAY” ON NETWORK NEUTRALITY (2006), <http://www.itif.org/files/netneutrality.pdf>; EDWARD W. FELTEN, NUTS AND BOLTS OF NETWORK NEUTRALITY (2006), <http://itpolicy.princeton.edu/pub/neutrality.pdf>; BENJAMIN E. HERMALIN & MICHAEL L. KATZ, THE ECONOMICS OF PRODUCT-LINE RESTRICTIONS WITH AN APPLICATION TO THE NETWORK NEUTRALITY DEBATE (2006), <http://repositories.cdlib.org/iber/cpc/CPC06-059>.

Parts II.A and II.B discuss the parallel inquiries that the FCC and the FTC have initiated on net neutrality and describes the complex jurisdictional questions those inquiries raise. Part II.C then explains why permitting two peer federal agencies to address net neutrality disputes in parallel would systematically skew broadband policy towards inefficient over-regulation. Among other concerns, each agency would have an effective veto only over the other agency's judgments that intervention is *inappropriate* and not over the other agency's judgments that intervention is *appropriate*. Part II thus concludes that one, not two, federal agencies should be assigned exclusive jurisdiction to resolve net neutrality issues.

Finally, Part III proposes a long-term institutional solution for oversight of the broadband industry. Under the arrangement proposed here, competition issues would be addressed by one of the two antitrust agencies (DoJ or the FTC); consumer-protection issues would be addressed by the FTC's Bureau of Consumer Protection; and the FCC would maintain jurisdiction over residual, non-competition-related issues within its peculiar expertise.

I. WHAT PEOPLE ARE ARGUING ABOUT WHEN THEY ARGUE ABOUT NET NEUTRALITY

One of the main challenges for students of the net neutrality debate is the difficulty of pinning down exactly what that debate is *about*. Before addressing that issue, I first review the technological context in which this debate arises.⁴

A. *A Taxonomy of IP Networks*

The first step is to define "the Internet," the central subject of all net neutrality proposals. What we call "the Internet" is not a unitary, centrally managed network, but an interconnected set of many thousands of constituent networks. What joins these networks together into the Internet is that each has voluntarily adopted a common protocol and addressing scheme—the Internet Protocol ("IP")—that enables its end users to communicate with end users connected to other networks for purposes of exchanging higher-layer applications and content.⁵ Most of

4. For a more detailed background of the issues discussed in this section, see JONATHAN E. NUECHTERLEIN & PHILIP J. WEISER, *DIGITAL CROSSROADS: AMERICAN TELECOMMUNICATIONS POLICY IN THE INTERNET AGE* 128-46 (2007).

5. See Networking and Information Technology Research and Development, FNC Resolution: Definition of "Internet", http://www.nitrd.gov/fnc/Internet_res.html (quoting the Oct. 24, 1995, resolution of the Federal Networking Council, which stated that "Internet" refers to the global information system that—(i) is logically linked together by a globally unique address space based on the Internet Protocol (IP) or its subsequent extensions/follow-ons; (ii) is able to support communications using the Transmission Control Protocol/Internet

these IP networks are privately owned and operated, and—significantly—their IP infrastructure is often used to provide “managed” IP services unrelated to communications with other IP networks over the publicly accessible Internet. For example, a global IP network provider might allocate some capacity on its network for the routing and transmission of Internet traffic but set aside additional capacity on the same network infrastructure for the provision of high-quality videoconferencing over a closed IP network devoted to a multinational corporate customer.

Very roughly speaking, the constituent networks of the Internet fall into three basic categories. First, *Internet backbone networks*—such as AT&T, Level 3, Global Crossing, and SAVVIS—use long-distance fiber-optic cable to connect other, geographically dispersed networks, including the networks of large businesses, Internet access providers, and other backbone providers. Second, although large businesses often contract directly with a backbone network provider, most end users rely on an *access network* to bridge the “last mile” gap between them and an Internet backbone network (which in turn connects them to the rest of the Internet). Today, most residential consumers, and essentially all businesses with more than a few employees, obtain Internet access through a high-speed broadband connection. As discussed below, there is much controversy about how competitive the broadband marketplace is now and is likely to become. That controversy lies at the heart of the net neutrality debate.

Finally, the third category of IP networks that participate in the Internet consists of so-called *edge networks*. These fall into two subcategories. The first consists of “end user” networks, which range from home WiFi networks to corporate LANs (“local area networks”). The second—of greater relevance here—consists of the networks operated by providers of Internet-related services. In the commercial Internet’s early years, the stereotypical “edge” provider was an entrepreneur who ran a start-up website from a server in his garage. Today, the most prominent “edge” networks feature enormous “server farms” and caching facilities built by companies as diverse as service providers Akamai and Level 3, on-line retailers Amazon.com and eBay, and Internet superpower Google.

The largest of these edge networks are sometimes known as *overlay networks* because they resemble Internet backbones in their global reach. They operate by storing (or “caching”) copies of Web content on servers

Protocol (TCP/IP) suite or its subsequent extensions/follow-ons, and/or other IP-compatible protocols; and (iii) provides, uses or makes accessible, either publicly or privately, high level services layered on the communications and related infrastructure described herein”).

located throughout the Internet, close to end users in many different locations, and by deploying high-speed fiber-optic links connecting those servers to central databases. By circumventing points of traffic congestion on the Internet, these overlay networks give end users faster and more reliable access to a given company's Web content. Although Google and a number of other large Internet companies have built proprietary overlay networks for their own use, many applications and content providers hire third-party providers such as Akamai and Limelight to perform this function. Applications and content providers that pay the substantial costs of this function have long enjoyed a commercial advantage over rivals that do not (or cannot) pay those costs—because, all else held equal, their consumers receive faster and more reliable access to applications and content. As discussed in Section I.B.2 below, the Internet has never been “neutral” among providers in this regard.

B. *A Taxonomy of Net Neutrality Proposals*

Until the late 1990s, almost all residential consumers obtained access to the Internet through dial-up connections over the conventional telephone network. Independent Internet service providers, such as AOL and Earthlink, provided the critical gateway function linking the telephone network with the Internet. Customers would call a telephone number associated with their ISP's facilities (“modem banks”); those calls would be routed through the telephone company's circuit-switched network en route to those ISP facilities; and, at the receiving end, the ISP would provide the “protocol conversion” functions needed for communications between the subscriber's computer and the servers that provide Internet applications and content.⁶

The telephone company was a more or less passive participant in this arrangement. As a common carrier, it routed calls to different ISPs' modem banks in essentially the same manner as it routed calls to anyone else. As a legal matter, moreover, the telephone companies were subject to longstanding FCC rules known as the *Computer Inquiry* requirements. Very roughly speaking, these rules enforced common carrier norms by requiring telephone companies to provide the same transmission capabilities to unaffiliated ISPs (and other information service providers) as they provided to their own information service affiliates.⁷

This technological landscape began to change in the late 1990s as residential consumers began bypassing the circuit-switched telephone network by using the local cable company's facilities—and the ISP

6. See Nuechterlein & Weiser, *supra* note 4, at 134-35.

7. See *id.* at 151-55; Robert Cannon, *Where ISPs and Telephone Companies Compete: A Guide to the Computer Inquiries*, 9 *COMMLAW CONSPECTUS* 49 (2001).

affiliated with that cable company—for high-speed access to the Internet. And with that technological change came a lively policy debate: should cable operators, like telephone companies, be required to “open” their broadband transmission networks to unaffiliated Internet service providers? This “open access” debate persisted on several fronts until 2005, when, after several years of litigation, the Supreme Court finally upheld the FCC’s conclusion that such regulatory intervention would be both unnecessary (because competition among rival broadband providers would protect consumer interests) and harmful (because excessive regulation would dampen incentives for investing in new broadband facilities for underserved residential communities).⁸ Meanwhile, telephone companies had begun to offer residential broadband connections themselves (through “digital subscriber line” technology) in competition with the cable companies. In 2005, the FCC followed through on its victory in the *Brand X* case by extending its deregulatory regime to telephone companies—specifically, by eliminating the *Computer Inquiry* requirements to the extent they applied to a telephone company’s provision of broadband Internet access.⁹

By then, the “open access” debate had begun to seem almost antiquated. That debate had focused on the rights of independent ISPs such as AOL and Earthlink. It had become clear by the early 2000s, however, that broadband technology made such ISPs, if not irrelevant, at least much less central to a user’s Internet experience.¹⁰ In a dial-up world, users paid a monthly subscription fee to an ISP, not to the telephone company that carried their “local” calls to that ISP, and they blamed the ISP if their Internet connections were slow. In most cases, they could hardly blame the telephone company for poor performance, because it was treating a dial-up call like any other call and was thus dedicating fixed capacity (a voice-grade circuit) for the duration of an Internet connection. Today, however, users pay monthly fees directly to a broadband provider, and if their broadband connections are fast or slow, they assign credit or blame to that same provider; they are unlikely to know or care which ISP entity is connecting that provider’s local broadband network to the broader Internet. And as Tim Wu points out, “[c]ompetition among ISPs”—the goal of open access mandates—“does not necessarily mean that broadband operators will simply retreat to

8. Nat’l Cable & Telecomms. Ass’n v. Brand X Internet Servs., 545 U.S. 967 (2005), *aff’g* High-Speed Access to the Internet Over Cable and Other Facilities, *Declaratory Ruling & Notice of Proposed Rulemaking*, 17 FCC Rcd. 4798 (2002) [hereinafter *Cable Broadband Order*].

9. Appropriate Framework for Broadband Access to the Internet over Wireline Facilities, *Report & Order & Notice of Proposed Rulemaking*, 20 FCC Rcd. 14,853, ¶ 44 (2005) [hereinafter *Wireline Broadband Order*], *aff’d*, *Time Warner Telecom, Inc. v. FCC*, 507 F.3d 205 (3d Cir. 2007).

10. See Nuechterlein & Weiser, *supra* note 4, at 155, 161-62.

acting as passive carriers in the last mile.”¹¹

But when the air goes out of one telecommunications policy dispute, the vacuum is soon filled by another. Here, the regulatory energy that used to fuel the “open access” debate is now spent on a similar but distinct debate: “net neutrality.” Whereas open access proposals would have granted *ISPs* like Earthlink rights of “nondiscriminatory” access to the broadband transmission platform, net neutrality proposals would grant such rights to *applications and content providers* like BitTorrent and Joost. Beyond that generality, the term “net neutrality” means different things to different people, and the parties to this debate can be vague in defining what exactly they are talking about. As former FTC Chairman Timothy Muris has observed (paraphrasing Phillip Areeda’s famous remark about the “essential facilities” doctrine), “‘net neutrality’ has become an epithet devoid of any analytical content.”¹² Our first task, therefore, is to pin down the content of that term by identifying the major species of net neutrality proposals.

1. The Anti-Blocking Principle

At the highest level of generality, net neutrality advocates propose two different types of requirements: a ban on “blocking” or “degrading” of disfavored content or applications over an Internet access platform, and a ban on (or at least close regulation of) contractual deals between broadband networks and content or applications providers for the terms of access to that platform.¹³ As discussed below, these two types of proposed requirements are analytically distinct, although they are often blurred together.

11. Tim Wu, *Network Neutrality, Broadband Discrimination*, 2 J. TELECOMM. & HIGH TECH. L. 141, 149 (2003).

12. Timothy J. Muris, Foundation Professor, The George Mason University School of Law, Statement Before the Workshop on Broadband Connectivity Competition Policy, U.S. Federal Trade Commission 18 (Feb. 28, 2007), <http://www.ftc.gov/opp/workshops/broadband/presentations/muris.pdf>; cf. Phillip Areeda, *Essential Facilities: An Epithet in Need of Limiting Principles*, 58 ANTITRUST L.J. 841 (1989).

13. Significantly, net neutrality proposals address the terms on which broadband providers offer *Internet access service* to consumers. Few net neutrality advocates have seriously proposed that the government disqualify the operator of an IP network from devoting a portion of its bandwidth to particular applications *other than* connectivity with other IP networks, such as cable television service or secure teleconferencing networks. See *Network Neutrality: Competition, Innovation, and Nondiscriminatory Access: Hearing Before the Task Force on Telecom and Antitrust of the H. Comm. on the Judiciary*, 109th Cong. 57 (2006) (prepared statement of Tim Wu, asserting that “[t]he best proposals for network neutrality rules . . . leave open legitimate network services that the Bells and Cable operators want to provide, such as offering cable television services and voice services along with a neutral internet offering”). Instead, the net neutrality debate concerns whether, and in what ways, broadband companies may treat different types of data differently in connection with the retail service it provides to consumers in the form of “Internet access.”

The first type—which I will call “anti-blocking” rules—addresses efforts by a broadband provider to impede its subscribers’ access to particular Internet content or applications for reasons that a regulatory authority deems impermissible. In February 2004, FCC Chairman Michael Powell became the first major federal policymaker to address that issue when he “challenge[d] the broadband network industry” to honor several “Internet Freedoms” for consumers, including “access to their choice of legal content,” subject to “reasonable limits . . . placed in service contracts,” and a right “to run applications of their choice,” except where doing so “exceed[s] service plan limitations or harm[s] the provider’s network.”¹⁴ The next year, after Powell had left the FCC, the Commission followed Powell’s lead by issuing a theoretically non-binding *Policy Statement* that, in substance, embraced his “Internet Freedoms.”¹⁵ The *Policy Statement* provides, among other things, that consumers are “entitled to run applications and use services of their choice,” such as VoIP or video, “subject to reasonable network management” and “the needs of law enforcement.”¹⁶ At the time, the only documented violation of these principles had occurred in 2005, when a small rural telephone company named Madison River Communications blocked its subscribers’ access to VoIP services. It was alleged, and the FCC apparently concluded, that Madison River had blocked these services not for any legitimate network-management purpose, but simply to protect the lucrative access charges it earned for handling long-distance calls over the conventional telephone network. Madison River quickly suppressed the ensuing controversy by paying a small fine and pledging to stop this practice.¹⁷

The FCC stressed in its *Policy Statement* that it was “not adopting rules.”¹⁸ But soon after adopting the *Policy Statement*, it forced two of the nation’s largest broadband providers—SBC (now AT&T Inc.) and Verizon—to accept the *Statement’s* principles as binding (though temporary) conditions on the Commission’s approval of their pending mergers with, respectively, AT&T Corp. and MCI.¹⁹ For the ensuing

14. Michael K. Powell, Chairman, FCC, Preserving Internet Freedom: Guiding Principles for the Industry, Remarks at the Silicon Flatirons Symposium on “The Digital Broadband Migration: Toward a Regulatory Regime for the Internet Age” 5 (Feb. 8, 2004), http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-243556A1.pdf.

15. Appropriate Framework for Broadband Access to the Internet over Wireline Facilities, *Policy Statement*, 20 FCC Rcd. 14,986, ¶¶ 4–5 & n.15 (2005) [hereinafter *FCC Broadband Policy Statement*].

16. *Id.*

17. See Madison River Commc’ns LLC, *Order*, 20 FCC Rcd. 4295 (2005). For an analysis of the *Madison River* case and its implications for the broader net neutrality debate, see Sidak, *Consumer-Welfare Approach*, *supra* note 5, at 416–22.

18. *FCC Broadband Policy Statement*, *supra* note 15, ¶ 5 n.15.

19. *E.g.*, SBC Commc’ns Inc. & AT&T Corp. Applications for Approval of Transfer of

two years, the debate about whether the FCC should convert its anti-blocking “principles” into industry-wide rules remained quiescent. The major broadband providers claimed that rules were unnecessary because they had no intention of violating the principles in the first place. And few broadband providers expressed any theoretical opposition to the Commission’s anti-blocking principles in the abstract, at least to the extent they are applied to conventional cable or wireline broadband networks.²⁰

That period of regulatory quiescence ended when, in late 2007, independent tests suggested that Comcast had manipulated Internet packet headers to suppress its customers’ use of BitTorrent, a peer-to-peer file-sharing application.²¹ The ensuing controversy vaulted the anti-blocking principle once more to the forefront of the FCC’s policy agenda. In August 2008, the FCC issued a high-profile order in which it asserted jurisdiction over this matter; condemned Comcast for degrading “disfavored” applications; announced that such applications-specific degradation would be unlawful unless it “further[s] a critically important interest and [is] narrowly or carefully tailored to serve that interest”; found that Comcast’s type of “network management” could not survive this form of strict scrutiny; and concluded that Comcast had thereby violated the Commission’s *Policy Statement* in particular and the purposes of the Communications Act in general.²²

The *Comcast Order* ensures, if nothing else, that telecommunications

Control, *Memorandum Opinion & Order*, 20 FCC Rcd. 18,290 (2005); Verizon Commc’ns Inc. and MCI, Inc. Applications for Approval of Transfer of Control, *Memorandum Opinion & Order*, 20 FCC Rcd. 18,433 (2005). More recently, in connection with approving the AT&T-BellSouth merger, the FCC extracted from the combined company a further commitment not to enter into certain arrangements with Internet content, applications, or service providers for two years. See AT&T Inc. and BellSouth Corporation Application for Transfer of Control, *Memorandum Opinion & Order*, 22 FCC Rcd. 5662, app. F, at 5814-15 (2007) [hereinafter *AT&T-BellSouth Merger Order*]. This latter commitment bears a close resemblance to the proposed “access tiering” ban discussed below.

20. The issue is somewhat more complicated with respect to wireless broadband platforms, given the more extreme scarcity of network bandwidth (i.e., licensed spectrum). See generally Robert W. Hahn, Robert E. Litan, & Hal J. Singer, *The Economics of ‘Wireless Net Neutrality’*, (AEI-Brookings Joint Ctr., Working Paper No. RP07-10, 2007), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=983111. In this article, I focus on the net neutrality debate as it applies to wired broadband platforms, including cable and wireline platforms.

21. See, e.g., Jacqui Cheng, *Evidence Mounts That Comcast Is Targeting BitTorrent Traffic*, ARS TECHNICA, Oct. 19, 2007, <http://arstechnica.com/news.ars/post/20071019-evidence-mounts-that-comcast-is-targeting-bittorrent-traffic.html>.

22. See Formal Complaint of Free Press and Public Knowledge Against Comcast Corp. for Secretly Degrading Peer-to-Peer Applications, *Memorandum & Order*, FCC 08-183, WC Dkt. No 07-52, 2008 WL 3862114 ¶¶ 47-48 (Aug. 20, 2008) [hereinafter *Comcast Order*]. The Commission stopped short of imposing any monetary sanctions on Comcast, but only because it acknowledged that it was announcing these new standards of conduct for the first time in this adjudicative proceeding. *Id.* ¶ 34.

lawyers will spend many years litigating about the elusive distinction between “reasonable network management” and the unjustified suppression of disfavored applications. No one argues that Comcast or other broadband providers can take *no* steps to ensure adequate network capacity for most subscribers by constraining its subscribers’ use of bandwidth-intensive applications. Indeed, the FCC’s *Policy Statement* conditions a consumer’s right “to run applications and use services of their choice” on a broadband provider’s prerogative to engage in “reasonable network management.”²³ Defining that “reasonable network management” qualifier, however, is no easy task.

All broadband networks contain potential bottlenecks of shared capacity. During peak usage periods, congestion in these bottlenecks can degrade basic Internet access for all subscribers. Such congestion poses an escalating challenge for network engineers, who must cope with the rapidly growing popularity of high-bandwidth Internet applications such as high-definition video-streaming and peer-to-peer video file-sharing while conserving on costly capital investments.²⁴ Complicating that engineering challenge is an economic peculiarity about the retail market for Internet access. Most Internet access plans today include “all you can eat” connectivity; consumers pay a flat fee for a particular level of bandwidth but do not generally pay any incremental per-bit price for causing extra data traffic to cross shared network facilities. They have traditionally paid the same for a 3 Mbps connection whether they have used that connection once a day, to download a static webpage, or all day, to download and upload high-definition video files. There have thus been no price signals to deter a minority of subscribers from overconsuming network capacity at the expense of the majority.

The question in the *Comcast* proceeding was whether it is “reasonable” for a broadband provider like Comcast to treat the use of certain lawful applications (such as BitTorrent) as a proxy for undue consumption of finite and shared network resources and thus limit the

23. *FCC Broadband Policy Statement*, *supra* note 15, ¶¶ 4-5 & n.15; *cf. Comcast Order*, *supra* note 22, ¶ 50 (“[W]e do not adopt here an inflexible framework micromanaging providers’ network management practices. . . . To the extent, however, that providers choose to utilize practices that are not application or content neutral, the risk to the open nature of the Internet is particularly acute and the danger of network management practices being used to further anticompetitive ends is strong. As a result, it is incumbent on the Commission to be vigilant and subject such practices to a searching inquiry. . . .”).

24. *See, e.g.*, DELOITTE, TELECOMMUNICATIONS PREDICTIONS: TMT TRENDS 2007 6 (2007), http://www.deloitte.com/dtt/cda/doc/content/dtt_TelecomPredictions011107.pdf; WILLIAM B. NORTON, VIDEO INTERNET: THE NEXT WAVE OF MASSIVE DISRUPTION TO THE U.S. PEERING ECOSYSTEM (v1.3) 2 (2007); DAVID VORHAUS, YANKEE GROUP, CONFRONTING THE ALBATROSS OF P2P (2007); YANKEE GROUP, 2006 INTERNET VIDEO FORECAST: BROADBAND EMERGES AS AN ALTERNATIVE CHANNEL FOR VIDEO DISTRIBUTION 6-7 (2006).

bandwidth consumed by those applications to ensure adequate network capacity for the majority of its subscribers. Net neutrality advocates argued, and the Commission all but agreed, that the government should ban network providers from making such judgments. In one passage, the Commission implied that, if applications-neutral network-management policies are infeasible, a network provider should generally either increase its capacity network-wide (and presumably pass at least a portion of that cost on to its customer base in the form of higher broadband rates) or impose “metered pricing” on end users of Internet access—a fixed fee for a given quantum of Internet traffic for which a subscriber is responsible.²⁵ In early 2008, Time Warner Cable became the first major broadband provider to adopt a form of metered pricing by announcing that it would offer, on a trial basis, a new tiered pricing scheme under which customers would pay a flat fee for a designated level of Internet traffic per month and usage-sensitive fees for all traffic beyond that level. Time will tell whether this rate structure will appeal to U.S. consumers—or whether they will continue to expect and prefer the all-you-can-eat fees they have paid for Internet access since the early days of the Internet.

In all events, government intervention in this area is probably just beginning, and will likely involve highly fact-specific inquiries into the case-by-case “reasonableness” of particular network management practices from an engineering perspective. The problem is that regulators are hardly equipped to second-guess, in real time, the decisions of actual network engineers about optimal network design in this esoteric and rapidly changing technological environment. Regulators should hesitate to invalidate the engineers’ network-management decisions—except when they believe that those decisions are mere pretexts for anticompetitive behavior. For example, the FCC strongly suggested that Comcast may have suppressed the use of BitTorrent not for any genuine

25. *Comcast Order*, *supra* note 22, ¶ 49 & n.227. Many (but not all) net neutrality proponents have criticized the type of “metered pricing” approach the Commission now seems to have endorsed. *See, e.g.*, Press Release, Free Press, Time Warner Metering Exposes America’s Bigger Broadband Problems (Jan. 17, 2008), <http://www.freepress.net/release/328> (quoting policy director Ben Scott as saying “telling consumers they must choose between blocking and metered pricing is a worrying development”); Posting of Marvin Ammori to Save the Internet, Time Warner Goes Back to the Future, <http://www.savetheinternet.com/blog/2008/01/25/back-to-the-future-time-warner-broadband-plan-recalls-aols-walled-garden> (Jan. 25, 2008) (arguing that metered pricing “raises Net Neutrality issues,” because Time Warner is unlikely “to apply its new high-bandwidth surcharges to its own product,” and “favoring its own content over other channels or programs like BitTorrent would be discriminatory”); Posting of Fred von Lohmann to Deeplinks Blog, Time Warner Puts a Meter on the Internet, <http://www.eff.org/deeplinks/2008/01/time-warners-putsmeter-internet> (Jan. 22, 2008), (expressing concern that metered pricing “could be used as a cover for price increases on existing customers (bad),” and insisting that “the pricing for ‘overages’ should bear some relation to costs”).

engineering reason, but because Comcast wished to preclude the threat that this file-sharing application poses to Comcast's underlying video-distribution business, for which Comcast is said to earn supracompetitive profits.²⁶ I have no basis for either endorsing or rebutting these claims about Comcast's motives. My point is simply that enforcement proceedings about the propriety of network-management decisions should ultimately boil down to disputes about whether a given broadband provider has market power and is engaged in anticompetitive behavior. Like the "nondiscrimination" rules addressed below, these are classic disputes for the traditional antitrust authorities.

2. Proposals for Restrictions on Access Tiering

So far, I have addressed net neutrality only from the perspective of the four principles laid out in the FCC's *Policy Statement*, which focus mainly on the *blocking or degradation* of disfavored applications and content. A theoretically more interesting net neutrality debate concerns proposals to restrict commercial deals concerning *superior* access to a broadband platform for performance-sensitive applications and content. For example, the provider of a high-definition video-streaming service may wish to pay broadband operators to provide various performance-enhancement techniques (such as packet prioritization) needed to avoid the latency and jitter problems associated with traditional best-efforts Internet connections. Or the provider of an online videogame application might wish to pay broadband operators for the performance-enhancement techniques needed to run graphics-intensive, real-time gaming applications involving the simultaneous participation of game participants across the globe. The policy question is whether the government should prohibit or closely regulate such "access tiering" agreements.

Here one must draw an important distinction. Properly understood, any proposal for regulation of access-tiering arrangements is distinct from, and indeed assumes compliance with, the anti-blocking principle discussed above. The question is *not* whether the government needs to preclude a broadband provider from acting as a "gatekeeper," blocking all

26. See, e.g., *Comcast Order*, *supra* note 22, ¶ 5 ("Peer-to-peer applications, including those relying on BitTorrent, have become a competitive threat to cable operators such as Comcast because Internet users have the opportunity to view high-quality video with BitTorrent that they might otherwise watch (and pay for) on cable television. Such video distribution poses a particular competitive threat to Comcast's video-on-demand ("VOD") service."); *id.* ¶ 50 ("To the extent . . . that providers choose to utilize practices that are not application or content neutral, the risk to the open nature of the Internet is particularly acute and the danger of network management practices being used to further anticompetitive ends is strong.").

data from passing to end users unless and until it receives a “toll” from each content or applications provider that wishes to send packets over the broadband provider’s pipes. To my knowledge, no significant broadband provider has seriously suggested that it would try to reorient Internet economics this way, and any such provider would probably fail if it tried. Instead, under the much more likely scenario, broadband providers would go on providing at least the same bandwidth as they do now for most Internet traffic, *without* any “toll” charge to applications or content providers. And they would charge a fee only to those providers that *wish* to purchase the special performance enhancements needed to run applications that are unusually sensitive to “jitter” or “latency.”

Various net neutrality advocates have articulated three alternative proposals for restricting such “access-tiering” arrangements. The least plausible of these, a “dumb pipes” proposal, would flatly ban broadband providers from differentiating at all among the various types of traffic traversing the broadband platform. In the words of its popular exponents, this approach would be designed to preserve “[t]he fundamental idea on the Internet since its inception . . . that every Web site, every feature, and every service should be treated *exactly the same*.”²⁷ If taken seriously, this approach would thus preclude a broadband provider from giving any priority to real-time applications that *need* such priority in order to function properly (such as voice and video) over other applications that have no similar need.

Although the “dumb pipes” proposal suffuses much of the popular rhetoric in favor of net neutrality regulation, no one familiar with the nuances of this debate actually supports it, because it makes no sense in a broadband environment characterized by shared network resources with finite capacity. As Tim Wu observes, “certain classes of applications will never function properly unless bandwidth and quality of service are guaranteed,” and depriving broadband providers of network management tools could thus “interfere with application development and competition.”²⁸ For example, no one would suggest—in the words of David Farber and Michael Katz—that the government should forbid a broadband provider “to favor traffic from, say, a patient’s heart monitor over traffic delivering a music download.”²⁹

This leaves the other two types of proposals for the regulation of

27. SavetheInternet.com Coalition, Net Neutrality 101, <http://www.savetheinternet.com/=101> (visited Jan. 12, 2008) (emphasis added). In February 2008, shortly after this paper was first delivered, the website replaced the words “exactly the same” with “without discrimination.”

28. Wu, *supra* note 11, at 154.

29. David Farber & Michael Katz, *Hold Off On Net Neutrality*, WASH. POST, Jan. 19, 2007, at A19.

access tiering, which I will call, respectively, the “strong” and “weak” forms. The “strong” form would permit broadband providers to give preferential treatment to certain broad classes of traffic, such as video or VoIP, but would ban broadband networks from entering into commercial contracts with applications and content providers and charging them for such performance-enhancing services; instead, broadband providers could impose incremental charges only on their own subscribers. This flat ban on commercial agreements has been a central feature of the best-known net neutrality bills proposed in Congress.³⁰ It also became a plank in then-candidate Barack Obama’s presidential campaign platform: he “supports the basic principle that network providers should not be allowed to charge fees to privilege the content or applications of some web sites and Internet applications over others.”³¹

In contrast, the “weak” form of access-tiering regulation would permit broadband networks to strike business-to-business deals with given applications or content providers for the paid provision of performance enhancements, but subject to a kind of “common carrier” rule: any given deal would need to be filed as a sort of “contract tariff,” and the broadband network would be required to offer the same deal on the same contractual terms to *other* willing buyers. This nondiscrimination principle would probably not involve full-blown price regulation, but it would very closely track the “nondiscrimination” obligations imposed on ordinary common carriers under Title II of the Communications Act.³²

30. See, e.g., S. 215, 110th Cong. § 12(a)(4)(C), (5) (2007); H.R. 5273, 109th Cong. § 4(a)(6), (7) (2006); H.R. 5417, 109th Cong. § 3 (2006).

31. BarackObama.com, Barack Obama: Connecting and Empowering All Americans Through Technology and Innovation, http://www.barackobama.com/pdf/issues/technology/Fact_Sheet_Innovation_and_Technology.pdf. At a May 2008 cable industry event, Obama supporter and former FCC Chairman William Kennard suggested that then-Senator Obama “support[s] tier pricing systems as long as they’re not discriminatory.” Ted Hearn, *2008 CABLE SHOW: Obama OK With Tier Pricing*, MULTICHANNEL NEWS, May 18, 2008, <http://www.multichannel.com/article/CA6562007.html>. It was unclear, however, whether Mr. Kennard was referring to *wholesale* “tier pricing systems” involving commercial agreements between broadband providers and applications and content providers—the topic of the net neutrality debate—or just to relatively uncontroversial *retail* “tier pricing systems” that charge end users more for higher-performance connections. Of course, the official net neutrality position of the Obama administration will not be known until it is actually implemented.

32. See 47 U.S.C. §§ 202, 211 (2000); Competition in the Interstate Interexchange Marketplace, *Report & Order*, 6 FCC Rcd. 5880 (1991). For an example of this type of proposal, see JOHN WINDHAUSEN, JR., PUBLIC KNOWLEDGE, GOOD FENCES MAKE BAD BROADBAND: PRESERVING AN OPEN INTERNET THROUGH NET NEUTRALITY 40-45 (2006), <http://www.publicknowledge.org/pdf/pk-net-neutrality-whitepaper-20060206.pdf>. In the *Comcast Order*, the Commission noted that it did “not decide today whether other actual or potential conduct, such as giving real-time communications packets (e.g., VoIP) higher priority than other packets or giving higher priority to packets of a particular, unaffiliated

Advocates of access-tiering restrictions are sometimes unclear about whether they are proposing the “strong” or “weak” version. For example, it has been reported that, at a major conference on the issue, a leading proponent of regulatory intervention first “advocated a strong ban on access tiering in his presentation but, when answering a question from the audience, conceded that he would accept a weak ban on access tiering in which a network operator would be allowed to charge content providers for prioritization under the condition that the network operator did not price discriminate within a category of similar content providers.”³³ Of course, both sides of the debate can be fairly accused of rhetorical imprecision.

C. *The Antitrust Underpinnings of the Net Neutrality Debate*

Much has been written for and against proposals for government-imposed net neutrality rules. From a high-level perspective, the main question is whether the purported need for such rules outweighs the risks inherent in any government intervention in a dynamic technological marketplace, including the risks of deterred investment and other unintended consequences.

Reduced to its economic essentials, most advocacy for net neutrality regulation argues that there is inadequate competition in the market for broadband Internet access and that the government should step in to prevent abuses of the resulting market power. If each American consumer had a choice of ten broadband Internet access providers, there would be no credible basis for such intervention, because competition would ensure each provider’s responsiveness to consumer choice.³⁴

content provider pursuant to an arms-length agreement, would violate federal policy.” *Comcast Order*, *supra* note 22, ¶ 43 n.202. Although this passage should be taken at face value—the Commission did not address the issue because it had not thought it through—the modifier “unaffiliated” before “content provider” may reveal the reflexive mistrust of non-antitrust-oriented policymakers for vertical integration. *See infra* notes 48-52 and accompanying text.

33. *See, e.g.*, Sidak, *supra* note 3, at 426-27 (describing remarks of Lawrence Lessig).

34. A few net neutrality advocates have contended that, even in a world of perfect competition, regulatory intervention would still be needed to address the “terminating access monopoly.” (This term refers to the “monopoly” that any interconnected communications provider, no matter how competitively insignificant it may be in the retail market, is said to possess for the “service” of terminating traffic to its own subscribers. *See generally* Nuechterlein & Weiser, *supra* note 4, at 310-24.) As an example of this concern, these advocates cite the Commission’s need to intervene in 2001 to curb the ability of even the smallest local telephone upstarts to charge supracompetitive “access charges” for the termination of the largest long distance carriers’ traffic. *E.g.*, Comments of Google Inc., to the *Notice of Inquiry* in Broadband Industry Practices, 22 FCC Rcd. 7894, WC Dkt. No. 07-52, at 19-20 (June 15, 2007) [hereinafter Google Net Neutrality Comments]; *see also* Concurring Statement of Commissioner Jon Leibowitz to FTC, STAFF REPORT: BROADBAND CONNECTIVITY COMPETITION POLICY (2007), at 2-3, <http://www.ftc.gov/speeches/leibowitz/V070000statement.pdf>. That concern is misconceived.

Instead, the root fear is that the Internet access market is in essence a duopoly dominated by cable and telephone companies; that it will remain so indefinitely; and that each provider has an incentive to abuse its market power in ways that harm the Internet. Net neutrality advocates are particularly concerned about the risk that any given broadband provider, to the extent it vertically integrates broadband transmission with the provision of particular applications (such as voice or video), will leverage its power in the broadband market to discriminate anticompetitively against unaffiliated applications providers.³⁵ As discussed below, such “vertical leveraging” claims are familiar to antitrust lawyers, and antitrust jurisprudence has developed sophisticated tools for evaluating them.

Before I describe the *economic* components of the net neutrality debate, it is worth pausing to consider efforts to justify net neutrality rules *without relying on* competition-related concerns. As I discuss below, those efforts rest either on a basic misapprehension about the way the Internet operates or on speculative First Amendment concerns that are problematic on the merits and, in any event, could not begin to justify the massive economic regulation that net neutrality advocates propose.

1. Answering the critics of an economic approach to net neutrality analysis

Some net neutrality advocates would impose net neutrality rules not to avoid any *market failure*, as antitrust practitioners use that term, but to preserve one particular view of the way the Internet should operate. This view holds, in essence, that the Internet should provide as equal an opportunity as possible for any given provider to reach end users effectively. For example, President-elect Obama has argued that a strong

First, this type of phenomenon does not arise in an unregulated market; it arises only when regulators impose interconnection obligations, authorize providers to file tariffs for termination “services,” and permit those providers to impose legally binding charges under those tariffs. *See* Access Charge Reform, *Seventh Report & Order & Notice of Proposed Rulemaking*, 16 FCC Rcd. 9923, ¶ 2 (2001) (“[W]e limit the application of our tariff rules to CLEC access services in order to prevent use of the regulatory process to impose excessive access charges on IXCs and their customers.”). In any event, as noted above, no one is contending that broadband providers could or should impose the equivalent of access charges on applications or content providers in the first place—i.e., fees for terminating ordinary data traffic over a best-efforts broadband connection. *See* Part I.B.2, *supra*.

35. *See, e.g.*, Pet. for Declaratory Ruling of Free Press, et al., WC Dkt. No. 07-52, at ii (Nov. 1, 2007) (“Free Press Pet.”), available at http://www.freepress.net/files/fp_et_al_nn_declaratory_ruling.pdf, (identifying “[t]he paradigmatic fear of network neutrality defenders” as the possibility “that network providers who compete[] (or [seek] to compete) with independent applications [will] secretly degrade those applications in ways prompting consumers to abandon those degraded applications, undermining consumer choice, innovation, and a competitive market”).

form of access-tiering restrictions is necessary to avoid “a two-tier Internet in which websites with the best relationships with network providers can get the fastest access to consumers, while all competing websites remain in a slower lane,” and to “ensure that the new competitors [at the edge], especially small or non-profit speakers, have the same opportunity as incumbents to innovate on the Internet and to reach large audiences.”³⁶ Similarly, a key Senate sponsor of “strong” net neutrality legislation, Oregon Senator Ron Wyden, has argued that business-to-business deals concerning access to the broadband platform would have a “chilling effect on small mom and pop businesses that can’t afford the priority lane, leaving these smaller businesses no hope of competing against the Wal-Marts of the world,” and that a ban on such deals would beneficently “allow[] folks to start small and dream big. . . .”³⁷

This populist vision of the Internet as a massive leveler of economic inequality—as a sort of digital Small Business Administration—is problematic as a matter of both technology and history. The Internet has never been “neutral” among applications and content providers,³⁸ and net neutrality rules, standing alone, could not make it so anyway. For example, certain applications and content providers have long succeeded precisely because they have built—or have purchased the services of—massive content-delivery networks (CDNs), which, as noted, circumvent points of congestion on the Internet to bring the privileged providers’ data as close as possible to the physical locations of their end users. These CDNs are designed to, and do in fact, enable applications and content providers to out-compete rival providers that do not make use of such networks. As Akamai, a leading CDN, explains:

Let’s assume someone has ten minutes to spend at your Web site: some are able to access 10+ pages, while some can’t stand the wait and give up after two requests. If page speed were to be increased by as little as five times, these visitors would have the ability to view 50+ pages during the same short session, ensuring a better user experience—critical to your efforts to acquire and retain customers

36. See BarackObama.com, *supra* note 31.

37. Press Release, Senator Ron Wyden, Wyden Moves to Ensure Fairness of Internet Usage with New Net Neutrality Bill, (Mar. 2, 2006), <http://wyden.senate.gov/newsroom/record.cfm?id=266467>.

38. See, e.g., ROBERT W. HAHN AND ROBERT E. LITAN, THE MYTH OF NETWORK NEUTRALITY AND THE THREAT TO INTERNET INNOVATION (2007), http://aebrookings.org/admin/authorpdfs/redirect-safely.php?fname=../pdffiles/RP_06-33-repost1-24-07.pdf; Google Net Neutrality Comments, *supra* note 34, at 4 n.6 (noting that “the Internet today is not an absolutely ‘neutral’ place in that the various servers, routers, and content delivery networks that comprise [the Internet] can and do distinguish routinely between various forms of traffic”).

and partners. Increasing page performance reduces the likelihood of bailout, boosts the likelihood of multiple page views and purchases, increases cross-sell conversion opportunities and leaves impressions that are worthy of return visits.³⁹

In other words, those who can afford the services of Akamai or other CDNs—or who, like Google, can make the multi-billion dollar investments needed to build such networks themselves—will have a marked competitive advantage over the “mom and pop” sites and other Internet companies that lack such resources. This does not mean that mom and pop sites cannot *obtain* such resources through the capital markets if their business plans are promising enough to attract the interest of venture capitalists. At least in theory, the genius of the free-market system is that innovators with valuable ideas can obtain the capital they need to knock off larger, more established incumbents. But if your business plan does *not* attract the interest of the capital markets, the Internet will by all means “discriminate” in favor of Wal-Mart and Google and against your on-line retail website or fledgling search engine because your data will reach end users less quickly and efficiently than theirs. And the Internet will discriminate against you in those circumstances no matter how “neutrally” broadband providers treat the packets flowing across their last-mile networks.

Here is the key point: no one contends that this differential treatment is even a problem, let alone a problem that the government should resolve through “neutrality” mandates. When this is pointed out, net neutrality advocates typically answer that, although CDNs require massive capital investments, the market for CDN services is inherently more competitive than the market for last-mile broadband services.⁴⁰ Whether or not that is true, the central point is that this is an empirical argument about market power and the potential for market failures—traditional antitrust concepts; it is not an argument about whether the government should conform the Internet to some utopian vision of an electronic town hall where anyone is guaranteed the right to speak as loudly as anyone else.

That point likewise answers the related argument that net neutrality regulation is needed to preserve values of *free expression* as the Internet increasingly encompasses the mass media.⁴¹ This strain of net neutrality

39. AKAMAI, WHY PERFORMANCE MATTERS 1 (2002) (available with registration at http://www.akamai.com/html/perspectives/whitepapers_content.html.) Akamai’s website contains an interactive illustration of how much its CDN can improve an applications provider’s performance along specified routes. See Akamai, Network Performance Comparison, <http://www.akamai.com/html/technology/dataviz2.html>.

40. See, e.g., Google Net Neutrality Comments, *supra* note 34, at 4 n.6.

41. See, e.g., Save the Internet, Frequently Asked Questions,

advocacy, which is often quite vague in its articulation, would apparently impose a loose sort of “fairness doctrine” on broadband networks: a mandate to ensure that broadband providers facilitate equal access to the broadband platform by anyone with ideas to share. As we have seen, the government could not ensure genuinely equal access unless it started issuing vouchers to all Internet start-ups for subsidized CDN services. Even apart from that fact, moreover, there are two main problems with the “free expression” justification for net neutrality rules.

First, the American marketplace of ideas has prospered for centuries even though the government has rarely given anyone an enforceable right to speak as loudly as anyone else or through exactly the same channels of expression. Indeed, First Amendment jurisprudence may weigh against, rather than for, government intervention in this context. In *Miami Herald Publishing Co. v. Tornillo*, the Supreme Court held that the First Amendment invalidated a state law that required newspapers to give political candidates an opportunity to reply to unfavorable editorials, reasoning that the marketplace of ideas will prosper best if the government does *not* act as a referee of “fair” access to privately owned means of public expression.⁴²

Second, and just as important, there is a radical mismatch between the speculative free-expression concerns raised by net neutrality advocates and the ambitiously interventionist “solutions” they would impose today. So far, no one has identified a concrete “problem” to be fixed in the marketplace of ideas. For example, even if the FCC’s criticisms of Comcast’s treatment of the BitTorrent peer-to-peer technology were valid on the merits, Comcast’s actions still would have been completely content-neutral: Comcast would not have “discriminated” against *viewpoints* at all, much less in ways that could threaten the marketplace of ideas, and much less in ways that could justify government intervention to protect that marketplace. If a discernible problem does

<http://www.savetheinternet.com/=faq> (“If Congress turns the Internet over to the telephone and cable giants, everyone who uses the Internet will be affected. . . . Independent voices and political groups are especially vulnerable. Costs will skyrocket to post and share video and audio clips, silencing bloggers and amplifying the big media companies.”).

42. 418 U.S. 241 (1974). The notable exception to this rule involved conventional television and radio broadcasting. In its controversial (and now highly suspect) *Red Lion* decision in 1969, the Supreme Court rejected a First Amendment challenge to the original fairness doctrine: a requirement that broadcasters give equal time to opposing viewpoints. See *Red Lion Broad. Co. v. FCC*, 395 U.S. 367 (1969). But the Court upheld that rule only because the broadcast spectrum, long considered a public resource, was viewed as so inherently “scarce” that the government *had to* grant limited rights of private access to it in order to ensure genuine public debate. The contrast here is instructive: no one would seriously argue that the Internet has any of the “scarcity” properties that underlay the *Red Lion* decision. Any Internet connection allows end users to reach millions of information sources worldwide, not the three or four broadcast television channels available locally when *Red Lion* was decided.

arise, there will be time enough to contemplate appropriately tailored solutions to it. And even then, such problems, whatever they may be, would be exceedingly unlikely by themselves to support the full-blown scheme of economic regulation proposed by net neutrality advocates.

2. The economic elements of the net neutrality debate

As noted, the basic premise of net neutrality rules is that cable and telephone companies have formed a “cozy duopoly”; that they have excessive power in the broadband Internet access market; and that, if unchecked by the government, they will abuse that power by harming competition in the adjacent markets for applications and content. Opponents of net neutrality rules respond with a number of independent arguments, which I will briefly sketch here. It is not my purpose to take sides on any of these issues; my main objective is simply to underscore the inherently antitrust-oriented character of the net neutrality debate.

First, the opponents claim that the retail Internet access market is more competitive and dynamic than net neutrality advocates contend, and that the potential for further intermodal competition keeps all providers in check. The FCC has essentially accepted this claim as the basis for a string of orders since 2002 deregulating broadband service providers.⁴³ Nonetheless, this claim remains controversial as an empirical matter, given the still-large share of the broadband market occupied by conventional cable and telephone companies.⁴⁴ Relatedly, advocates and opponents argue about whether net neutrality regulation would worsen the prospects for additional broadband competition. For example, Chris Yoo argues that, if the root problem is an undersupply of broadband access providers, the proper solution is to maintain deregulatory policies that encourage new entry into the broadband market by allowing each broadband provider to differentiate itself from others.⁴⁵ Net neutrality rules, he claims, would stifle such differentiation, deter new entry, and perversely solidify the competitive problem that gave rise to net neutrality proposals in the first place. In contrast, Tim Wu argues that the

43. See, e.g., *Wireline Broadband Order*, *supra* note 9; *Cable Broadband Order*, *supra* note 8.

44. Some opponents of “nondiscrimination” regulation further argue that, in assessing the competitive forces that would keep anticompetitive conduct at bay, one must look not just at competition for end users in the *retail* market, but also at competition for the provision of performance enhancements to applications and content providers. For example, could a broadband provider that observes the basic anti-blocking principle succeed in harming unaffiliated applications and content providers by withholding performance-enhancing services if *independent CDNs* can help those providers connect just as efficiently with end users? This issue remains largely unexplored.

45. See, e.g., Christopher S. Yoo, *Would Mandating Broadband Network Neutrality Help or Hurt Competition? A Comment on the End-to-End Debate*, 3 J. TELECOMM. & HIGH TECH. L. 23 (2004); *Tim Wu and Christopher Yoo Debate*, *supra* note 3, at 587-90.

broadband market will remain a duopoly for the foreseeable future no matter what regulatory steps are taken, and that regulators must therefore focus on preventing the duopolists from harming innovation at the “edge” of the Internet.⁴⁶

Second, the opponents of net neutrality rules claim that, even if any given broadband provider faces minimal competition in its geographic service areas, no broadband provider occupies a large enough share of the *national* broadband market to harm competition in the inherently national (and international) markets for content and applications.⁴⁷ Net neutrality advocates respond that, although this market characteristic may protect the largest global content or applications providers from anticompetitive conduct by individual broadband companies, it would not necessarily protect smaller innovators at the edge of the Internet.

Third, opponents of net neutrality rules argue that, even if a broadband provider faced no competition, and even if it theoretically had the *ability* to harm competition in the content and applications markets, it would still usually have no *incentive* to discriminate against unaffiliated providers of complementary applications and content in ways that would harm consumer welfare. This point is complex and warrants brief elaboration.

Since the emergence of the Chicago School in the 1970s, antitrust law has taken a skeptical view of claims that vertically integrated firms will try to “leverage” their monopoly status in one market to harm competition in adjacent markets.⁴⁸ From the antitrust perspective, a broadband platform provider that is free from retail price regulation (as all broadband providers are today) should normally have incentives to deal evenhandedly with independent providers of complementary

46. *Tim Wu & Christopher S. Yoo Debate*, *supra* note 3, at 590-92. In an important twist on this debate, some economists argue that, because of the unique characteristics of the broadband market, even competition between only two rivals may suffice to protect consumer interests as effectively as competition among several rivals protects consumer interests in other markets. They reason that the high fixed costs and negligible marginal costs in the broadband market give providers unusual incentives to keep and recruit as many customers as possible—and thus to accommodate any significant consumer concerns—because each customer represents almost pure profit, in that no costs are avoided if any customer defects to the alternative provider. See generally Timothy J. Tardiff, *Changes in Industry Structure and Technological Convergence: Implications for Competition Policy and Regulation in Telecommunications*, 4 INT’L ECON. & ECON. POL. 109 (2007).

47. Comments of Verizon and Verizon Wireless to the *Notice of Inquiry* in Broadband Industry Practices, 22 FCC Rcd. 7894 (June 15, 2007) [hereinafter Verizon Net Neutrality Comments].

48. See, e.g., RICHARD A. POSNER, ANTITRUST LAW 223-29 (2d ed. 2001); Christopher S. Yoo, *Network Neutrality and the Economics of Congestion*, 94 GEO. L.J. 1847, 1885-87 (2006); Christopher S. Yoo, *Vertical Integration and Media Regulation in the New Economy*, 19 YALE J. ON REG. 171 (2002); see generally Herbert Hovenkamp, *Antitrust Policy After Chicago*, 84 MICH. L. REV. 213, 255-83 (1985).

applications—even if it completely dominates the platform market—because anticompetitive discrimination in the applications market would simply devalue the platform and, as a general matter, would not enable the provider to earn any profits it could not otherwise earn for the underlying platform itself.⁴⁹ Where it applies, this principle (known as the “internalization of complementary externalities,” or “ICE”) does *not* hold that platform providers will never favor their own affiliates over independent companies. For example, they may favor their own affiliates in order to capture the efficiencies that vertical integration permits⁵⁰ or to attract consumers through efficient product differentiation.⁵¹ But the ICE principle (where it applies) *does* hold that platform providers will have no rational incentive to favor their affiliates in ways that distort efficient competition and harm consumers. And it should be common ground that, with rare exceptions, economic regulation should be designed to promote *competition*, in the interests of consumers, rather than individual *competitors*.⁵²

The ICE principle is nonetheless subject to a number of important exceptions—contexts in which vertical integration could give firms with market power incentives to discriminate in anticompetitive ways against rivals in the applications market.⁵³ One of these exceptions arises when a

49. See, e.g., Joseph Farrell & Philip J. Weiser, *Modularity, Vertical Integration, and Open Access Policies: Towards a Convergence of Antitrust and Regulation in the Internet Age*, 17 HARV. J.L. & TECH. 85, 104 (2003). Under a principle known as “Baxter’s law,” a vertically integrated company that *is* subject to price ceilings on its platform services—such as the pre-divestiture Bell System—may well have an incentive to discriminate against rival applications providers in order to recover the monopoly profits that those price ceilings preclude it from recovering in the platform market. See *id.* at 105-07.

50. For classic expositions of the efficiencies of vertical integration, see OLIVER E. WILLIAMSON, *THE MECHANISMS OF GOVERNANCE* (1996), and R.H. COASE, *THE FIRM, THE MARKET, AND THE LAW* (1990).

51. See *infra* note 53 and accompanying text.

52. See, e.g., *AT&T-BellSouth Merger Order*, *supra* note 19, ¶ 195 (affirming that Commission’s “statutory duty is to protect efficient competition, not competitors”); see generally *Brunswick Corp. v. Pueblo Bowl-O-Mat, Inc.*, 429 U.S. 477, 488 (1977) (antitrust laws are enforced “for the protection of competition not competitors” (citation omitted)).

53. See Farrell & Weiser, *supra* note 49, at 105-19; see also Barbara van Schewick, *Towards an Economic Framework for Network Neutrality Regulation*, 5 J. TELECOMM. & HIGH TECH. L. 329 (2007) (arguing for recognition of additional exceptions beyond those acknowledged in existing economic literature). Some net neutrality advocates argue that, whereas “[a] single monopolist may refrain from [anticompetitive] tactics due to the so-called ‘one monopoly rent’ rule,” that rule “becomes less relevant,” and the incentives to discriminate worsen, “[a]s the high-speed ISP market moves from monopoly to competition,” because each provider will have an incentive to stake out “a competitive position in the [platform] market by *differentiating itself*” from its competitors. Google Net Neutrality Comments, *supra* note 34, at 16-18 (emphasis added) (citing van Schewick, *supra*). The defect in this argument is that product differentiation is a key benefit of free markets; consumers would be worse off if, for example, the markets for cars, breakfast cereals, and videogame consoles lacked their current diversity. See WILLIAM J. BAUMOL & ALAN S. BLINDER, *ECONOMICS: PRINCIPLES AND*

platform provider believes that an applications provider poses a competitive threat to the underlying platform. For example, Microsoft, as a monopoly provider of PC operating systems, may not normally have incentives to discriminate against unaffiliated applications software. But as DoJ successfully argued several years ago, Microsoft did have—and may have acted upon—incentives to crush an applications provider (Netscape) that was thought to have threatened the market position of the Windows platform itself.⁵⁴ In the Internet access context, an analogous question arises about whether broadband providers that face inadequate broadband competition might likewise have incentives to thwart applications (such as VoIP and streaming video) that threaten any service traditionally offered by a given broadband provider (voice for telcos and multichannel video service for cable companies).⁵⁵ That is one reason why so much scrutiny greeted Madison River's treatment of VoIP services and Comcast's treatment of a peer-to-peer technology used for sharing large video files.⁵⁶

Finally, advocates and opponents of net neutrality regulation argue about the costs of regulatory intervention. The opponents first claim that, no matter how these economic questions should be resolved in the abstract, policymakers should adopt a cautious case-by-case approach to the resolution of particular net neutrality complaints and that, if and when market failures arise, policymakers should opt for after-the-fact remedies rather than prophylactic regulations, which grow obsolescent quickly in this dynamic market and inevitably create unintended consequences. Unnecessary or premature intervention, they add, would carry enormous costs: it would suppress investment incentives (why make risky sunk investments in a commodity product?), deprive consumers of needed diversity in Internet platforms, and open up a Pandora's box of unintended regulatory consequences, all without a showing that regulatory intervention is necessary in the first place.⁵⁷ Net neutrality

POLICY, 248-52 (8th ed. 2000) (discussing consumer benefits of “monopolistic competition”). Any incentive to differentiate one's platform through preferential treatment of certain applications is thus, standing alone, not an “exception” to the ICE principle, because the resulting differentiation tends to increase, not decrease, consumer welfare. *See* Hermalin & Katz, *supra* note 3; Yoo, *Would Mandating Broadband Network Neutrality Help or Hurt Competition?*, *supra* note 45, at 61.

54. *See* United States v. Microsoft Corp., 253 F.3d 34 (D.C. Cir. 2001); Farrell & Weiser, *supra* note 49, at 110-11. The precise empirical basis for the government's antitrust suit against Microsoft is subject to debate. *See, e.g.*, Thomas Hazlett, *US v Microsoft: Who Really Won?*, FT.COM, Jan. 28, 2008, http://www.ft.com/cms/s/0/a94d92e0-cd99-11dc-9e4e-000077b07658.html?nclick_check=1.

55. *See, e.g.*, Free Press Pet., *supra* note 26, at 24-25.

56. *See supra* notes 17, 21-26 and accompanying text.

57. *See, e.g.*, Hermalin & Katz, *supra* note 3; Yoo, *Would Mandating Broadband Network Neutrality Help or Hurt Competition?*, *supra* note 44; THOMAS HAZLETT & ANIL CALISKAN,

advocates assert that these claims of investment disincentives are overstated and that, unless the government acts now, broadband providers may structure their networks in ways that will ultimately harm consumer interests in an “open” Internet and that cannot easily be undone later.⁵⁸

3. Facing up to the essential antitrust character of the net neutrality debate

No matter how one comes out on these various subdebates within the net neutrality discussion, the following generalization seems valid: Proposals for net neutrality rules could have merit only if (i) the broadband Internet access market is inadequately competitive and will remain so indefinitely; (ii) such market concentration will give incumbent broadband providers both the incentive and the ability to discriminate against specific applications providers; (iii) such discrimination would harm *consumers* and not just particular *providers*; and (iv) any such consumer harm would exceed the costs of regulatory intervention. In short, the net neutrality debate, properly conceived, is fundamentally about core antitrust concepts: about market power, market failures, market definition, and the costs and benefits of government intervention in a rapidly evolving, high-technology market.

That observation underscores the central question of this article: Why shouldn't this constellation of antitrust-oriented disputes be handled by an agency that specializes in applying rigorous antitrust analysis across multiple industries, rather than an agency that has been devoted for 75 years to legacy monopoly regulation of one industry and is subject to infinitely malleable “public interest” mandates? There is of course nothing novel about that question.⁵⁹ For much of the final quarter of the twentieth century, telecommunications competition policy in the United States *was* dominated by a generalist antitrust agency—the Department of Justice, which had persuaded Judge Harold Greene that

NATURAL EXPERIMENTS IN U.S. BROADBAND REGULATION (GEORGE MASON UNIV. LAW AND ECONOMICS RESEARCH PAPER SERIES, No. 08-04, 2007), http://www.law.gmu.edu/assets/files/publications/working_papers/08-04%20Natural%20Experiments.pdf.

58. See, e.g., LAWRENCE LESSIG, *THE FUTURE OF IDEAS: THE FATE OF THE COMMONS IN A CONNECTED WORLD* 147-76 (2002).

59. See PETER HUBER, *LAW AND DISORDER IN CYBERSPACE: ABOLISH THE FCC AND LET COMMON LAW RULE THE TELECOSM* (1997) (arguing for antitrust enforcement rather than prescriptive regulation); PETER HUBER ET AL., *FEDERAL TELECOMMUNICATIONS LAW*, 402-03 (2d ed. 1999) (same); see generally Dennis Carlton & Randal Picker, *Antitrust and Regulation* (NBER Working Paper No. 12902, 2007), <http://www.nber.org/papers/w12902.pdf>.

the FCC was incompetent for the task.⁶⁰ DoJ not only forced the break-up of AT&T in the early 1980s, but then presided over the implementation of an elaborate, competition-oriented consent decree for the next dozen years.

Of course, Congress dramatically altered that regime when, in the Telecommunications Act of 1996, it abolished the consent decree and gave the FCC a sweeping new mandate to oversee competitive conditions in telecommunications markets.⁶¹ That legislation marginalized not only DoJ's role but the role of antitrust law in general. In its 2004 *Trinko* decision, the Supreme Court limited the availability of antitrust remedies in this industry partly because it found that "the additional benefit to competition provided by antitrust enforcement will tend to be small" when Congress has created "a *regulatory* structure designed to deter and remedy anticompetitive harm."⁶² Similarly, in its 2007 *Credit Suisse* decision, the Supreme Court held that the securities laws, together with comprehensive regulation by the Securities and Exchange Commission, implicitly bar application of the antitrust laws to certain types of underwriting practices.⁶³ Although interpretations vary, these two decisions suggest that, as prescriptive regulation of a field waxes, antitrust enforcement must wane. In effect, the 1996 Act, together with the *Trinko* and *Credit Suisse* cases, has turned the pre-1996 regulatory scheme upside down. Whereas DoJ once displaced the FCC in the field of telecommunications competition, the FCC's current ascendancy has sharply curtailed the role of traditional antitrust enforcement.

We should now revisit the merits of this policy switch. The point here is not so much that Congress made the wrong choice in 1996 when it subordinated antitrust enforcement to prescriptive regulation, although it arguably did. Instead, my point relates more specifically to a net neutrality debate that was essentially unanticipated in 1996. Substantive antitrust principles already squarely address the "vertical leveraging" concerns underlying net neutrality advocacy. *Whatever* agency confronts that debate will necessarily be applying those antitrust principles one way or another, whether in the context of after-the-fact enforcement actions, prescriptive rulemaking proceedings, or some hybrid of the two, such as the creation of enforcement "safe harbors." We should keep that point in

60. See *United States v. AT&T Co.*, 552 F. Supp. 131, 168 (D.D.C. 1982).

61. Pub. L. No. 104-104, 110 Stat. 56 (1996) (codified in scattered sections of 47 U.S.C.).

62. *Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 412 (2004) (emphasis added). Of course, that basis for caution in the judicial application of antitrust law would be absent if the FCC were deemed to lack jurisdiction over a given regulatory area.

63. *Credit Suisse Sec. (USA) LLC v. Billing*, 127 S.Ct. 2383, 2387 (2007).

mind when considering whether to assign the net neutrality inquiry to generalist antitrust enforcement authorities or instead to industry-specific non-antitrust-oriented regulators.

II. AVOIDING ADMINISTRATIVE REDUNDANCY IN OVERSIGHT OF THE BROADBAND MARKET

Three federal agencies—DoJ, the FCC, and the FTC—are theoretically equipped to address net neutrality disputes, and the FCC and the FTC have already taken steps to assert jurisdiction in this area, as discussed below. But both the FCC and the FTC, and much of the industry itself, appear oblivious to the risk that, by simultaneously exercising such jurisdiction, these two agencies could duplicate each other's efforts in highly inefficient ways, and that the ensuing regime would deepen regulatory uncertainty and systematically err on the side of excessive intervention. Let us briefly recount how we arrived at this point, first by examining the FCC's net neutrality initiatives and then turning to the FTC's parallel initiatives.

A. *The FCC's Net Neutrality Initiatives*

The FCC first explicitly addressed the issue of net neutrality in its *Policy Statement* of 2005.⁶⁴ As discussed, the *Policy Statement* adopted several "principles" (not binding rules) exhorting each broadband provider to maintain its customers' access to the Internet applications and content of their choice, subject to the needs of law enforcement and sound network management. As noted, the FCC has considered, to date, two significant allegations that broadband providers have violated these principles. The first—the *Madison River* matter—actually predated the issuance of the *Policy Statement*. There, a small rural telephone company was accused of blocking the ports used for VoIP services; the FCC opened an enforcement proceeding; and the telephone company quickly capitulated by settling the matter for a nominal fee.⁶⁵ That settlement precluded the FCC from having to explain the source, if any, of its regulatory authority to bring this enforcement action. More recently, the FCC has concluded that Comcast unlawfully blocked or degraded a type of peer-to-peer file-sharing technology (BitTorrent) without adequate justification.⁶⁶

Both the *Madison River* and *Comcast* proceedings involved alleged violations of the anti-blocking principle. In 2007, the FCC separately issued a *Notice of Inquiry* into whether it should impose more general

64. See *FCC Broadband Policy Statement*, *supra* note 15 and accompanying text.

65. See *supra* note 17 and accompanying text.

66. See *supra* notes 21-26 and accompanying text.

nondiscrimination rules on broadband providers as well, particularly in the area of access tiering.⁶⁷ The *Notice* was remarkably brief, given the complexity of the subject matter, and most industry analysts concluded that the Commission issued it only half-heartedly, in response to political pressure, and that it had no interest in resolving the issue before the end of the Bush administration. Indeed, Republican Commissioner Robert McDowell, then considered a swing vote on network access issues, issued a separate statement expressing skepticism that net neutrality advocates had yet demonstrated any market failure warranting government intervention.⁶⁸ And as of this writing, the Commission has taken no action on this set of access-tiering issues, even as it has moved aggressively to censure Comcast for its purported violation of the anti-blocking principle.⁶⁹

One of the great unanswered questions presented by the *Notice* and the Commission's later-issued *Comcast Order* is whether the FCC has existing authority to issue net neutrality rules in general and "nondiscrimination" rules in particular. The reason for this uncertainty relates to the Commission's own decision to remove broadband services from the ambit of its explicit authority to regulate common carriers. In *Brand X*, the Supreme Court upheld the FCC's determination that broadband Internet access should be characterized as an "information service" without a "telecommunications service" component within the Communications Act's arcane vocabulary.⁷⁰ Because a telecommunications provider "shall be treated as a common carrier under this Act only to the extent that it is engaged in providing telecommunications services,"⁷¹ the upshot of the *Brand X* ruling is that broadband providers fall outside the FCC's Title II authority to regulate the rates, terms, and conditions of "common carriers."⁷² In a string of recent orders, the FCC has fully embraced that conclusion, reasoning that the broadband access market is dynamic and competitive enough that common-carrier-type ("economic") regulation would do more harm than good. For example, in its *Wireline Broadband Order* of 2005, the Commission extended the deregulatory policies it had applied to cable modem services in 2002 and concluded that continued application of common carrier regulation to *any* broadband access providers, including

67. Broadband Industry Practices, *Notice of Inquiry*, 22 FCC Rcd. 7894 (2007).

68. *Id.* at 7909 (Statement of Commissioner Robert M. McDowell) ("For those who fear or allege market failure, this NOI gives them an opportunity to present detailed evidence, of which we have none, thus far.").

69. *See supra* notes 21-26 and accompanying text

70. 545 U.S. at 977-78.

71. 47 U.S.C. § 153(44) (2000).

72. Title II of the Communications Act of 1934, as amended, appears at 47 U.S.C. §§ 201-231.

traditional telephone companies, would serve no purpose beyond the destruction of healthy investment incentives.⁷³ On that basis, the Commission categorically exempted broadband providers from the “nondiscrimination” rules it had imposed, in the *Computer Inquiry* proceedings,⁷⁴ to govern the dealings of wireline broadband carriers with unaffiliated ISPs.

Because broadband Internet access services fall outside the scope of Title II, the FCC may now regulate them only under its residual “Title I” authority.⁷⁵ But the scope of that authority is uncertain. In relevant part, Title I merely codifies Congress’s original decision to create the FCC “[f]or the purpose of regulating interstate and foreign commerce in communication by wire and radio”⁷⁶ and authorizes the Commission to “perform any and all acts, make such rules and regulations, and issue such orders, not inconsistent with this Act, as may be necessary in the execution of its functions.”⁷⁷ It is unclear whether these highly abstract provisions will support the FCC’s *Comcast Order* or any future decision to impose common-carrier-style net neutrality rules. As a general matter, if the FCC wishes to adopt rules that no substantive provision of the Communications Act explicitly authorizes it to adopt, it may not simply assert jurisdiction on the ground that the regulated subject matter involves interstate “communication[s] by wire and radio.”⁷⁸ Instead, any exercise of such jurisdiction “must be ‘reasonably ancillary’ to other express provisions” in the Communications Act and “cannot be ‘inconsistent’ with other provisions of the Act.”⁷⁹ As the D.C. Circuit has explained, “[w]ere an agency afforded *carte blanche* under such a broad provision, irrespective of subsequent congressional acts that did not squarely prohibit action, it would be able to expand greatly its regulatory reach.”⁸⁰

Before it decided the *Comcast* proceeding, the FCC had concluded that it has authority to impose certain types of *non-economic* regulations on Title I broadband services, including “any consumer protection, network reliability, or national security obligation[s]” that relate to the FCC’s explicit jurisdiction under Title II to protect consumer privacy, ensure network access for the disabled, police “slamming” and fraudulent

73. See *Wireline Broadband Order*, *supra* note 9, ¶¶ 19, 44.

74. See *supra* note 7 and accompanying text.

75. See 47 U.S.C. §§ 151-161 (2000).

76. 47 U.S.C. § 151.

77. 47 U.S.C. § 154(i).

78. 47 U.S.C. § 151; see also 47 U.S.C. § 152(a).

79. *Motion Picture Ass’n of Am. v. FCC*, 309 F.3d 796, 806 (D.C. Cir. 2002); see also *FCC v. Midwest Video Corp.*, 440 U.S. 689, 700-09 (1979); *Am. Library Ass’n v. FCC*, 406 F.3d 689, 701 (D.C. Cir. 2005).

80. *Motion Picture Ass’n of Am.*, 309 F.3d at 806.

billing practices, and serve the needs of law enforcement.⁸¹ Then, in the *Comcast Order* itself, the FCC aggressively asserted Title I jurisdiction to resolve claims of unjustified suppression of disfavored applications or content.⁸²

It remains unclear, however, whether the FCC may impose common-carrier-type requirements on broadband providers under its interstitial Title I authority after concluding (with the Supreme Court's approval) that broadband providers do not provide "common carrier" services within the meaning of the Communications Act and should not be treated as though they do. Indeed, the Commission itself had previously cast doubt on whether it may take that step. In the *Wireline Broadband Order*, it concluded that "th[e] negative impact" that common carrier regulation of broadband services would have on deployment and innovation would be "particularly troubling in view of Congress' clear and express policy goal of ensuring broadband deployment, and its directive that we remove barriers to that deployment. . . ."⁸³

In short, the Commission could lawfully impose "nondiscrimination" requirements on broadband providers only if, at a minimum, it first develops a compelling empirical basis for concluding that it has erred in repeatedly concluding that economic regulation of broadband services would disserve Congress's objectives. Like any reversal of course by an administrative agency, this one would likely receive a heightened degree of judicial scrutiny.⁸⁴ Comcast and the agency's other opponents will also contest the Commission's conclusion that its forays into this area are "reasonably ancillary to" the Commission's explicit statutory responsibilities.⁸⁵ Ultimately, however,

81. *Wireline Broadband Order*, *supra* note 9, ¶¶ 109-110.

82. *Comcast Order*, *supra* note 22, ¶¶ 12-27. The Commission relied heavily on *dicta* in *Brand X* that seemed to endorse the Commission's jurisdictional conclusion (*see id.* ¶ 14), although the Supreme Court plainly had not focused on the issue. *See Brand X*, 545 U.S. at 996 (suggesting that "the Commission remains free to impose special regulatory duties on facilities-based ISPs under its Title I ancillary jurisdiction," while noting that the Commission "has invited comment on whether it can and should do so"). The Commission also relied on about half a dozen provisions of the Communications Act that, it claimed, its exercise of Title I authority was "ancillary" to, but its arguments as to each of these are subject to substantial debate. Challenges to the validity of these jurisdictional findings are teed up for review by the D.C. Circuit in Comcast's pending appeal of the *Comcast Order*. *See Comcast Corp. v. FCC*, No. 08-1291 (D.C. Cir., pet. for review filed Sept. 4, 2008).

83. *Wireline Broadband Order*, *supra* note 9, ¶ 44 (referring to Telecommunications Act of 1996, Pub. L. 104-104, § 706, 110 Stat. 56, 153 (codified at 47 U.S.C. § 157 note)); *see also id.* ¶¶ 19, 65-73.

84. *See Motor Vehicle Mfrs. Ass'n of United States, Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 41 (1983).

85. *Am. Library Ass'n*, 406 F.3d at 702 (FCC may impose Title I rules that are "ancillary to nothing"); *cf.* Philip J. Weiser, *Toward a Next Generation Regulatory Strategy*, 35 LOY. U. CHI. L.J. 41, 60-61 (2003) ("Unlike previous regulations based on its Title I authority, the FCC's potential regulation of access to broadband platforms does not neatly fit as 'reasonably

few meaningful standards govern disputes about the scope of the FCC's Title I "ancillary" jurisdiction. The only sure way to know whether an FCC assertion of such jurisdiction is valid is to await the outcome of whatever judicial challenge is brought to it.

B. The FTC's Net Neutrality Initiatives

In June 2007, the FTC concluded a much publicized year-long inquiry into net neutrality issues by adopting a "Staff Report" on its findings.⁸⁶ The Report canvassed the competing views and concluded that the Commission would adopt an essentially deregulatory wait-and-see approach. The Report found that the broadband Internet access industry is "young and dynamic" and is "moving in the direction of more, not less, competition, including fast growth [and] declining prices for higher-quality service. . . ."⁸⁷ The FTC further explained that "we are unaware of any significant market failure or demonstrated consumer harm from conduct by broadband providers."⁸⁸ And it warned that "[p]olicy makers should be wary of enacting regulation solely to prevent prospective harm to consumer welfare," both because there is no demonstrated need for such regulation and because "[i]ndustry-wide regulatory schemes—particularly those imposing general, one-size-fits-all restraints on business conduct—may well have adverse effects on consumer welfare. . . ."⁸⁹ Nonetheless, the FTC added that it would "continue to devote substantial resources to maintaining competition and protecting consumers in the area of broadband Internet access" and would "continue to enforce the antitrust and consumer protection laws in evaluating conduct and business arrangements involving [Internet] access" should any market failures arise.⁹⁰

Just as significant as the FTC's conclusion on the merits of net neutrality proposals, however, was the agency's assertion of authority to address those proposals in the first place. Formally adopting a position

ancillary' to the Commission's traditional statutory responsibilities. . . . [T]he FCC suggests that its general mandate to oversee 'advanced services' and pursue their rollout—as opposed to any specific authority over, say, voice telephone service—justifies its oversight of broadband transmission. This argument is both untested and quite novel, so it is unclear whether reviewing courts will accept it.").

86. FTC, STAFF REPORT: BROADBAND CONNECTIVITY COMPETITION POLICY (2007) [hereinafter FTC NET NEUTRALITY REPORT], <http://www.ftc.gov/reports/broadband/v070000report.pdf>. One of the FTC's five members (Commissioner Leibowitz) filed a short statement that was denominated a "concurrency" but seemed skeptical about some of the Report's key findings. Chairman Majoras and the other three commissioners approved the Report without further comment.

87. *Id.* at 10-11.

88. *Id.* at 11.

89. *Id.*

90. *Id.* at 12.

that top FTC officials had espoused before Congress,⁹¹ the FTC claimed—almost in passing—that it had full jurisdiction to regulate broadband providers if and when it ever changes its mind about the balance of policy concerns.⁹² This is an important and potentially controversial development, and it is worth exploring the basic contours of the FTC’s authority to regulate the telecommunications industry.

It was undisputed until recently that, at the federal level, the FCC exclusively occupied the field of commercial telecommunications regulation, supplemented only by the antitrust oversight of the Justice Department. The FTC has played little role in the development of this industry because, in 1914, Congress fenced off from the FTC’s jurisdiction the substantive subject areas assigned to other regulatory agencies.⁹³ Here, Section 5 of the Federal Trade Commission Act prohibits the FTC from exercising authority over “common carriers subject to the Acts to regulate commerce,”⁹⁴ a category that includes the later-enacted Communications Act of 1934.⁹⁵ In the *Net Neutrality Report*, however, the FTC contended that, because *Brand X* holds that broadband Internet access providers are not “common carriers,” this “common carrier exemption” no longer applies to the Internet access services those providers offer.⁹⁶ That conclusion is not, however, quite as straightforward as it sounds.

As discussed, *Brand X* upheld the FCC’s determination that broadband Internet access is an “information service” with no “telecommunications service” component.⁹⁷ And for purposes of the Communications Act, a “telecommunications carrier” (defined as a “provider of telecommunications services”) “shall be treated as a common carrier *under this Act* only to the extent that it is engaged in providing telecommunications services. . . .”⁹⁸ It does not inevitably follow, however, that broadband providers no longer qualify as “common

91. See, e.g., *Reconsidering Our Communications Laws: Ensuring Competition and Innovation: Hearing Before Senate Comm. On the Judiciary*, 109th Cong. (June 14, 2006) (testimony of William E. Kovacic, Commissioner, Federal Trade Comm’n), http://judiciary.senate.gov/hearings/testimony.cfm?id=1937&wit_id=5415.

92. FTC NET NEUTRALITY REPORT, *supra* note 86, at 38, 43-47.

93. See generally *id.* at 38-42.

94. 15 U.S.C. § 45(a)(2) (2006).

95. See 15 U.S.C. § 44 (2006).

96. FTC NET NEUTRALITY REPORT, *supra* note 86, at 38, 43-47.

97. For the key underlying FCC orders on this statutory characterization issue, see Inquiry Concerning High-Speed Access to the Internet Over Cable & Other Facilities, *Declaratory Ruling & Notice of Proposed Rulemaking*, 17 FCC Rcd. 4798, 4821-22 (2002), *aff’d*, *Brand X*, 545 U.S. 967; *Wireline Broadband Order*, *supra* note 9.

98. 47 U.S.C. § 153(44) (emphasis added). In light of this and similar provisions, the FCC has concluded that “the term ‘telecommunications carrier’ . . . means essentially the same [thing] as common carrier” for purposes of the Communications Act. *Virgin Islands Tel. Corp. v. FCC*, 198 F.3d 921, 926 (D.C. Cir. 1999) (some internal quotation marks omitted).

carriers” for purposes of *the FTC Act*.⁹⁹ As the Second Circuit has indicated, the “common carrier exemption” in the FTC Act is to be construed not by reference to other statutes, but on its own terms, according to its “ordinary sense . . . when Congress . . . create[d] the exemption” in the FTC Act in 1914.¹⁰⁰ And there is in particular “no statutory basis for . . . concluding” that “the correct definition for ‘common carrier’ under the FTC Act is found in the Communications Act.”¹⁰¹ Thus, whether broadband Internet access providers should be deemed “common carriers” exempt from the FTC’s jurisdiction is a question that *Brand X* itself—and the FCC scheme it upholds—do not automatically resolve. The question turns instead on whether Internet access services exhibit the common law characteristics of “common carriage.” And the Communications Act definition of the term does not necessarily track the common law heritage.

To the contrary, the FCC has adopted a specialized definition for the term that, for policy reasons, is narrower than the common law definition in one key respect. The traditional definition of “common carrier” focuses simply on whether a provider “holds himself out to serve indifferently all potential users.”¹⁰² This traditional definition could have been construed to encompass many providers of “enhanced services” (the forerunners of today’s Internet access services) because those services were in fact often sold on standardized terms to the public at large—as many consumer broadband services are still today. When it addressed the issue in the 1980s, the FCC wished to avoid that outcome for purposes of implementing the Communications Act, because it sought to insulate the fledgling class of enhanced service providers from the compulsory “economic regulation” that Title II of that Act then automatically imposed on all “common carriers.”¹⁰³ The FCC thus tweaked the

99. Cf. FTC NET NEUTRALITY REPORT, *supra* note 86, at 38 (arguing that, although “the FTC’s enforcement authority under the FTC Act does not reach ‘common carriers,’ . . . [a]n entity is a common carrier . . . only with respect to services that it provides on a common carrier basis,” citing 47 U.S.C. § 153(44)).

100. *FTC v. Verity Int’l, Ltd.*, 443 F.3d 48, 58 (2d Cir. 2006).

101. *Id.* The FTC’s contrary assumption is reminiscent of the claim, rejected by the D.C. Circuit, that the term “telecommunications carrier” has the same narrow meaning in the Communications Assistance for Law Enforcement Act (CALEA) that it has in the Communications Act, as interpreted in *Brand X*. See *Am. Council on Educ. v. FCC*, 451 F.3d 226, 232 (D.C. Cir. 2006). As the D.C. Circuit held, that argument “falls apart because CALEA and the Telecom Act are different statutes, and *Brand X* was a different case.” *Id.*

102. *Nat’l Ass’n of Regulatory Util. Comm’rs v. FCC*, 533 F.2d 601, 608 (D.C. Cir. 1976) [hereinafter *NARUC*].

103. See, e.g., *Amendment of Section 64.702 of the Commission’s Rules and Regulations*, Final Decision, 77 F.C.C.2d 384, ¶ 123 (1980) [hereinafter *Second Computer Inquiry*] (“Admittedly, vendors of enhanced services also have the ability, if they so desire, to provide these services on an indiscriminate basis. Presumably, some do. But ‘this is not a sufficient basis for imposing the burdens that go with common carrier status.’”). The FCC would not face the same

definition of “common carrier” a bit to avoid that outcome. It added “[a] second prerequisite to common carrier status ... with peculiar applicability to the communications field”—namely, whether the provider allows customers to “transmit intelligence of their own design and choosing,”¹⁰⁴ a criterion that, the Commission found, excludes data-processing-based services such as broadband Internet access.¹⁰⁵ When Congress amended the Communications Act in 1996, it essentially codified the FCC’s approach by enacting a distinction between “telecommunications services” (i.e., common carrier services) and “information services” (i.e., enhanced services).¹⁰⁶ For this policy-laden reason, the Communications Act regime treats broadband Internet access as an “information service”—and thus *not* as a “common carrier” service—whether or not the service is offered indiscriminately to the public, and whether or not it would qualify as a “common carrier” service under the traditional definition.

That is reason enough to hesitate before concluding that a carrier falls outside the “common carrier exemption,” and thus inside the FTC’s jurisdiction, simply because it does not qualify as a common carrier under federal telecommunications law. So long as the FCC continues asserting its own authority in this area, moreover, the FTC’s jurisdictional ambitions seem potentially at odds with the animating purpose of the common carrier exemption—a “traditional policy of dividing regulatory responsibilities along industry lines,”¹⁰⁷ and of “preventing [the] interagency conflict[s]” that would arise if the FTC began regulating industries that are already subject to the comprehensive regulatory authority of specialized agencies such as the FCC.¹⁰⁸ There is obviously some tension between that purpose and the FTC’s conclusion that both it “and the FCC share jurisdiction over broadband Internet access, with each playing an important role in protecting competition and consumers in this area.”¹⁰⁹ Without any clear division of responsibilities between those two agencies, this amorphous and redundant jurisdictional scheme seems like precisely the outcome Congress sought to avoid. Of course, such redundancy concerns would be allayed to the extent that, for the reasons discussed in Part II.A above, the FCC is found to lack Title I authority to impose economic regulation on broadband providers.

conundrum today, because in the 1996 Act, Congress enabled the Commission to “forbear” from legacy requirements that no longer make sense. See 47 U.S.C. § 160 (2000); *cf.* MCI Telecomms. Corp. v. AT&T, 512 U.S. 218 (1994).

104. *NARUC*, 533 F.2d at 609.

105. See generally *Brand X*, 545 U.S. at 977-79.

106. 47 U.S.C. § 153(20), (46).

107. *FTC v. Miller*, 549 F.2d 452, 459 (7th Cir. 1977).

108. *Verity Int’l*, 443 F.3d at 57; see also *Miller*, 549 F.2d at 457.

109. FTC NET NEUTRALITY REPORT, *supra* note 86, at 11.

C. *The Case Against Regulatory Redundancy*

In sum, there are non-trivial legal obstacles to the jurisdiction of either the FCC or the FTC to impose, under current law, common-carrier-style “net neutrality” obligations on broadband Internet access providers. No matter what position one takes about net neutrality on the merits, these open jurisdictional questions are unfortunate, because regulatory uncertainty is toxic for this uniquely dynamic industry.

There are two ways to resolve that uncertainty. One is to let the courts sort it out. The obvious disadvantage of that approach is that the courts have a dismal track record in bringing such disputes to a prompt and efficient resolution.¹¹⁰ The second option is for Congress to clarify precisely who does, and who does not, have authority to address the antitrust-oriented concerns at the heart of net neutrality proposals. In principle, this is the preferred solution, and there is cause for guarded optimism that Congress will indeed step in. Comprehensive reform of telecommunications law is long overdue, in part because, when Congress passed the Telecommunications Act of 1996, it did not foresee how much broadband Internet access would revolutionize every facet of the telecommunications industry.¹¹¹ And the FTC has recently ratcheted up its longstanding efforts to persuade Congress to repeal the common carrier exemption outright, in order to remove any uncertainty about its authority to remedy antitrust and consumer-protection violations in the Internet access market.¹¹²

My main objective here is to consider *how* Congress should divide up regulatory jurisdiction for net neutrality disputes *if* Congress addresses that issue. Part III below argues for a particular division of jurisdiction that reflects various pragmatic and public choice concerns. But I must first address a threshold question: whether there is any need to divide up jurisdiction in the first place, given the stated intentions of both the FCC and the FTC to maintain a key oversight role in this area. Would it be problematic if, as the FTC proposes, “the federal antitrust agencies, the FTC and DoJ, and the FCC share jurisdiction over broadband Internet access, with each playing an important role in protecting competition and consumers in this area,”¹¹³ but *without* any clear statutory division of labor? Suppose, for example, that for the foreseeable future, the FTC and the FCC, both purporting to apply basic competition law principles, examine the same industry practices and make independent determinations about which practices require government intervention

110. See Nuechterlein & Weiser, *supra* note 4, at 421-22.

111. *Id.* at 407-11.

112. See FTC NET NEUTRALITY REPORT, *supra* note 86, at 41 & n.176.

113. *Id.* at 11.

and which do not. Would that be a problem?

Indeed it would be a problem, and not just for the obvious reason that bureaucratic duplication wastes taxpayer dollars. More fundamentally, such duplication would imperil consumer welfare by systematically increasing both regulatory uncertainty and the risk of regulatory overreaching.

Let's first address the uncertainty concern. Both the FCC and the FTC are independent, multi-member agencies characterized by political intrigue and chronic delay (although, to be fair to the FTC, the FCC is the more intrigue-ridden of the two agencies). Permitting these separate institutions to conduct drawn-out, highly consequential proceedings in parallel, on the same set of issues but with potentially conflicting outcomes, would exacerbate the regulatory indeterminacy that has beset the telecommunications industry for the past ten years. I have previously argued that the federal government should more aggressively preempt state-level telecommunications regulation *not* because states are less likely than the federal government to make good decisions on the merits, but because state regulation adds a new layer of regulatory uncertainty to the industry, making capital investments riskier than they would otherwise be and thereby deterring welfare-maximizing investments on the margin.¹¹⁴ For similar reasons, one federal agency—not two—should have authority to resolve any given net neutrality dispute.

Second, jurisdictional duplication would almost inevitably distort the federal government's substantive decisionmaking in favor of inefficient over-regulation. That follows as a matter of both logic and *Realpolitik*. I will address the logical point first.

Any regulatory decision about whether to intervene in a market involves a cost-benefit analysis, in which the regulator weighs the perceived benefits of intervention against the short-term and long-term costs, including the costs of unintended consequences. That weighing of competing values is inherently subjective and will necessarily produce, some percentage of the time, what will turn out later to have been errors of commission and omission: cases where, in hindsight, an agency intervened in the market but should not have ("false positives") and cases where it did not intervene but should have ("false negatives"). Public choice theorists might argue about whether a *single* agency, acting alone, is more likely to commit false positives (because it overvalues the short-term benefits of intervention and undervalues the long-term costs) or false negatives (because the major corporate targets of regulation can

114. See Jonathan E. Nuechterlein, *Incentives to Speak Honestly About Incentives: The Need for Structural Reform of the Local Competition Debate*, 2 J. TELECOMM. & HIGH TECH. L. 399 (2003).

bring powerful political pressure to bear in favor of their own deregulatory objectives).¹¹⁵ For immediate purposes, however, I will assume that each agency will produce approximately the same basic quantum of false positives and false negatives.

Now suppose that Congress assigns oversight of a given subject matter to *two* peer federal agencies, neither of which has the explicit power to veto the other's decisions. The logical result will be a systematic skewing of results in favor of false positives (i.e., overregulation). That is because, even if one assumes a random distribution of false positives and false negatives, each agency can "correct" the other's false negatives simply by intervening in the market when the other has declined to do so, whereas neither can "correct" the other's false positives. If one agency concludes that the benefits of regulation outweigh the costs and the other reaches precisely the opposite conclusion, the first, pro-regulation agency will "win" the dispute, because the anti-regulation agency can do nothing to stop the first agency from intervening in the market. Figure 1 illustrates the problem (in a simplified form) by highlighting what happens in the four basic scenarios that can arise when two peer agencies are presented with a binary choice between intervention and reliance on the free market.

FIGURE 1: INTERVENTION AND THE MARKET

| | Agency 2: Intervene | Agency 2: Free Market |
|--------------------------|------------------------|--------------------------|
| Agency 1: Intervene | Intervene | Intervene |
| Agency 1: Free Market | Intervene | Free Market |

In short, where two peer agencies exercise redundant jurisdiction, the government (writ large) will intervene frequently in the market, even though, in a range of cases, one of the two government decisionmakers will have concluded that intervention is inappropriate and harmful.

115. Compare Daryl J. Levinson, *Empire-Building Government in Constitutional Law*, 118 HARV. L. REV. 915 (2005), with WILLIAM A. NISKANEN, JR., BUREAUCRACY AND REPRESENTATIVE GOVERNMENT 36-42 (1971).

This problem arises only when agencies are “peers” in the sense that, if one acts, the other cannot stop it. Significantly, the same problem does not arise when Congress assigns concurrent jurisdiction to the FCC and *state* regulators over the same subject matter. In that context, whenever the FCC makes a discrete policy judgment about the relative costs and benefits of regulatory intervention, that judgment binds the states, whether the judgment comes out for or against such intervention. Indeed, that is a staple of federal preemption law. As the Supreme Court decided in *Geier v. American Honda Motor Co.*, a federal agency’s decision not to impose given regulatory obligations on an industry, if that decision reflects a substantive judgment that regulation is inappropriate, can preempt the states from imposing similar obligations even when the federal agency does not expressly announce an intent to preempt.¹¹⁶

To this point, I have addressed the concerns about duplicative peer-agency jurisdiction in the abstract. But the nature of the net neutrality debate only intensifies those concerns. As a glance at SavetheInternet.com makes clear, popular advocacy for net neutrality regulation is emotional and Manichean: it portrays the issues as a war of good (edge providers) against evil (access providers), with barely a nod to the complex economic trade-offs at stake. That advocacy is often uncritically accepted by the popular media, and it has surfaced, largely unfiltered by economic nuance, into popular political discourse.¹¹⁷ If it becomes official policy, even the most conscientious regulators will err on the side of market intervention in close cases, because no administration wishes to seem indifferent to the core agendas of its main constituencies.

For that reason, false positives could proliferate even if only one federal agency had responsibility for resolving net neutrality disputes. That is reason enough to limit to one the number of peer agencies with jurisdiction over the dispute, because the bias toward inefficient over-regulation would be even greater if each of two federal agencies were competing to show its greater fidelity to this constituency’s agenda (and, as noted, if each had effective veto power over the other’s false negatives but not false positives). It is also, as I discuss below, a key reason to assign responsibility for this emotionally charged field to a generalist agency that does not focus exclusively on one industry and is thus less subject to capture by interest groups. In all events, the *least* attractive of the institutional options is the one the FCC and the FTC implicitly advocate: a regime in which each agency shares concurrent jurisdiction over the same subject matter.

Conceivably, the two agencies could mitigate these concerns by

116. 529 U.S. 861 (2000).

117. See *supra* note 2 and accompanying text.

negotiating an effective division of their respective responsibilities into non-overlapping spheres of responsibility. But there is little basis for optimism on this score. True, the FTC and DoJ have long avoided duplication through a series of bilateral agreements that allocate oversight of specified industries to one agency or the other.¹¹⁸ These “clearance agreements” can be contentious, and they require continuous renegotiation as the boundaries between industries shift with changing economic conditions. But the process usually manages in practice to avoid redundant antitrust oversight by both the FTC and DoJ. The FCC, too, has occasionally agreed to let the FTC take exclusive responsibility for certain consumer-protection issues that are technically within both agencies’ jurisdiction but seem more appropriately handled by consumer-protection officials than by telecommunications regulators.¹¹⁹

But there is no reason to expect that either the FTC or the FCC would cede jurisdiction to the other agency over core net neutrality disputes. As illustrated most prominently by the FTC’s *Net Neutrality Report*, all of the FTC’s public statements suggest an eagerness to play a key role in shaping competition policy for the Internet in response to any perceived market failures. The FCC is similarly disposed to play such a role; indeed, pointing to the legacy of the *Computer Inquiry* rules, the Commission has long viewed itself as the Internet’s nurturer-in-chief.¹²⁰ Neither of these agencies would likely abandon the glamour of this field in deference to the other’s greater “expertise.” Any limitation on either agency’s power would have to come from jurisdictional limitations in existing or future legislation.

III. LEAVING ANTITRUST DISPUTES TO THE ANTITRUST AUTHORITIES

In Part I, I explained why net neutrality disputes are, at bottom, disputes about the proper application of core antitrust principles in this particularly volatile market setting. In Part II, I explained why only one federal agency, rather than two, should have responsibility for resolving

118. See generally Lauren Kearney Peay, Note, *The Cautionary Tale of the Failed 2002 FTC/DOJ Merger Clearance Accord*, 60 VAND. L. REV. 1307 (2007).

119. See, e.g., *Rules and Regulations Implementing the Telephone Consumer Protection Act of 1991*, Annual Report on the Do-Not-Call Registry, 20 FCC Rcd. 14,306, ¶ 15 (2005) (ceding portion of responsibility for “do not call registry” to FTC); *Elimination of Unnecessary Broadcast Regulation*, 50 Fed. Reg. 5583, ¶ 7 (Mar. 14, 1985) (“The FTC is the agency with expertise in determining whether an advertisement is false or misleading.... Our limited resources can more effectively be devoted to other endeavors where our expertise is critical to protecting the public interest.”).

120. See, e.g., Federal-State Joint Board on Universal Service, *Report to Congress*, 13 FCC Rcd. 11,501, ¶¶ 46-48, 95 (1998).

those disputes. The final question now arises: which agency?

A. The Advantages of Perspective

There are three major contenders for this role: the FCC, the FTC, and the Antitrust Division of the Department of Justice. The FCC and FTC have both already asserted jurisdiction over this area, and DoJ, which has traditionally exercised antitrust oversight of the telecommunications industry, oversaw the breakup of the Bell System in 1984 and administered the ensuing consent decree until 1996. The threshold choice is between (i) an *antitrust* agency with general jurisdiction over *multiple economic sectors* (the FTC or DoJ) and (ii) a *non-antitrust* agency with specific jurisdiction over *one economic sector* (the FCC). For several reasons, the first of these institutional options seems preferable to the second, at least as a means of resolving net neutrality disputes.

Today's net neutrality debate is a study in rhetorical ugliness. What it badly needs, if it is to be resolved properly, is a referee inclined towards calm objectivity and a rigorous adherence to economic principle. In other words, it needs analytical perspective, a greater detachment from political forces, and an expertise in addressing the type of complex antitrust issues presented here. And the FCC is less equipped to deliver on those aspirations than either of the two antitrust agencies.¹²¹

DoJ and the FTC have gained invaluable perspective on competition disputes by exercising, between them, oversight of the entire American economy. That perspective allows them to keep their eyes on dispassionate analysis and diminishes the significance of lobbyists for particular interest groups. When confronted with a dispute about whether a large firm's business practices are "fair," their first response tends to be: "what type of competition dispute is presented here, and how does antitrust law frame the analysis for such disputes?"¹²² Obviously, in answering that question, the FTC and DoJ may be subject

121. For other perspectives on this institutional choice, see, e.g., PROGRESS & FREEDOM FOUND., DIGITAL AGE COMMUNICATIONS ACT: REPORT OF THE WORKING GROUP ON INSTITUTIONAL REFORM (RELEASE 1.0) (2006), <http://www.pff.org/issues-pubs/books/061114dacainstitutionalreform1.0.pdf>; Christopher S. Yoo, *What Can Antitrust Contribute to the Network Neutrality Debate?*, 1 INT'L J. OF COMM'N 493 (2007); *Reconsidering Our Communications Laws: Ensuring Competition and Innovation*, 109th Cong. (2006) (testimony of Raymond L. Gifford), http://www.pff.org/issues-pubs/testimony/060616gifford_com.pdf; see also Weiser, *Next Frontier*, *supra* note 3.

122. See, e.g., Blair Levin et al., *XM-Sirius: Closer to a Toss-Up Than on Life Support*, WASHINGTON TELECOM, MEDIA & TECH INSIDER, May 4, 2007, at 3 (congressional pressures "don't usually sway DOJ [antitrust] officials, who are focused on internal company documents, confidential conversations with customers and suppliers, and economic studies for their evidence").

to any number of biases, but they are at least asking the right question. In contrast, the FCC tends to focus on other questions. First, because it is responsible only for a single economic sector, it must answer permanently and exclusively to a relatively narrow cast of market actors and their congressional allies. As Dennis Carlton and Randal Picker explain: “[A]ntitrust says no very well, while regulators often have a hard time saying no. Area-specific regulation through special agencies gives rise to the fear that the regulators will be captured by the regulated industry (or other interest groups). . . . Regulators won’t say no often enough to proposals that benefit special interests.”¹²³ Thus, when presented with a competition dispute, the FCC tends to focus heavily on a political question: “how can we reach a compromise that will expose us to the least political damage?”¹²⁴ The answer to that question is unlikely to correspond closely with what antitrust practitioners would consider the optimal economic answer.

Second, the FCC’s narrow focus on a single industry creates incentives for the agency to keep itself relevant by erring on the side of market intervention in close cases. Consider an analogy. One of the main criticisms of the federal independent counsel law was that a prosecutor hired to investigate just one set of potential defendants has perverse incentives to indict those defendants for marginal offenses that do not genuinely warrant indictment, because otherwise the prosecutor must conclude that his once high-profile job was unimportant and should be eliminated.¹²⁵ The advantage of generalist U.S. Attorney’s offices—and

123. Carlton & Picker, *Antitrust and Regulation*, *supra* note 59, at 2. The authors add: “federal judges are genuinely independent (or, at least, more so than regulators) and the docket of the federal judiciary is completely general. A general antitrust statute, implemented by independent federal judges—limited to issues within their competence—can protect the competitive process, especially with the rise of economic reasoning in antitrust.” *Id.*

124. Judge Richard Posner eloquently captured this point by describing one set of FCC rules as “unprincipled compromises of Rube Goldberg complexity among contending interest groups viewed merely as clamoring suppliants who have somehow to be conciliated.” *Schurz Commc’ns, Inc. v. FCC*, 982 F.2d 1043, 1050 (7th Cir. 1992). The same could be said of many other FCC decisions. *See, e.g.*, Nuechterlein & Weiser, *supra* note 4, at 107-08, 426-27.

125. As the D.C. Circuit explained in its (ultimately reversed) decision invalidating the law on separation-of-powers grounds:

A person occupying this statutory office has, it seems to us, unique incentives to seek an indictment. Our concern is based on the self-evident proposition that the whole *raison d’etre* of the independent counsel is not to administer the criminal law across a wide population, but rather to focus on one individual or group of individuals targeted at the inception of the office. In effect, an entire self-sufficient government agency is created from scratch to investigate and perhaps prosecute a single individual. The need to justify even the expense of an office dedicated solely to one goal must generate a reluctance to decide against indictment or to conclude the investigation absent near certainty that no indictment is possible or that no further leads remain. And inevitably, the success of the office itself, in the public’s eyes, at least, must turn to some extent upon whether indictment and conviction are

the advantage of generalist antitrust enforcement agencies—is that they must and do focus their limited resources on prosecuting only serious offenses that genuinely warrant government action. The FCC lacks that advantage because, like an independent counsel, it has limited jurisdiction confined to a specific set of controversies. Thus, whereas DoJ and the FTC must ask, “which competition offenses across the economy threaten the greatest harm to consumer welfare?”, the FCC too often asks, “what do we need to do in order to remain important players in the telecommunications industry?” Here, too, the answer to that question will often diverge from the answer that would best serve long-term consumer welfare.

This difference in institutional perspectives is reinforced by the distinct statutory standards these agencies are required to apply. When they address competition disputes, DoJ and the FTC are more or less bound by the antitrust laws and by court precedents applying those laws.¹²⁶ They cannot generally hold an economic actor liable for aggressive business practices unless they have support from objective principles honed during decades of antitrust enforcement. Antitrust law thus anchors the activities of those agencies to economic principles tested over time and studied in a variety of markets.

In contrast, the FCC is often subject only to the loosest of statutory standards—for example, an obligation to serve “the public interest” or “the public convenience and necessity.”¹²⁷ Such “standards,” however, are

obtained.

In re Sealed Case, 838 F.2d 476, 509-510 (D.C. Cir. 1988) (footnote omitted), *rev'd*, *Morrison v. Olson*, 487 U.S. 654 (1988).

126. I say “more or less” because, in a recent 3-2 decision, the FTC reasserted a long-dormant authority to issue cease-and-desist orders against business practices the Commission deems “unfair methods of competition” under Section 5 of the FTC Act, 15 U.S.C. § 45(a)(1) (2006), even when a given practice “does not infringe either the letter or the spirit of the antitrust laws.” *Negotiated Data Solutions LLC*, 73 Fed. Reg. 5846, 5847-48 [hereinafter *N-Data*] (quoting *FTC v. Sperry & Hutchinson Co.*, 405 U.S. 233, 239 (1972)). Chairman Deborah Majoras dissented on the grounds that the Commission had previously limited its invocation of this Section 5 authority for the most part “to matters in which respondents took actions short of a fully consummated [Sherman Act] Section 1 violation (but with clear potential to harm competition), such as invitations to collude”; that this limiting principle conforms to “the scholarly consensus that finds the Sherman and Clayton Acts, as currently interpreted, to be sufficiently encompassing to address nearly all matters that properly warrant competition policy enforcement,” and that grounding Section 5 authority in antitrust doctrine is necessary to accommodate “the insistence of the appellate courts that the Commission’s discretion is bounded and must adhere to limiting principles.” *Id.* at 5843 (dissenting statement of Chairman Majoras) (citing *E.I. du Pont de Nemours & Co. v. FTC*, 729 F.2d 128, 138-40 (2d Cir. 1984)). Time will tell how broadly the FTC tries to apply this Section 5 authority and whether it will try to apply that authority to standard exclusionary-conduct (and related) claims typically asserted under Section 2 of the Sherman Act.

127. *See, e.g.*, 47 U.S.C. §§ 201(b), 214(c), 309(a), 310(d) (2000); *see also* Applications of Nynex Corp., Transferor, and Bell Atlantic Corp. Transferee, *Memorandum Opinion & Order*,

conceptually empty and permit a wide range of outcomes, depending on the inclinations of whoever is in power. This malleability in the FCC's governing statute unmoors the Commission from time-tested economic analysis and exacerbates its susceptibility to expedient political compromise.¹²⁸ Similarly, whereas the FTC and DoJ are generally bound by judge-made antitrust precedent, the FCC has greater legal freedom to intervene more extensively in the market than is optimal from a consumer-welfare perspective, confident in the deference a court will extend to the Commission's construction of its amorphous mandate. It is true that reviewing courts—and particularly the D.C. Circuit—have occasionally invoked antitrust principles in deeming particularly interventionist FCC policies “unreasonable” for purposes of standard judicial review under the Administrative Procedure Act.¹²⁹ But this shadow antitrust review is no substitute for explicit adherence to antitrust principles as the governing rules of decision.

Those who support broad FCC jurisdiction might invoke two related but distinct rationales for preferring the FCC as the decisionmaker in this context. The first is the proposition that the net neutrality dispute is so technologically complex that only an agency devoted to it exclusively can have the “expertise” necessary to resolve antitrust disputes correctly. I am skeptical. To begin with, the FCC's technical experts are not serfs bound to any particular agency; they—and other experts from the outside world—could and would be assigned to whatever agency needs their expertise. It is also implausible in any event to suggest that the net neutrality dispute is somehow more esoteric than any number of other highly technical disputes that are routinely addressed by the “generalist” antitrust agencies, such as the Microsoft antitrust suit litigated by DoJ, which involved the arcane economics of the software industry.¹³⁰

The second reason one might prefer the FCC as the arbiter of net neutrality disputes involves a normative judgment about the soundness of contemporary antitrust law. Specifically, some have argued that antitrust theory is too restrictive, that it permits too many false negatives, and that society will be better off in the long run if the government intervenes

12 FCC Rcd. 19,985 ¶¶ 29-36 (1997).

128. See generally William T. Mayton, *The Illegitimacy of the Public Interest Standard at the FCC*, 38 EMORY L.J. 715 (1989).

129. See, e.g., *United States Telecom Ass'n v. FCC*, 290 F.3d 415, 428 n.4 (D.C. Cir. 2002) (“[Antitrust] scholars have raised very serious questions about the wisdom of the essential facilities doctrine as a justification for judicial mandates of competitor access, and accompanying judicial price setting. But a doctrine that is inadequate for that purpose may nonetheless offer useful concepts for agency guidance when Congress has *directed* an agency to provide competitor access in a specific industry.”) (internal citation omitted).

130. See *supra* note 54 and accompanying text.

more often in the marketplace than modern antitrust principles would permit.¹³¹ This is obviously a disputed claim on the merits.¹³² But if the claim were valid, the solution would be to reform antitrust principles themselves, across all industries, not to give particular agencies largely unconstrained authority to reshape particular industries without regard to those principles.

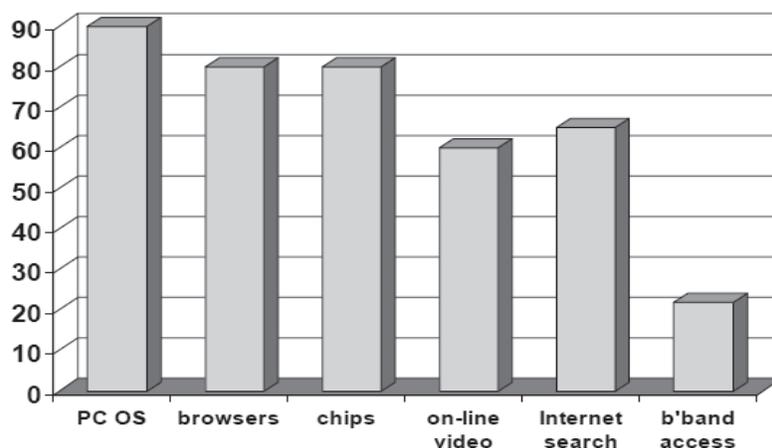
Some perspective is important here. Figure 2 illustrates the national 2007 market shares of the largest providers in selected Internet-related markets.¹³³

131. See generally Andrew I. Gavil, *Exclusionary Distribution Strategies by Dominant Firms: Striking a Better Balance*, 72 ANTITRUST L.J. 3, 36-51 (2004); Marina Lao, *Reclaiming a Role for Intent Evidence in Monopolization Analysis*, 54 AM. U. L. REV. 151 (2004); see also Steven C. Salop & R. Craig Romaine, *Preserving Monopoly: Economic Analysis, Legal Standards, and Microsoft*, 7 GEO. MASON L. REV. 617 (1999).

132. See, e.g., Frank H. Easterbrook, *Information and Antitrust*, 2000 U. CHI. LEGAL. F. 1 (2000).

133. The sources for the figures in this chart are Verizon Net Neutrality Comments, *supra* note 47, at 52 (citing sources for broadband market shares); Eric Auchard, *YouTube Visits Larger than Rivals Combined: Survey*, REUTERS UK, June 28, 2007, <http://uk.reuters.com/article/technologyNews/idUKN2742598120070628?pageNumber=1>; Eric Bangeman, *Microsoft, Others Suffer as Google's Web Search Share Grows*, ARS TECHNICA, Feb. 28, 2007, <http://arstechnica.com/news.ars/post/20070228-8946.html>; Marshall Kirkpatrick, *Hitwise—Google Continues to Grow Market Share*, READWRITEWEB, Dec. 11, 2007, http://www.readwriteweb.com/archives/hitwise_google_continues_to_gr.php; Tom Krazit, *Intel's Market Share Rises on AMD's Problems*, CNET NEWS, Apr. 24, 2007, http://news.com.com/2100-1006_3-6178921.html; Net Applications, *Browser Market Share for June 2007*, <http://marketshare.hitslink.com/report.aspx?qprid=0>; Net Applications, *Top Operating System Market Share Trend from July 2006 to June 2007*, <http://marketshare.hitslink.com/report.aspx?qprid=9>. The largest broadband provider (AT&T) has only about 22% of the national broadband market because its footprint of local infrastructure extends to only a minority of U.S. households (and because it faces competition within that footprint with cable companies and others). If the graph were adjusted to show regional rather than national market shares, the broadband figure in any given region would obviously be higher, but it would still typically be no greater than 50-60%, similar to or lower than the market shares for the other listed industries. See, e.g., *AT&T-BellSouth Merger Order*, *supra* note 19, ¶ 117 & n.333.

FIGURE 2: MARKET SHARE OF DOMINANT PROVIDERS IN INTERNET-RELATED MARKERS



No one suggests that Congress should establish specialized agencies to come up with new competitive principles to govern the personal computer operating system market (led by Microsoft), or the microchip market (led by Intel), or the Internet search market (led by Google), even though each of those markets is more concentrated than the broadband access market and arguably as integral to the Internet's future. In each of those contexts, there is a general consensus in favor of allowing the antitrust authorities to strike the right balance between allowing free-market forces to operate efficiently and prosecuting anticompetitive conduct that threatens long-term consumer welfare. There is no reason to treat the net neutrality debate differently.

B. Challenges in Any Transition to Antitrust Oversight of Net Neutrality Disputes

As discussed, an optimal telecommunications policy regime would assign exclusive jurisdiction over net neutrality disputes to federal antitrust authorities. Whether the FTC or DoJ's Antitrust Division is better equipped to exercise such oversight is a difficult and complex question. I have no conclusive views on that topic; indeed, I am still perplexed about why the federal government needs to have two antitrust enforcement agencies in the first place. Nonetheless, I will briefly note some of the considerations that would be relevant to this institutional choice and then conclude with an observation about the need for the FCC's continuing oversight of broadband policy generally, if not of net neutrality disputes specifically.

The FTC and the Antitrust Division have markedly different

modes of operation. The Antitrust Division is a pure litigating authority: it can act only by persuading the courts to adopt its substantive positions on antitrust law. In contrast, the FTC can pursue its antitrust agenda either by filing court actions or by prosecuting corporate defendants before the FTC's administrative law judges (ALJs). In these ALJ proceedings, the Commission walls off its enforcement staff from the chairman and commissioners; the ALJ's ultimate decisions (for or against the enforcement staff) are then subject to full review by the Commission itself, in a process that can consume several years; and the Commission's final decisions are then subject to review by a federal court of appeals, which grants substantial deference to the FTC's factual findings but not to its construction of federal antitrust law.¹³⁴

The Antitrust Division also tends to be more immune from political pressure than the FTC. Like the Solicitor General, the Antitrust Division reports to the Attorney General and enjoys a long tradition of professional autonomy. In contrast, the FTC, like the FCC, is an independent agency that effectively reports to the House and Senate oversight committees rather than the President. And like the FCC, the FTC is a multi-member agency. The multiplicity of commissioners presents a constant potential for log-rolling and intrigue, as various commissioners pursue the support of different political constituencies. This problem is endemic to the structure of multi-member independent agencies,¹³⁵ although in practice it afflicts the FTC less than the FCC.

These are reasons to prefer the Antitrust Division over the FTC if one places supreme value on avoiding delay and shifting political influences in the resolution of antitrust disputes. There are nonetheless other factors that may favor entrusting net neutrality disputes to the FTC.

First, although such disputes are antitrust-oriented on the merits, they sometimes involve a consumer protection component as well. For example, some have argued that Comcast's error in the BitTorrent affair lay not only (or even mainly) in its threshold decision to constrain the bandwidth consumed by that technology, but in its failure to give fuller disclosure about that practice. And the FCC indeed has condemned Comcast not just for violating the Commission's view of fair competition principles, but also for deceiving its own subscribers about the nature of the Internet access service they were buying.¹³⁶ One might plausibly argue that whatever agency exercises jurisdiction over the substantive antitrust issues raised by such disputes should also have jurisdiction over

134. *E.g.*, *FTC v. Indiana Fed'n of Dentists*, 476 U.S. 447, 454 (1986).

135. *See generally* Nuechterlein & Weiser, *supra* note 4, at 420.

136. *See Comcast Order*, *supra* note 22, ¶¶ 52-53.

any ancillary consumer-protection issues as well. The FTC has an entire Bureau (of Consumer Protection) devoted to the latter set of issues,¹³⁷ whereas DoJ has no consumer-protection authority with comparable scope or clout.¹³⁸

The other main advantage the FTC has over the Antitrust Division as an institutional matter is that it is more familiar with the administrative rulemaking process. To be sure, unlike the FCC, the FTC does not have plenary authority to conduct streamlined notice-and-comment rulemaking proceedings on all issues that arise within the scope of its statutory jurisdiction. Instead, the FTC normally proceeds through post hoc adjudication and issues formal regulations only on topics that Congress has specifically designated for rulemaking, such as implementation of the Children's Online Privacy Protection Act.¹³⁹ But the FTC is nonetheless a more natural choice than the Antitrust Division, which has no substantive rulemaking authority to speak of, if policymakers conclude that efficient resolution of today's net neutrality debate requires, at least in the near-to-medium term, partial reliance on prescriptive rules instead of full reliance on after-the-fact enforcement actions. Under a hybrid approach, the FTC might also create "safe harbors"—as both it and the Antitrust Division have done in other contexts—specifying business practices that will not give rise to later federal enforcement actions. Such enforcement guidelines would not technically insulate potential defendants from private (or state) antitrust litigation, but the substantive antitrust judgments they reflect would likely be highly influential in practice.

CONCLUSION

A smooth transition to an antitrust regime for net neutrality disputes would also require the FCC to continue playing a key role on a

137. Within the FTC, the Bureau of Competition handles antitrust cases targeting antitrust violations and "unfair methods of competition," and the Bureau of Consumer Protection handles consumer protection cases targeting "unfair or deceptive acts or practices." See generally 15 U.S.C. § 45(a)(1). The FTC's third major subdivision—the Bureau of Economics—provides expert analysis for the other two bureaus and the Commission as a whole.

138. I do not wish to make too much of this point, for one could plausibly cite the same considerations as support for the contrary conclusion. The FTC has been occasionally accused of blurring the lines between antitrust and consumer-protection principles to create hybrid, interventionist policies with no solid grounding in either antitrust law or consumer protection norms—a concern now heightened by the FTC's broad construction of its Section 5 authority in the *N-Data* case. See *supra* note 126. Such concerns would presumably not arise if Congress assigned exclusive oversight of net neutrality disputes to the Antitrust Division and confined the FTC's role to consumer-protection measures.

139. Pub. L. No. 105-277, div. C, tit. XIII, 112 Stat. 2681, 2681-728 (1998) (codified as amended at 15 U.S.C. §§ 6501-6506 (2006)).

range of non-antitrust-related broadband policy issues, some of them highly technical. For example, few would question the need for the FCC to take the lead on such diverse issues as accommodating the needs of law enforcement under CALEA,¹⁴⁰ requiring telecommunications networks to have adequate emergency-response capabilities, overseeing North American telephone-number resources, guaranteeing access to communications networks by people with disabilities, and supervising any subsidy mechanisms for greater broadband deployment.

The FCC's continued involvement might well also be indispensable in a few regulatory areas—such as spectrum management and network interconnection—that are sometimes closely related to the net neutrality debate. For example, it will likely be the FCC, not the FTC or the Antitrust Division, that oversees the licensing of spectrum to wireless broadband companies and that decides what compensation is due for the exchange of traffic between broadband-originated VoIP traffic and the conventional telephone network. Each of those regulatory areas overlaps to some extent with policy issues presented by the net neutrality debate.¹⁴¹ For that reason, it would be important for Congress to draw clear and workable lines dividing the FCC's continuing jurisdiction over such areas and the jurisdiction of federal antitrust authorities to resolve core net neutrality disputes.

That task would not be simple. But it would be necessary if policymakers wish to manage an effective transition from legacy regulation to a more rational regime that subjects competition disputes in the telecommunications industry to the same economic principles applicable to competition disputes in other industries across the economy.

140. Communications Assistance for Law Enforcement Act, 47 U.S.C. §§ 1001-10 (2000).

141. See, e.g., Sidak, *Consumer-Welfare Approach*, *supra* note 3, at 416-22 (noting relationship between intercarrier compensation rules and the *Madison River* port-blocking controversy).

CONNECTIONS: BEYOND UNIVERSAL SERVICE IN THE DIGITAL AGE

KEVIN WERBACH*

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INTRODUCTION

Broadband connectivity is the fundamental public utility of the digital age. Like roads, libraries, electric grids, schools, and telephone networks before it, broadband will be a basis through which citizens are empowered to realize their potential, economic productivity is fostered, and major social goals are achieved. It is already a yardstick for competitiveness among nations. Given broadband's importance, there are few areas where government engagement is more necessary or, potentially, more productive. Yet America, almost uniquely among major industrialized countries, lacks a national broadband strategy. Worse still, discussions about broadband policy in the U.S. are deeply marred by

* Assistant Professor of Legal Studies & Business Ethics, The Wharton School, University of Pennsylvania. Contact: werbach@wharton.upenn.edu. Some of the ideas discussed in this paper were first developed at the Aspen Institute's Communications and Society Program summer meeting in August 2007. Thanks to Lauren Murphy Pringle for research assistance.

legacy approaches and outmoded analogies to telephone service. A true broadband strategy must acknowledge the new realities of the 21st century environment of networked digital convergence.

The core of that shift must be to re-imagine, rather than simply extend, the nearly century-old concept of universal service. Universal service in U.S. telecommunications policy has always had two key—if not always well-articulated—attributes. It means *ubiquitous service*, or affordable access for everyone. And it means *unitary service*, or an interconnected grid that connects all to all. That distinction provides the basis for a new broadband-centered universal service policy. Subsidy mechanisms to enhance ubiquity should be linked to obligations to preserve the unitary nature of the Internet. Similarly, growing government engagement in promoting universal broadband connectivity should facilitate a transition away from legacy universal service programs that no longer serve public interest goals.

Both ubiquity and unitary systems are important for an effective national broadband strategy. Achieving ubiquitous broadband connectivity will require an effort that is significantly more focused, and accepts substantially more variability of solutions, than current universal service funding mechanisms. At the same time, to maintain a unitary broadband environment, the federal government should promote open interconnection among networks, not only at the baseline physical layer, but for addressing and potentially higher-level applications as well. Narrowing the scope of universality when it comes to baseline connectivity, while simultaneously broadening it for information flows, will make universal broadband policies both more efficient and more effective than their legacy antecedents in the telephone world.

This paper sets forth an outline for a national broadband strategy that goes beyond existing communications policy debates. It is based on the recognition that the simple concept of universal service as widespread uniform deployment, while important in the development of telephony, is inapposite to broadband. A broadband network is a multi-faceted and multi-layered platform, rather than a single service. The “floor” broadband capacity to realize the full benefits of digital-age citizenship is important, but so is the “ceiling” of widely available commercial broadband capabilities, even if not available everywhere.¹ Moreover, a broadband environment that sacrifices interconnectivity in the name of ubiquity will destroy many of the beneficial network effects that make broadband so valuable.

1. I am indebted to Kevin Kahn of Intel Corp. for introducing this distinction at the Aspen conference.

I. BROADBAND IN AMERICA

The United States led the world in commercial Internet deployment, and is still home to many of the leading Internet companies. However, broadband Internet access is fundamentally different from the dial-up service of the first-generation commercial Internet. Broadband offers substantially higher connection speeds and “always-on” capability, which are necessary for many applications such as video and interactive messaging. And it cannot simply run on top of the circuit-switched telephone network; new infrastructure is required.

There is widespread concern that the U.S. is behind most industrialized nations in broadband.² According to Organization for Economic Cooperation and Development (OECD) rankings, the United States has fallen from 4th to 15th in the world in per-capita broadband adoption.³ In countries such as Japan and South Korea, fiber-based residential broadband service is widely available, offering speeds several times greater than most Americans enjoy.⁴ In much of Europe, there are several competing broadband players, typically delivering DSL-based services through the incumbent’s phone network, at prices well below the U.S. norm.⁵

In the U.S., over ninety percent of customers have no more than two broadband choices (DSL and cable modem).⁶ Twenty percent have only one.⁷ And while broadband service is available to a high percentage of the U.S. population, there remain gaps in deployment.⁸ Even these

2. See Robert D. Atkinson, *Framing a National Broadband Policy*, 16 COMMLAW CONSPICUOUS 145, 145 (2007) (“It is difficult to pick up a business or technology magazine without reading that the United States is falling behind other nations in broadband telecommunications.”); Richard Hoffman, *When It Comes to Broadband, U.S. Plays Follow the Leader*, INFORMATIONWEEK, Feb. 15, 2007, <http://www.informationweek.com/story/showArticle.jhtml?articleID=197006038>.

3. OECD Broadband Portal, <http://www.oecd.org/sti/ict/broadband>.

4. See DANIEL K. CORREA, ASSESSING BROADBAND IN AMERICA: OECD AND ITIF BROADBAND RANKINGS (2007), <http://www.itif.org/files/BroadbandRankings.pdf>; Takanori Ida, *Broadband, Information Society, and the National System in Japan*, and Inho Chung, *Broadband, Information Society, and the National Systems: The Korean Case*, in GLOBAL BROADBAND BATTLES: WHY THE U.S. AND EUROPE LAG WHILE ASIA LEADS 65-108 (Martin Fransman ed., 2006); Delphine Strauss and Frances Williams, *S. Korea Leads Digital World*, FINANCIAL TIMES, July 6, 2006.

5. See OECD Broadband Portal, *supra* note 3.

6. INDUS. ANALYSIS & TECH. DIV., FCC, HIGH-SPEED SERVICES FOR INTERNET ACCESS: STATUS AS OF JUNE 30, 2007 (2008), http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-280906A1.pdf [*hereinafter* INTERNET ACCESS REPORT].

7. See *id.*

8. U.S. GOV’T ACCOUNTABILITY OFFICE, TELECOMMS.: BROADBAND DEPLOYMENT IS EXTENSIVE THROUGHOUT THE U.S., BUT IT IS DIFFICULT TO ASSESS THE EXTENT OF DEPLOYMENT GAPS IN RURAL AREAS 10 (2006), <http://www.gao.gov/new.items/d06426.pdf> [*hereinafter* BROADBAND DEPLOYMENT

numbers may paint an overly rosy picture. The U.S. government has been accused of sugar-coating the level of broadband penetration that exists.⁹ The Federal Communications Commission (“FCC” or “the Commission”) in its data-collection defines broadband as speeds of at least 200 kilobits-per-second (kbps) in both directions, which is far lower than most experts consider true broadband.¹⁰ A final concern about the U.S. broadband environment is network neutrality: the fear that broadband access providers will disadvantage unaffiliated content and application providers, thereby slowing innovation and investment in these areas.¹¹

The FCC under the Bush Administration, and its defenders such as the incumbent phone and cable companies, take issue with assertions of U.S. broadband inferiority.¹² They point out that the size and relative lack of population density across the U.S. makes comparisons to primarily urban nations such as South Korea inappropriate.¹³ They also question, with some support, the accuracy of the OECD figures, and their focus on per-capita adoption.¹⁴ Moreover, the fact that so many Americans have dial-up Internet access, and thus must be convinced of the benefits of upgrading to a (more-expensive) broadband alternative, rather than seeing broadband as their initial form of Internet connectivity, doubtless skews the comparisons somewhat.

It is true that broadband penetration in the U.S. has increased

REPORT].

9. S. DEREK TURNER, BROADBAND REALITY CHECK II: THE TRUTH BEHIND AMERICA’S DIGITAL DECLINE 31 (2006), <http://www.freepress.net/docs/bbrc2-final.pdf>.

10. See Press Release, FCC, FCC Adopts Data Collection Program to Assess Local Telecommunications Competition and Broadband Deployment, (Mar. 24, 2000), http://www.fcc.gov/Bureaus/Common_Carrier/News_Releases/2000/nrcc0020.html; see also Dev. of Nationwide Broadband Data to Evaluate Reasonable & Timely Deployment of Advanced Servs. to All Amns., Improvement of Wireless Broadband Subscribership Data, & Dev. of Data on Interconnected Voice over Internet Protocol (VoIP) Subscribership, *Report & Order & Further Notice of Proposed Rulemaking*, 2008 WL 2404500, ¶ 20 (2008) (In June 2008, the FCC modified the reporting requirements to include eight different speed tiers between 200 kbps and 100 Mbps.).

11. See generally Tim Wu, *Network Neutrality, Broadband Discrimination*, 2 J. TELECOMM. & HIGH TECH. L. 141, 141-44 (2003). For further information, see generally Barbara van Schewick, *Toward an Economic Framework for Network Neutrality Regulation*, 5 J. TELECOMM. & HIGH TECH. L. 329 (2007); Tim Wu, *The Broadband Debate, A User’s Guide*, 3 J. TELECOMM. & HIGH TECH. L. 69 (2004); Christopher S. Yoo, *Network Neutrality and the Economics of Congestion*, 94 GEO. L.J. 1847 (2006); Christopher S. Yoo, *Beyond Network Neutrality*, 19 HARV. J.L. & TECH. 1 (2005).

12. See U.S. INTERNET INDUS. ASS’N, DEPLOYMENT OF BROADBAND TO RURAL AMERICA 16 (2008), <http://www.usiia.org/pubs/Rural.pdf>; SCOTT WALLSTEN, EVERYTHING YOU HEAR ABOUT BROADBAND IN THE U.S. IS WRONG (2007), <http://pff.org/issues-pubs/pops/pop14.13wallstenOECDbroadband.pdf>.

13. See Wallsten, *supra* note 12.

14. See SCOTT WALLSTEN, TOWARDS EFFECTIVE U.S. BROADBAND POLICIES (2007), <http://www.pff.org/issues-pubs/pops/pop14.7usbroadbandpolicy.pdf>.

substantially in recent years. Moreover, the U.S. is relatively rare in having two competing physical broadband platforms with wide adoption – telephone and cable – although the lack of competition within each of those categories in most areas means there are typically fewer broadband Internet service provider choices for Americans than for residents of many countries in Europe and Asia.¹⁵ The ultimate question, however, is not whether the U.S. is ahead of or behind other countries when it comes to broadband. It is whether the U.S. should be doing more, and differently, when it comes to broadband strategy. And there the answer is quite clear.

Put simply, the U.S. needs a broadband strategy. Most of America's global competitors have, in recent years, made broadband deployment a significant public policy priority.¹⁶ In the U.S., President Bush, during the 2004 Presidential campaign, articulated a goal of universal broadband availability by 2007, but there have been virtually no policy initiatives supporting that goal.¹⁷ Innovators and investors take their cues from the messages that governments articulate. If other countries clearly define how they plan to leverage the extraordinary power of broadband for their nations, and put into place concrete steps to do so, the U.S. faces a loss in global competitiveness to the extent it merely asserts that things are going well. Furthermore, a national broadband strategy is more than just a set of deployment and adoption goals, although defining such goals through the “bully pulpit” of national leadership can definitely have salutary effects. The real policy questions about broadband involve defining the value of broadband as a subject for government involvement, and the steps that government can take to achieve those values.

The other problem with U.S. broadband policy is the legacy of wasteful and often perverse telecommunications subsidy programs. “Universal service” has been an acknowledged goal of U.S. policy for decades, and an express statutory mandate since 1996.¹⁸ Yet the mechanisms for achieving universal service were designed for basic telephone service and a monopoly carrier, AT&T. Broadband today is not considered a supported service under major U.S. universal service programs.¹⁹ Moreover, the existing universal service programs largely involve hidden subsidies that distort investment incentives and waste resources.²⁰ Broadband provides an opportunity not simply to expand

15. See Correa, *supra* note 4; see also Turner, *supra* note 9, at 13.

16. See *id.*

17. President George W. Bush, Remarks by the President on Homeownership (Mar. 26, 2004), <http://www.whitehouse.gov/news/releases/2004/03/20040326-9.html>.

18. 47 U.S.C. § 254 (2006).

19. See 47 C.F.R. §§ 54.503, 54.621 (2001).

20. See Rob Frieden, *Killing With Kindness: Fatal Flaws In The \$ 6.5 Billion Universal Service Funding Mission And What Should Be Done To Narrow The Digital Divide*, 24

universal service, but to reinvent it. What made sense in the 1920s should not necessarily be the template for the 2000s. Only a coherent national broadband strategy can avoid the trap of incremental changes to legacy universal service mechanisms.

II. UBIQUITOUS BROADBAND

Universal service developed at a time when there was one dominant service provider (AT&T), providing one service (basic telephony), and engaged in a decades-long process of network deployment across the U.S. By contrast, universal broadband today means supporting many different providers who offer service in particularly under-served areas, using a variety of different technologies, covering a wide range of potential capabilities, and with varying degrees of new investment required beyond the existing telephony infrastructure.²¹ Current universal service mechanisms involve a variety of explicit and implicit subsidies, at both the state and federal levels.²² By in large, these programs support basic telephone service, and exclude broadband data connectivity.²³

The Federal-State Joint Board on Universal Service has proposed adding broadband to the list of services supported under current subsidy mechanisms.²⁴ However, this leaves open significant questions about the magnitude of support, and the specific capabilities to be supported. It would also place broadband squarely within a subsidy system that is widely acknowledged to be in jeopardy as revenues and subscribers shift away from conventional wireline services.²⁵ Broadband is not simply another way to deliver telephone service; it is an entirely new communications platform. That platform can itself deliver basic telephony through voice-over-Internet-protocol (VoIP) technology, as

CARDOZO ARTS & ENT L.J. 447 (2006).

21. This actually resembles the early days of phone service, as Milton Mueller has documented. See Milton L. Mueller, Jr., *Universal Service: Competition, Interconnection, and Monopoly in the Making of the American Telephone System*, 50 FED. COMM. L.J. 275 (1997) (explaining that it was the competition, not the later monopoly, that produced universal service).

22. See Frieden, *supra* note 20.

23. See *id.*; LENNARD G. KRUGER & ANGELE A. GILROY, CONGRESSIONAL RESEARCH SERVICE, BROADBAND INTERNET ACCESS AND THE DIGITAL DIVIDE 12 (2005), <http://www.usembassy.it/pdf/other/RL30719.pdf> (explaining that the FCC's School and Libraries ("E-Rate") Program funds data network connectivity, but this program does not apply to residential subscribers).

24. FCC, FED.-STATE JOINT BD. ON UNIVERSAL SERVICE STATEMENT ON LONG TERM, COMPREHENSIVE HIGH-COST UNIVERSAL SERVICE REFORM (2007), http://fallfoss.fcc.gov/edocs_public/attachmatch/FCC-07J-3A1.doc.

25. See Frieden, *supra* note 20. If broadband were added as a supported service for universal service distributions, broadband revenues would likely be required to contribute to universal service support. While this might alleviate current structural problems in funding universal service subsidies, it would further entrench the distortions in the current system.

well as a multitude of informational, commercial, educational, social, political, and entertainment capabilities. At the same time, broadband is a form of Internet access. It substitutes for dial-up connectivity, which is delivered over the public switched telephone network (PSTN). And there are many types of broadband connections, with different costs and benefits.

The first question for universal broadband policy should therefore be what precisely “universal broadband” means. A better understanding of goals will lead to a better set of solutions.

A. The Floor and the Ceiling

Unlike basic telephone service, which is a specific, well-defined offering (generally, a voice-grade circuit allowing touchtone dialing with local and long-distance service), broadband is a class of digital connectivity platforms. There is no standard, agreed-upon definition of broadband, other than a digital connection that is always-on (i.e., not requiring a phone call to connect), and substantially faster than the dial-up Internet connections, which top out at approximately 56 kilobits-per-second downstream. The FCC defines broadband as more than 200 kilobits-per-second in both directions, but that is widely considered too low a baseline.²⁶

Moreover, the capability of a broadband connection involves many factors. Some applications such as video conferencing and peer-to-peer file-sharing require significant upstream capacity. For others, such as streaming movies from a central website, the downstream speed is the limiting factor. For some applications, “burst” capabilities for extra-high speeds raise the effective performance to those levels. For others, the baseline guaranteed performance level is a more accurate measurement. Also, some applications may require reliability or low latency, which are distinct from raw transmission speeds.²⁷ Finally, the broadband pipe alone is not sufficient to unlock broadband capabilities for all users. End-user hardware, software, and applications, plus education and training for users, may be required for the broadband connection to have any real utility.

Broadband policy evaluations generally pick a baseline broadband speed, and then simply count up what percentage of households have

26. See Turner, *supra* note 9.

27. Latency is essentially the delay before a packet is sent. Interactive applications such as voice communications require low latency for parties to communicate effectively. One-way applications such as streaming video of commercial programming, although benefiting from higher throughput, may not require low latency, because a short delay before starting does not degrade the user experience.

access to, or subscribe to, that level of service, and at what price.²⁸ This is a fundamentally misleading approach. As already noted, speed alone, especially just downstream speed, is a limited representation of broadband capabilities. Moreover, broadband is not a single application like telephone service. It enables many kinds of applications and services with different requirements. The question policy-makers should focus on is whether broadband is being provided and adopted in ways that allow for certain *uses*. For many applications, such as browsing many government informational websites, a dial-up connection is virtually as good as what the FCC would consider a broadband connection. These applications do not require always-on access or download speeds over 56 kilobits-per-second in order to provide civic benefits. On the other end of the spectrum, some applications, such as video-based telemedicine, are not possible even with the highest-speed broadband services commercially available in major cities in the U.S. today.²⁹

No policy approach can address both needs simultaneously. The networks needed for telemedicine are vastly more expensive than those needed for browsing government websites, to the point that a universal service plan pegged to the former would be prohibitively expensive. Further complicating the picture, capabilities and costs are dynamic. As technology advances, fixed costs of network construction are incurred, and manufacturers increase equipment volumes, the cost to provide a given level of connectivity falls. At the same time, the zone of coverage (both applications and households) that market forces serve will grow. Hence “universal broadband” as a policy objective should be divided into two components: a floor and a ceiling. Both levels are dynamic, based on technology and adoption patterns, so they must be adjusted periodically.

The floor is the minimal level of broadband capability needed to participate fully as a connected citizen. That means utilizing public services and accessing governmental information that are made available online, taking advantage of mainstream private services for basic needs, such as employment and health care, and accessing news of local, national, and world events. This should be the central concern of policies designed to promote a broadband analogue to universal service. It is through these mechanisms that broadband can facilitate education, health care, economic opportunity, and participation in the democratic process. Since virtually every commercial broadband deployment provides such baseline capabilities, the universal service question for the broadband “floor” is therefore how to ensure that networks are built and operated so as to reach every citizen with affordable service.

28. See, e.g., INTERNET ACCESS REPORT, *supra* note 6.

29. Some telemedicine applications, involving sensor data for example, do not require as much bandwidth.

The broadband ceiling represents the level of capability available to the top end of the mass market. It is the highest level of broadband that major providers in the U.S. deem commercially viable. This will almost certainly be less than the maximum theoretical capacity of current broadband networks. For example, fiber-optic systems that telephone companies are deploying could conceivably offer one gigabit-per-second or more of capacity, but Verizon's current Fiber Optic Service (FiOS) offerings top out at 30 megabits-per-second, and AT&T's U-verse at less than that.³⁰ Even these fiber systems might not be counted today in the broadband ceiling available to Americans, because Verizon and AT&T are still building them out.

The importance of the broadband ceiling is that it defines the applications, services, and content that can use the broadband platform. In countries such as Japan, where most citizens have access to fiber-based broadband services that deliver 100 megabits-per-second at under \$30/month,³¹ applications such as television on mobile phones and interactive online gaming are taking off at rates far greater than in the U.S.³² A comprehensive broadband strategy should recognize that the broadband ceiling impacts the level of competition, innovation, investment, and job creation in complementary broadband application, service, and content markets. Moreover, new services further stimulate broadband demand.

The policies necessary to bring up adoption levels at the broadband floor are not the same as those needed to increase the broadband ceiling. By definition, broadband access at the ceiling level is commercially viable, while the broadband floor includes many users who would not be reached by market forces alone. Thus, less direct government intervention will be required, and perhaps none at all at certain times. The benefits of bringing up the floor relate to citizen participation, opportunity, empowerment, and equity, while the benefits of bringing up the ceiling go more toward economic benefits and national competitiveness. Because the available services depend on the level of capacity as well as the imagination and investment of content and application providers, the appropriate target for the broadband ceiling at any time is more difficult to peg than the broadband floor. It is uncertain whether some level of capacity – perhaps 50 megabits-per-second – is sufficient for all foreseeable applications in the near future, or whether

30. See Leslie Cauley, *Verizon's Army Toils at Daunting Upgrade; Company's Future Rests on \$23B Herculean Task*, USA TODAY, Mar. 1, 2007, at 1B.

31. See TAKA EBIHARA, UNDERSTANDING THE JAPANESE BROADBAND MIRACLE, INFORMATION TECHNOLOGY AND INNOVATION FOUNDATION (2007), http://www.itif.org/files/Ebihara_Japanese_Broadband.pdf.

32. See *id.*; see also Ida *supra* note 4, at 83.

any increment in the broadband ceiling will stimulate new applications that use up the new capacity.

Dividing the broadband floor and ceiling acknowledges that every American will not have exactly the same broadband capabilities. With telephony, the networks offering the “floor” capabilities for civic engagement and economic participation were the same ones that might offer additional features in more densely populated or otherwise attractive locations. Even with Internet, there was a standard set of capabilities that had to be added to the network to enable the “advanced services” of data connectivity, which the FCC was required to monitor under Section 706 of the 1996 Telecommunications Act.³³ A 56 kbps modem connection might offer a better experience than a 14.4 kbps one, but both provided access to the kinds of services that predominated on the Internet of the late 1990s. Even the best available dial-up connection was only moderately better than the worst.

With broadband, however, the experience that a 100 megabit-per-second symmetrical connection offers is very different from that of an asymmetric DSL connection offering a 384 kilobit-per-second downstream channel. The lower-speed service will have difficulty supporting video, telepresence, telemedicine, advanced gaming, and other applications. While it would be equitable to ensure all Americans access to those higher-end services as part of a broadband universal service plan, such an approach would be infeasible given the costs involved. Having such capabilities widely available is within the score of universal service policy; having them available to everyone is not. Dividing between a broadband floor and ceiling makes clear the kinds of capabilities that should be supported for virtually every American from those whose deployment patterns should be primarily left to market forces.

*B.A Three-Ring Approach*³⁴

Ensuring that all Americans have access to the “floor” level of broadband should be the initial universal service objective for the broadband era. An important question concerns the level of that floor. Too high a floor will require excessively large subsidies, which will also create perverse investment incentives. Too low a floor will mean the civic benefits of universal broadband are not realized. The challenge is that the costs of delivering broadband connectivity outside of major metropolitan areas are highly dependent on density and topography. The more rural

33. 47 U.S.C. § 706 (2006).

34. The basic framework of the three rings originated at the Aspen conference. The specific recommendations are my own.

and the more mountainous or otherwise inaccessible the location, generally speaking, the more it will cost to deliver a given level of broadband service. Moreover, different broadband technologies are more efficient for certain locations. Wireless and satellite service, for example, have very different economics than wired broadband, because they do not require construction of physical wires directly to each customer premises.

Given all these variables, it makes sense to further subdivide the broadband floor into three categories. These roughly correspond to three rings of population density, since density is usually a reasonable proxy for the cost variables described above. The three rings are: metropolitan and suburban areas; less-densely-populated “exurban” regions or small towns; and very low-density rural areas. The dividing lines between these regions may be subject to debate, but the three categories represent significantly different environments for broadband deployment. Additional funds will be necessary to ensure that all Americans have access to a baseline level of broadband. However, direct subsidies are likely needed only for the outermost ring. A framework recognizing that broadband is not an all-or-nothing proposition will avoid subsidizing those areas where market forces might suffice.

In metropolitan areas, even smaller cities, there is likely to be an operator capable of building a commercial wired broadband network, and a base of customers for that network. According to FCC data, 99% of U.S. zip codes have at least one broadband provider.³⁵ Cable operators claim to offer broadband service today to 94.4% of U.S. households.³⁶ While, as noted above, the accuracy and baseline requirements of the FCC numbers are questionable, they do suggest that some form of broadband is available in virtually every metropolitan area.³⁷ Because broadband service can “piggy-back” on existing telephone and cable networks at minimal additional cost, obstacles such as mountainous terrain that made deployment of telephone service difficult in some cities will be less of an issue for broadband. In most cases, therefore, direct government intervention will not be needed for the densest population ring. Policies to encourage competition in telecommunications and video services, and to create incentives for technological and infrastructure investments, will be the primary stimulus in these regions.

When broadband is not commercially available in the metropolitan ring, it is likely to be in localized coverage “holes.” These may not be

35. See INTERNET ACCESS REPORT, *supra* note 6, at 1.

36. See PHILIP J. WEISER, A FRAMEWORK FOR A NATIONAL BROADBAND POLICY 11 (2008) (quoting Joseph Waz of Comcast), *available at* <http://lawweb.colorado.edu/profiles> (follow “Philip J. Weiser” hyperlink; then follow “A Framework for National Broadband Policy” hyperlink).

37. See BROADBAND DEPLOYMENT REPORT, *supra* note 8, at 15.

served due to simple oversight on the part of service providers, or perhaps topographical obstacles, or a lack of incentive to serve a very economically disadvantaged area. In such situations, a program to bring together existing service providers to identify, map, and address broadband connectivity holes can be highly effective. Subsidy and grant programs not specific to broadband can also be brought to bear as part of a concerted effort to overcome localized connectivity barriers. Connect Kentucky, a model of this approach, raised coverage to 98%.³⁸ Awareness and broadband literacy programs, discussed below, can also help address connectivity holes from the demand side.

For those in metropolitan areas, the key question is where to set the baseline level of connectivity that is considered broadband. The FCC's 200 kilobit number is clearly too low, especially as a going-forward target. Both telephone and cable-based providers are now deploying technologies – fiber-optic transmission and DOCSIS 3.0 respectively—capable of delivering broadband speeds in excess of 100 megabits-per-second.³⁹ An appropriate broadband policy should set goals that are reasonably achievable, but should recognize that today's median U.S. speeds are well behind those of other industrialized nations.⁴⁰

Since there is no fundamental barrier to such deployment in virtually all metropolitan areas, a reasonable five-year target for broadband service in the innermost ring would be 50 megabits-per-second downstream, with at least 10 megabits-per-second (and ideally the full 50) available in an upstream channel. As discussed above, speed alone is an insufficient metric. The applicable targets could incorporate other elements, such as an upstream channel that is not disproportionately slow. Or they could be denominated by applications rather than bandwidth. One tier of broadband might support voice and Web capabilities, a second might support high-quality video, and a third might support emerging services such as telepresence and telemedicine. A national broadband strategy should articulate those goals, and then put into place an annual and five-year reporting process to assess progress toward them. If deployment and adoption fall short after five years, additional policies should be considered.

The second ring of users live in less-dense suburbs and exurbs. Even in such non-metropolitan areas, market forces are generally sufficient to support a broadband provider, although there may not yet be one

38. *Wiring Rural America: A Public-Private Partnership Success*, THE ECONOMIST, Sept. 13, 2007, http://www.economist.com/displaystory.cfm?story_id=9803963.

39. See Todd Spangler, *Comcast Opens Up Wideband; Rollout Is U.S. Debut Of DOCSIS 3.0*, MULTICHANNEL NEWS, Apr. 7, 2008, <http://www.multichannel.com/article/CA6548163.html>.

40. See Correa, *supra* note 4, at 4.

operating in a local area. The question is how to address those areas that could in theory support a commercial broadband offering, but do not yet have one, or have one that offers inferior service.⁴¹ As with metropolitan areas, policies to encourage competition and investment, and to identify both unconnected regions and sources of capital, are likely to stimulate broadband deployment in lower-density areas.

The most significant difference from the metropolitan ring is that the second density tier may not be able to support the latest high-capacity broadband networks, at least in the five-year time horizon. A realistic initial goal would therefore be one level below that of the inner ring, or roughly the five to ten megabit-per-second service achievable with current mainstream cable and telephone-based broadband. Within ten years, however, even these areas should be able to enjoy next-generation infrastructure, providing broadband speeds of roughly twenty megabits-per-second.

The least-dense regions, where many citizens currently lack any broadband connection, are where subsidy mechanisms should be concentrated. At a minimum, all citizens should have access to some baseline broadband service. Satellite services such as WildBlue arguably provide that already, but they involve significant latency and backhaul constraints that make them inferior to terrestrial networks with comparable speeds.⁴² Moreover, the acceptable level of even the most basic broadband connection will increase over time. Terrestrial wireless networks, which do not require expensive wireline infrastructure out to each subscriber, are likely to be the dominant means of reaching the most remote users, but DSL will also play a role where telephone service is available.

For this outmost connectivity ring, market forces alone are unlikely to ensure broadband deployment. The density levels are simply too low for commercial ventures to obtain a sufficient return in most cases.⁴³ Subsidies can provide the necessary push to make deployment happen, or for existing service providers to extend coverage to more isolated subscribers. Those subsidy programs, however, should be separate from

41. See Robert Mitchell, *ISPs To Rural America: Live With Dial-up*, COMPUTERWORLD Aug. 27, 2007, <http://www.computerworld.com/action/article.do?command=viewArticleBasic&articleId=299844> (“21% of Americans—the nearly 60 million people who live in rural areas—are often underserved.”).

42. Moreover, in some areas, dense tree cover or other topographical obstacles may make satellite service infeasible.

43. There are some efforts to provide service in very rural areas, including Denver-based Open Range Communications. See Kimberly S. Johnson, *Firm Eyes Rural Net*, DENVER POST, May 18, 2008, at K1. Prospects for such services remain uncertain. Moreover, even for rural service providers, there is some level of population density or geographical hurdles beyond which commercial service is not feasible.

the existing universal service structure. Simply tacking on broadband to the current subsidy regime would create a competition for resources. Incumbent rural local exchange carriers would oppose any change that transferred money from high-cost telephone service subsidies to fund broadband. In addition, broadband should be seen as a new capability that primarily requires a one-time investment to deploy necessary infrastructure. A reverse auction mechanism, which creates incentives to provide the subsidized service efficiently, would be an effective way to distribute broadband funds.⁴⁴ The auction would allow new entrants, including wireless providers, to competitively deliver service in areas that already have basic telephone service but lack broadband. While competition may not be feasible in some rural and other underserved areas, it can be a valuable catalyst for efficiency and investment in others.

As this discussion shows, ubiquitous broadband is a serious challenge, but not an insurmountable one. Especially when the focus is limited to the broadband floor, where traditional universal service principles are most relevant, making broadband available to all but a few percent of Americans looks to be a question of when, not if. The timing matters, of course. Coherent policies will make a difference, and even a rhetorical commitment from the federal government would accelerate the deployment of broadband to under-served areas. The point is that most of the necessary answers are already floating around in policy discussions, awaiting sufficient political will to implement them. The story for the other aspect of universal broadband, unitary service, is quite different.

III. UNITARY BROADBAND

Historically, the discussion about universal service focused on network endpoints. It emphasized ubiquity, which meant growing the geographic footprint of customers connected to the network, and ensuring those customers had access to a baseline level of service (such as touchtone). This was done with the backdrop of a monopoly network operator, or later a dominant regulated incumbent in virtually every area. If there is effectively only one network provider, and one service, the internal structure of the network is less important than the reach of its edges. Joining the network delivers the full benefits of connectivity to all users.⁴⁵

44. In a reverse auction, bidders compete to deliver the service for the lowest price.

45. There are a few caveats to this point. Some important aspects of basic telephone service, such as touchtone and 911 support, were written into the definition of universal service as they become mainstream requirements, or they may not have been provided everywhere. When the telephone network is used for dial-up Internet access, users in under-served areas may not have local service-provider points of presence to reach without a long-distance call, or may have limitations on their telephone company's access equipment (such as remote terminals

In a broadband world, however, the endpoints are not the whole story. The Internet is a network of networks. Its constituent service providers must voluntarily decide to interconnect with one another, and the terms of that interconnection.⁴⁶ For the most part, this voluntary federation has worked extremely well, even without the level of regulation that predominates on the telephone network.⁴⁷ However, the unitary Internet of today is under stress. Broadband access providers, as the crucial “last mile” for user connectivity to the Internet, will have significant influence over whether the Internet remains primarily a federated system, or becomes more like the independent walled gardens of pre-Internet online services. A 21st century conception of universal service must recognize that a ubiquitous connection only to some of the Internet is not truly universal broadband. It is therefore incumbent on policy makers to incorporate principles of unitary service into a national broadband strategy.

A. Unitary Service

1. From past to present

“Universal service” has come to stand for ubiquitous telephone service for all Americans. However, the original meaning of the term was somewhat different. Universal service was initially a marketing slogan of AT&T under Theodore Vail, the CEO who brought AT&T to its position of dominance early in the 20th century.⁴⁸ The idea was that only AT&T – which had a near-monopoly on long-distance connections and the largest local footprint – could provide “universal” service across the entire country.⁴⁹ It was only later when the federal government effectively ratified AT&T’s exclusionary policies to prevent competitive entry that universal service evolved into a public policy mandate for increasing telephone subscribership. Because AT&T was a regulated monopoly, it could offer some services, such as business lines and long-distance, at above-market prices, and use the revenues to cross-subsidize below-market prices for local telephone service, especially in high-cost areas.⁵⁰

or load coils) that limits the speed of connections.

46. See Kevin Werbach, *The Centripetal Network: How the Internet Holds Itself Together, and the Forces Tearing it Apart*, 42 UC DAVIS L.REV. 343 (2008).

47. See *id.*

48. See Mueller, *supra* note 21, at 4.

49. See ROBERT W. CRANDALL & LEONARD WAVERMAN, WHO PAYS FOR UNIVERSAL SERVICE?: WHEN TELEPHONE SUBSIDIES BECOME TRANSPARENT 6 (2000); see also Patricia M. Worthy, *Racial Minorities and the Quest to Narrow the Digital Divide: Redefining the Concept of “Universal Service”*, 26 HASTINGS COMM. & ENT. L.J. 1, 7-8 (2003); Mueller, *supra* note 21, at 4-8.

50. With competitive entry, competitors would have “cherry-picked” the customers

The ability to fund ubiquitous access was perceived as a benefit in return for the absence of open competition.

AT&T thus used ubiquitous service as an argument for its particular vision of unitary service. To serve everyone, it claimed, there had to be one network. AT&T may or may not have been correct. What matters is that the U.S. government acted as though it was, and endorsed a system where one operator provided end-to-end service to most Americans. Awareness of the significance of unitary service faded during the years of the AT&T monopoly, since there was no possibility of interconnection outside of a small group of independent companies. Until the FCC's 1968 *Carterphone* decision, customers could not even attach their own telephones or other devices to the network.⁵¹

As competition took root in the telephone industry, the accepted understanding didn't change, even though the link between monopoly and universal service was broken. The break-up of AT&T in the 1980s and the expansion of local competition under the 1996 Telecommunications Act replaced the power of one monopolist with technical standards and government mandates to ensure the network provided unitary service.⁵² Because the network only delivered one service, however, and supplemental functions such as directory assistance and number portability were centralized and regulated, there were few opportunities for providers to deliver something different from other providers. New entrants could compete in price, customer service, and additional services delivered at the edge of the network, but they all still offered access to the same unitary telephone network.

During the past several years, however, two significant developments have undermined the foundations of the unitary network. First, the growth of broadband and wireless services altered the center of gravity for communications policy. The long-term effort to make telephone service available to all Americans has largely succeeded, with telephone subscribership leveling off at approximately 95%.⁵³ U.S. broadband subscribership levels, by contrast, are still only 22%, according to OECD statistics.⁵⁴ On a broadband network, voice communication is simply one application, which uses a relatively tiny amount of capacity. The key future questions regarding the unitary network therefore

paying the extra-high rates, unbalancing and undermining the system.

51. See Kevin Werbach, *The Federal Computer Commission*, 84 N.C. L. REV 1, 21 (2005); Use of the Carterphone Device in Message Toll Telephone Service, *Decision*, 13 FCC 2d 420, 423-424. (1968), *recon. denied*, 14 FCC 2d 571 (1968).

52. See 47 U.S.C. § 251 (2006).

53. See Press Release, FCC, FCC Releases New Telephone Subscribership Report (Mar. 21, 2008), http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-280979A1.pdf; see also Crandall & Waverman, *supra* note 49.

54. See OECD Broadband Portal, *supra* note 3.

concern the broadband infrastructure of Internet access, rather than the legacy PSTN.

The second important shift occurred when the FCC abandoned its efforts to encourage local competition through mandatory sharing of incumbent networks, including broadband access networks.⁵⁵ In a series of decisions, ratified by the Supreme Court in the *Brand X* decision, the FCC reclassified broadband access as an information service.⁵⁶ The implication of that shift is that the Title II rules governing telecommunications service providers, including the baseline interconnection requirement under Section 251 of the 1996 Act, do not apply.⁵⁷ The FCC left open the possibility of imposing some requirements under its backstop Title I authority, but so far it has not articulated what those might be.⁵⁸

These two developments mean that the terms of network-to-network interconnection, as well as the basic service definition for the communications platform, are no longer subject to the business, technical, or regulatory regimes that produced the unitary telephone network. Network operators have significant freedom to define their offerings in distinctive ways. Furthermore, because the Internet is a platform for applications and content, certain service providers and others operating on top of the network also have the power to shape the user experience in fragmented ways.

2. The Value of Federation

Systems such as the telephone network are subject to network effects: additional users and usage of the network benefits other users.⁵⁹ In simple economic terms, there is a positive externality to each new subscriber. That subscriber benefits, but so do existing users whose calling circle expands. Network effects have long been understood as an important factor in telecommunications policy.⁶⁰ In a broadband environment, however, their implications shift in important ways.

Historically, network effects were a driver for treating the telephone

55. See Kevin Werbach, *Only Connect*, 22 BERKELEY TECH. L.J. 1233, 1268-69; *Appropriate Framework for Broadband Access to the Internet over Wireline Facilities, Policy Statement*, 20 FCC Rcd. 14,986, 14,987-88 (2005).

56. See *Nat'l Cable & Telecomm. Ass'n v. Brand X Internet Servs.*, 545 U.S. 967, 977-78 (2005).

57. See *id.*

58. See *id.* at 1002-1003; see also James B. Speta, *FCC Authority To Regulate the Internet: Creating It and Limiting It*, 35 LOY. U. CHI. L.J. 15, 16 (2003).

59. Mark Lemley & David McGowan, *Legal Implications of Network Economic Effects*, 86 CAL. L. REV. 479, 481 (1998); Michael L. Katz & Carl Shapiro, *Network Externalities, Competition, and Compatibility*, 75 AM. ECON. REV. 424, 424 (1985).

60. See Werbach, *supra* note 46.

network as a regulated monopoly. Because the largest network experienced the greatest positive externalities, it had a massive advantage over smaller networks. A new user gained less from joining a smaller network, even at the same price and service level, because he or she gained fewer calling partners. Moreover, when it came to interconnection between networks, the larger network could insist on advantageous terms. The smaller network would gain more from the linkage of the two networks, because its subscribers would see their calling options expanded more. A skillful company such as AT&T was able to exploit this imbalance to entrench its dominant position in the marketplace. From a public policy perspective, moreover, the most beneficial network was the one that included everyone. That network, the monopoly network, would generate the greatest positive externalities for its users.

There is, however, another means to achieve the beneficial network effects of ubiquitous connectivity. If networks can interconnect and federate using common standards, they become virtual super-networks. Their users gain the same benefits as users of one monopoly network, without the well-known economic and social policy limitations of monopolies. On the PSTN, with its flat connectivity for a single service, federation means simple interconnection. On the Internet, the picture is more complicated. As already mentioned, the Internet is a layered environment. Physical connectivity is separable from logical, application, and content elements. Furthermore, the Internet is a packet-switched network.⁶¹ Traffic does not flow across pre-defined, exclusive paths, but is split up and routed in real-time. More links across the network increase the capacity of the Internet to sustain more and more sophisticated connections. Specialized providers, with different levels of infrastructure, can provide various services to enhance the network. For example, content delivery networks (CDNs) provide overlays that improve Internet performance, benefiting both users and network operators.⁶² This rich environment depends critically on interconnection through open standards.

The major innovators and business success of today's broadband Internet are a testimony to the value of federation. For example, Google can pull in content from across the entire Web to generate its search engine indices, and can deliver its services across a globally distributed network of data centers. And Facebook can rapidly build a social network encompassing tens of millions of users, because those users already share

61. For an example of a packet-switched network, see Kevin Werbach, *Digital Tornado: The Internet and Telecommunications Policy* 10 (FCC Office of Plans and Pol., Working Paper No. 29, 1997), http://www.fcc.gov/Bureaus/OPP/working_papers/oppwp29pdf.html.

62. See John Dilley, Bruce Maggs, Jay Parikh, Harold Prokop, Ramesh Sitaraman & Bill Weihl, *Globally Distributed Content Delivery*, 6 IEEE INTERNET COMPUTING 50 (2002).

common platforms such as the Web and email. Facebook itself is now becoming a platform for thousands of applications and groups, by opening up its interfaces to third parties. All these users originate on different kinds of networks, in different geographical locations, owned by many different providers. Those factors become irrelevant once they reach the great global pool of connectivity that is the Internet.⁶³ Any user can potentially use any service, and on the other side, an application developer can potentially reach any user. The network effects build on each other, producing the vibrant ecosystem of today's Internet.

B. The Threat of Fragmentation

The rise of broadband may produce a new fragmentation of connectivity. At first, this may sound unlikely. Why would anyone seek to undermine the federated structure that has served the Internet so well? And even if some parties adopted proprietary strategies, how could they succeed against the overwhelming inertia of the current, federated model?

The answer to both questions lies in the basic dynamics of growing networks.⁶⁴ Network effects tend to produce powerful hubs, because new nodes express "preferential attachment" to the most-connected nodes in the existing network.⁶⁵ The best-connected nodes become even more dominant as the network grows. Network scientists refer to this as the commonly-occurring "scale-free" or "power law" distribution of many network attributes.⁶⁶ To a point, everyone benefits from standards, even if they are de facto standards defined by private parties such as Microsoft or Google. Eventually, though, the pendulum swings the other way. The dominant hubs become tempted to exploit their control for private gain, and those at the periphery chafe at the power the hubs enjoy.⁶⁷ Both pressures produce proprietary alternatives to the common standards. As network links are broken or weakened, the topology of the network can quickly shift from one that is largely unified to a collection of loosely-

63. Of course, some differences such as connection speed matter to the user experience, especially with services such as video. These are issues of network capability, not network differentiation.

64. See ALBERT-LÁSZLÓ BARABÁSI, ET AL, EDS., *THE STRUCTURE AND DYNAMICS OF NETWORKS* (2006); MARK BUCHANAN, *NEXUS: SMALL WORLDS AND THE GROUNDBREAKING SCIENCE OF NETWORKS* (2002); Matthew O. Jackson, *The Stability and Efficiency of Economic and Social Networks*, in *ADVANCES IN ECONOMIC DESIGN* (S. Koray & M. Sertel, eds., 2003); DUNCAN J. WATTS, *SIX DEGREES: THE SCIENCE OF A CONNECTED AGE* (2003); Werbach, *supra* note 46.

65. See Albert-László Barabási & Réka Albert, *Emergence of Scaling in Random Networks*, *SCIENCE*, Oct. 15, 1999, at 509-10.

66. See ALBERT-LÁSZLÓ BARABÁSI, *LINKED: HOW EVERYTHING IS CONNECTED TO EVERYTHING ELSE* (2002); *id.* at 509.

67. See Werbach, *supra* note 46.

connected islands.⁶⁸

The fragmentation of the broadband Internet is most visible in three areas: application exclusivity and service tiering; non-universal addressing; and interconnection patents.

1. Application discrimination

A core design feature of the Internet is that it is not limited to providing a particular application or class of application. It is, in the words of renowned Internet engineer David Clark, “oblivious” to the uses of the network.⁶⁹ Any service that can be encapsulated into the TCP/IP protocol stack can be delivered over the network. As has already been discussed, this makes the Internet very different from platforms such as the public switched telephone network, which are highly optimized for one kind of service.⁷⁰ The telephone network does an excellent job of delivering reliable, good-quality voice phone calls, but its suitability for other applications is limited. The Internet promotes innovation because the network itself is not optimized for one service and is flexible enough to support unanticipated applications.⁷¹

The application indifference of the Internet is in danger of giving way to a collection of “fenced gardens”: application environments that are tied to the user’s access provider.⁷² Retail broadband access in the U.S. is largely a duopoly, with major cable and telephone companies dominating the market.⁷³ Two companies—AT&T and Verizon—control the lion’s share of the DSL access market nationwide, and a small number of cable operators, led by Comcast and Time Warner, are their primary competitors.⁷⁴ The raging debate over network neutrality revolves around the concern that those providers will use their power to discriminate

68. *See id.*

69. *See* BERNARD ABOBA & ELWYN DAVIES, REFLECTIONS ON INTERNET TRANSPARENCY 1 (2007), <http://tools.ietf.org/rfc/rfc4924.txt>; DAVID CLARK, ET AL., NEW ARCH: FUTURE GENERATION INTERNET ARCHITECTURE (2003), <http://www.isi.edu/newarch/iDOCS/final.finalreport.pdf>.

70. There are some optimizations (e.g. more file transfer than real-time services) implicit in the protocol design, based on the assumption of the engineers at the time. However, such tradeoffs are necessary in any engineered system. The Internet protocols may express an implicit bias for certain applications, but they in no way preclude other applications, nor do they prevent network operators, service providers, and equipment vendors from devising clever techniques to circumvent the limitations in the protocol.

71. KEMPF, ET AL., THE RISE OF THE MIDDLE AND THE FUTURE OF END-TO-END: REFLECTIONS ON THE EVOLUTION OF THE INTERNET ARCHITECTURE 7-8 (2004), <http://tools.ietf.org/html/rfc3724>.

72. Some are even more tightly-controlled “walled gardens”, offering little access beyond the approved applications and content.

73. *See* Turner, *supra* note 9, at 24.

74. A few independent providers such as Earthlink remain active, but their share of the market is small, and they depend on reselling incumbent services.

against unaffiliated application and content providers.⁷⁵ Such exclusive or exclusionary practices would have the effect of fragmenting the Internet into distinct zones.⁷⁶ If Verizon users could access peer-to-peer video content but Comcast users could not, or if customers of only some access providers could use voice over IP services, the Internet would no longer be a unitary application environment.

While most of the debate over network neutrality involves the largest network operators, small rural operators may be more likely to impose discriminatory restrictions on applications or content. Rural local exchange carriers often depend on inflated interstate access charges for a substantial portion of their revenues, which creates a strong incentive to block or degrade VoIP services that circumvent those charges.⁷⁷ This was apparently the case for the clearest violation of network neutrality to date, when Madison River, a rural phone company, blocked Vonage from its broadband network.⁷⁸ Moreover, rural broadband providers are likely to face less competitive pressures, and more bandwidth constraints for backhaul connections from their networks, both of which create incentives for discriminatory treatment of certain traffic. And while the major national providers are now subject to significant public scrutiny because of the political significance of the network neutrality debate, smaller providers in under-served areas may have an easier time engaging in practices that constrain uses of their broadband networks.

2. Addressing

Addressing is an overlooked element of a unitary communications network. If a user cannot reach another user, or some other resource, it is as though they are not on the same network. Globally routable addresses can require many levels of standardization and agreement. The PSTN, for example, uses universal e.164 telephone numbers, and area codes managed through inter-governmental frameworks such as the North American Numbering Plan.⁷⁹ This system allows each of the more than three billion telephone users worldwide to potentially call any other.

The broadband transition poses two major threats to unitary addressing. First, VoIP and other Internet-based real-time communications services do not necessarily use existing telephone numbers. Skype, for example, uses its own proprietary usernames, which

75. See Yoo, *Beyond Network Neutrality*, *supra* note 11.

76. See *id.*

77. Schewick, *supra* note 11 at 347.

78. Madison River Commc'ns, LLC & Affiliated Companies, *Order*, 20 FCC Rcd. 4295, 4297 (2005) [*hereinafter* Madison River Order].

79. Administration of the North American Numbering Plan, *Notice of Inquiry*, 7 FCC Rcd. 6837 (1992).

are only useful within Skype.⁸⁰ The value of such private namespaces depends on the size of the user base. Skype has over 300 million users, so there are powerful incentives to adopt its platform rather than another service that offers less widespread calling partners.⁸¹ The potentially anti-competitive effects of addressing were considered in the AOL-Time Warner merger, when control over instant messaging was considered significant, and may be raised again if Microsoft successfully acquires Yahoo!.⁸² With regard to broadband and telephone networks in underserved areas, however, this concern is not substantial today, since a PSTN connection and telephone number will always be a part of the service bundle.

A greater concern involves the addressing mechanisms behind the scenes. Information is routed between devices on the Internet using what are called Internet Protocol (IP) numbers. The current version of the protocol, IPv4, was developed before the Internet became a global commercial phenomenon.⁸³ It supports about four billion unique network addresses.⁸⁴ Between inefficiencies in address allocation and the massive growth of the network, those addresses are rapidly being exhausted. It is now estimated that all available IPv4 addresses will be give out by 2011.⁸⁵ A new version of the protocol, IPv6, offers a vastly larger address space.⁸⁶

However, although IPv6 was adopted as a technical standard more than ten years ago, adoption has been slow. Networks see little reason to spend the money involved in upgrading until there is a crisis. One result is that many networks use techniques such as Network Address Translation (NAT) to conserve IP addresses.⁸⁷ NAT, however, means there is no end-to-end visibility across the network, which can impair some services. A second consequence of IP address exhaustion is that the

80. Skype does allow users to dial in or out through the PSTN using traditional telephone numbers.

81. See Press Release, Skype, Skype Announces Unlimited Long-Distance Calls to Over a Third of the World's Population (Apr. 21, 2008), http://about.skype.com/2008/04/skype_announces_unlimited_long.html.

82. See Philip J. Weiser, *Internet Governance, Standard Setting and Self-Regulation*, 28 N. KY. L. REV. 822-42 (2001) (concerning AOL-Time Warner); *Microsoft v Google: When Clouds Collide*, THE ECONOMIST, Feb. 9, 2008, http://www.economist.com/business/displaystory.cfm?story_id=10650607.

83. See INFORMATION SCIENCES INSTITUTE, INTERNET PROTOCOL (1979), <http://www.networksorcery.com/enp/ien/ien111.txt>.

84. See *Upgrading the Internet*, THE ECONOMIST, Mar. 24, 2001, at 32.

85. See Neil Weinberg, *D-Day is Coming Up Fast*, NETWORK WORLD, June 28, 2007, <http://www.networkworld.com/news/2007/062807-ipv6-deadline.html> (stating ARIN head John Curran's estimate of a 2011 exhaustion date).

86. Internet Engineering Task Force Request for Comment, RFC 2460, Internet Protocol Version 6 (IPv6) Specification (1998), <http://www.ietf.org/rfc/rfc2460.txt>; IPv6: The Next Generation Internet!, <http://www.ipv6.org/>.

87. COMMITTEE ON THE INTERNET IN THE EVOLVING INFORMATION INDUSTRIES, THE INTERNET'S COMING OF AGE 7 (2001).

IPv6 transition will have significant impacts on Internet connectivity. If many networks continue to lag in adoption of IPv6, unitary connectivity could be threatened as IPv4 addresses are exhausted. Users of one Internet service provider or backbone might have difficulty reaching users of others, moreover, China has determined that IPv6 represents an opportunity to define the next generation of the Internet. It is investing significant resources to make its implementations of IPv6 into *de facto* standards.⁸⁸

Broadband networks being deployed in rural and other under-served areas will have choices to make about the addressing mechanisms they adopt. If they fail to build in IPv6 support from the start, they may not have the resources to upgrade in the next few years, when IPv4 address exhaustion becomes acute. That will lead to a variety of responses that make those networks less effectively connected to the rest of the Internet.

3. Interconnection patents

A final area of concern is that patent holders will use their exclusive rights over key interconnection technologies to prevent smooth federation of broadband networks, especially for VoIP. Several companies, beginning with Verizon, successfully sued the VoIP startup Vonage for infringing their patents, nearly forcing Vonage out of business.⁸⁹ The most disconcerting aspects of the litigation are what many of the patents, including Verizon's cover: interconnection of VoIP services with the PSTN.⁹⁰ Vonage operates as a direct competitor to traditional phone services, offering customers the ability to use ordinary telephones and phone numbers. It therefore must translate between VoIP and calls originated and terminated on the PSTN. The basic technical standards and addressing systems involved are industry standards and non-proprietary, but the implementation methodologies for implementing a service like Vonage's are patentable.⁹¹

Interconnection patents strike at the heart of the unitary network. They take the common resource of interconnection and turn it into a proprietary property right. Moreover, because most of the major incumbent operators and equipment vendors hold some patents on VoIP technologies, there is great potential for patents to be used oligopolistically as a barrier to competitive entry. Vonage had business problems unrelated to the patent litigation, but the fact that it was the

88. See Ben Worthen, *China Builds a Better Internet*, CIO MAG., July 15, 2006, http://www.cio.com/article/22985/Internet_Strategy_China_s_Next_Generation_Internet.

89. See Laura Holson, *A Settlement By Vonage Over Patents*, N.Y. TIMES, Oct. 9, 2007, at C1; Kevin Murphy, *Legal Costs Hit Vonage Hard*, COMPUTERWIRE, Nov. 9, 2007.

90. See Holson, *supra* note 89; Murphy, *supra* note 89.

91. See Holson, *supra* note 89; Murphy, *supra* note 89.

company targeted by patent-holders raises the possibility that the patents are being used anti-competitively. In the early days of telephony, AT&T used its patents over key technologies for long-distance transmission to maintain its dominance over independent carriers.⁹² The current VoIP situation bears some similarities to that behavior.

As convergence proceeds, a greater array of voice, video, and data services will have to be delivered across diverse legacy and new networks. It is hard to imagine that there are not many other issued patents similar to those asserted against Vonage, which could be deployed against providers of converged broadband services. Rural broadband providers are unlikely to be the holders of these patent portfolios. However, the kinds of services delivered over their networks will depend on how interconnection patents are enforced. If the Vonage experience is a harbinger of things to come, technologies such as VOIP, which have the potential to greatly reduce costs and increase functionality of telephony in rural as well urban environments, will be significantly limited.

IV. MAKING THE CONNECTION BETWEEN SUBSIDIES AND FEDERATION

The potential balkanization of broadband is not just an Internet concern. Data communications networks are converging with voice and video networks. Cable operators already primarily use VOIP to deliver telephony, and telephone companies such as Verizon are employing packet-based technologies to deliver video. As communications networks evolve, they will move increasingly from the legacy technologies of the PSTN to architectures based on Internet technologies. This transition may be slower for small rural incumbents, who have limited capital budgets and no competitive pressures to upgrade. However, in under-served areas where broadband deployment catalyzes new network investment, the changeover may come more quickly. All this means that the ubiquity and unitary structure of broadband will increasingly reflect the character of telecommunications as a whole.

While diversity of platforms and service offerings can be positive developments, excessive broadband balkanization represents a dangerous possibility, particularly for users in under-served areas and communities. By definition, these are the users who are perceived as being more expensive to serve, or less desirable as customers for existing providers. If broadband access becomes a collection of different packages based on the decisions of the access providers or other intermediaries, those in need of

92. See AMY FRIEDLANDER, NATURAL MONOPOLY AND UNIVERSAL SERVICE: TELEPHONES AND TELEGRAPHS IN THE U.S. COMMUNICATIONS INFRASTRUCTURE, 1837-1940, 42-53 (Corporation for National Research Initiatives 1995).

universal service mechanisms are likely to receive the most restricted offerings. Some variability between different areas, such as higher-speed broadband plans in cities compared to rural areas, makes good economic sense and still provides the underserved communities with the floor connectivity levels which public policy is most concerned about. With no limits on the balkanization of the network, however, under-served users may not enjoy the true connectivity benefits the national broadband strategy is designed to deliver. They may be structurally locked out of the capabilities that mainstream users enjoy, a gap that will only grow larger as the network and its services evolve.

The potential fragmentation of the Internet is therefore a threat to universal broadband. However, it is a different threat than the absence of broadband access networks in particular locations. Addressing either ubiquity or unitary service individually would do little to promote the other goal. The subsidy mechanisms that support widespread broadband deployment in under-served areas will not, by themselves, reduce the likelihood of Internet fragmentation. By the same token, FCC policies to promote open interfaces and interconnection across the federated Internet will not directly increase broadband availability in rural areas. If, however, the government adopts a ubiquitous broadband framework along the lines set forth in Part II, it would offer a unique opportunity to address unitary service at the same time.

Both ubiquity and unitary service are facets of universal broadband, and it makes sense to link them together. A new broadband policy for the U.S. should condition the benefits it offers on adherence to open interconnection requirements. This condition could apply to the new reverse auction mechanism proposed here, or to broadband subsidies from existing universal service funding mechanisms.

Specifically, the interconnection obligation could include the following:

- A commitment to adhere to the FCC's Internet Policy Statement⁹³ (assuming such obligations do not otherwise become mandatory under further FCC action or federal network neutrality legislation).
- Support for IPv6 addressing across their networks.
- Not assert any patent against a provider seeking to interconnect with its network for the purpose of providing telecommunications or Internet services.

93. See Appropriate Framework for Broadband Access to the Internet over Wireline Facilities, *Internet Policy Statement*, 20 FCC Rcd. 14,986, 14,987-88 (2005).

These basic commitments cover the main areas where Internet fragmentation seems likely. These requirements would not address every possible scenario of Internet balkanization, but they would ensure that baseline end-to-end connectivity is available along the most significant dimensions.

The first condition addresses network neutrality. The FCC's Policy Statement asserts that consumers are entitled to access the lawful Internet content of their choice, run applications and use services of their choice, connect their choice of legal devices, and to competition among network providers, application and service providers, and content providers.⁹⁴ Though it does not go as far as many network neutrality proposals, it provides a minimal set of guarantees against the kinds of anti-competitive practices that were at issue in the *Madison River* case.⁹⁵ The Policy Statement is, however, not an enforceable FCC order. Requiring recipients of broadband subsidies to adhere to it would ensure that one segment of the industry, perhaps the one most likely to engage in anti-competitive limitations on Internet innovation, will face network neutrality requirements. The Commission has already adopted such a piecemeal approach, when it agreed to temporary network neutrality conditions on AT&T as part of its merger with BellSouth.⁹⁶ And in this case, the Commission would be putting conditions on a grant of funding, much as Congress often imposes conditions on funds it provides to state governments. The case for network neutrality requirements is stronger when they are in return for a benefit, rather than an over-arching industry mandate.

The second condition would alleviate the potential balkanization of address space. Network operators in under-served areas will likely be purchasing new equipment to deploy and improve their broadband capabilities. The cost of IPv6 compliance may therefore be small or non-existent. However, given the slow pace of the IPv6 transition, such providers may need an incentive to prioritize IPv6 compliance in their network deployment plans.⁹⁷ Moreover, by requiring providers that accept new broadband subsidies to adopt IPv6, the requirement would have a side benefit. It would increase demand for compliant equipment

94. See Telecommunications Act of 1996, Preamble, Pub. L. 104-104, 110 Stat. 56 (1996) (enacting 1996 Act "to 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.").

95. Skype allows users to dial in or out through the PSTN, using traditional telephone numbers. See *Madison River Order*, *supra* note 78.

96. Letter from Robert W. Quinn, Jr., Senior Vice President, AT&T Servs. Inc., to Marlene H. Dortch, Sec'y, Fed. Comm'n. Comm'n. (Dec. 28, 2006), http://www.fcc.gov/ATT_FINALMergerCommitments12-28.pdf.

97. There are mechanisms to provide backward compatibility with IPv4 networks elsewhere.

among vendors, and would increase the number of networks and backbones with IPv6 support. Even though many of the networks involved will be small, this change may help produce a critical mass of IPv6-compliant networks, which will encourage others to make the investment. While there are many other aspects of addressing that are subject to fragmentation, the government should be careful about intervening too much into the technical decisions of network operators. IPv6 is the one area where the industry standard is crystal clear.

Finally, the patent condition will prevent a Vonage-type situation from emerging among the networks receiving broadband subsidies. The small rural providers who receive broadband subsidies are not likely to be significant patent holders. So the direct effects of such a condition may be largely symbolic. Even so, by establishing that interconnection patents are potentially as significant a barrier to competition and innovation as content or application discrimination, this condition will raise awareness about the threat. The FCC does not assess liability for patent infringement, so its ability to address the fragmentation threat from interconnection patents is limited. Reform of the patent process itself, or Congressional action to immunize providers who might run afoul of over-broad interconnection patents, may be needed to fully address this challenge. Incorporating patent limitations into the broadband subsidy framework will establish a precedent for future action.

All in all, tying these open interconnection obligations to universal broadband funding would have a significant impact. Even though only providers reaching rural and other under-served areas would be directly affected, the regime would create a template for open connectivity that could be more broadly adopted. The creeping fragmentation of the Internet reflects a weakening of norms that encouraged open connectivity. If universal broadband programs create a new cadre of service providers who are used to following such approaches, it may help turn the tide back toward those norms. The importance of unitary service, alongside ubiquity, to a full conception of universal service, would once again be recognized.

CONCLUSION

The plan laid out here is designed to address the greatest challenges associated with truly ubiquitous broadband in the U.S. The federal government, as well as states and localities, could certainly choose to do more. Studies have documented the massive economic stimulus that broadband deployment can produce.⁹⁸ However, given fiscal constraints,

98. *E.g.* ROBERT W. CRANDALL & CHARLES L. JACKSON, THE \$500 BILLION OPPORTUNITY, http://www.att.com/public_affairs/broadband_policy/BrookingsStudy.pdf.

and the possibility that market forces will achieve much of what the government seeks, it makes sense to begin with a limited program that focuses on the areas of most significant need.

The most important element of any national broadband strategy is that it *be* a national broadband strategy. Raising the policy status of broadband, and especially of universal broadband, will catalyze other activities that promote investment and innovation. The time to think of broadband policy as a luxury has passed. So has the time to view it as a linear extension of policies designed for telephone service. Broadband is the future. It demands policies that reflect both its unique potential, and the novel challenges it raises.

ROASTING THE PIG TO BURN DOWN THE HOUSE: A MODEST PROPOSAL*

STUART MINOR BENJAMIN†

This essay addresses the question whether one should support regulatory proposals that one believes are, standing alone, bad public policy in the hope that they will do such harm that they will ultimately produce (likely unintended) good results. This question can arise in many contexts. If one opposes a certain policy that will sound attractive to voters and/or legislators and would be popular in small doses but disastrous in large doses, one may decide to support the large dose, in the hope that people will soon realize their mistake. Or one may regard a set of proposed regulations as foolish and likely to hobble the industry regulated, but perhaps desirable if one believes that we would be better off without that industry.

I consider this question with respect to spectrum policy. One of the major impediments to greater spectrum liberalization is incumbents that likely are not the highest and best use of the wireless frequencies allocated to them. There is debate as to the desirability of spectrum rights for particular entities versus a commons model,¹ but there is no

* With apologies to Jonathan Swift, who is much cleverer than I am. See JONATHAN SWIFT, A MODEST PROPOSAL (1729). As for the part before the colon, the Supreme Court has frequently noted that some regulations, particularly in the speech context, may have such far-reaching negative consequences that they amount to burning the house to roast the pig. See, e.g., *Butler v. Michigan*, 352 U.S. 380, 383 (1957) (“The State insists that, by ... quarantining the general reading public against books not too rugged for grown men and women in order to shield juvenile innocence, it is exercising its power to promote the general welfare. Surely, this is to burn the house to roast the pig.”); *Ashcroft v. ACLU*, 535 U.S. 564, 604-05 (2002) (“In evaluating the overbreadth of [this] statute, we should be mindful of Justice Frankfurter’s admonition not to ‘burn the house to roast the pig.’” (quoting *Butler*, 352 U.S. at 383)); *Sable Commc’ns of Cal., Inc. v. FCC*, 492 U.S. 115, 127, 131 (1989) (invoking this quotation twice, for good measure); *Reno v. ACLU*, 521 U.S. 844, 882 (1997) (“In *Sable*, we remarked that the speech restriction ... there amounted to ‘burn[ing] the house to roast the pig.’” (citation omitted)).

† Professor of Law, Duke Law School.

1. Compare Yochai Benkler, *Overcoming Agoraphobia: Building the Commons of the Digitally Networked Environment*, 11 HARV. J. L. & TECH. 287 (1998) (envisioning new networks that largely avoid interference, and contending that such networks will not be created by private actors, such that the most economically efficient option is for the government to create a wireless commons), with Stuart Minor Benjamin, *Spectrum Abundance and the Choice Between Private and Public Control*, 78 N.Y.U. L. REV. 2007 (2003) (noting that either the

real debate that our current system of spectrum rights keeps some lower-valued uses on wireless frequencies at the expense of higher-valued uses. This phenomenon flows from legal restrictions on the services that licensees can offer. Most existing licensees are permitted to offer a small number of services. Other services might be more valuable, but they are not allowed to provide them.²

Unsurprisingly, incumbents push for greater flexibility in the services they can offer (and, ideally, the ability to subdivide and sell or lease their spectrum rights). But while incumbents want greater flexibility, what they resist mightily (and understandably) is any change in spectrum policy that would reduce or eliminate their spectrum rights. Meanwhile, the general public has an interest in spectrum rights being devoted to their highest valued uses. That could be achieved by giving incumbents greater flexibility. But if such flexibility seems politically unpalatable, another way of moving to higher valued uses would be for the government to reallocate spectrum to new uses that the public would value more highly. And a simple way of achieving that would be to reclaim spectrum devoted to lower valued uses from the existing licensees, to allocate it to higher valued uses, and then to distribute (ideally, via auction³) spectrum rights to a new set of licensees.

This last idea alarms incumbents, for the obvious reason that they would lose something of value. And, as it turns out, incumbents have been successful in opposing any large-scale changes in spectrum allocation. The main reason for their success is that the wealth they derive from their control of valuable frequencies not only gives them an incentive to hold onto that spectrum but also gives them the funds to be effective lobbyists. Indeed, lobbyists for spectrum incumbents have done a good job of framing the issue. They have argued against possible changes to spectrum allocation by questioning why the government is trying to get rid of them. This line of argument privileges the status quo, of course—that is its essence, and purpose. The result is that the hurdles to changes in spectrum allocation are considerable. There have been

government or a private party will have to create protocols for the proposed networks, that private actors will create these networks if they are as attractive as Benkler suggests, and that the disadvantages of private control are outweighed by the disadvantages of public control).

2. See Stuart Minor Benjamin, *The Logic of Scarcity: Idle Spectrum as a First Amendment Violation*, 52 DUKE L.J. 1 (2002).

3. The literature on auctions is immense. There are tradeoffs involved, but the consensus is that, among methods of assigning licenses to particular licensees, auctions are the best option. See, e.g., Gregory L. Rosston & Jeffrey S. Steinberg, *Using Market-Based Spectrum Policy to Promote the Public Interest*, 50 FED. COMM. L.J. 87, 107-08 (1997); Pablo T. Spiller & Carlo Cardilli, *Towards a Property Rights Approach to Communications Spectrum*, 16 YALE J. ON REG. 53 (1999); Evan Kwerel & Alex D. Felker, *Using Auctions to Select FCC Licensees* (FCC Off. of Plans and Pol'y, Working Paper No. 16, 1985), http://www.fcc.gov/Bureaus/OPP/working_papers/oppwp16.pdf.

changes in spectrum allocation, and changes will continue to occur, but what is remarkable is how little change there has been.

This matters a great deal to information policy. Simply stated, creating new wireless services, expanding existing valuable wireless services, and experimenting with spectrum commons are made more difficult by the paucity of available spectrum.

In looking at current users of spectrum, two big ones jump out—over-the-air television broadcasting and government. For decades, broadcasting was the central use of spectrum, and the only one that was widely profitable. That has changed with the rise of wireless services like cellular telephony and the rise of alternatives to broadcast for the receipt of television signals, in the form of cable and satellite television. I have written elsewhere about the desirability of moving all, or at least most, over-the-air television broadcasting off the spectrum, and I will not belabor those arguments here.⁴ But a few points bear emphasizing. First, 86% of American households subscribe to cable or satellite.⁵ Second, the main advantage of transmission via spectrum versus transmission via wire—mobility—is largely inapplicable to broadcast television. The percentage of televisions that are in motion, watching over-the-air broadcast signals, and unable to access other means of receiving those signals (such as satellite) is tiny. To put the point differently, very few people watch broadcast television in a moving vehicle that does not have satellite reception. Third, television broadcasting occupies hundreds of megahertz of “prime beachfront” spectrum—frequencies that can be utilized for a wide range of uses, including many forms of point-to-point communication. The value of that spectrum is enormous. The revenue generated by selling the spectrum would depend on auction prices, of course, but the estimated range is in the hundreds of billions of dollars.⁶ And because service providers could not capture all the value of the spectrum, the value to citizens—the consumer surplus created by the new

4. See Stuart Minor Benjamin, *Evaluating the Federal Communications Commission's National Television Ownership Cap: What's Bad for Broadcasting Is Good for the Country*, 46 WM. & MARY L. REV. 439 (2004).

5. Annual Assessment of the Status of Competition in the Market for Delivery of Video Programming, *Annual Report*, 21 FCC Rcd. 2503, app. B, tbl. B-1 (2006).

6. See Evan R. Kwerel & John R. Williams, Changing Channels: Voluntary Reallocation of UHF Television Spectrum vii (FCC Off. of Plans & Pol'y Working Paper Series, Working Paper No. 27, 1992), http://www.fcc.gov/Bureaus/OPP/working_papers/oppwp27.pdf. Another estimate of the auction value of the broadcast spectrum, based on the auctions for spectrum for third generation wireless services, is \$367 billion. See Michael Calabrese, Battle Over the Airwaves: Principles for Spectrum Policy Reform 4 (New Am. Found., Working Paper, 2001); Thomas Lenard, *No More Delays on Digital TV*, C|NET, May 4, 2004, <http://news.cnet.com/2010-1040-5203382.html>.

services—would far exceed the auction revenue.⁷

There would be costs to ending television broadcasting. One of these need not (and likely would not) be the demise of the companies that currently produce broadcasting, or a diminution in their programming. As I discussed in an earlier article, the very likely result would be that broadcasters would become cable and satellite channels alongside the existing cable and satellite channels—which is the status that broadcasters already occupy for the 86% of homes that rely on cable or satellite.⁸ But there would be a cost in the form of the dislocation of those who rely on broadcast television and cannot afford the alternatives. There is, however, a fairly easy way to shift this cost to the government for those people who are too poor to afford cable or satellite: the government could pay for satellite dishes or cable hook-ups and a basic set of channels (slightly better than those individuals were getting via broadcast) for less than \$10 billion.⁹ Simply stated, the costs of subsidizing cable or satellite service for the 14% of households that do not subscribe to cable or satellite but want television service would be a small fraction of the value of broadcast frequencies, as reflected in the value of those frequencies at auction once they could be used for any service.¹⁰

It is possible that broadcasting is the highest and best use of some of the spectrum, and thus that at least some spectrum licensees that could offer any service would still choose to offer broadcast. That is not an argument in favor of keeping so much spectrum devoted to broadcasting, however: we should still leave the choice to spectrum licensees, so that they can make their own determinations about the highest valued use of their spectrum—whether broadcast or otherwise. But this does underscore the fact that when I talk about the demise of broadcasting, I am doing so on the assumption that broadcast is not the highest valued use of the spectrum. My real complaint, though, is not with broadcasting *per se*, but with spectrum allocation rules that prohibit flexibility in the use of the broadcast spectrum.

In any event, even if broadcasting is the highest valued use of at least a portion of the spectrum, that will almost certainly end soon. The value of spectrum for over-the-air broadcasting will decrease as a result of two basic trends: first, the percentage of households relying on over-the-

7. See Thomas W. Hazlett, *The U.S. Digital TV Transition: Time to Toss the Negroponte Switch* 21 (AEI-Brookings Joint Ctr. for Reg. Studies, Working Paper No. 01-15, 2001) (stating that the annual consumer surplus from new wireless services on broadcast spectrum could be as high as the total auction bids).

8. See Benjamin, *supra* note 4, at 496.

9. See *id.*; Hazlett, *supra* note 7, at 16.

10. See Benjamin, *supra* note 4, at 497-98.

air broadcast will likely continue to decrease, as people subscribe to cable or satellite; second, the percentage of people watching traditional over-the-air networks will almost certainly decrease, continuing a steady decline that began more than 30 years ago.¹¹ Indeed, the interesting question for the future is what percentage of users will move away from television networks (whether broadcast or cable/satellite) toward other forms of entertainment, thus accelerating the decline of broadcast. That is, broadcast has long been receiving a declining share of television viewership, but this may combine with sharp declines in television viewership overall to really hurt broadcasting. All these forces will, I think, ultimately lead the holders of spectrum licenses for broadcast to conclude that there are higher and better non-broadcast uses of their spectrum rights.

If the above is correct, then the government could simply allow broadcasters to offer any service on their spectrum (and subdivide and lease their spectrum to third parties as they see fit), and broadcasters would likely move away from over-the-air broadcast and to new services. The value of other services on frequencies currently devoted to broadcasting would be so high (and so much higher than the value of broadcasting) that an entity free to offer any service would choose something other than broadcasting, and make billions of dollars doing it.¹² This would be an enormous windfall for broadcasters (and, concomitantly, deprive the government of revenues that it would receive if it auctioned those frequencies), but perhaps that is a price worth paying to free up the spectrum.

For better or worse, such a complete opening of broadcast spectrum to other uses is unlikely to occur. Even more unlikely is the prospect that, in the next few years, Congress will force broadcasting off the spectrum. I think it is likely that broadcasting will shrivel, and thus leave the spectrum, in 20 years. But that is a long time to wait.

This sets up the question for this essay: does it make sense to support broadcast regulations that seem undesirable on their own terms but that may result in such harms to broadcasting that broadcasting leaves the spectrum sooner than it otherwise would? This question has particular salience in light of the Federal Communications Commission's

11. See Benjamin, *supra* note 4, at 482 ("In the 1970s, over 90% of viewers watched one of the then-three major broadcast television networks (ABC, CBS, and NBC). Since that time, cable and satellite television have changed the television landscape dramatically. The broadcast networks' share of television viewers has steadily declined as the cable channels' share has increased. In fact, cable channels now have a majority of the audience share: the now-seven broadcast networks combined garner less than a 50% share of hours viewed.").

12. And in the unlikely event that they freely chose to offer broadcasting on at least some of their frequencies, we would know they were doing so because they concluded that this was its highest valued use, not because the government's allocation rules deprived them of options.

January 2008 *Report on Broadcast Localism*¹³ that would effectively require broadcasters to provide locally-oriented programming and to comply with new administrative regulations (including advisory boards reminiscent of the ascertainment requirements that the Commission jettisoned in 1984¹⁴) that could prove fairly costly. But the larger question involves a host of proposals that would raise broadcasters' costs or reduce their potential income. Should we welcome new regulations on broadcasters that will make broadcasting unprofitable?

My contrarian take is that the answer will often be "yes." Some regulations that would be undesirable standing on their own will be desirable once we factor in the degree to which they will hasten the demise of over-the-air broadcasting.

It is worth emphasizing that I am not talking about regulations that impose costs but have even greater benefits on their own terms, because such regulations are desirable in their own right. My focus here is on regulations that have greater costs than benefits when considered in isolation, but which are ultimately desirable because they have the added benefit of leading broadcasting's frequencies to be opened up sooner. Some such regulations will, on their own terms, be near-misses in terms of a benefit/cost analysis. That is, they will have benefits, by leading to better programming or to some non-programming benefit (e.g., a more fair distribution of society's resources), but those benefits will be outweighed by their costs. Some regulations will impose costs and have no benefits because they are ineffectual. Finally, some regulations will impose costs on broadcasters and not only have no benefits but also impose additional costs in their effects (e.g., make programming worse). My point in this essay is that the benefit of pushing broadcasting off the spectrum may transform many of these regulations into desirable ones.

This highlights a very important consideration: if a regulation would tend to entrench broadcasting's place on the spectrum, then the regulation will not help to free up the spectrum and should be avoided. Hurting broadcasters is simply a means towards the goal of opening up wireless frequencies, so a regulation that frustrates this goal hurts broadcasters without achieving any countervailing benefit. The form of entrenchment to which I am referring is regulations that increase the benefits to government officials of having over-the-air broadcasting. This is a straightforward principal/agent problem. Government officials (and in particular members of Congress) have reasons to want to preserve

13. Broad. Localism, *Report & Notice of Proposed Rulemaking*, 23 FCC Rcd. 1324 (2008); see also Standardized and Enhanced Disclosure Requirements for Television Broadcast Licensee Public Interest Obligations, *Report & Order*, 23 FCC Rcd. 1274 (2008).

14. Revision of Programming and Commercialization Policies, *Report & Order*, 98 F.C.C.2d 1075, ¶ 45 (1984).

broadcast television that have nothing to do with what their constituents want.¹⁵ The lifeblood for elected officials—and one of the biggest advantages of incumbency—is free advertising, for example coverage of an official’s visits to local community events.¹⁶ The easiest and most effective way for members of Congress to reach their constituents without having to pay for advertising is to appear at a community event that is covered by the local television station. Constituents have little reason to value this coverage, but politicians do.¹⁷ Because the interests of government representatives and their constituents are not aligned in this respect, we have reason to expect that government actors will aim to protect broadcast television beyond what their constituents would want.¹⁸ Indeed, the history of broadcast regulation is characterized by coziness between government actors and incumbent broadcasters.¹⁹ This has led to government policies that have created barriers to entry for potential competitors and given valuable goodies to broadcasters.²⁰

The possibility of entrenchment suggests a classification scheme for broadcast regulations that impose costs and/or reduce revenues: We should look to see what impact, if any, the regulations would have on broadcasters’ behavior, and what impact they would have on government officials’ desire to keep broadcasting alive because broadcasting benefited them.

Some specific applications will help to flesh this out and to illustrate the degree to which these considerations can point in different directions. Many people would regard free airtime for political candidates

15. See Charles Platt, *The Great HDTV Swindle*, WIRED, Feb. 1997, at 57 (“So long as broadcasting is protected from the free market by legislators who depend on TV to get themselves reelected, Congress will continue giving broadcasters special treatment and favors, and consumers will suffer.”).

16. See Mark Tushnet et al., *Judicial Review and Congressional Tenure: An Observation*, 66 TEX. L. REV. 967, 973 (1988) (stating that incumbents are generally better known than challengers because of free advertising, including local television coverage of the incumbent).

17. See, e.g., Stephen Labaton, *F.C.C. Chief Talks of Frustration and Surprise*, N.Y. TIMES, Sept. 22, 2003, at C6 (noting that local broadcasters “have considerable influence because they are in every Congressional district and control most of the television and radio outlets that are vital to political life....”).

18. Polling regarding the national ownership cap supports this point. See Matthew Rose, *TV Networks Join Forces to Fight Backlash over Station Ownership*, WALL ST. J., Sept. 2, 2003, at A1 (noting a survey showing “that only 11% [of respondents] believe network ownership of their local station is a bad thing and 68% think the market should decide whether that should happen or not” and quoting a pollster as saying “I have never seen a situation where politicians have a greater disconnect from the people they represent”).

19. See THOMAS G. KRATTENMAKER & LUCAS A. POWE, JR., *REGULATING BROADCAST PROGRAMMING* (1994).

20. See Pablo T. Spiller & Carlo Cardilli, *Towards a Property Rights Approach to Communications Spectrum*, 16 YALE J. ON REG. 53, 62-63 (1999) (suggesting that “regulators’ real interest in perpetuating the existing spectrum administration stems from their desire to maintain the steady flow of political rents generated by control over spectrum.”).

as a positive change in programming.²¹ It would also be costly for broadcasters, and if the costs were high enough it would satisfy the criterion of having costs exceeding its benefits. But it is also likely to exacerbate the principal/agent problem, as it would lead politicians to become even more desirous of keeping broadcasting alive than they already are. Thus beyond its benefit/cost ratio standing alone, it would have the additional cost of making broadcasters' continued use of the spectrum more, rather than less, likely – a step in the wrong direction.

The same might be the case for the revival of the personal attack and political editorial rules.²² Incumbents know that their incumbency entails a huge advantage (incumbent re-election rates for the House have averaged 95% since 1990), and so they likely regard the personal attack and political editorial rules as a net benefit.²³ Yes, this means that their opponents will have equal time if attacked. But it also means that the incumbent can respond to an attack, and a sharp attack on a politician is one of the relatively few phenomena that can significantly change the dynamics of a political race. Since the incumbent starts as the presumptive winner of a given election, defanging such a game-changing possibility should benefit an incumbent more often than it hurts her. So the imposition of personal attack and political editorial rules might further entrench over-the-air broadcasting, creating an additional cost of such a regulation.

One possible objection to my proposal is that there might be some regulations that are so inefficient that the prospect of hastening the departure of broadcasting from the airwaves will not be sufficient to justify them. After all, my point is that the demise of over-the-air broadcasting is a benefit that should enter into our regulatory calculus, but there is no guarantee that that benefit will outweigh the cost of a regulation that would otherwise be deadweight loss. My answer is that

21. *See, e.g.*, CTR. FOR RESPONSIVE POLITICS, BEYOND THE 30-SECOND SPOT: ENHANCING THE MEDIA'S ROLE IN CONGRESSIONAL CAMPAIGNS 42-65 (1988); JOHN ELLIS, NINE SUNDAYS 18 (1991); NEWTON N. MINOW ET AL., PRESIDENTIAL TELEVISION 159-66 (1973); Reed E. Hundt, *The Public's Airwaves: What Does the Public Interest Require of Television Broadcasters?*, 45 DUKE L.J. 1089, 1100-09 (1996).

22. These were rules mandating that broadcasters provide airtime for responses to any "personal attacks" or "political editorials" that they broadcast. *See* Red Lion Broad. Co. v. FCC, 395 U.S. 367 (1969) (rejecting a First Amendment attack on the personal attack and political editorial rules); STUART MINOR BENJAMIN ET AL., TELECOMMUNICATIONS LAW AND POLICY 224-227 (2d ed. 2006) (discussing the "tortured path" of ultimately successful attempts to repeal these rules).

23. Ctr. for Responsive Politics, *Reelection Rates Over the Years*, <http://www.opensecrets.org/bigpicture/reelect.php?cycle=2006> (showing that the incumbent reelection rate for the House of Representatives since 1990 has been 95% (and the average has been below 96% in only one of the last five election cycles), whereas Senate reelection rates since 1990 have been a comparatively low 88%).

we should expect a linear relationship between costs imposed on broadcasters and the likelihood of them abandoning over-the-air broadcasting. Every dollar of additional costs for broadcasters is one less dollar of profit, and thus reduces the attractiveness of over-the-air broadcasting as a business model. And don't forget the pot of gold at the end of the rainbow: once broadcasting leaves the spectrum, much more valuable services can utilize those frequencies.

This does suggest one last element of desirably inefficient regulation: it should impose costs on broadcasters but be inexpensive for the government to administer. Government costs are not only deadweight losses but also do not hasten the demise of broadcasting (except insofar as they lead some regulators to want to push broadcasting off the spectrum to eliminate those government costs – an incentive in which we can have little confidence, given the fact that government regulators do not bear those costs). So the most desirable form of regulation is one that does not exacerbate the principal/agent problem and imposes significant costs on broadcasters but not on the government.

Where should this lead us, in terms of broadcast regulation? The most obviously desirable regulations are probably those that are pure deadweight loss—regulations that cost broadcasters significant amounts of money but have no impact on their behavior. This category would include onerous record-keeping requirements, ascertainment requirements, etc. These are unlikely to have any impact on programming, and thus will likely be pure cost.²⁴

Regulations that affect broadcasters' behavior will be trickier, because the attractiveness of the change in the broadcaster's behavior will often be in the eye of the beholder. But at least some regulations would produce arguably positive changes in broadcasters' behavior that would not seem to increase the principal/agent problem. One example is children's television. The Federal Communications Commission effectively requires three hours of children's programming per week, through its processing guidelines.²⁵ Why not increase that to 15 or 25 hours per week? There will be tons more programming aimed at educating children, and it will reduce the viewership of broadcasting and thus hasten the demise of broadcasting – what I would regard as a win-win.

24. In rejecting the original ascertainment and record-keeping rules, the FCC found that those rules had no real impact on programming, and instead were pure costs for broadcasters. See *The Revision of Programming and Commercialization Policies, Ascertainment Requirements, and Program Log Requirements for Commercial Television Stations, Report & Order*, 98 F.C.C.2d 1076 (1984).

25. See *Policies & Rules Concerning Children's Television Programming, Report & Order*, 11 F.C.C. Rcd. 10,660 (1996).

Does this reasoning also apply to allowing uses, users, or licensing regimes that one regards as bad public policy onto the spectrum in the first place? The answer is no, for the simple reason that the power of incumbency is strong. This is due both to the anchoring effect and, more importantly, the fact that incumbency creates a constituency that will lobby fiercely to keep things as they are. Such lobbying can be such a powerful impediment to change that it seems foolhardy to create new incumbents in the hope that the decision will be sufficiently disastrous that it will overcome the lobbying power of the newly created incumbents.

Do my arguments apply to government spectrum? No, because there is a simple, and I believe realistic, way for government officials to properly value spectrum and thus use it more efficiently. The incentive problem is particularly large for government spectrum: Government officials have a great incentive to keep control of as much spectrum as possible, and no meaningful incentive to relinquish any of it. And there is no obvious future impetus for the government to relinquish. The forces at work are fairly straightforward. If government agents are unable to communicate effectively over the airwaves at some future critical point, the officials in charge of the government's spectrum will be blamed. Imagine the reaction if there were a repeat of the communications difficulties that occurred for first responders at the World Trade Center after the planes crashed into the World Trade Center on September 11, 2001.²⁶ The public would be frustrated, and they would be incensed if they heard that a government decision to relinquish some spectrum contributed to the problem. Meanwhile, the opportunity cost of underutilized spectrum is completely opaque – the public does not recognize the costs and government officials have no incentive to recognize them. A government official who decides to relinquish some of her agency's spectrum rights receives no rewards. But all of this leads to an obvious solution, namely that the opportunity cost of spectrum be included in agencies' budgets, so that government agencies' consumption of spectrum would be as costly to them as their purchase of tangible goods. Once we do that, we should expect government officials to use spectrum no less efficiently than they use cars, buildings, etc.

Returning to the focus of this essay, the calculus I am advocating is fairly straightforward: when considering the costs and benefits of a given regulatory regime, our calculation of the benefits should include the hastening of changes in spectrum rights that would create billions of

26. See Jim Dwyer et al., *9/11 Exposed Deadly Flaws in Rescue Plan*, N.Y. TIMES, July 7, 2002, at A1; NAT'L COMM'N ON TERRORIST ATTACKS UPON THE U.S., THE 9/11 COMMISSION REPORT 297-311 (2004).

dollars in consumer value. There is nothing terribly radical about such a calculation. Costs and benefits can take a variety of forms. The point here is that what might seem like a cost (the demise of broadcasting) will have significant benefits (the transition of the current broadcast spectrum to other uses). The result is that regulations that might seem inefficient, standing alone, likely will have benefits that exceed their costs once we take into consideration the benefit of putting spectrum to a higher valued use more quickly.

Am I serious in writing all this? Not entirely, but mostly. I do think that society would benefit if the wireless frequencies currently devoted to broadcast could be used for other services, and the first-best ways of achieving that goal may not be realistic. I am proposing a second-best – a fairly cynical second-best, but a second-best all the same. I would prefer not to go down this path, but if that is the only way to hasten the shriveling of broadcast's spectrum usage, then it is probably a path worth taking.

But the larger mission of this essay is to highlight another point – namely the mistake entailed in devoting any significant set of wireless frequencies to broadcasting. The costs of that devotion are so great that they justify, in a benefit/cost analysis, measures that impose deadweight losses on broadcasters as a means of pushing broadcasting off the spectrum. If that is so, then we should prefer a transition toward greater flexibility in spectrum usage without having the considerable costs entailed in slowly choking off the profits of over-the-air broadcasting. Promulgating regulations that impose deadweight losses will hasten the movement of broadcasting off the spectrum, but the process will still take years and thus impose prolonged transition costs. If we could transition to more valued uses of the spectrum cleanly and quickly, we would be better off. We would have the same benefits and lower costs. This transition could occur in a way that would make broadcasters very happy (conferring value on them by giving them greater flexibility in the spectrum usage) or ways that might not make them happy (requiring them to pay for greater flexibility and/or assigning their frequencies to other users), but any of these outcomes would be preferable to the slow transition that inefficient regulations would entail.

There are some situations in which a slow, measured approach is ideal. Spectrum policy is not one of them. Opening up broadcast spectrum to other uses will create enormous value. One way or another, we need to hasten that process. Spectrum regulators of the world, unite! You have nothing to lose but your jobs.

NO COP ON THE BEAT: UNDERENFORCEMENT IN E-COMMERCE AND CYBERCRIME

PETER SWIRE*

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INTRODUCTION

This essay emerges from my ongoing research about how computers and the Internet change the nature of consumer protection law.¹ The

* C. William O’Neill Professor of Law, Moritz College of Law of The Ohio State University, and Senior Fellow, Center for American Progress. My thanks to Brian Beauchamp and Joseph Buoni for their research assistance. My thanks as well to comments by Scott Charney and other participants at the Silicon Flatirons Conference.

1. PETER P. SWIRE, CTR. FOR AM. PROGRESS, THE INTERNET AND THE FUTURE OF CONSUMER PROTECTION (2006), http://www.americanprogress.org/kf/swire_consumer_protection_report.pdf; Peter P. Swire, *Consumers as Producers* (forthcoming 2009), available at <http://ssrn.com/abstract=1137486>; Peter P. Swire, *Elephants and Mice Revisited: Law and Choice of Law on the Internet*, 153 U. PA. L. REV. 1975 (2005) [hereinafter *Elephants and Mice Revisited*]; Peter P. Swire, *Trustwrap: The Importance of Legal Rules for Electronic Commerce and Internet Privacy*, 54 HASTINGS L.J. 847 (2003) [hereinafter *Trustwrap*]; Peter P. Swire, *Of Elephants, Mice, and Privacy: International Choice of Law and the Internet*, 32 INT’L LAW. 991 (1998) [hereinafter *Of Elephants, Mice, and Privacy*]. For information on a conference I hosted in the summer of 2006

essay has developed into a more general theory about why we should expect underenforcement for e-commerce, cybercrime, and Internet harms more broadly. It also recommends a strategy for addressing that underenforcement, focusing on more federal or federated enforcement.

This essay stresses an “information” problem and a “commons” problem that have largely been overlooked to date. In brief, the information problem arises because only a tiny fraction of complaints and knowledge about an online fraudster or criminal comes from each jurisdiction. Enforcers thus lack the informational basis for telling “good guys” from “bad guys.” Priority bad guys are thus less likely to become the targets for enforcement.

This information problem is compounded by a commons problem. A local enforcer might say: “Why should I spend my scarce prosecutorial resources on a case when most of the victims are outside of my jurisdiction?” In light of the incentives facing enforcement agencies, priority will typically go to cases where many or all of the victims are local. No one will have the incentive to give priority to harms that occur across borders. This is a classic commons problem, because cross-border harms will be left to “someone else.” In short, no one will own these problems, and there will be underenforcement.

These information and commons problems exacerbate the underenforcement problem that has been the focus of the greatest legal attention to date. What might be called the “forensic” problem is the recognition that it is often technically and legally difficult to gather evidence where the perpetrator is physically distant from the victim. The analysis in this essay shows why addressing the forensic problem will not be enough to solve underenforcement for e-commerce, cybercrime, and Internet harms generally.

The basic response should be to shift toward more federal or federated enforcement. Federal enforcement means a greater role, compared to offline activity, for the Federal Trade Commission (FTC) in consumer protection and the Department of Justice for cybercrime. Federated enforcement means building new structures, compared to offline activity, to share information among local enforcers and to encourage local enforcers to bring more enforcement actions even when the perpetrator and many of the victims are outside of their jurisdiction.

Part I of the essay explains the information, commons, and forensic problems in greater depth, and explores policy and legal responses to those problems. Part II responds to five possible critiques, which I call:

that dealt with these matters, see Ctr. For Am. Progress, *The Internet and the Future of Consumer Protection*, <http://www.americanprogress.org/events/2006/7/b593305ct2758595.html>.

(1) “The Internet hasn’t really changed anything”; (2) “Enforcement works better on the Internet”; (3) “We don’t want enforcement for what’s done on the Internet”; (4) “States need to be the laboratories of experimentation”; and (5) “The Feds don’t do small potatoes.”

I. REASONS FOR UNDERENFORCEMENT IN E-COMMERCE AND CYBERCRIME

Part I defines “underenforcement,” and then analyzes the information, commons, and forensic problems that face cyberspace enforcers.

A. *Defining Underenforcement*

I will briefly define what I mean by “underenforcement” before examining in more detail the information, commons, and forensic problems that bedevil cyberspace enforcement. A recent article by Alexandra Natapoff has studied the general phenomenon of underenforcement.² Professor Natapoff’s article responds to criminal law debates about over-criminalization. Her article effectively shows problems from too much laxity, and explains why “underenforcement can be a form of deprivation, tracking familiar categories of race, gender, class, and political powerlessness.”³ Beginning with this focus on serious physical crimes, and predictable negative effects on powerless groups, Professor Natapoff seeks to distinguish generally between “good” and “bad” underenforcement.⁴

My goal is narrower. The focus here is on online fraud, malicious software, and other harms that are carried out through the Internet. This essay highlights the information and commons problems that have not been the subject of clear attention to date. As discussed below, these problems are primarily institutional – the capabilities and incentives of enforcers are likely to work less well in the shift from offline harms to online harms. My proposed responses are also institutional, designed to address the specific problems that arise online.

This essay, therefore, does not attempt to decide on some optimal level of enforcement against fraud or other online harms. Instead, “underenforcement” here refers to a comparative analysis, the way that enforcement against a category of harm is likely to be less effective online than offline. In light of my starting point with consumer protection law, important examples are deceptive practices and outright fraud online. I am asserting that the institutional mechanisms for addressing those

2. Alexandra Natapoff, *Underenforcement*, 75 *FORDHAM L. REV.* 1715 (2006).

3. *Id.* at 1717.

4. *Id.* at 1719.

problems offline, based heavily at the local or state level, are likely to be less effective for online deception and fraud. I call this deficit in effectiveness “underenforcement.” I propose more federal or federated institutions as a response to this underenforcement.

For some categories of harm, there is no simple offline baseline for comparison. Spyware, viruses, and other malicious software, for instance, are a much more severe problem in a networked, online environment than they are for stand-alone computers. For these examples, the meaning of “underenforcement” cannot be clearly defined by comparison with offline harms. In these instances, to define “underenforcement,” we need some societal decision about the definition of what is harmful and how serious the harm is. This essay does not try to give a substantive theory of how to define harms caused by spyware or other malicious software. Nor does it take a position on other substantive issues, such as the hotly-contested issue of sharing or copying files of music or movies through peer-to-peer software. Instead, the significant but limited goal of this essay is to examine the institutional challenges raised by the information, commons, and forensic problems.

B. The Information Problem: “No Cop on the Beat”

Compared to the physical world, online perpetrators rarely live or work in the same jurisdiction as their victims. In the physical world, for instance, a local consumer protection bureau builds up local knowledge about which actors are good guys and which are bad guys. Then, when the next complaint comes in, enforcers prioritize action against the known or suspected bad actors. For the stereotypical example of used car dealers, local enforcers might act quickly against any new signs that Shady Sam is defrauding consumers again, but will give the benefit of the doubt to Honest Amy’s Used Cars the first time a complaint is lodged.

The familiar situation of school discipline illustrates the point. A high school principal might catch students in an ambiguous situation, which may have an innocent or not-so-innocent explanation. For instance, the principal might catch a couple of kids in the locked part of the high school after hours, where students have been caught in the past doing drugs. The principal might treat some students as “good kids,” such as editors of the school paper who say they are staying late to finish an issue. Other kids get treated as “troublemakers,” such as another pair of students who are already on probation. The latter might get taken to the principal’s office and searched, while the former walk away free even if they, too, were carrying drugs.

For the kids who get caught, this different behavior may well seem

unfair. It is quite likely rational, however, for the principal. Under a Bayesian approach to enforcement,⁵ the principal tries to decide between two hypotheses. H-0 is that the person is innocent. H-1 is that the person is guilty. The principal bases his or her decision on the new information, which is that the two students were found in the locked part of the school. The principal also bases the decision on pre-existing information about the suspects, that some are good kids on the newspaper and others are on probation. The decision on whether to enforce is based on a combination of the new and pre-existing information about the suspects. The well-developed insights of Bayesian statistics show why it is rational in many instances for the principal to act differently toward the two sorts of suspects.

This Bayesian approach highlights why a cop on the beat is different from cyber-enforcement.⁶ Cops on the beat build up a great deal of local knowledge.⁷ They learn a great deal about whom to trust and what is “normal” for the time and place. They know what has happened in the neighborhood recently, spotting patterns of new crimes and seeing whether a next crime fits the modus operandi of previous crimes. When an incident occurs, the police officer relies on this background knowledge to assess who is likely telling the truth and when someone should be arrested.

Enforcement against Internet harms, by contrast, suffers from the lack of local knowledge. Both the victims and the perpetrators are geographically scattered. When the enforcement agency receives a complaint, there is no basis for knowing whether the perpetrator has harmed one victim (the local complainant) or numerous victims (who live predominantly in other jurisdictions). That is, the Bayesian signal is much weaker. In contrast to the cop on the physical beat, the cyber-enforcer is far more uncertain about the scope of the problem or whether this alleged perpetrator is more like Honest Amy or Shady Sam.

The initial response to the information problem is to share information among enforcement agencies. Ideally, the geographic scope

5. For further explanation of the Bayes theorem, see William B. Fairley & Michael O. Finkelstein, *A Bayesian Approach to Identification Evidence*, 83 HARV. L. REV. 489 (1970); Stephen E. Fienberg & Mark J. Schervish, *The Relevance of Bayesian Inference for the Presentation of Statistical Evidence and for Legal Decisionmaking*, 66 B.U. L. REV. 771 (1986); Roland Kirstein, Bayes Monitoring, <http://ideas.repec.org/p/bep/dewple/2005-1-1132.html>; Eliezer Yudkowsky, An Intuitive Explanation of Bayesian Reasoning: Bayes' Theorem for the Curious and Bewildered, <http://yudkowsky.net/bayes/bayes.html>.

6. See Susan W. Brenner & Leo L. Clarke, *Distributed Security: Preventing Cybercrime*, 23 J. MARSHALL J. COMPUTER & INFO. L. 659, 663-68 (2005), for one account of the differences between cybercrime and the historical cop on the beat.

7. See Susan W. Brenner, *Toward a Criminal Law for Cyberspace: Product Liability and Other Issues*, 5 U. PITT. J. TECH. L. POLY 2 nn.86-89 (2005), for a discussion of cops on the beat and community policing.

on information collection would match the geographic scope of the harms. For local crimes, in the high school or the neighborhood, the principal or the cop on the beat is in a good position to make the Bayesian estimate of risk. For Internet crimes, however, new mechanisms are needed to share information among enforcement agencies.

Some of these information-sharing institutions have emerged in the relatively short time, about fifteen years, since commercial activity began on the Internet.⁸ The FTC has established Consumer Sentinel, an information-sharing network for consumer harms that now includes over 1,000 law enforcement agencies in Australia, Canada, and the United States.⁹ As of year-end 2007, Consumer Sentinel received over one million reports about consumer harm from government and private sources.¹⁰ A stated goal is to provide precisely the Bayesian assistance needed to face geographically-dispersed threats, “to determine whether a reported scheme is local, regional, national, or cross-border, and to help spot trends for law enforcement.”¹¹ Other examples of information-sharing to fight geographically scattered cyber-harms include: the FBI’s InfraGard program;¹² other cybercrime-oriented information sharing, such as at the G8 level;¹³ and a centralized portal for telecommunications companies for data breaches involving their customers’ information.¹⁴ Additional forms of information sharing will be essential over time to address the reality that many harms caused through the Internet are perpetrated from other jurisdictions.

Information sharing is no panacea, however. My previous research has examined institutional incentives that often make it hard for law enforcement to share information effectively.¹⁵ Information sharing can

8. See OFFICE OF INSPECTOR GEN., NAT’L SCIENCE, REVIEW OF NSFNET (1993), available at <http://www.nsf.gov/pubs/stis1993/oig9301/oig9301.txt> (plain text only), which states that the Scientific and Advanced Technology Act of 1992, 42 U.S.C. § 1862(g) (2000), “subtly modified [the National Science Foundation]’s authority to support computer networks that are not limited to research and education.” This change was an important legal step toward development of commercial activity over what is now called the Internet.

9. See FTC, Consumer Sentinel Network: Law Enforcement’s Source for Consumer Complaints, <http://www.ftc.gov/sentinel/members.shtml>.

10. FTC, CONSUMER FRAUD AND IDENTITY THEFT COMPLAINT DATA (2008), <http://www.ftc.gov/sentinel/reports/sentinel-annual-reports/sentinel-cy2007.pdf>.

11. Int’l Ass’n. of Chiefs of Police, IDSafety, <http://idsafety.org/enforcement/resources/>.

12. Fed. Bureau of Investigation, InfraGard, <http://www.infragard.net>.

13. Computer Crime and Intellectual Prop. Section, U.S. Dept. of Justice, International Aspects of Computer Crime, <http://www.usdoj.gov/criminal/cybercrime/intl.html>.

14. See Scott D. Delacourt, *New CPNI Rules Could Alter Standard Carrier Practices*, WILEY REIN, May 2007, http://www.wileyrein.com/publication_newsletters.cfm?id=10&publication_ID=13066 (describing the “Customer Proprietary Network Information” rules, promulgated as 72 Fed. Reg. 45,911 (2007)). The Secret Service and FBI reporting provision can be found at 47 C.F.R. § 64.2011; the Apr. 2, 2007 FCC Order can be found at 22 FCC Rcd. 6927.

15. Peter P. Swire, *A Theory of Disclosure for Security and Competitive Reasons: Open Source*,

in some instances actually undermine security, such as when suspects learn they are under investigation and evade capture.¹⁶ In addition, there can be serious privacy and other problems depending on how information sharing systems are designed. To address these problems, I have elsewhere proposed a “due diligence” list of steps to take when considering new information sharing systems.¹⁷

In addition to information sharing, another promising response to the information problem is to redefine what counts as a “beat.” Historically, a cop was on a “beat” defined geographically, such as in a certain physical neighborhood. For the Internet, it likely makes sense to organize enforcement along more functional grounds. For instance, the FTC can assign personnel to “beats” such as spam, spyware, and phishing. These persons can gain Bayesian insights due to their knowledge of the subject matter, and not be limited by geography. This approach would lead to a more matrixed approach to law enforcement, with initiatives and budgeting based in part on geography and in part on function.

C. *The Commons Problem: “It’s Not My Problem”*

The commons problem exacerbates the underenforcement caused by the information problem. For example, a local enforcer might say: “Why should I spend my scarce prosecutorial resources on a case when most of the victims are outside of my jurisdiction?” Prosecuting a distant perpetrator will be less of a priority as a matter of deterrence – the local enforcer will rationally prefer to deter conduct where all the deterrent effect is local rather than spread across the Internet. Prosecuting the distant perpetrator will also be less of a priority as a matter of public choice – the enforcer will presumably get more credit locally when all of the victims are local, rather than bringing a case against a perpetrator who mostly harms individuals outside of the jurisdiction. Where enforcement is spread across many local jurisdictions, we thus would expect a classic commons effect: Rational local enforcers will focus on local effects, leading to underenforcement for the system as a whole.

The history of identity theft illustrates how the commons problem operates. As identity theft became more widely known in the late 1990s, a common complaint was that a victim, say in New York, would trace the credit card fraud to someone living elsewhere, say in Los Angeles. Police

Proprietary Software, and Government Systems, 42 HOUS. L. REV. 1333 (2006).

16. Peter P. Swire, *A Model for When Disclosure Helps Security: What Is Different About Computer and Network Security?*, 3 J. TELECOMM. & HIGH TECH. L. 163 (2004).

17. Peter P. Swire, *Privacy and Information Sharing in the War on Terrorism*, 51 VILL. L. REV. 951, 952 (2006).

and prosecutors in Los Angeles would give a low priority to this sort of crime. Based on my experience in working on identity theft policy at the time,¹⁸ one reason for reluctance to act in Los Angeles was entirely rational – enforcers were worried that the New York witness would not appear in court in Los Angeles if they successfully caught the fraudster. A bigger problem, in my view, was the sense in Los Angeles (or any other city in the same situation) that “it’s not my problem.” The victim was outside of the jurisdiction, so press and political credit for the prosecution would likely be lower. After all, a District Attorney gets reelected by protecting the people in the jurisdiction, and not victims far away. In addition, the deterrent effect of prosecution would be less – the perpetrator had already demonstrated that one victim was far away, and so at most only a fraction of the deterrent effect would be in the locality.

A new study by the Center for American Progress and the Center for Democracy and Technology highlighted the limited actions of state attorneys general against fraud on the Internet.¹⁹ The study indicated that in 2007, the FTC reported 221,226 Internet-related fraud complaints, with Internet fraud complaints scoring high as well from states that report statistics.²⁰ Nonetheless, after examining available information, the authors concluded: “Most attorneys general are giving relatively low priority to online fraud and abuse.”²¹ For the online cases that are being reported to the National Association of Attorneys General, over 60 percent involved sexual enticement of minors or child pornography.²² By contrast, just 8.9 percent involved data security, confidential records, or identity theft; 15.5 percent involved online sales and services; and 8.3 percent involved spyware, adware, spam, and phishing (the large majority of which were brought in New York and Washington state).²³ The report stresses that some enforcement efforts at the state level have been pathbreaking, such as the states that have taken the lead in acting against spyware.²⁴ The overall verdict, however, is

18. I served as Chief Counselor for Privacy in the U.S. Office of Management and Budget from the beginning of 1999 until the beginning of 2001, and worked then on identity theft because of the connection to misuse of personal information. For a description of the National Summit on Identity Theft, convened in March, 2000, see Press Release, U.S. Dep’t of Treasury, Treasury Convenes Identity Theft Summit, <http://www.treas.gov/press/releases/ls465.htm>.

19. REECE RUSHING, ARI SCHWARTZ & ALISSA COOPER, CTR. FOR AM. PROGRESS & CTR. FOR DEMOCRACY & TECH., ONLINE CONSUMERS AT RISK AND THE ROLE OF STATE ATTORNEYS GENERAL (2008), http://www.americanprogress.org/issues/2008/08/pdf/consumer_protection.pdf.

20. *Id.* at 2, 8.

21. *Id.* at 13.

22. *Id.* at 18.

23. *Id.* at 2.

24. *Id.* at 1.

consistent with the analysis of this article, that incentives for state enforcement of Internet fraud are not strong enough.

For the commons problem, it is difficult to give local enforcers incentives to go after distant perpetrators. A more federal or federated approach is likely to be more successful. A federal approach could be similar to that discussed above, for the information problem. A federal agency, such as the FTC, could redefine a “beat” on functional rather than geographic lines. For instance, this has already been done to some extent in the FTC, where there are now experts for each type of harm, such as spam, spyware, phishing, or identity theft.²⁵ This federal approach helps solve the commons problem because there is a better match between the geographic area of the harm (national and sometimes international) and the geographic area of the enforcement (nationwide by the FTC).

A more federated approach recognizes the usefulness of enforcement task forces that draw on multiple jurisdictions. Federal-state task forces, for instance, have been used widely for drug prosecutions and, more recently, in fighting terrorism.²⁶ Such task forces have information sharing advantages, because members of the team are experienced at using their own computer systems and are authorized to see into their own classified databases. Such task forces also help address the commons problem, such as if a New York detective and a Los Angeles detective worked together on our identity theft case. In that instance, both detectives could plausibly feel that it is “their” case, and they would get credit within the task force for successful enforcement. These sorts of federated approaches could apply at various levels, including state-to-state, state-to-federal, and between U.S. and non-U.S. agencies.

D. The Forensic Problem, Both Legal and Technical

Compared to the information and commons problems, highlighted above, Congress and policymakers have paid more attention to date to the forensic problem. The forensic problem, as described here, results from the fact that it is often technically and legally difficult to gather evidence where the perpetrator is physically distant from the victim.

The legal aspect of the forensic problem arises where one jurisdiction lacks compulsory process to get evidence in another

25. The FTC has now created the Division of Privacy and Identity Protection within its Bureau of Consumer Protection, to provide functional expertise on privacy, identity theft, and related harms to consumers. *See* FTC, Div. of Privacy and Identity Prot., <http://www.ftc.gov/bcp/bcppip.shtm>.

26. U.S. Dep’t of Justice, Joint Terrorism Task Force, <http://www.usdoj.gov/jttf/>.

jurisdiction. Within the United States, a state or local enforcer will need to get cooperation from enforcers in another jurisdiction, or else go through potentially laborious processes to compel production of documents or ensure cooperation from witnesses. The problems are usually much greater for enforcement involving evidence from outside the United States. Congress has now ratified the Council of Europe Cybercrime Convention, which is designed to smooth international production of evidence relevant to prosecuting crimes occurring over the Internet.²⁷ For enforcement of consumer protection laws, Congress in 2006 enacted the U.S. SAFE WEB Act, easing the procedures for seeking evidence from outside of the United States.²⁸ These laws provide new routes for international cooperation on Internet investigations, but cross-border enforcement is still generally more burdensome than enforcement within a jurisdiction. Additional legal changes may be appropriate over time to ease those burdens.

The technical aspects of the forensic problem are also challenging. Many local and state enforcement agencies lack the technological sophistication of the most effective Internet criminals. Attacks through the Internet also typically evolve at Internet speed, so that it is hard to have effective enforcement except where the enforcers are keeping up with technology full-time.

One logical response, which also responds to the information and commons problems, is to increase support for countering the functional types of Internet harms, such as spam, spyware, phishing, and identity theft. A related response is to designate federal centers of excellence for responding to Internet harms. The Department of Justice did this in the 1990s, such as through the creation of the Computer Crimes and Intellectual Property Section (CCIPS) in the Criminal Division.²⁹ As discussed below, I have suggested that the FTC should upgrade its own technical capacities to fight harms occurring through the Internet.³⁰

27. The U.S. Senate ratified the COE Cybercrime Convention on August 3, 2006. Press Release, U.S. Dep't of State, U.S. Senate Votes To Ratify Cybercrime Convention (Aug. 7, 2006), available on Westlaw at 2006 WLNR 13638778; *see also* U.S. Dep't of Justice, International Aspects of Computer Crime, <http://www.usdoj.gov/criminal/cybercrime/intl.html>. I generally support the aspects of the Cybercrime Convention that facilitate sharing evidence for crimes committed over the Internet. I believe there are other flaws in the Convention, however, as explained in Ctr. for Democracy and Tech., Comments of the Center for Democracy and Technology on the Council of Europe Draft "Convention on Cyber-crime" (Draft No. 25), <http://www.cdt.org/international/cybercrime/010206cdt.shtml>.

28. U.S. SAFE WEB Act of 2006, Pub. Law 109-455, 120 Stat. 3372 (2006) (amending various sections of the FTC Act, 15 U.S.C.A. §§ 41, 45-46, 56-58).

29. *See* U.S. Dep't of Justice, Computer Crime & Intellectual Property Section, www.cybercrime.gov.

30. *See* Swire, *infra* note 37.

II. ANSWERING POSSIBLE CRITIQUES

Part I explained the information, commons, and forensic problems that make Internet enforcement more difficult than offline enforcement. It recommended a more federal or federated approach to Internet harms than the more localized enforcement that exists offline. This Part examines five possible critiques of this approach.

A. *“The Internet Hasn’t Really Changed Anything”*

An initial critique is that “the Internet hasn’t really changed anything.” After all, Montgomery Wards was a major mail-order merchant across state lines a century ago, and telemarketing and national chain stores have been prominent for decades.³¹ So why should we expect the current consumer protection system, based on local and state enforcement, to break down when it comes to the Internet?

Upon inspection, however, emerging forms of interstate commerce have historically led to a greater federal role, as contemplated in this essay for Internet consumer protection and cybercrime. Consider a few examples. First, the blue sky state laws for securities gave way in 1933 and 1934 to our modern federal securities regime, led by the Securities and Exchange Commission.³² Second, the rise of mail-order business was accompanied by a growing role for federal mail fraud prosecutions, later joined by wire fraud prosecutions.³³ Third, sales by telephone, often across state borders, have been matched by a number of federal initiatives, such as the Telemarketing Sales Rule and Do Not Call Rule issued by the FTC.³⁴ Fourth, the emergence of identity theft as a prominent problem has appropriately led to recent federal statutes and enforcement initiatives.³⁵ In short, growing harms from interstate commerce have historically been matched by a growing role for the federal government in addressing such harms.

The Internet poses forensic problems that likely can best be approached with an increased federal presence. On the legal side, the federal government necessarily plays a leading role in getting evidence

31. See Montgomery Ward, About Montgomery Wards, <http://www.wards.com/wards/aboutus.asp>.

32. JOEL SELIGMAN, THE TRANSFORMATION OF WALL STREET: A HISTORY OF THE SECURITIES AND EXCHANGE COMMISSION AND MODERN CORPORATE FINANCE 42-72 (3d ed. 2003) (1982).

33. Federal Wire Fraud Act of 1952, Pub. L. No. 82-554, § 18, 66 Stat. 711, 722 (codified as amended at 18 U.S.C. § 1343 (2006)).

34. Telemarketing Sales Rule, 6 C.F.R. § 310 (2008); Do Not Call Rule, 47 CFR § 64.1200 (2008).

35. Gramm-Leach-Bliley Financial Modernization Act, Pub. L. No. 106-102, § 521, 113 Stat. 1338, 1446 (codified at 15 U.S.C. §§ 6821-6827 (2006)).

from overseas through Mutual Legal Assistance Treaties, other treaties, and diplomatic activities. Federal enforcers also generally face fewer barriers than local or state prosecutors in serving process or otherwise gathering evidence across state lines.³⁶

The technical side of forensics also leads to a greater federal role. Many counties and states will find it hard to stay at the cutting edge of such current consumer protection issues as spam, phishing, computer security, data breaches, and spyware. As I have written previously,

Information technology issues are much more important than before because online commerce and Internet safety lie at the intersection of technology and law enforcement. The FTC must therefore consider a new office of information technology to assist the Commission in making effective decisions about how to protect consumers in Internet activities. This office would parallel the FTC's in-house capability in economics, and would permit the FTC to act strategically to protect consumers from emerging online threats.³⁷

For these technical issues, the FTC can play a leadership role in amassing enough technical expertise to address emerging consumer protection issues. The national role of the FTC, and its growing relationships with enforcement agencies overseas, is also a good match to the national and international nature of online threats to consumers.

B. *"Enforcement Works Better on the Internet"*

A second critique of my under-enforcement thesis would be that enforcement may actually work better on the Internet. Optimists about the potential of the Internet, especially during the bubble of the late 1990s, have been enthusiastic about the "friction-free" and near-perfect market that they say will occur online.³⁸ For these techno-optimists, the Internet offers unprecedented transparency for consumers — individual surfers can comparison shop and reputation systems cue consumers about

36. Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism (USA PATRIOT ACT) Act of 2001, Pub. L. No. 107-56, § 220, 115 Stat. 272, 291 (codified as amended at 18 U.S.C. §§ 2703, 2711 (2006)).

37. Peter Swire, Ctr. for Am. Progress, Funding the FTC: Globalization and New Information Technologies Necessitate an Appropriations Boost, <http://www.americanprogress.org/issues/2007/02/ftc.html>. The idea of a new FTC office of information technology was cited by the Democratic Policy Committee in 2007 as one of its "Fresh 50" policy ideas. DEMOCRATIC POLICY COMM. NEW IDEAS PROJECT, THE 2007 FRESH 50: FIFTY NEW POLICY IDEAS FOR SENATE DEMOCRATS 11 (2007).

38. J. Bradford DeLong & A. Michael Froomkin, *Speculative Microeconomics for Tomorrow's Economy*, in INTERNET PUBLISHING AND BEYOND: THE ECONOMICS OF DIGITAL INFORMATION AND INTELLECTUAL PROPERTY 6, 10-13 (Brian Kahin & Hal R. Varian eds., 2000).

which sellers they should trust.

There is an important element of truth in this optimistic view. Comparison shopping is undoubtedly easier online than offline for many purchases, because it is easier to check prices on a dozen websites than drive to a dozen physical stores. In addition, savvy consumers can easily use modern search engines to check the reputation of various sellers.

With that said, the magical effects of online reputation can easily be overstated. As an opening point, it is useful to remember the tautology that half of consumers are below-average when it comes to sophistication. The history of consumer protection law has shown that successful frauds work well against some consumers even though they would never fool others.³⁹ Consumer protection law should thus not assume that online consumers are all sophisticated both economically and technically.

In addition, my previous work has explained important limits to the techno-optimist vision of online commerce. Reputation systems alone have proven insufficient to protect consumers against fraud. eBay has perhaps the most famous reputation system for e-commerce, in which buyers rate their experience with the numerous sellers who put items up for auction. The original reputation system, however, has had to be supplemented by layers of legal guarantees and a large and growing antifraud enforcement effort.⁴⁰

Along with ways that reputation systems can be gamed by fraudsters, there is a more general limit on the extent that reputation alone is not enough to protect consumers from fraud. For the Internet, I have long stressed the difference between large organizations, which I call “elephants,” and the nimble, small actors, which I call “mice.”⁴¹ In brief, elephants have thick hides when they are attacked, hides which include excellent PR firms and attorneys. But elephants such as famous-brand retailers are particularly lousy at hiding. If Amazon.com or any other famous website is ripping people off on the Internet, then that is likely to be highly visible and enforcers will be alerted quickly.

By contrast, most of the criminal and fraudulent behavior on the

39. For instance, the FTC Statement on Deception states: “An interpretation may be reasonable even though it is not shared by a majority of consumers in the relevant class, or by particularly sophisticated consumers. A material practice that misleads a significant minority of reasonable consumers is deceptive.” *Cliffdale Associates*, 103 F.T.C. 110, 174 n.20 (1984) (citing *Heinz W. Kirchner*, 63 F.T.C. 1282 (1963)), available at <http://www.ftc.gov/bcp/policystmt/ad-decept.htm>.

40. *Trustwrap*, *supra* note 1 (describing legal guarantees and other antifraud measures); see also Mary M. Calkins, Alexei Nikitkov, & Vernon Richardson, *Mineshafts on Treasure Island: A Relief Map of the eBay Fraud Landscape*, 8 J. TECH. L. & POLY 1 (2008) (describing current details of eBay’s antifraud efforts).

41. See *Elephants and Mice Revisited*, *supra* note 1; *Of Elephants, Mice, and Privacy*, *supra* note 1.

Internet is perpetrated by mice who are good at hiding, including those who bombard consumers with spam, spyware, and phishing attacks.⁴² Phishing attacks, for instance, typically send the surfer to a fake but authentic-seeming website. The surfer provides the personal information that the phisher is seeking, and the site itself typically closes down within days.⁴³ The operator of the website thus hides away before enforcers arrive on the scene.

The phishing example highlights three aspects of fraud on the Internet. First, the fraud is done by elusive mice, who hide away in nests that are often offshore. Second, the fraud is done by professional criminals, and not by the sorts of hackers who caused mischief on the Internet in the 1990s. Whereas legitimate businesses care deeply about their brand and online reputation, professional criminals do not. Third, the fraud occurs where the fraudsters devise a way to defeat the effects of reputation. In phishing, the fraudsters create the fake but authentic-seeming website. In spyware, the fraudsters trick the consumers into downloading software programs that the consumers don't realize have harmful effects.

In sum, reputation systems on the Internet are helpful but very far from a complete answer. In the important instances where they are not sufficient, we are likely to see underenforcement due to the information, commons, and forensic problems.

C. *"We Don't Want Enforcement"*

The next critique is that some in the cyberspace community are hesitant to create effective institutions for enforcing against harms on the Internet, for two principle reasons. First, there are disagreements about the extent to which some activities should count as "harms" worthy of enforcement. Notably, there have been vigorous debates about enforcement for file sharing of copyrighted music⁴⁴ and for measures to

42. One variation, which has become more important over time, is that spam rings and other fraudsters have organized themselves on a larger scale, but do their activities from safe nests overseas where local law enforcement does not stop their activity. These organized crime activities are thus no longer truly small mice, but instead what Ari Schwartz has described as "Rodents of Unusual Size." *For FTC, e-Commerce Means Managing 'Mice'*, PHYSORG.COM, July 25, 2006, <http://www.physorg.com/news73065889.html>; *see also* Ctr. for Am. Progress, *The Internet and the Future of Consumer Protection*, <http://www.americanprogress.org/events/2006/7/b593305ct2758595.html>. To go after these "rodents," Internet consumer protection will increasingly need to be part of task forces that include prosecutors experienced in fighting organized crime.

43. NAT'L CONSUMERS LEAGUE, *A CALL FOR ACTION: REPORT FROM THE NATIONAL CONSUMERS LEAGUE ANTI-PHISHING RETREAT 1* (2006), <http://www.nclnet.org/news/2006/Final%20NCL%20Phishing%20Report.pdf>. I served as "reporter" for this document.

44. *See, e.g.*, Electronic Freedom Found., *Intellectual Property*,

combat indecent or pornographic material, especially as accessible by minors.⁴⁵ Those who are opposed to enforcement for the music or pornography actions may not want precedents or effective institutions to combat cybercrime or online fraud.⁴⁶ Second, the techniques for combating cybercrime and online fraud can raise privacy issues about the techniques for tracing online activity.⁴⁷ In response to the first argument, my view is that there should be debates on the merits of each area that some believe cause harm through the Internet. For instance, the rules about online pornographic and indecent material should be based on legal and policy analysis about such material, including the First Amendment implications of possible legal restrictions. The rules about transfer of copyrighted music should also be debated on the merits about copyright law. Similarly, the problems of cybercrime and online fraud should be assessed on the merits. Where reasoned analysis shows harms to victims and underenforcement, then it makes sense to improve enforcement techniques.

I have written extensively elsewhere on the issue of privacy concerns.⁴⁸ Privacy issues are most relevant to the forensic problem of how to trace bad actors. A good approach is the Center for Democracy and Technology position on the COE Cybercrime Convention, that updated forensic techniques should be accompanied by due process and privacy protections.⁴⁹ Privacy issues are sometimes important for the information problem, as discussed in my writing on information-sharing systems.⁵⁰ Privacy issues are not generally important, however, for the commons problems that this essay highlights. The Internet often breaks the geographic link between fraudsters, victims, and prosecutors. The point of this essay is that more federal or federated approaches are needed to solve the resulting information and commons problems.

<http://www EFF.org/issues/intellectual-property> (describing the Electronic Frontier Foundation's position on copyrighted music, which favors broad consumer rights); Recording Industry Ass'n of Am., *Piracy: Online and On the Street*, <http://www.riaa.com/physicalpiracy.php> (describing the Recording Industry Association of America's position on copyrighted music, which favors broad industry rights).

45. See, e.g., *Introduction to the 2007 BYU Law Review Symposium: Warning! Kids Online: Pornography, Free Speech, and Technology*, 2007 B.Y.U. L. REV. 1413 (2007).

46. See, e.g., Natapoff, *supra* note 2 at 1741-42 (describing reasons why underenforcement of intellectual property rights on the Internet may be desirable).

47. See *Elephants and Mice Revisited*, *supra* note 1 at 1999-2001.

48. E.g., Peter P. Swire, *Katz is Dead. Long Live Katz*, 102 MICH. L. REV. 904, 904 (2004); Peter P. Swire, *The System of Foreign Intelligence Surveillance Law*, 72 GEO. WASH. L. REV. 1306, 1311 (2004).

49. See Ctr. for Democracy and Tech., *supra* note 27.

50. See Swire, *supra* note 17, at 951.

D. "States Need to Be Laboratories of Experimentation"

Federalism concerns are a fourth possible critique of a greater federal role for enforcement of consumer protection or computer crime. The recommendations in this essay, however, are entirely consistent with federalism principles, for two principle reasons. First, the essay's basic point is that we are likely to have underenforcement for online harms, so reforms are appropriate to get closer to the level of enforcement we would achieve in the offline world. If this point is correct, then there is little reason for concern about overenforcement or other intrusion into states' rights. Second, my policy recommendation is to have greater federal or federated enforcement responses to online harms. Online harms often occur across state borders. In some instances, such as where there is specialized technical knowledge at the federal level, then enforcement should be increasingly federal. In other instances, the correct institutional response is federated; we should create better mechanisms for sharing information, expertise, and prosecutorial resources in order to match the broader geographic scale of online harms.

This call for a greater federal or federated enforcement role is distinct from the issue of when and whether there should be preemption of state initiatives against online harms. I support caution in preemption of state initiatives against online harms.⁵¹ Recent notable examples of state experimentation include data breach laws and credit freeze laws.⁵² In both instances, initial adoption in some states was followed by continued experimentation and further adoption in other states.⁵³ At the time of this writing in early 2008, both sorts of laws are being studied at the federal level and we may eventually see national legislation in both areas.⁵⁴ My intent in raising these examples is not to say that the state laws have gotten the issues exactly right, although there is recent evidence that data breach laws have led to improved computer security in the private sector.⁵⁵ My intent instead is to point out that the states were far swifter than Congress in identifying significant consumer problems

51. See William W. Buzbee, *Asymmetrical Regulation: Risk, Preemption, and the Floor/Ceiling Distinction*, 82 N.Y.U. L. REV. 1547, 1555-57 (2007), for a recent scholarly analysis of reasons to be cautious about such preemption.

52. See, e.g., MINN. STAT. § 325E.61 (2007).

53. See Michael E. Jones, *Data Breaches: Recent Developments in the Public and Private Sectors*, 3 I/S J.L. & Pol'y for Info Soc'y 555, 557 (2007-2008), for analysis of state data breach laws. Multiple committees in Congress have passed their own variations of federal data breach legislation. *Id.* at 574. For credit freezes, Congress has tasked the FTC with studying the state initiatives. *Id.* at 576.

54. See *id.* at 570-71.

55. SAMUELSON LAW, TECH. & PUBLIC POLICY CLINIC, UNIV. OF CALIFORNIA-BERKELEY SCHOOL OF LAW, SECURITY BREACH NOTIFICATION LAWS: VIEWS FROM CHIEF SECURITY OFFICERS 8-9 (2007), http://groups.ischool.berkeley.edu/samuelsonclinic/files/cso_study.pdf.

and beginning to design plausible solutions. States also have the notable advantage of being able to experiment on a relatively small scale, with the knowledge that mistakes can be fixed relatively easily at the state (repeal the law) or federal (preempt the law) levels. The best initiatives at the state level are likely to spread to other states, and eventually into federal legislation.

I would highlight two points concerning federalism. First, states should have considerable freedom to experiment with new ways to address online and data-related harms, as they have done with data breaches and credit freezes. This freedom, however, is subject to the dormant commerce clause and to prudence about not splitting the national online market into balkanized domains.⁵⁶ Second, federal preemption, when it occurs, should generally match the scope of effective national standards. Outside of the reach of national standards, states should retain their traditional ability to experiment.

E. “The Feds Don’t Do Small Potatoes”

A final critique is that many online frauds and cybercrimes are “small potatoes,” or cases not large enough to deserve federal attention. Orin Kerr has written a blog post entitled “Enforcing copyright law. How about a role for the states?”⁵⁷ Professor Kerr observes that copyright is an exclusively federal concern, “but involves low enough stakes that few violations will ever be of much concern to federal investigators and prosecutors.”⁵⁸ He notes: “The feds generally bring big cases against really bad people; they don’t mess around with the small stuff.”⁵⁹ He then suggests that state prosecutors could be empowered to bring criminal copyright cases, perhaps with only modest penalties attached.

I agree with Professor Kerr that U.S. Attorney offices set a priority on “big cases against really bad people” such as drug kingpins or suspected terrorists. This fact has been one obstacle to prosecution of identity theft cases, because many prosecutors have not seen identity theft to be as serious a crime as others that they face.⁶⁰ Other federal

56. Mark A. Lemley, *Place and Cyberspace*, 91 CAL. L. REV. 521, 530 (2003).

57. Posting of Orin Kerr to The Volokh Conspiracy, http://volokh.com/2003_06_22_volokh_archive.html (June 22, 2003, 7:01 PM).

58. *Id.*

59. *Id.*

60. THE PRESIDENT’S IDENTITY THEFT TASK FORCE, COMBATING IDENTITY THEFT: A STRATEGIC PLAN 54 (2007), <http://www.identitytheft.gov/reports/StrategicPlan.pdf>; THE PRESIDENT’S IDENTITY THEFT TASK FORCE, COMBATING IDENTITY THEFT: A STRATEGIC PLAN, VOLUME II: SUPPLEMENTAL INFORMATION 45 (2007), <http://www.identitytheft.gov/reports/VolumeII.pdf>. See Press Release, FTC, The President’s Identity Theft Task Force Releases Comprehensive Strategic Plan to Combat Identity Theft

agencies such as the FTC have a similar need to set priorities. So Professor Kerr raises an important point when he points out that federal prosecutors don't make a priority of the "small potatoes" cases.

The problem, however, is that state enforcers have to set priorities as well. This essay has explained the information, commons, and forensic problems that have a disproportionate effect on state enforcers. My argument is not that federal enforcement for online harms is a panacea. My argument instead is that the *relative* role of federal enforcement should grow for online harms. Whatever the mix of state and federal enforcement has been, online harms will likely be better addressed with a greater federal role than before.

One reason for the greater federal role goes back to the idea of "the cop on the beat." In addition to learning the local terrain, the cop on the beat develops relationships with local sources of information. For online harms, the useful sources of information quite often will be at the national or international level. For instance, the FTC and the FBI can develop ongoing relationships with ISPs and other actors who may be useful partners in fighting against online harms.

To address online harms, it may be useful to develop task forces and other new institutional arrangements that are tailored to online harms. A good model might be the CCIPS in the Justice Department. CCIPS has developed the sort of focus on online harms, technical expertise, and relationships with key actors that I suggest may be appropriate more broadly in addressing online harms. On a day-to-day basis, the prosecutors in CCIPS are not having to weigh their mission (online harms) against whatever other cases are in a U.S. Attorney's office. There will, of course, continue to be decisions about how to set priorities, but the process can say, overall, what level of effort is appropriate for each category of online harm. When it comes to categories of harm such as spyware, identity theft, or spam, it may similarly make sense to create an overall staffing organized around issue areas. That sort of staffing is more likely to be achievable at the federal level, such as in the FTC or in a multi-agency task force, than at the state level.

CONCLUSION

I will conclude this essay with a story from when I was working on the 2000 federal report on Unlawful Conduct on the Internet.⁶¹ The

(June 5, 2007), <http://www.ftc.gov/opa/2007/04/idtheft.shtm>, for a brief summary of those reports.

61. THE PRESIDENT'S WORKING GROUP ON UNLAWFUL CONDUCT ON THE INTERNET, THE ELECTRONIC FRONTIER: THE CHALLENGE OF UNLAWFUL CONDUCT INVOLVING THE USE OF THE INTERNET (2000), <http://www.usdoj.gov/criminal/cybercrime/unlawful.htm>. I served as a representative of the

story illustrates both some important aids to enforcement on the Internet, but also, in the end, the reasons to be concerned about underenforcement.

The Report begins with the facts of an online stock fraud:

On April 7, 1999, visitors to an online financial news message board operated by Yahoo!, Inc. got a scoop on PairGain, a telecommunications company based in Tustin, California. An e-mail posted on the message board under the subject line "Buyout News" said that PairGain was being taken over by an Israeli company. The e-mail also provided a link to what appeared to be a website of Bloomberg News Service, containing a detailed story on the takeover. As news of the takeover spread, the company's publicly traded stock shot up more than 30 percent, and the trading volume grew to nearly seven times its norm. There was only one problem: the story was false, and the website on which it appeared was not Bloomberg's site, but a counterfeit site. When news of the hoax spread, the price of the stock dropped sharply, causing significant financial losses to many investors who purchased the stock at artificially inflated prices.⁶²

These facts fit the classic "pump and dump" stock scheme – the perpetrators pump up the price of a stock with false information, and dump their own shares at the peak, leaving the other investors with the loss.⁶³

The PairGain facts were placed in an early draft of the Report by Justice Department lawyers who wanted to make the point about how dangerous the Internet is. Essentially, they were saying: "Look at how bad fraud is on the Internet. The bad guy was able to create one false website, and consumers all over the world were fleeced of their money within hours!"

My own reaction to the facts was quite different. I asked what had happened to the perpetrator. The final Report now continues,

Within a week after this hoax appeared, the Federal Bureau of Investigation arrested a Raleigh, North Carolina man for what was believed to be the first stock manipulation scheme perpetrated by a fraudulent Internet site. The perpetrator was traced through an Internet Protocol address that he used, and he was charged with securities fraud for disseminating false information about a publicly

U.S. Office of Management and Budget to this multi-agency working group which was chaired by the Department of Justice.

62. *Id.*

63. In the PairGain case, interestingly enough, the person who created the fake web site apparently got cold feet and did not trade; CHRISTOPHER M.E. PAINTER, TRACING IN INTERNET FRAUD CASES: PAIRGAIN AND NEI WEBWORLD (Apr. 26, 2005), http://www.usdoj.gov/criminal/cybercrime/usamay2001_3.htm.

traded stock. The Securities and Exchange Commission also brought a parallel civil enforcement action against him. In August, he was sentenced to five years of probation, five months of home detention, and over \$93,000 in restitution to the victims of his fraud.⁶⁴

In short, the Internet actually made it far *easier* to stop the bad guy. The hoax was detected within hours, and the perpetrator was arrested within a week.⁶⁵

The PairGain story exemplifies both advantages and disadvantages for law enforcement in fighting unlawful conduct on the Internet. For web sites, detection can happen at Internet speed. The criminal or fraudster faces this fundamental problem – what the marks can see the cops can see. Illegal activity thus can quickly come to the attention of enforcers. On the other hand, criminals shift to less easily traced methods of fraud. More recent pump and dump stock schemes have been done through spam emails rather than through a static web site.⁶⁶ Tracing the source of such emails is a far harder challenge, raising the information, commons, and forensic challenges described in this essay. Compared with the historical patterns for offline fraud and crime, a more federal or federated approach will often be needed for the harms caused to individuals in the online world.

64. THE PRESIDENT'S WORKING GROUP ON UNLAWFUL CONDUCT ON THE INTERNET, *supra* note 61.

65. *Id.*

66. LAURA FRIEDER & JONATHAN ZITTRAIN, SPAM WORKS: EVIDENCE FROM STOCK TOUTS AND CORRESPONDING MARKET ACTIVITY (Berkman Ctr. Research Publ'n No. 2006-11, Mar. 14, 2007), *available at* <http://ssrn.com/abstract=920553>.

THE LIMITS OF FOURTH AMENDMENT INJUNCTIONS

ORIN S. KERR*

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INTRODUCTION

On July 21, 2006, a District Court Judge in Ohio entered a remarkable injunction in a civil case called *Warshak v. United States*.¹ Stephen Warshak ran a massive fraud scheme selling a “male enhancement” pill named Enzyte that was widely advertised online.² During the criminal investigation of his company, federal agents obtained Warshak’s personal e-mail from his Internet service provider with a court order obtained under 18 U.S.C. § 2703(d), a provision of the Stored Communications Act that permits orders to be issued with less than probable cause. Warshak responded with a civil suit seeking both damages and injunctive relief on the ground that obtaining his e-mails with less process than a warrant violated his Fourth Amendment rights. District Judge Susan Dlott granted Warshak’s request for injunctive relief with the following order:

* Professor, George Washington University Law School.

1. See *Warshak v. United States*, No. 1:06-CV-357, 2006 WL 5230332, at *1 (S.D. Ohio July 21, 2006).

2. Warshak has since been convicted and sentenced. Conrad de Aenlle, *Heading to Prison*, N.Y. TIMES, Aug. 31, 2008, at BU2.

The United States is accordingly ENJOINED, pending final judgment on the merits of Plaintiffs' claims, from seizing, pursuant to court order under 18 U.S.C. § 2703(d), the contents of any personal email account maintained by an Internet Service Provider in the name of any resident of the Southern District of Ohio without providing the relevant account holder or subscriber prior notice and an opportunity to be heard on any complaint, motion, or other pleading seeking issuance of such an order.³

The rationale behind Judge Dlott's order was that the injunction was needed to ensure that the government did not obtain the contents of personal e-mail accounts in ways that violated the Fourth Amendment. On appeal, the Sixth Circuit modified the injunction slightly but agreed with the basic approach of the district court.⁴ In the Sixth Circuit's view, the court's job was to craft an injunction designed to ensure that procedures used to compel e-mail complied with the Fourth Amendment. It therefore considered all of the ways that the government could obtain e-mail from an account, and then crafted the injunction in a way that satisfied the court that no Fourth Amendment rights could be infringed.⁵

The approach of the district court and circuit panel in *Warshak* did not ultimately stand: The *en banc* court disagreed with the original panel and reversed.⁶ At the same time, the district court and panel decision raise interesting questions of Fourth Amendment law that have received surprisingly little scholarly attention. When is injunctive relief appropriate in Fourth Amendment cases? Should courts feel free to craft injunctive relief to avoid Fourth Amendment defects? Or is there something wrong, either as a matter of doctrine or policy, with crafting injunctions in Fourth Amendment cases?

This essay will provide answers to these questions. The first part argues that as a matter of history and practice, injunctive relief has been quite rare in Fourth Amendment cases. Fourth Amendment injunctions are permitted, but they have always stayed limited to a very specific set of facts. As a practical matter, injunctive relief has been used as an on-off switch for carefully-defined practices: courts ruling on the injunction either allow the specific practice or prohibit it. The most significant doctrinal hook for this limitation is Article III standing: Injunctive relief requires a "real and immediate threat" of future injury to establish a case

3. See *Warshak*, 2006 WL 5230332 at *8.

4. *Warshak v. United States*, 490 F.3d 455, 460 (6th Cir. 2007).

5. See *id.*

6. *Warshak v. United States*, 532 F.3d 521, 534 (6th Cir. 2008).

or controversy.⁷ The precise meaning of that requirement remains murky, but it arguably means that a plaintiff must show a real and immediate threat of a highly specific set of facts occurring.

My second point is that as a matter of normative policy, any ambiguity in the current state of the law should be resolved against imposing broad Fourth Amendment injunctions. At first blush, it may seem that crafting a broad injunction to avoid Fourth Amendment violations appropriately shapes the remedy to the wrong. However, crafting broad injunctive relief forces courts to assume duties that they are not competent to handle. Fourth Amendment doctrine is tremendously fact-specific: every fact pattern is different, and even the exceptions to the exceptions have their own exceptions. Courts are poorly suited to design broad injunctive relief in this setting: they lack the ability to predict how the government may act and the fact patterns that may arise. Courts should therefore decline to craft Fourth Amendment injunctions involving hypothetical facts. Courts should apply the same Fourth Amendment standards in cases seeking injunctive relief that they apply elsewhere: courts should rule on one set of facts rather than classes of facts.

I. THE LAW AND PRACTICE OF FOURTH AMENDMENT INJUNCTIONS

A defining characteristic of Fourth Amendment doctrine is that it develops in a case-by-case fashion.⁸ Every decision is based on concrete facts.⁹ In the usual context of a motion to suppress, the defendant files a motion to suppress after the search or seizure has occurred, and the government must show that the exact search that occurred satisfied the Constitution. The parties and the judge all look back to a specific moment when a specific law enforcement officer took a specific step that uncovered specific evidence.¹⁰

When the facts are made clear, either on the papers or in a hearing, the court applies the complex framework of Fourth Amendment doctrine to that specific set of facts. It runs through the usual questions of Fourth Amendment law: Did any searches occur? Any seizures? If so, was a valid warrant obtained? If not, did a specific exception to the warrant

7. *City of Los Angeles v. Lyons*, 461 U.S. 95, 107 (1983).

8. *Saucier v. Katz*, 533 U.S. 194, 205-06 (2001); *United States v. Brown*, 635 F.2d 1207, 1211 (6th Cir. 1980).

9. *See v. City of Seattle*, 387 U.S. 541, 546 (1967).

10. *See, e.g., Michigan Dept. of State Police v. Sitz*, 496 U.S. 444, 448-49 (1990) (noting the “extensive testimony” heard to determine the constitutionality of a highway checkpoint program).

requirement apply, such as exigent circumstances or consent that rendered the warrantless search or seizure reasonable? The court then issues an opinion concluding whether the Fourth Amendment was violated, and in some cases, whether the Fourth Amendment violation should lead to suppression of the evidence.

In civil cases seeking injunctive relief, the remedy is necessarily prospective rather than retrospective. That is, courts prohibit future acts rather than impose liability for past ones. In this environment, injunctive relief is quite rare. Courts have generally limited injunctive relief to ongoing programs such as a drug testing policies or road blocks. Although the injunctive remedy technically is prospective, as a practical matter it acts just like a retrospective remedy. Courts typically limit the relief to the specific established the facts of the ongoing program.

Two roadblock cases provide helpful illustrations of this narrow use of injunctive relief. In *Michigan Dept. of State Police v. Sitz*,¹¹ a group of Michigan drivers filed a civil action against the Michigan Department of State Police seeking declaratory and injunctive relief from potential subjection to drunk driving checkpoints. The trial court “heard extensive testimony”¹² about Michigan’s drunk driving checkpoints, and then held that on balance the program violated the Fourth Amendment and should be prohibited. The U.S. Supreme Court disagreed, holding that the drunk driving checkpoints were constitutionally reasonable and therefore consistent with the Fourth Amendment.¹³

In contrast, in another road block case, *City of Indianapolis v. Edmond*,¹⁴ a class of Indianapolis motorists filed a lawsuit seeking injunctive relief against an Indianapolis check point designed to find drugs. The two sides stipulated to the facts as to exactly how the program worked,¹⁵ and the U.S. Supreme Court ruled that, as stipulated, the program was unconstitutional and should be enjoined.¹⁶ We can see the same approach with cases involving drug testing. A typical example is *Skinner v. Railway Labor Executives’ Ass’n*,¹⁷ a labor union of railway employees sued to enjoin detailed regulations that governed drug and alcohol testing of railroad employees. The Court ruled that the specific procedures permitted were reasonable and therefore constitutional.

11. See generally *id.* at 448.

12. *Id.*

13. *Id.* at 455 (“In sum, the balance of the State’s interest in preventing drunken driving, the extent to which this system can reasonably be said to advance that interest, and the degree of intrusion upon individual motorists who are briefly stopped, weighs in favor of the state program. We therefore hold that it is consistent with the Fourth Amendment.”).

14. See generally *City of Indianapolis v. Edmond*, 531 U.S. 32 (2000).

15. *Id.* at 35-36.

16. *Id.* at 48.

17. See generally 489 U.S. 602 (1989).

The basic idea, both in the drug testing and the road block cases, is that the fact-sensitivity of Fourth Amendment law does not prohibit injunctive relief so long as the facts can be either stipulated or found at trial or otherwise established with reasonable detail. The court can take the facts of an existing or proposed program and treat it as a past set of facts rather than a current or future one. It can then rule on whether these sets of facts are within the Fourth Amendment or beyond it.

The constitutional doctrine forcing Fourth Amendment injunctions into this narrow role is the Article III “case or controversy” requirement.¹⁸ The case or controversy requirement limits the power of the federal courts by prohibiting federal courts from acting in the absence of actual injury. The federal courts cannot reach out and decide issues without an actual dispute before them; they cannot act based merely on an “[a]bstract injury.”¹⁹ Under the case or controversy requirement, the federal courts cannot act based on hypothetical facts; they need specific facts (or at least allegations of specific facts²⁰) before announcing how the law applies.

Applying the case or controversy to injunctive relief raises a difficult question: How can a plaintiff prove an actual injury based on something that hasn’t happened yet? Injunctions are prospective in nature: the court orders a party not to do something in the future. But it’s hard to predict the future, and it’s therefore often hard to prove that a specific injury will occur. We might know that a type of harm will occur without knowing its precise circumstances. The key question is, how clearly does the plaintiff need to prove a specific set of facts likely in the future to satisfy the case or controversy requirement? Is a likelihood of the general category of harm enough? Or must the plaintiff prove the very specific set of facts?

The case law hasn’t settled this issue definitively. However, the Supreme Court’s cases suggest that the plaintiff must show a likelihood of a *specific set of facts*, rather than a likelihood of a general category of facts. That is, the plaintiff must show that the relevant facts that are needed to assess the constitutionality of the act are likely to occur. For example, in *City of Los Angeles v. Lyons*,²¹ Lyons sued the City of Los Angeles after a city police officer had subjected him to a “chokehold” that rendered him unconscious. Lyons sought damages and also

18. See *Lyons*, 461 U.S. at 95.

19. See *id.* at 101.

20. The federal courts do have the power to act on alleged facts that may or may not prove accurate. For example, if a plaintiff alleges facts in a complaint, the court will take those alleged facts as true for the purposes of a dismissal under FED. R. CIV. P. 12(b)(6).

21. See *Lyons*, 461 U.S. at 95.

injunctive relief; the injunctive relief asked the Court to block the LA police force from using chokeholds “except in situations where the proposed victim of said control reasonably appears to be threatening the immediate use of deadly force.”²² The district court found that the LA police department had authorized its officers to use chokeholds “in situations where no one is threatened by death or grievous bodily harm,”²³ and that the officers were insufficiently trained, and that the chokeholds were very dangerous. The district court then, enjoined the use of chokeholds “under circumstances which do not threaten death or serious bodily injury.”²⁴

The Supreme Court overturned the injunction on the ground that Lyons had not established a case or controversy. To establish a case or controversy permitting injunctive relief, the Court held, Lyons had to show “a real and immediate threat that he would again be stopped for a traffic violation, or for any other offense, by an officer or officers who would illegally choke him into unconsciousness without any provocation or resistance on his part.”²⁵ It wasn’t enough that Lyons might be stopped, or that he might be subject to a chokehold. Nor was it enough that someone in Los Angeles might be subject to an illegal chokehold. To establish standing, Lyons needed to show a real and immediate threat that he himself would be stopped and would be subject to a chokehold that rendered him unconscious without any provocation or resistance. In other words, Lyons had to show a likelihood of all of the relevant facts that had established the illegality of the first act occurring again to him.

Lyons echoed and relied on an earlier decision, *Rizzo v. Goode*,²⁶ which offers a less clear holding but provides helpful context to understand *Lyons*. In *Rizzo*, a district court judge in Philadelphia had entered a broad injunctive order in a class action lawsuit against the mayor, the City Managing Director, and the Police Commissioner designed to reform the conduct of the Philadelphia police.²⁷ The plaintiffs had alleged widescale lawbreaking by the police, and the district court judge heard 250 witnesses over 21 days of hearings to assess the problem.²⁸ During the trial, the court documented about 20 specific cases in which individual officers had violated the law.²⁹ The district court judge concluded that a comprehensive program of equitable relief was necessary to reform police practices among the Philadelphia police.

22. *Id.* at 98 (quoting the complaint).

23. *Id.*

24. *Id.* at 100.

25. *Id.* at 96.

26. *See* 423 U.S. 362 (1976).

27. *Id.* at 362-63.

28. *Id.* at 367.

29. *Id.* at 373.

When the case came before the Supreme Court, the Court ruled that the district court had no Article III power to enter such an injunction because the claim for a case or controversy was based only on proof of about 20 past incidents in a city with 7,500 policemen and 3 million inhabitants.³⁰ This evidence did not directly implicate the Mayor, the police chief, or the City Managing director: they were not actually responsible for the wrongdoing. More broadly, the principles of federalism did not permit a federal court to interfere so directly with the internal operations of state law enforcement agencies: “The scope of federal equity power” could not “be extended to the fashioning of prophylactic procedures for a state agency designed to minimize this kind of misconduct on the part of a handful of its employees.”³¹ Equitable relief, the Court stressed, was “to be used sparingly, and only in a clear and plain case.”³²

Rizzo and *Lyons* show that injunctive relief needs to be narrow in police conduct cases, but they do not clearly settle just how specific a plaintiff’s claims must be to trigger injunctive relief. I will therefore turn to the policy question: How should courts construe the case and controversy requirement in Fourth Amendment cases? Should they require proof that the very specific set of facts alleged will reoccur, or only that general class of facts?

II. THE DIFFICULTY WITH BROAD FOURTH AMENDMENT INJUNCTIONS

From a policy standpoint, the fact-specific nature of Fourth Amendment rulemaking counsels strongly against broad Fourth Amendment injunctions. Fourth Amendment rules are almost always fact-specific: most rules have exceptions, and the exceptions have their own exceptions. As a result, it is difficult for a court to pronounce how the Fourth Amendment might apply to a general set of facts. To do so successfully, a court would need to both predict all of the factual scenarios that might arise and answer exactly how the Fourth Amendment would apply to all of them.

Courts are not competent to do this accurately. In litigation, litigants present competing arguments as to how the law applies to a specific set of facts. But courts and litigants are poorly suited to identify the full range of fact patterns that might arise and then apply the law to it. Efforts to do so likely will lead to injunctions that are vastly

30. *Id.*

31. *Id.* at 378.

32. *Id.* at 378 (citing *Irwin v. Dixion*, 50 U.S. 10, 33 (1850)).

underinclusive, vastly overinclusive, or hopelessly vague. As a district court judge once noted in rejecting a claim for broad injunctive relief under the Fourth Amendment, “the myriad factual situations in which [Fourth Amendment] issues can arise are so varied, and the boundaries in some areas of the law are so nebulous, that any attempt at broad-spectrum injunctive relief should be avoided. Courts are simply not equipped to supervise the day-to-day operations of police officers by injunction.”³³

Perhaps the best way to prove this point is with an example. Imagine Peter Plaintiff’s house was raided by the local police without a warrant. Peter believes that the police may do this again, so he brings a Fourth Amendment claim against the police seeking an injunction against the warrantless entry of his home. At first blush, this might seem reasonable: After all, the Fourth Amendment normally requires the police to obtain a warrant before entering a home. Imagine you are a federal district court judge, and you want to make sure the police don’t violate Peter Plaintiff’s Fourth Amendment rights any more. You decide you will grant the injunction.

But what should the injunction say? For your first draft, you write out the following sentence: “The government is enjoined from entering Plaintiff’s home without a valid warrant.” But wait, you think, that’s too broad. There are several exceptions to the warrant requirement, such as exigent circumstances³⁴ and consent.³⁵ These exceptions allow the police to enter the home without a warrant. So a second draft might try to track the Supreme Court’s decisions on those exceptions and say the following: “The government is enjoined from entering a home without a valid warrant unless exigent circumstances exist or the police have actual or apparent authority from an individual with common authority to consent.”

But that’s too broad as well. The Supreme Court has allowed warrantless home inspections for regulatory reasons.³⁶ Plus, there is no constitutional prohibition on entry into a home when the home is open to the public, and therefore, protected by the Fourth Amendment.³⁷ The third draft might try to take account of these doctrines and say something like the following: “The government is enjoined from entering a home without a valid warrant unless exigent circumstances

33. *Hughes v. Rizzo*, 282 F.Supp. 881, 885 (E.D.Pa. 1968).

34. *See, e.g., Brigham City, Utah v. Stuart*, 547 U.S. 398 (2006).

35. *See Illinois v. Rodriguez*, 497 U.S. 177 (1990).

36. *See Camara v. Municipal Court*, 387 U.S. 523 (1967).

37. *See Katz v. United States*, 389 U.S. 347, 351 (1967) (Harlan, J., concurring) (“What a person knowingly exposes to the public, even in his own home or office, is not a subject of Fourth Amendment protection.”).

exist; or the police have actual or apparent authority from an individual with common authority to consent; or the home is being inspected by housing inspectors in a reasonable way; or the home is open to the public.”

Does that do the job? No, it doesn't. The Supreme Court has allowed warrantless entry into a home to escort an individual who has just been arrested outside the home and needs to obtain materials for jail.³⁸ Lower courts have also allowed warrantless entry into homes when the resident does not have permission from the property owner to be there, such as the case with a squatter or a person who has stopped paying rent and has been evicted.³⁹ In addition, courts have allowed warrantless entries into homes when the homeowner invites an undercover officer or confidential informant inside to buy drugs; the undercover sees illegal drugs inside and signals to the officers; and the undercover invites others to enter the home.⁴⁰ Any injunction would have to recognize these exceptions, too.

You can see where this is going. If a court wants to draft an injunction that accurately maps how the Fourth Amendment applies to home searches, it needs to answer a seemingly limitless set of hypothetical situations addressing a seemingly limitless set of possible exceptions to whatever default rule the court creates. To reflect the scope of Fourth Amendment protections accurately, the proposed injunction would have to reach a conclusion on the precise scope of every possible exception to the warrant requirement, whether recognized already by the courts or not. For example, consider the plausible argument that the Fourth Amendment does not require a warrant to search a home to conduct foreign intelligence from agents of foreign powers—and if so, what kinds of warrants are permitted.⁴¹ Right now, there are no cases on the question. However, the injunction presumably would need to rule on this issue, as otherwise it might end up blocking warrantless searches that the Fourth Amendment would permit.

Judges are smart people. But not even the smartest judge could craft such rules prospectively in a clear and accurate way. The case-by-case development of Fourth Amendment law normally requires extensive briefing from parties as to how the Fourth Amendment applies to a *single*

38. See *Washington v. Chrisman*, 455 U.S. 1 (1982).

39. *Zimmerman v. Bishop Estate*, 25 F.3d 784, 787-88 (9th Cir. 1994).

40. See, e.g., *United States v. Paul*, 808 F.2d 645 (7th Cir. 1986). The legality of this technique is currently before the Supreme Court in *Pearson v. Callahan*, 07-751 (cert. granted by 128 S.Ct. 1702), a case in which I represent the petitioners.

41. See, e.g., *United States v. Butenko*, 494 F.2d 593 (3d Cir. 1974) (en banc); *United States v. Truong*, 629 F.2d 908 (4th Cir. 1980). But see *Zweibon v. Mitchell*, 516 F.2d 594 (D.C. Cir. 1975).

set of facts. But to craft a broad Fourth Amendment injunction, courts would have to devise rules covering an essentially *infinite* set of facts. They would need to identify each of these facts and then apply the Fourth Amendment to them with little if any briefing on even the most obvious doctrinal categories. Further, the court's Fourth Amendment rules would not be merely dicta. Because they would shape the injunction and be binding on the executive, the court's rulings would be holdings that would often become binding on other courts.

The District Court and initial panel opinions in *Warshak v. United States*⁴² that I discussed in the introduction to this essay provide a textbook demonstration of these problems. Warshak sought an injunction regulating when and how the federal government could obtain e-mail of residents of the Southern District of Ohio from ISPs.⁴³ The initial Sixth Circuit panel devised the following set of rules to regulate access to e-mail:⁴⁴

(a) When the government seeks to compel the contents of personal e-mails from an Internet service provider, it may obtain the e-mail from the Internet service provider only in the following circumstances:

(1) Pursuant to a subpoena, if the government can establish, "based on specific facts," "that the ISP or other intermediary clearly established and utilized the right to inspect, monitor, or audit the contents, or otherwise had content revealed to it,"⁴⁵ or:

(2) Pursuant to a subpoena, if the government provides prior notice to the e-mail subscriber and permits the subscriber an opportunity to challenge the constitutional reasonableness of the subpoena before the e-mails are disclosed, or:

(3) Pursuant to a search warrant based on probable cause that "target[s] e-mails that could reasonably be believed to have some connection to its specific investigation," if neither the circumstances in subsections (1) or (2) are satisfied.⁴⁶

(b) Subsection (a) shall not apply to computer scanning of e-mail for key words, types of images or "similar indicia of wrongdoing" in a way that does not disclose contents to an

42. *Warshak v. United States*, 2006 WL 5230332 (S.D. Ohio 2006), *vacated in part*, 490 F.3d 455 (6th Cir. 2007), *rev'd en banc*, 532 F.3d 521 (6th Cir. 2008).

43. *Warshak v. United States*, 2006 WL 5230332 (S.D. Ohio 2006).

44. *Warshak v. United States*, 490 F.3d 455, *474-76 (6th Cir. 2007). The rules which follow are indented and formatted for clarity; they are not an exact quotation from the case.

45. *Id.* at 475.

46. *Id.* at 476.

actual person.⁴⁷

In crafting these rules, the *Warshak* panel tried to account for some of the major possible distinctions in government and ISP practices. Working without any particular facts, the panel concluded that screening for keywords was different than full content monitoring; prior notice should trigger a different and less protective set of rules; and significant monitoring by an ISP should lead to different rules as well. The panel then devised rules to account for each of these different distinctions.

As I have detailed in depth elsewhere, the *Warshak* panel's rules were highly creative and made several doctrinal category errors.⁴⁸ Most of the distinctions were not actually briefed at any length by the parties; the panel essentially invented them. But even on the decision's own terms, notice how much the panel left out. First, there is the question of definitions. First, what is a "personal" e-mail account, and what is a nonpersonal one? What is an "ISP" for Fourth Amendment purposes? Second, notice how many Fourth Amendment questions the panel ignored. For example, what about access pursuant to consent or exigent circumstances? What about access when the server is located outside the United States? What about screening for contraband images of child pornography, which may or may not implicate a reasonable expectation of privacy?⁴⁹

By attempting to resolve every application of how the Fourth Amendment applies to personal e-mail, the *Warshak* panel bit off more than it could chew. The *en banc* panel took the better approach by reversing on the ground of ripeness.⁵⁰ Stephen Warshak had not established a real and immediate prospect that his e-mail would be accessed again in the same way it was accessed before. The original panel should not have used his request for injunctive relief as a springboard to devise a new world of Fourth Amendment rules.

CONCLUSION

Accurate rulemaking benefits from case-by-case attention. As the Supreme Court has stressed, "[a]lthough passing on the validity of a law

47. *Id.* at 474.

48. See Posting of Orin S. Kerr to Volokh Conspiracy, *The Procedural Errors of Warshak v. United States*, <http://www.volokh.com/posts/1182446445.shtml> (June 21, 2007); Posting of Orin S. Kerr to Volokh Conspiracy, *Warshak and Fourth Amendment Standards for Orders to Compel*, <http://www.volokh.com/posts/1182840096.shtml> (June 26, 2007).

49. See generally Richard P. Salgado, *Fourth Amendment Search And The Power Of The Hash*, 119 HARV. L. REV. F. 38 (2005).

50. See *Warshak v. United States*, 532 F.3d at 526-28 (6th Cir. 2008).

wholesale may be efficient in the abstract, any gain is often offset by losing the lessons taught by the particular, to which common law method normally looks.”⁵¹ This difficulty is particularly acute in the Fourth Amendment setting. Fourth Amendment decisions are too fact-sensitive for courts to use injunctive relief to craft broad-ranging injunctions.

The Article III case or controversy requirement should be read to forbid such broad rulemaking. Courts should require a “real and immediate threat” that a very specific set of facts will occur – so specific that the Court does not need to create rules for various possible variations in those facts. When it comes to injunctive relief, courts should apply the same Fourth Amendment standards that they apply elsewhere: they should rule on one set of facts rather than classes of those facts. This limitation will both comply with Article III standing and recognize the institutional limitations of judicial rulemaking in the area of search and seizure law.

51. *Sabri v. United States*, 541 U.S. 600, 608-09 (2004).

CONVERGENCE AND COMPETITION: WHY A DUOPOLY OF CONVERGENT COMPETITORS MIGHT BE SUFFICIENT TO PROTECT BROADBAND CONSUMERS WITHOUT REGULATION

PAUL SHONING*

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INTRODUCTION

Two is company, three is competition – or so conventional wisdom holds. Indeed former Federal Communications Commission Chairman Michael Powell noted that “magical things happen in competitive markets when there are at least three viable . . . competitors.”¹ Unfortunately, the broadband access market has only two main competitors – cable and DSL. With perceived shortfalls in the

* Paul Shoning is a J.D. Candidate at the University of Colorado (2009) and an Articles Editor of the Journal on Telecommunications and High Technology Law.

1. Michael K. Powell, Chairman, F.C.C., Remarks at the Wireless Communications Association International 1 (June 3, 2004), http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-248003A1.pdf.

availability and quality of broadband service in the United States, the Federal Communications Commission (“FCC”) faces pressure to more actively regulate broadband competition.²

Because of technological convergence, the assumption that the cable-DSL duopoly is not sufficiently competitive may not be warranted. Technological convergence – the ability for an application to operate over different physical transmission medium – has forced the FCC to rethink many regulatory assumptions that pre-date the digital age. However, the effect of technological convergence on competition in concentrated markets is under-explored. As the FCC develops a regulatory strategy for the concentrated broadband industry, the effects of technological convergence on efficiency and competition cannot be ignored.

FCC regulations were often premised on the assumption that particular services were tied, and would remain tied, to physical transmission mediums.³ That premise was accurate for much of the last century when consumers made phone calls over copper wires and received television signals over the air, but it has changed with technological convergence.⁴ Today, a user can send an email from a computer linked to the Internet over a traditional copper loop, a terrestrial wireless connection, a satellite wireless connection, a coaxial cable connection, or a fiber optic connection. This severing of services from the underlying physical transmission medium continues to challenge the FCC in its regulatory decisions.⁵

The 1996 Telecommunications Act amplified these regulatory challenges by codifying Congress’s intent to promote competition and reduce regulation.⁶ Specifically, the FCC is authorized to forbear from regulation when existing competition sufficiently protects consumers.⁷

2. See, e.g., Nate Anderson, *FCC Commissioners: US in Dire Need of “National Broadband Strategy”*, ARS TECHNICA, Sept. 27, 2007, <http://arstechnica.com/news.ars/post/20070927-fcc-commissioners-us-in-dire-need-of-national-broadband-strategy.html>.

3. The 1934 Communications Act was written with the assumption that point-to-point voice services would use copper lines, and radio and television broadcast services would use the wireless spectrum. JONATHAN E. NEUCHTERLEIN & PHILIP J. WEISER, *DIGITAL CROSSROADS* 23 (MIT Press 2007) [hereinafter *DIGITAL CROSSROADS*].

4. *Id.*

5. For example, the FCC has struggled since 2003 over how to regulate Voice-over-Internet-Protocol telephone service. IP-Enabled Services, *Notice of Proposed Rulemaking*, 19 FCC Rcd. 4863, ¶ 2 (2004) (seeking comment on how to distinguish among different IP-enabled services and regulate appropriately).

6. Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (codified as amended in scattered sections of 47 U.S.C.), available at <http://www.fcc.gov/Reports/tcom1996.pdf> (“An Act to 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.”) [hereinafter *Telecommunications Act of 1996*].

7. For example, in 1999 the Commission designed a procedure for lifting rate regulation

Thus, the FCC is charged with the unenviable task of determining *a priori* whether sufficient competition exists.

Regulators historically have viewed duopolies with suspicion.⁸ However, the effects of technological convergence on competition should mollify this suspicion because, while more competitors are generally preferable, technological convergence affects the form and intensity of competition in a concentrated market.⁹ In telecommunications, when technological convergence results in competition over different physical transmission mediums (“convergent competition”), a duopoly may be sufficient for the FCC to deregulate or forbear from regulation.

Section I of this article explores the concept of technological convergence. The effect of technological convergence on competition in concentrated markets is analyzed by studying the early wireless phone industry and early broadband industry in Sections II and III. Section IV explores the likelihood that physical transmission platforms for future broadband access will be a duopoly of cable and fiber optic lines. Section V suggests that, despite this likely duopoly, the FCC can maintain a reactive approach to broadband regulation, provided that convergent competition continues.

I. TECHNOLOGICAL CONVERGENCE

Humans are analog beings. The images we view and sounds we hear are transmitted by continuous waves. Not surprisingly, early telecommunications devices transmitted analog signals from one user to another (or others). For example, Alexander Graham Bell’s telephone converted the continuous pressure wave of a speaker’s voice into a continuous variation of electrical current.¹⁰ The electrical signal was transmitted to the desired location over a copper wire and then converted back into a continuous pressure wave that reached the listener’s ear.¹¹ In this analog world, the particular telecommunications services were tied to

in the special access line market when competition reached specific “trigger” levels. Scott Wallsten, *Has Deregulation Affected Investment in Special Access?*, THE PROGRESS & FREEDOM FOUND., Progress on Point Release 14.16 (2007), <http://www.pff.org/issues-pubs/pops/pop14.16specialaccessempiricalanalysis.pdf>.

8. For example, the Federal Trade Commission filed a preliminary injunction to block Heinz’s acquisition of Beach Nut over concerns that it would result in a duopoly in the U.S. baby food market. Stephen Labaton, *Merger Blocked for Makers of Baby Food*, N.Y. TIMES, Apr. 28, 2001, at C1. The Justice Department sought to block a merger of Oracle and Peoplesoft because the merger would create a duopoly in the business software market. Steve Lohr & Lorie J. Flynn, *Judge Allows Oracle to Bid for Peoplesoft*, N.Y. TIMES, Sept. 10, 2004, at C1.

9. See Section III, *infra*.

10. See, e.g., DIGITAL CROSSROADS, *supra* note 3, at 115-16.

11. *Id.*

a specific physical transmission medium.¹²

This association between application and physical medium began to unravel with the shift from analog to digital technology. In a digital world, all information is broken into binary digits, or bits. For voice-communications, the continuous pressure wave of a speaker's voice is again converted into a continuous electrical signal. Unlike with the early telephone, the signal is further converted into a numerical model and the numbers representing the speaker's voice are transmitted in binary form as bits.¹³

To a physical transmission platform, a bit is a bit regardless of whether it carries information about a telephone call, web-page, or video transmission.¹⁴ As a consequence, any application that converts its content into bits can transmit those bits across any medium capable of digital transmission.¹⁵ The result is technological convergence: the ability of the same application to use different physical transmission media.

Telecommunications systems can be conceptualized as four layers. This note uses a layered concept with the following definitions:¹⁶

- Physical Layer: The physical transmission medium used to transport information.
- Logical Layer: The addressing protocol that ensures the information is transported over the correct physical path to reach its intended destination.
- Applications Layer: The service used by the end user.
- Content Layer: The individual user's information that is transmitted by the application.

Without technological convergence, the application is tied to the physical layer. For example, with wireless telephone service communication, a user's telephone conversation (content) is spoken into a wireless telephone (application) that uses the appropriate transmissions protocol such as TDMA or CDMA (logic) to transmit the information across the electromagnetic spectrum (physical). Wireless phones cannot currently be connected to physical transmission lines.

Conversely, technological convergence allows the same application

12. *Id.* at 23.

13. *See, e.g.,* Telecommunications – MSN Encarta, http://encarta.msn.com/encyclopedia_761566546/telecommunications.html.

14. *See* DIGITAL CROSSROADS, *supra* note 3, at 25.

15. *See id.*

16. The layers referred to in this note are those defined by Nuchterlein and Weiser in Digital Crossroads. *Id.* at 118-124.

to use a variety of physical transmission mediums. For example, a broadband Internet connection allows a user to type an email (content) using an email service such as Outlook (application) which uses the TCP/IP protocol (logic) to transmit the information across a physical connection. The key difference is that this physical connection can be a copper loop, a coaxial cable, a fiber-optic cable, a power line, a terrestrial wireless signal, or a satellite signal.¹⁷ Technological convergence makes the application much more versatile because it is no longer linked to a specific physical path.

Not every transmission fits neatly into the layer model described above. Many communications can be analytically broken into more than one application. A user watching a YouTube video, for example, views a video (content) using a flash-player plug-in (application) to an Internet browser (application) that utilizes a broadband connection (application) to receive standardized digital packets of information (logic) sent over a coaxial cable (physical). This note refers to both wireless telephone service and broadband Internet access service as applications, even though a primary purpose of broadband Internet access is to provide a conduit for other applications such as email and a web-browser.

II. BACKGROUND OF THE WIRELESS AND BROADBAND INDUSTRIES

Bell Labs invented wireless telephone technology in the 1940s.¹⁸ However, it was not until the 1980s that the FCC decided to grant two spectrum licenses to wireless telephone service providers in each of 734 market areas.¹⁹ The FCC created a regulatory duopoly by granting one license to the incumbent local exchange carrier and the second to a competitor – typically by lottery.²⁰ However, the FCC's experiment with a regulated duopoly is generally viewed as a failure.²¹ In 1992, the General Accounting Office ("GAO") observed that, although not conclusive of market failure, the nominal wireless service price from 1985 to 1991 had remained constant with considerable price uniformity

17. See Appropriate Framework for Broadband Access to the Internet over Wireline Facilities, *Report & Order & Notice of Proposed Rulemaking*, 20 FCC Rcd. 14,853, ¶ 50 (2005) [hereinafter *Wireline Facilities Order*].

18. Stephanie N. Mehta, *Cellular Evolution*, FORTUNE, Aug. 23, 2004. For an excellent history of wireless telecommunications, see also HARALD GRUBER, THE ECONOMICS OF MOBILE TELECOMMUNICATIONS 10-18 (Cambridge University Press 2005).

19. DIGITAL CROSSROADS, *supra* note 3, at 268.

20. *Id.*

21. See U.S. GEN. ACCOUNTING OFFICE, TELECOMMUNICATIONS: CONCERNS ABOUT COMPETITION IN THE CELLULAR TELEPHONE SERVICE INDUSTRY 41 (1992), available at <http://archive.gao.gov/d33t10/147125.pdf> [hereinafter GAO WIRELESS REPORT].

among competitors.²² The California Public Utility Commission, which had access to wireless provider cost information, concluded that wireless telephone service prices were much higher than costs.²³ Finally, the GAO concluded that the wireless telephone service provider duopoly did not provide sufficient competition to protect consumers.²⁴ This same conclusion led the FCC to auction additional spectrum licenses for wireless telephone service providers in 1996.

The influx of new competitors radically changed the wireless telephone industry, and in 2002, the GAO observed healthy competition among the six major wireless telephone service providers.²⁵ Today, competition among wireless telephone service providers is “fierce: the overwhelming majority of the population lives in a county served by at least four alternative providers of wireless services; customers can and do switch from one carrier to another; and the quality and diversity of wireless services continue to improve.”²⁶ The increase in the quality of wireless service and decrease in price confirms the earlier GAO and FCC judgments that a duopoly in wireless telephone service was insufficiently competitive.

In contrast to the FCC’s intentional establishment of wireless telephone service as a duopoly, the duopoly in broadband access service emerged from a competitive landscape.²⁷ When the Internet first surfaced as a major commercial force in the 1990s, most consumers accessed the Internet via dial-up connections to Internet Service Providers (“ISPs”).²⁸ In fact, in 2000 there were approximately 7,000

22. *Id.* at 22.

23. *Id.* at 29.

24. *Id.* at 41 (“Because the FCC limited the mobile cellular telephone market to two carriers in each geographic area, these markets are highly concentrated and may provide only limited competition.”).

25. U.S. GEN. ACCOUNTING OFFICE, TELECOMMUNICATIONS: FCC SHOULD INCLUDE CALL QUALITY IN ITS ANNUAL REPORT ON COMPETITION IN MOBILE PHONE SERVICES 16 (2003), available at <http://www.gao.gov/new.items/d03501.pdf>.

26. DIGITAL CROSSROADS, *supra* note 3, at 261; see also U.S. GENERAL ACCOUNTING OFFICE, TELECOMMUNICATIONS: TECHNOLOGICAL AND REGULATORY FACTORS AFFECTING CONSUMER CHOICE OF INTERNET PROVIDERS 29 (2000), available at <http://www.gao.gov/new.items/d0193.pdf> [hereinafter GAO INTERNET REPORT].

27. To define the broadband industry better, one must define broadband service. The FCC defines broadband as a transmission speed of 200 Kbps – a definition almost universally regarded as obsolete. See, e.g., S. DEREK TURNER, BROADBAND REALITY CHECK 2 (2005), http://www.freepress.net/docs/broadband_report.pdf. For purposes of this paper, “broadband” is the transmission speed required to support the highest-bandwidth applications commonly used. This is similar to the mandate in the 1996 Telecommunications act to enable users to “originate and receive high-quality voice, data, graphics and video telecommunications.” See *id.* This paper assumes that a “broadband” connection can provide at least 1.5 Mbps download.

28. F.T.C., BROADBAND CONNECTIVITY COMPETITION POLICY, Staff Report 98 (2007), available at <http://www.ftc.gov/reports/broadband/v070000report.pdf> [hereinafter FTC BROADBAND REPORT].

ISPs.²⁹ As with wireless telephone technology, DSL technology was developed and then shelved for fear of cannibalizing existing services – in this case the lucrative second phone line that customers used to dial their ISPs.³⁰ The transition to broadband Internet connections was prompted by cable companies upgrading to all-digital networks to compete with satellite television providers.³¹ After investing in digital networks to facilitate video distribution, the cable companies began offering broadband Internet connections over cable modems.³² With competition to dial-up service (and the second lines often ordered to support that service), incumbent telephone providers deployed DSL shortly thereafter.³³

Today most broadband consumers are served by a duopoly consisting of DSL and cable modem service.³⁴ While many companies provide cable video service, each particular subscriber is served by the one provider having the local franchise. Until recently, local phone companies were required to lease the copper loop to a subscriber's home to competitive DSL providers.³⁵ With the FCC's decision to deregulate the DSL market, local phone companies will likely stop leasing lines to competitive DSL providers.³⁶ Thus, while many cable modem providers and DSL providers exist across the nation, each particular subscriber is served by a duopoly – the local cable company and the local phone company.

While both the wireless and broadband industries began as duopolies, the duopoly among broadband providers is viewed by regulators as sufficiently competitive to preclude FCC regulation.

29. GAO INTERNET REPORT, *supra* note 26, at 29.

30. DIGITAL CROSSROADS, *supra* note 3, at 143. For an excellent history of DSL technology, see also, John Cioffi, *Bell Labs Managers Laughed at the Idea of Broadband over Phone Lines*, EE TIMES, Dec. 12, 2005, <http://www.eetimes.com/disruption/essays/cioffi.jhtml>.

31. *Id.*

32. *Id.*

33. *Id.*

34. *The State of Broadband in Arkansas: Hearing Before the S. Comm. on Commerce, Sci., and Transp.*, 110th Cong. 5 (2007) (statement of Jonathan S. Adelstein, Commissioner, F.C.C.) (observing that cable modem and DSL providers control approximately 96% of the residential broadband market), http://commerce.senate.gov/public/_files/2007AugSenateCommerceArkansasAdelsteinfinal0.pdf.

35. See *Wireline Facilities Order*, *supra* note 17, ¶ 86 (

We eliminate the *Computer Inquiry* obligations as applied to facilities-based providers of wireline broadband Internet access service, and, in particular, the obligation to offer the transmission component of wireline broadband Internet access service on a stand-alone common carrier basis.

).

36. *Id.*

Despite criticism of the rate of broadband deployment in the U.S., broadband service in its first three years advanced as much as cellular service in its first five years.³⁷ Furthermore, the price of broadband service has continued to fall. Figure 1 illustrates the continuing decrease in the price of DSL service. In 2005, the FCC concluded that “. . . many consumers have a competitive choice for broadband Internet access services today.”³⁸ As a result, the FCC deregulated DSL service in 2006.³⁹ And in 2007, the Federal Trade Commission observed that the broadband industry “is showing signs of robust competition, including fast growth, declining prices for higher-quality service, and the current market-leading technology (*i.e.*, cable modem) losing share to the more recently deregulated major alternative (*i.e.*, DSL).”⁴⁰

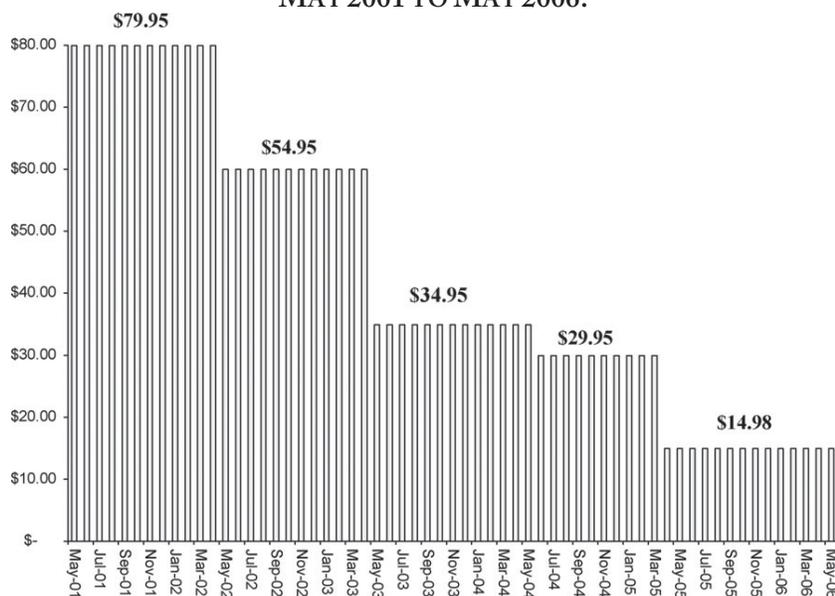
37. Andrew Odlyzko, *The Many Paradoxes of Broadband*, FIRST MONDAY 2, 2003, <http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/1072/992>.

38. *Wireline Facilities Order*, *supra* note 17, ¶ 47.

39. *Id.* ¶ 86.

40. FTC BROADBAND REPORT, *supra* note 28, at 100-01.

FIGURE 1: VERIZON'S MONTHLY PRICE FOR 1.5 MBPS DSL ACCESS, MAY 2001 TO MAY 2006.⁴¹



The FTC's and FCC's conclusion that, thus far, a duopoly among broadband providers has provided sufficient competition to protect consumers without additional regulation is not without criticism.⁴² Certainly, more competition in the broadband industry would benefit consumers. However, the critical question for regulators is not whether a market has the optimal level of competition, but rather whether a market is sufficiently competitive to forgo regulation. This note adopts the general conclusion reached by the FTC and the FCC that a duopoly among wireless phone service providers was not sufficiently competitive while a duopoly among broadband Internet service providers is sufficient.

41. J. Gregory Sidak, *A Consumer-Welfare Approach to Network Neutrality Regulation of the Internet* at 46 (2006), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=928582 (internal citations omitted) ("In April 2005, Verizon began offering 3.0 Mbps DSL access for the same price that it had been offering 1.5 Mbps DSL access, thus doubling the performance of its entry-level DSL product. Figure 1 treats this repricing as halving the price of 1.5 Mbps DSL access."), *reprinted in modified form in* J. Gregory Sidak, *A Consumer-Welfare Approach to Network Neutrality Regulation of the Internet*, 2 J. OF COMPETITION L. & ECON. 349, 399 (2006).

42. This conclusion is subject to some criticism from groups such as FreePress, Consumers Union, and Consumer Federation of America who argue that broadband access is not competitive and that the government should build a fiber optic infrastructure much as the government built a transportation infrastructure. S. DEREK TURNER, *BROADBAND REALITY CHECK II* (2006), www.freepress.net/docs/bbrc2-final.pdf.

Today, renewed interest exists in whether the competition in the broadband duopoly is sufficient to forbear from regulation. Comcast's degradation of the BitTorrent file-sharing service has fueled interest in regulatory oversight of broadband providers.⁴³ As the FCC re-evaluates whether regulation is required, it must decide if the future broadband market will behave more like the wireless duopoly or the early broadband duopoly. The disparate outcomes between the wireless and broadband duopolies are best explained by analyzing the effects of technological convergence on competition.

III. EFFECT OF CONVERGENT COMPETITION ON DUOPOLIES

Companies will always compete. However, that competition may not always benefit consumers. For example, even a monopolist will compete to prevent entrants from gaining a foothold in the market. This competition is beneficial if the monopolist produces more efficiently and prices its products lower than any potential competitor. However, the competition is not beneficial if it involves efforts to capture regulators who can ensure a monopoly through regulation.⁴⁴ The critical task for the FCC is not simply to decide if a concentrated market is competitive, but whether the resulting competition is sufficient to substitute for regulation. To make this decision, the FCC must predict the form and intensity of competition in a given market. As illustrated by the wireless phone and broadband industries, technological convergence affects both of these areas.

A. Form of Convergent Competition

Competition between companies may take many forms.⁴⁵ Some of these forms benefit consumers – price reduction, quality improvement, and innovation.⁴⁶ Some of these forms do not benefit consumers – political lobbying, over-investment in resources, and premature market entry.⁴⁷ The underlying theory of why companies choose one form of competition over another is not well-developed.⁴⁸ As demonstrated in

43. See, e.g., Eric Bangeman, *FCC Officially Opens Proceeding on Comcast's P2P Throttling*, ARS TECHNICA, Jan. 14, 2008, <http://arstechnica.com/news.ars/post/20080114-fcc-officially-opens-proceeding-on-comcasts-p2p-throttling.html?rel>.

44. See, e.g., DIGITAL CROSSROADS, *supra* note 3, at 58 (Prior to the *Hush-A-Phone* decision the FCC regulators “absurdly agreed” that attaching foreign devices to the telephone threatened the integrity of the phone system, even when the device simply muffled voices).

45. HAL R. VARIAN, *THE ECONOMICS OF INFORMATION TECHNOLOGY* 30 (Cambridge University Press 2004).

46. *Id.*

47. *Id.*

48. *Id.*

the early wireless phone and broadband industries, technological convergence reduces the incentive to engage in political lobbying for regulatory capture and over-investment to prevent entry by competitors.

i. Effect of Technological Convergence on Political Lobbying to Capture a Regulatory Agency

When analyzing competition in concentrated markets, regulators should assume that the existing companies will seek to prevent entry by outside competitors. In telecommunications, one historic form of competition is political lobbying seeking to “capture” the FCC. In the past, these efforts were particularly effective because the FCC presumed that regulation should protect an efficient natural monopoly.⁴⁹ While the natural monopoly justification has fallen out of favor, strategic use of the regulatory process has not. Indeed, the “strategic use of the regulatory process is at least as important to many industries as the traditional decision variables: prices, entry, and innovation.”⁵⁰ This competition to capture the FCC to ensure favorable regulation does not benefit consumers.

Technological convergence reduces the incentives to engage in regulatory capture. The bureaucratic structure of the FCC was premised on the pre-convergence assumption that applications were tied to physical platforms.⁵¹ The FCC was not created as an application-centric organization with a voice-communications bureau, data-communications bureau, and video-distribution bureau. Instead, the FCC was created as a platform-centric organization with a wireline competition bureau, a wireless communications bureau, and a cable bureau.⁵² In a pre-convergence era, companies seeking regulatory capture could focus lobbying efforts on the single bureau that controlled the physical platform critical to their industry.⁵³ In a post-convergence era, companies seeking regulatory capture must focus political lobbying efforts on several relevant bureaus.⁵⁴ As the number of regulators in need of influencing

49. DIGITAL CROSSROADS, *supra* note 3, at 55.

50. BRUCE M. OWEN & RONALD R. BRAEUTIGAM, THE REGULATION GAME: STRATEGIC USE OF THE ADMINISTRATIVE PROCESS 2 (1978).

51. DIGITAL CROSSROADS, *supra* note 3, at 23.

52. *See* Federal Communications Commission (FCC) Home Page, <http://www.fcc.gov>. The Cable Bureau no longer exists. The Media Bureau is responsible for the cable and broadcast industries. *Id.*

53. For example, a wireless provider interested in precluding entry by a competitor could focus on lobbying the wireless communications bureau. *See id.*

54. For example, a broadband provider interested in precluding entry by a competitor must focus on lobbying the wireline bureau for DSL and fiber-to-the-premises, the wireless bureau for terrestrial wireless, the media bureau for cable, and the international bureau for satellite wireless. *See id.*

increases, so too does the cost of regulatory capture. Therefore, while technological convergence does not necessarily make regulatory capture an ineffective strategy, it certainly raises the costs.

In the early wireless industry, competition to maintain the duopoly involved the non-beneficial form of political lobbying seeking regulatory capture. As noted above, regulation of the early wireless duopoly provided only two spectrum licenses being issued for each market.⁵⁵ Unless the FCC granted additional licenses, outside competition was effectively precluded.⁵⁶ Thus, little incentive existed to prevent future market entry by focusing on price, quality of service, or innovation, because regulatory capture guaranteed duopoly control of the market.

Not only was preclusion of competition guaranteed through regulatory capture, but the FCC's regulatory history suggested that such capture was possible. The voice telephone market began as a regulated monopoly with AT&T providing long distance service and the local Bell operating company or another state-sanctioned monopoly providing local phone service.⁵⁷ At the behest of the incumbent telephone companies, the FCC barred entry into the consumer premises equipment (CPE) market until essentially forced to do so by the *Hush-a-Phone* decision.⁵⁸ In addition, the FCC allowed AT&T to leverage its control of the local exchange facilities to discriminate against MCI's long distance service until the historic 1984 consent decree.⁵⁹

Against this backdrop, duopoly wireless telephone service providers acted reasonably when they focused efforts on political lobbying to prevent the FCC from granting additional wireless licenses. This lobbying was apparent in the FCC's proceedings leading up to the Personal Communications System (PCS) auction in 1994. Initially, incumbent wireless providers argued that there was no need to grant additional licenses because they would soon provide the same perceived benefits of digital service.⁶⁰ One report observed that "various organizations that have a vested interest. . . have recently flooded the commission with documents and letters attempting to shape the soon to be determined [PCS] policy."⁶¹ Ultimately, the wireless incumbents were

55. DIGITAL CROSSROADS, *supra* note 3, at 268.

56. Mobile voice telephone service via satellite was first commercially available from Iridium in 1998. History of the Handheld Satellite Phone, Globalcom, <http://www.globalcomsatphone.com/articles/history.html>.

57. DIGITAL CROSSROADS, *supra* note 3, at 55.

58. *Hush-A-Phone Corp. v. United States*, 238 F.2d 266, 269 (D.C. Cir. 1956).

59. See DIGITAL CROSSROADS, *supra* note 3, at 62.

60. Amendment of the Commission's Rules to Establish New Personal Communications Services, *Notice of Inquiry*, 5 FCC Rcd. 3995, ¶ 10 (1990).

61. Paul Rubin, *FCC Flooded with Opinions on PCS as Rulemaking Approaches*, FCC REPORT, Sept. 8, 1993, at 8.

unsuccessful with their strategy as evidenced by the limitations and spectrum caps placed on incumbent providers in the 1994 auction.⁶²

In contrast, the early broadband industry displayed little evidence of political lobbying seeking regulatory capture. Although cable modem and DSL providers control the broadband Internet access market, a wide range of potential competitors exist. The FCC concluded that future broadband service will “not be limited to cable modem and DSL service” because of other broadband platforms “such as satellite and wireless, and even broadband over power line in certain locations.”⁶³ Because these potential convergent competitors for broadband Internet access rely on dissimilar physical transmission platforms, and because the FCC is still structured according to physical transmission platforms, the existing broadband duopoly would need to capture many more regulatory bureaus to hinder entry by competitors.

Technological convergence, combined with the FCC’s platform-centric structure, has limited the effectiveness of political lobbying by one industry segment and dissuaded this non-beneficial form of competition. However, the FCC has begun to move away from a platform-centric structure. For example, the bureaus of public safety and homeland security, enforcement, and consumer and governmental affairs theoretically have jurisdiction limited by subject matter instead of physical platform.⁶⁴ If fully implemented, this change to an application-centric bureaucratic structure may eventually lead to resurgence in efforts to “capture” regulators at the FCC.

ii. Effect of Technological Convergence on Over-Investment

Technological convergence may also reduce the incentive to over-invest in necessary resources. Over-investment in resources is a rational strategy if one company can drive up a competitor’s costs by “cornering the market” for a critical resource.⁶⁵ Technological convergence reduces the attractiveness of the over-investment strategy because a company would have to not only purchase extra resources necessary for its own physical platform, but also purchase resources necessary for all other

62. 700 MHz Spectrum Auction, Public Knowledge, <http://www.publicknowledge.org/issues/spectrum-reform>.

63. *Wireline Facilities Order*, *supra* note 17, ¶ 50.

64. FCC Home Page, *supra* note 52.

65. *See, e.g.*, John R. Wilke, *U.S. Accuses BP of Manipulating the Price of Propane*, THE WALL ST. J. ONLINE, June 29, 2006, <http://online.wsj.com/article/SB115152494243093324.html> (The Commodities Futures Trading Commission charged traders at British Petroleum with cornering the market for propane thereby driving up heating and cooking costs for rural Americans).

transmission platforms where competitors might make entry. While this extra investment does not completely eliminate the incentive for over-investment, it makes the strategy less attractive by raising the cost of success.

When the application was tied to the physical platform in the early wireless phone industry, over-investment was an attractive strategy. The FCC was worried that providers would purchase spectrum licenses simply to prevent competitors from gaining a foothold in the market.⁶⁶ Because of this, the FCC now conditions each spectrum license with build-out requirements that specify the levels of infrastructure and use required to keep the license.⁶⁷ Companies that do not meet the build-out requirements may lose their licenses.⁶⁸

Unfortunately, because the build-out periods are relatively long and companies may obtain waivers, some experts fear that major providers still engage in over-investment to prevent competitors from gaining a foothold. In fact, some had even advocated for a requirement that the winner of the recent 700 Mhz spectrum auction be required to offer wholesale service to independent wireless service providers over fears that Verizon or AT&T would purchase the spectrum even though they did not need it to provide their services.⁶⁹

Because of technological convergence, the early broadband industry did not exhibit signs of over-investment as a means of preventing entry by competitors, nor have they since. DSL providers have not purchased satellite licenses. Cable companies have not purchased wireless spectrum licenses. Instead, the trend is to improve the existing physical platforms. For example, Verizon is replacing its copper loops with fiber-to-the-premises (FTTP), and cable companies are starting to upgrade their infrastructure to support DOCSIS 3.0. If anything, the broadband industry has been criticized for under-investing in infrastructure, as evidenced by the level of broadband penetration.

In summary, competition in the broadband industry took forms that benefited consumers while competition in the wireless industry took forms that did not. This difference was controlled by technological convergence. Because applications are no longer tied to a physical platform, capturing the regulators that control that physical platform or capturing the resources that the physical platform requires are less attractive strategies.

66. See FCC: Wireless Telecomm. Bureau: Construction /Coverage Requirements, http://wireless.fcc.gov/licensing/index.htm?job=const_req_home.

67. *Id.*

68. *Id.*

69. See, e.g., 700 MHz Spectrum Auction, *supra* note 62.

B. *Intensity of Convergent Competition*

The intensity of competition in a concentrated market is distinct from the form of competition. For example, a firm that has competed heavily in political lobbying to guarantee a share of a concentrated market may avoid price competition within that market.⁷⁰ If technological convergence promotes beneficial forms of competition, it does not automatically follow that the competition is sufficiently intense to forbear from regulation. Indeed, a common concern is that companies who compete in price (a beneficial form of competition) will collude to minimize the intensity of this competition. For example, telecommunications rate tariffing could enable competitors to signal price changes and thereby minimizing price competition.⁷¹ However, technological convergence affects the intensity of competition in duopoly markets by increasing substitute services and decreasing customer switching costs.

i. Effect of Technological Convergence on Substitute Services

Convergent competition increases the likelihood that substitute services are available. Economic theory suggests that a lack of substitute service enables companies to maintain prices above competitive levels.⁷² When few good substitutes exist, “price becomes less important in the buying decision.”⁷³ Without convergence, an application is tied to its physical transmission platform. As a result, a substitute, by definition, involves a different application. For example, the closest substitute to early wireless telephone service was a pager signal directing the recipient to call over the nearest land-line. This different application is also, by definition, sub-optimal (otherwise it would be the desired application).

With convergent competition, a substitute may involve the same application offered over a different physical platform. For example, both dial-up and broadband Internet services support the same Internet browser or email client. This alternate physical platform may have limitations that reduce the attractiveness of the substitute, but the

70. When SBC acquired Ameritech, the FCC required that SBC agree to compete by entering thirty local markets outside of its own operating area. After the acquisition, SBC engaged in legal and regulatory efforts to lower the standard by which its competition would be judged. As of 2002, SBC had fewer than 5,000 local customers outside of its 70 million customer traditional operating area. CHARLES H. FERGUSON, *THE BROADBAND PROBLEM* 107 (Brookings Institution Press 2004).

71. Gruber, *supra* note 18, at 183-84 (tariffing allows competitors to detect deviation from agreed pricing systems).

72. GAO WIRELESS REPORT, *supra* note 21, at 21.

73. *Id.*

application is the same. Thus, technological convergence improves the likelihood of substitutes by increasing the number of platforms over which an application can be offered.

In the early wireless industry, the intensity of competition for consumers was limited by the lack of competition from substitute mobile-telephone products.⁷⁴ Substitute service involved using sub-optimal applications to create a mobile-telephone equivalent.⁷⁵ The GAO concluded that “landline telephone, pagers, [and] two-way mobile dispatch service . . . are generally not very close substitutes for cellular service.”⁷⁶ This lack of good substitutes insulated the wireless duopoly from market competition.⁷⁷

In contrast, because of technological convergence, broadband Internet access providers faced competition from substitute providers – dial-up ISPs. In fact, in 2001 only 12% of Internet subscribers purchased a broadband connection even though 56% had the option. The remaining 88% chose to remain with a dial-up provider. In a 2008 survey, 35% of dial-up users identified price as their reason for not upgrading to broadband while 19% said that nothing would convince them to upgrade to broadband.⁷⁸ This result is a function both of convergence and of the evolution of Internet services. Because dial-up access existed first, most applications were optimized for the slow transmission rates of dial-up connections. Many argue that as applications need ever increasing amounts of bandwidth for an enjoyable customer experience, dial-up ISPs will no longer serve as substitutes in this convergent market.⁷⁹ In 2006, 75% of U.S. Internet users utilized a broadband connection implying that dial-up is losing attractiveness as a substitute.⁸⁰ However, some users still primarily use only low-bandwidth applications such as e-mail.⁸¹ The Federal Trade Commission concluded that dial-up service continues to be “an acceptable substitute for broadband for some consumers” and even today appears to “retain some constraining influence on broadband prices.”⁸²

74. *Id.* at 20-21.

75. *Id.*

76. *Id.*

77. *Id.*

78. See Press Release, Pew Internet & American Life Project, 55% of Adult Americans Have Home Broadband Connections (July 2, 2008), http://www.pewinternet.org/press_release.asp?r=305.

79. See, e.g., Harold Feld, Senior Vice President, Media Access Project, FTC Broadband Connectivity and Competition Policy Task Force Presentation (Feb. 14, 2007), <http://www.ftc.gov/opp/workshops/broadband/presentations/feld.pdf>.

80. Carol Wilson, *Nielsen: Broadband Use Nears 75% in U.S.*, TELEPHONY ONLINE, June 22, 2006, http://telephonyonline.com/broadband/news/Nielsen_broadband_Internet_062206/.

81. See FTC BROADBAND REPORT, *supra* note 28, at 99.

82. *Id.*

In the near future, if not already, dial-up will cease to be an acceptable broadband substitute and will no longer constrain broadband prices. However, as discussed in Section IV, other forms of broadband service may emerge. As discussed in Section V, these substitutes may not offer the same transmission speed as FTTP or DOCSIS 3.0, but like dial-up, they may be sufficient to constrain prices in the future broadband market.

Technological convergence tends to increase the intensity of competition because of the increased possibilities of substitute services. In the early wireless industry where the application (mobile voice communication) was tied to the platform (wireless signals) there was limited competition from inferior substitutes. In the broadband industry, the application (Internet access) is not tied to a particular platform.

Most importantly, in convergent markets, when one substitute fades another may take its place. Indeed the broadband duopoly will likely face additional competition from service offered over satellite, wireless, power-line, or fiber-to-the-premises.⁸³ The FTC and the Department of Justice Antitrust Division consider potential entrants to be capable of influencing business decisions of current service providers.⁸⁴ So long as the threat of another provider exists, it will increase the intensity of competition in the future broadband market.

ii. Effect of Technological Convergence on Customer Switching Costs

In addition to increasing the likelihood of substitute services, technological convergence lowers customer switching costs, thereby intensifying efforts to lure consumers from a competitor. Economists have observed that high switching costs often lead to customer lock-in. Lock-in occurs when it becomes economically irrational to incur a high fixed switching cost to take advantage of a marginally lower price or marginally higher quality of service.⁸⁵ The resulting lock-in tends to raise prices over the lifetime of a product, create deadweight loss, and reduce market entry.⁸⁶ Convergence reduces switching costs by freeing the

83. The FCC estimates that 87% of all U.S. zip codes now have access to three or more broadband service providers, and 63% of zip codes are served by five broadband providers. F.C.C., INDUS. ANALYSIS AND TECH. DIV., WIRELINE COMPETITION BUREAU: HIGH SPEED SERVICES FOR INTERNET ACCESS: STATUS AS OF JUNE 30, 2006 21 tbl.15 (2007), http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-270128A1.doc.

84. FTC BROADBAND REPORT, *supra* note 28, at 105.

85. Varian, *supra* note 45, at 22. Examples of industries with high switching costs are the printer industry where replacement cartridges are often priced at half of the price of a new printer and the disposable razor industry where razors are given away to ensure future sales of high priced replacement blades.

86. *Id.* at 23.

application from the physical platform so that consumers can change platforms without losing any investment in the application.

In the early wireless industry, customers faced high economic and non-economic switching costs.⁸⁷ For example, customers desiring to switch wireless telephone providers often had to pay a termination fee and purchase an expensive telephone to work with the competitor's network.⁸⁸ Today's wireless customers still face equipment lock-in and high termination costs. This illustrates that although low switching costs can promote competition, competition does not necessarily eliminate high switching costs.

Early wireless customers faced high non-economic switching costs as well. In the early 1990s, customers changing wireless phone providers had to manually transfer the addresses stored in their phones, and, more importantly, faced the hassle of establishing a new telephone number. The effects of these non-economic switching costs are verified by the computer software that soon emerged to ease the portability of stored phonebooks,⁸⁹ and the FCC's repeated emphasis on the importance of wireless telephone number portability to increase competition and improve consumer choice in the wireless telephone service market.⁹⁰ Because the application (mobile telephone service) is tied to the physical medium (the provider's network), consumers were locked-in to their initial provider by the high switching costs. This lock-in may increase competition to acquire new customers, but is generally viewed as "bad for consumer welfare."⁹¹

As with the wireless telephone industry, broadband consumers still face economic switching costs. Many broadband plans require payment of an early termination fee or significantly reduce prices for long-term service contracts, and customers must purchase or lease a new modem.⁹²

87. See THE ECONOMICS OF MOBILE TELECOMMUNICATIONS, *supra* note 18, at 181-82.

88. These switching costs were sometimes mitigated by competitors offering cheap phones in return for customers agreeing to pay high early termination fees. *Id.*

89. Today a wide variety of devices exist to backup cellular phone address books. Most wireless service providers also offer backup services. Grace Aquino, *Dialed In: Back Up Your Cell Phone's Address Book*, PCWORLD, Apr. 27, 2006, http://www.peworld.com/article/125519/dialed_in_back_up_your_cell_phones_address_book.html.

90. The Commission has repeatedly emphasized its view that local number portability is "an important tool for enhancing competition, promoting numbering resource optimization, and giving consumers greater choice." Numbering Resource Optimization, *Fourth Report & Order & Fourth Further Notice of Proposed Rulemaking*, 18 FCC Rcd. 12,472, ¶ 9 (2003), available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-03-126A1.pdf.

91. Varian, *supra* note 45, at 23.

92. For example, if a customer does not agree to a two-year service commitment, Qwest's monthly service prices increase from \$29.99 to \$39.99 for its Silver service and from \$36.99 to \$49.99 for its Platinum service. Qwest Home Page, <http://www.qwest.com>, visited Oct. 30,

However, as a result of technological convergence, consumers are not locked-in by an investment in applications. For example, from the average consumer's perspective Internet browsers used to surf the Web work equally well over cable modem connections and DSL connections. Moreover, none of the consumer's stored browser information is lost when service is transferred.

The effect of convergence on switching costs is perhaps best illustrated by the use of third-party email providers. Initially consumers faced a non-economic switching cost because their email addresses were hosted by the broadband (or dial-up) service provider.⁹³ On switching providers, customers had to download or forward all of their stored emails and email addresses.⁹⁴ Today, many consumers use third-party email service such as Yahoo Mail, Hotmail, or G-mail, thereby avoiding this switching cost.⁹⁵ Unlike wireless telephone number portability where regulatory action was required to reduce switching costs, email portability is largely a non-issue because convergence enables third-parties to separate the application from the physical transmission medium. Because convergence lowers these switching costs, competition for customers between duopoly competitors is likely more intense where convergent competition exists.

Technological convergence, and the resulting convergent competition, was a driving force in the disparate outcomes of the early wireless duopoly and the broadband duopoly. Convergent competition discourages non-beneficial forms of competition by increasing the cost of regulatory capture and overinvestment to capture resources. At the same time, convergent competition promotes beneficial forms of competition by increasing the availability (or threat) of substitute services and lowering customer switching costs.

IV. THE SHAPE OF THE FUTURE BROADBAND INDUSTRY

Despite frequent calls for a third broadband platform to compete

2008. Comcast's terms of service reference its "minimum term" customers. Comcast requires that customers have either purchased a modem, or lease a modem for \$3 per month. Comcast Home Page, <http://www.comcast.net>, visited Oct. 30, 2008.

93. See, e.g., Gail Mortenson, Email Address Portability, *Petition for Rulemaking* (July 20, 2007) (petition to the Commission to mandate e-mail portability to avoid consumer lock-in and abuse for consumers changing service providers), http://fjallfoss.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6519560444.

94. *Id.*

95. See CARL SHAPIRO & HAL R. VARIAN, INFORMATION RULES 109 (Harvard Business School Press 1999) (observing that the Hotmail business model is successful because of the switching costs associated with ISP provided email accounts). The official Yahoo blog cites a Comscore study indicating that there are 543 million people with webmail accounts. Happy 10th Birthday, Yahoo! Mail, YODEL ANECDOTAL, Oct. 8, 2007, <http://yodel.yahoo.com/2007/10/08/happy-10th-birthday-yahoo-mail>.

with cable and DSL (the “third-pipe”), the future broadband market may remain a duopoly. This paper defines “broadband” by the transmission speed needed to support the highest bandwidth applications commonly used.⁹⁶ Assuming that common applications will eventually expand to take advantage of excess transmission speeds, the future broadband market can be crudely defined by the highest transmission speed offered in major markets.

Of course, just as dial-up can serve as a substitute for broadband, slower broadband connections may serve as a substitute for future broadband service (as defined purely by maximum transmission speeds). Thus, this paper will define the “future broadband” market as those providers able to offer the highest transmission speeds, but the paper will also address slower connections that can offer substitute services.

Transmission speeds differ depending on whether users download from the Internet or upload to the Internet.⁹⁷ For example, because of the network architecture, cable modem service typically provides download speeds on the order of 2-3 Mbps, but upload speeds on the order of 256-384 Kbps.⁹⁸ Moreover, quoted transmission speeds are often the maximum theoretical speed that a network can support.⁹⁹ The actual speed experienced by users varies depending on factors such as the number of other users on the network, the user’s distance to the provider’s equipment, and the user’s own networking equipment.¹⁰⁰ Thus, this paper will use expected transmission speeds only to define the broadband market, not as an actual measurement of service.

A. *Wireless Broadband as a Third Pipe*

With today’s broadband speeds, terrestrial wireless (as distinguished from satellite wireless) may offer a competitive third pipe for broadband. Both DSL and cable modem service provide transmission speeds around 1-3 Mbps.¹⁰¹ Sprint committed to investing five billion dollars over the next three years to build a wireless broadband network.¹⁰² Sprint predicted that its network would offer transmission speeds between 2-4 Mbps,¹⁰³ and early tests confirm actual service speeds between 3-5

96. See Turner, *supra* note 27.

97. *Id.* at 5.

98. *Id.*

99. Jacqui Cheng, *FTC to Investigate Broadband Speed Claims*, ARS TECHNICA, Feb. 12, 2007, <http://arstechnica.com/news.ars/post/20070212-8822.html>.

100. *Id.*

101. Turner, *supra* note 27, at 5.

102. Marguerite Reardon, *Sprint’s WiMax Dilemma*, CNET NEWS, Dec. 20, 2007, http://www.news.com/Sprints-WiMax-dilemma/2100-1039_3-6212618.html.

103. Kitty Weldon & Brian Washburn, *Sprint and Clearwire Team for WiMax Rollout*, CURRENT ANALYSIS, July 23, 2007, <http://www.currentanalysis.com/h/2007/SprintNextel->

Mbps.¹⁰⁴ If Sprint could deploy its network today, many consumers would have a choice between three broadband service providers.

Unfortunately for Sprint, as it builds its wireless network, Verizon is investing in a fiber optic network. With FTTP, Verizon advertises that consumers will see transmission speeds of 50 Mbps.¹⁰⁵ Not to be outdone, the cable industry announced deployment of DOCSIS 3.0 with transmission speeds of up to 160 Mbps.¹⁰⁶ If Verizon and the cable industry deploy advanced networks at the same rate as Sprint is building its wireless network, Sprint's network will no longer be a competitive third pipe (as defined purely by transmission speed). However, as discussed in Section V, Sprint's network may compete as a substitute for broadband service.

Just because Sprint's wireless network cannot compete with FTTP or DOCSIS 3.0 service on the basis of transmission speed does not necessarily mean that another wireless platform cannot provide a third pipe. Laboratory tests claim to have achieved wireless transmission speeds up to 50 Mbps using 4G technology based on Orthogonal Frequency Division Multiple Access technology.¹⁰⁷ However, to achieve these speeds, the network operators must optimize the networks to offer transmission speed over mobility. Figure 2 illustrates this trade-off by plotting the theoretical transmission speeds against the amount of mobility a network can support.

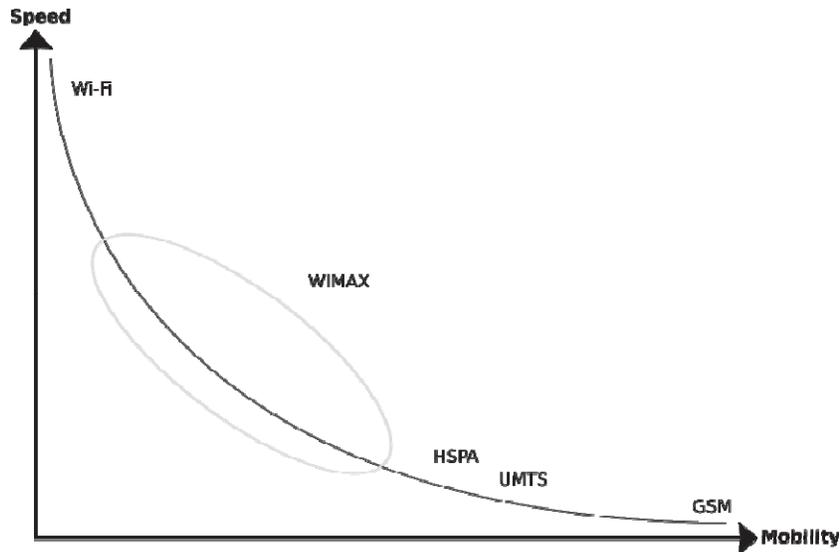
Clearwire-wimax.asp.

104. Jeff Orr, *Sprint Sees 5 Mbps Xohm Performance in First Markets*, MOBILE BROADBAND NEWS, Jan. 30, 2008, <http://mobilebroadbandnews.com/2008/01/30/sprint-sees-5-mbps-xohm-performance-in-first-markets/>.

105. Press Release, Verizon, Verizon Widens its Broadband Speed Advantage on the Company's Industry-Leading Fiber-to-the-Premises Network (July 27, 2006), <http://newscenter.verizon.com/press-releases/verizon/2006/page.jsp?itemID=30078536>.

106. Press Release, CableLab, CableLabs Issues DOCSIS 3.0 Specifications Enabling 160 Mbps (Aug. 7, 2006), http://www.cablelabs.com/news/pr/2006/06_pr_docsis30_080706.html.

107. CISCO SYSTEMS, RISE OF THE 4G NETWORK ENABLING THE INTERNET EVERYWHERE EXPERIENCE (2007), http://www.cisco.com/en/US/solutions/collateral/ns341/ns523/ns177/net_implementation_w_hite_paper0900aecd805c247c.pdf.

FIGURE 2: WiMAX¹⁰⁸

One of the advantages of wireless service is the mobility it allows. Because FTTP and DOCSIS 3.0 can never offer mobility, wireless providers should hesitate before sacrificing mobility to compete on the basis of transmission speed. Just as cell phone service providers have focused on mobility and convenience over voice quality, wireless broadband providers will likely not invest in systems optimized to maximize transmission speed. Even though it is unlikely that wireless broadband will ever provide the third pipe (as measured by transmission speed), wireless will almost certainly provide a competing substitute service.

B. *Broadband-over-Power-Line as a Third Pipe*

Wireless broadband access will likely not offer a competitive third pipe but a wired platform may. Broadband-over-Power-Line (“BPL”) has shown promising results in laboratory tests. Current generation equipment offers 3 Mbps transmission speeds.¹⁰⁹ Experts predict that the next-generation equipment will offer speeds comparable to FTTP or DOCSIS 3.0.¹¹⁰ With much of the infrastructure already in place, BPL

108. Wikipedia, WiMax, <http://en.wikipedia.org/wiki/WiMax>.

109. Marguerite Reardon, *Broadband's Power-line Push*, CNET NEWS, July 11, 2005, http://www.news.com/Broadbands-power-line-push/2100-1034_3-5780316.html.

110. See, e.g., Internet over Powerline / BPL, CYBERTELECOM,

appears to offer promise as a competitive broadband platform.

This begs the question of why providers have not already deployed BPL service given the ability to offer competitive broadband speed today. The National Telecommunications Cooperative Association reported that only 10% of its member companies viewed BPL as a potential competitor for broadband service.¹¹¹ One reason is the great technological challenge of modifying an existing infrastructure to support another use. Companies experimenting with BPL have experienced problems from the transformers in power lines and from unauthorized radiation (unshielded power-lines radiate like antennas when an electrical signal is passed through them).¹¹² Thus, while BPL holds theoretical promise, the costs associated with deploying the infrastructure may be prohibitive.

Given the technology currently available, the future broadband market (defined purely by maximum theoretical transmission speed) will likely remain a duopoly. From a competition standpoint, this duopoly is the worst case scenario for the FCC. However, that does not mean that the FCC must regulate to increase competition. The technological convergence that spurred competition in the early broadband industry should affect the form and intensity of competition in the future broadband industry.

V. MODELS FOR BROADBAND REGULATION

As discussed in Section II above, the broadband industry has developed relatively free of regulation. In fact, in 2006 the FCC ruled that phone companies no longer had to offer unbundled phone line access to competitors offering DSL service.¹¹³ Several trends have renewed calls for increased regulation of the broadband industry. First, critics point out that United States lags behind many other nations in broadband deployment (the percentage of citizens with access to broadband service).¹¹⁴ Second, critics highlight the relatively high cost of broadband service in the United States.¹¹⁵ Finally, and perhaps most

<http://www.cybertelecom.org/broadband/power.htm> (predicting that BPL will offer transmission speeds in excess of 100 Mbps).

111. NAT'L TELECOMM. COOP. ASS'N, NTCA 2007 BROADBAND/INTERNET AVAILABILITY SURVEY REPORT, Sept. 2007, <http://www.usdoj.gov/atr/public/workshops/telecom2007/submissions/228008.htm>.

112. Joe Barr, *Flawed BPL is No Broadband Panacea*, LINUX, May 17, 2007, <http://www.linux.com/feature/44975>.

113. *Wireline Facilities Order*, *supra* note 17, ¶ 86.

114. Turner, *supra* note 27, at 3 (observing that the United States places 16th worldwide for the net change in broadband penetration and number of broadband subscribers per 100 inhabitants).

115. *Id.* at 2 (Broadband in the United States costs 10-25% more on a per megabit basis

importantly, Comcast's decision to degrade the peer-to-peer file sharing service BitTorrent has renewed calls for regulation, or legislation, mandating "network neutrality."¹¹⁶

The FCC faces a choice over its future broadband policy. In broad terms, the FCC has two models to choose from. The proactive regulatory approach acts in advance to promote competition and prevent market failure. In contrast, the reactive antitrust approach allows competitive markets to function and regulate in response to market failures. The 1996 Telecommunications Act signals a preference for the antitrust model by allowing the FCC to forbear from regulating competitive markets. However, the shift to the antitrust model requires a sufficiently competitive market.

A. *The Proactive Regulatory Approach*

For most of its existence, the FCC regulated industries to actively manage competition in the communications market.¹¹⁷ Although the 1996 Act allowed the FCC to forbear from regulation, there is temptation "to micromanage the process of deregulation itself."¹¹⁸ The FCC faces the difficult task of transitioning from regulation designed to dictate an outcome to regulation designed to allow competition to dictate an outcome.¹¹⁹ The FCC's recent open-access decision illustrates this difficult transition.

After the failure of the early wireless duopoly, the FCC made more wireless spectrum available to wireless phone service providers. Although most experts agree that the cellular phone service market is competitive, consumers in the United States are usually still "locked-in" by their phones that operate only on one carrier's network.¹²⁰ In addition, applications that can run on cellular handsets are strictly controlled by the cell phone service provider.¹²¹ In response to calls to increase competition, the FCC required that a portion of the spectrum included in the recent 700 MHz auction be open to all equipment and

than broadband in Japan).

116. See, e.g., Eric Bangeman, *FCC Officially Opens Proceeding on Comcast's P2P Throttling*, ARS TECHNICA, Jan. 14, 2008, <http://arstechnica.com/news.ars/post/20080114-fcc-officially-opens-proceeding-on-comcasts-p2p-throttling.html?rel>.

117. See DIGITAL CROSSROADS, *supra* note 3, at 408.

118. *Id.*

119. *Id.*

120. See Ben Charny, *Cell Phone Lockdown*, CNET NEWS, Dec. 3, 2003, http://www.news.com/2100-1039_3-5112883.html.

121. See Bruce Meyerson, *Why Wireless Isn't Wide Open*, BUSINESSWEEK, Dec. 11, 2007, http://www.businessweek.com/technology/content/dec2007/tc20071210_625653.htm?chan=top+news_top+news+index_businessweek+exclusiv.

applications.¹²² The winner of the open-access license will have to allow any qualified device onto its network and cannot degrade Internet content from competitors.¹²³ The FCC has tried to strike a delicate balance between active regulation to introduce competition in the handset market and generally reactive regulation of competitive wireless market.

The FCC may apply this proactive regulatory approach in its future broadband decisions. For example, to increase competition among the two competing physical platforms, the FCC could again require that phone companies provide unbundled phone line access to competitors offering DSL service. To maintain regulatory parity, the FCC could require similar unbundling of cable-modem service.

B. *The Reactive Antitrust Approach*

In contrast to the regulatory approach, the FCC could shape its future broadband policy on a reactive antitrust model. Interestingly, while there are calls for increased regulation of the broadband industry in the United States, the European Union blessed a United Kingdom plan to begin deregulating its broadband industry.¹²⁴ In the United Kingdom, broadband providers were required to provide wholesale access to broadband infrastructure.¹²⁵ In 2007, the United Kingdom's Office of Communications ("OFCOM") found that 65% of consumers had a choice of up to four broadband providers.¹²⁶ However, OFCOM also found that almost 20% of consumers had access to only a single provider.¹²⁷ OFCOM decided to break the United Kingdom into four regulatory sub-markets.¹²⁸ In the competitive markets, OFCOM will no longer require that broadband providers offer wholesale access.¹²⁹ Instead, OFCOM will monitor the progress of competition and regulate in response to market failures.¹³⁰ Similarly, in the United States, the FCC could continue to regulate reactively.

122. Grant Gross, *FCC Embraces Open Access for 700 MHz Auction*, PCWORLD, July 31, 2007, <http://www.pcworld.com/article/id,135294-c,techindustrytrends/article.html>.

123. *Id.*

124. Press Release, Europa, Commission Approves OFCOM Proposal to De-regulate Part of UK Broadband Market (Feb. 14, 2008), <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/08/232> [hereinafter OFCOM PROPOSAL].

125. *See id.*

126. *Id.*

127. *Id.*

128. *Id.*

129. *Id.*

130. OFCOM PROPOSAL, *supra* note 124.

C. *The Effect of Technological Convergence on Future Broadband Policy*

The antitrust model of regulation requires a competitive market. To predict whether the future broadband market will be competitive enough to support an antitrust approach, the FCC must predict whether the effects of convergent competition will continue to affect the market.

Barring further changes in the regulatory structure on the FCC, the form of competition in the broadband industry will likely remain beneficial to consumers. As illustrated in Section III, so long as the broadband providers are from different industry segments, the problems of regulatory capture are minimized by the FCC's platform-centric organization. If the FCC continues to restructure in an application-centric model, the FCC should be more concerned that broadband providers will compete to capture the regulators instead of capturing customers. In addition, as long as convergent competition exists, broadband providers are unlikely to over-invest to prevent entry by competitors.

Even without increased regulation, the intensity of competition in the future broadband industry will likely protect consumer interests. An important driver of competition intensity is the availability of substitute service. As noted in Section IV, wireless broadband service will likely never meet the transmission speed offered over FTTP or DOCSIS 3.0. That does not mean that wireless broadband access is not a broadband substitute. For several years, dial-up Internet service competed with broadband Internet service even though dial-up's transmission speeds were much slower. So long as the critical "killer applications" can run over a slower wireless connection, wireless broadband can provide a substitute service even though it is not a competitive "third pipe."

Perhaps more importantly, a slower mobile connection may be preferred to a faster wired connection. Traditional phone service providers are struggling with this preference today as more and more consumers "cut the cord" and cancel traditional phone service.¹³¹ While wired phone calls offer superior voice quality, many customers find the voice quality of cellular phone service sufficient, and are drawn by the mobility of cellular phone service.

Using today's MPEG-2 compression technology, streaming video requires a connection speed of at least 7 Mbps.¹³² Using the latest

131. The Pew Research Center estimates that 7-9% of the population uses only cell phones. PEW Research Center, *The Cell Phone Challenge to Survey Research*, May 15, 2006, <http://people-press.org/reports/display.php3?ReportID=276>.

132. HAIVISION, MPEG-4 AVC (H.264) AND WHY, ONLY NOW, IT CAN SAVE 60% OF THE NETWORK VIDEO BANDWIDTH AND STORAGE REQUIREMENTS, http://www.infocomm.org/cps/rde/xbcr/infocomm/Video_Compression_-_MPEG-

MPEG-4 technology, the required connection speed drops to 3 Mbps.¹³³ Assuming that video communication is a “killer application” of the future broadband industry, a wireless connection providing under 10 Mbps (well within the limits of today’s technology) could substitute for the faster, physically-connected networks. Thus, while a “third pipe” may not exist as measured purely by speed, wireless connections may provide a substitute, or even superior, service that drives competition in a concentrated broadband market.

Finally, the FCC must be concerned about customers being locked-in to a single broadband provider. Currently, thanks to technological convergence, customers can switch broadband providers with little cost. That may change as broadband providers take a more active role in network management. Much of the network neutrality debate revolves around service tiers. As Stanford Professor Lawrence Lessig observed in testimony before Congress, “there’s nothing wrong with network owners saying ‘we’ll guarantee fast video service on your broadband account.’ There is something wrong with network owners saying ‘we’ll guarantee fast video service from NBC on your broadband account.’”¹³⁴ If broadband providers are able to offer exclusive deals to content producers, then customers may be locked-in to a single provider not because of the link to the physical platform, but by virtue of the user’s preferred content. While lock-in is an issue often overlooked in the current network neutrality debate, the FCC must be aware that some neutrality regulation may be required to keep consumer switching costs low.

Critics of the proactive regulatory model highlight the difficulty in predicting the future of competitive markets. However, the FCC must make some predictions to set its policy course. The FCC could continue the trend from the open-access decision and adopt a more active regulatory approach to broadband competition. The 1996 Telecommunications Act implies a preference for the reactive antitrust model that United Kingdom broadband regulators are now adopting.¹³⁵ While traditional theorists dismiss duopolies as insufficiently competitive, technological convergence has changed this analysis. Given the effects of convergent competition as demonstrated by the early

4_AVC_(H.264).pdf.

133. *Id.*

134. *Network Neutrality: Hearing Before the Senate Comm. on Commerce, Sci. and Transp.* 109th Cong. 3 (Feb. 7, 2006) (testimony of Lawrence Lessig), http://www.lessig.org/blog/archives/Lessig_Testimony_2.pdf.

135. An act designed to “promote competition and reduce regulation” implies a shift to allowing market competition to govern and regulating only in market failure. This reactive regulatory approach is the traditional antitrust approach. *See* Telecommunications Act of 1996, *supra* note 6.

broadband industry, a future broadband duopoly will likely be sufficiently competitive to allow the FCC to forbear from regulation

CONCLUSION

The FCC faces the daunting task of determining when sufficient competition exists such that the FCC can deregulate or forbear from regulation. Technological convergence in telecommunications presents an ongoing challenge for regulators at the FCC. These challenges are amplified by the 1996 Telecommunication Act's focus on promoting competition and reducing regulation.

Traditionally, duopolies were viewed as providing insufficient competition to protect consumer interests without strict oversight. However, when convergent competition exists, a duopoly may be sufficient. As illustrated by a comparison of competition in the wireless and broadband duopolies, convergent competition tends to shape the form and intensity of competition by impeding regulatory capture, reducing the incentive for over-investment, increasing the likelihood of substitute service, and reducing customer switching costs.

Despite calls for a third pipe for broadband competition, the future broadband industry (as measured purely by transmission speed) could very well consist of the current duopoly of providers. For the FCC, this duopoly represents a "worst case" for competition. However, because of the effects of convergent competition, the FCC should adopt the reactive antitrust model that United Kingdom regulators have embraced. Regulation should focus not on directly promoting competition, but rather on maintaining the benefits of technological convergence. While magical things happen with three competitors, when there is convergent competition, two competitors is good enough.