

Communications Policy for 2006 and Beyond

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I. INTRODUCTION

The key goal of communications policy is to promote the welfare of our citizens, primarily through productivity gains. These productivity gains will increase business productivity and increase the benefits to consumers through access to better products and services and through lower prices. Much of the gains will come from decreases in prices of transmission and increases in the amount of information that can be cheaply and rapidly moved from place to place. These efficiency goals can be combined with other social and political goals such as universal access and make achievement of such goals much less costly.

The best means to achieve these goals of communications policy is to maximize the operations of markets. We prefer markets, as opposed to state-owned or state-managed communications businesses, because markets collect and distribute information about what sellers are willing to offer and buyers are willing to purchase in many ways better than the state. However, markets in communications industries may not produce optimal results for at least two principal reasons that may also apply to other industries. First, competition-winning firms tend to obtain market power and may have incentives and ability to deter new entry. In addition, winning firms have different incentives than new entrants that may affect the introduction of new products and services. Second, regulators seeking to distribute communications services to everyone in the nation, for very laudable social and economic reasons, have tended to interfere in ways that diminish the responsiveness of the market as well as the magnitude and speed of the introduction of new goods and services.

The United States currently has a communications policy in place that does not state clearly its own goals, yet applies regulations that greatly affect outcomes. Not surprisingly, the result appears to be deficient in both economic and social benefits. A better communications policy would substitute markets for regulation as a way to determine both what is sold and what price is paid while continuing to be conscious of specific market-power concerns and obtaining any desired social benefits in the most efficient manner possible. Such a wise policy must assure that new entrants, armed with a different sense of what can be sold and who might be persuaded to buy, should be able to challenge even the largest

incumbents. An attribute of this policy would be that all could enjoy the social and economic benefits of ubiquitous and all-inclusive access to the network (i.e., allowing everyone the chance to communicate with everyone else all the time) without detracting materially from the price-setting and competitive mechanisms of markets or imposing an unnecessary cost burden on the overall economy.

One of the metrics for judging communications policy is whether the creation of new networks, goods, services, and markets is keeping pace with rapid technological advances. An important example of success in this respect is the proliferation of wireless communications. Apparently, the absence of retail price regulations, presence of cheap interconnection mandated by government, and existence of multiple providers have all led to high growth, high usage, high penetration, and high rate of technological change for wireless services.¹ This is especially true since the additional competition from the introduction of Personal Communications Services (“PCS”) services and the development of Nextel’s service around the same time increased the number of competitors in each geographic area from two to five or more.² Communications policy should aspire to replicate this success story for wireline and communications services.

By contrast, broadband in the United States may be viewed by some as a frustrating disappointment both from the perspective of service providers and users of broadband networks. For reasons that trouble, and to a degree mystify many, in Japan and Korea, among other countries, broadband providers offer customers much higher bandwidth (i.e., speed) at much lower prices than in the United States and achieve much greater penetration rates.³ This is true even in densely populated areas of the United States that have similar demographic characteristics as large cities in the other countries.

Follow-on effects from higher broadband penetration include the development of new products and services. Social benefits to areas such as

1. See CTIA, CTIA SEMI-ANNUAL WIRELESS SURVEY (2005), <http://files.ctia.org/pdf/CTIAMidYear2005Survey.pdf>.

2. See Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, *Tenth Report*, 20 F.C.C.R. (forthcoming 2006), para. 2 (2005), http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-05-173A1.pdf (stating that 97% of the American population lives in an area with 3 or more wireless operators and that the market is behaving competitively).

3. See Thomas Bleha, *Down to the Wire*, Foreign Aff., May/June 2005, at 111, 112 (stating that Japan has much faster broadband at cheap rates and that South Korea has the world’s highest percentage of individuals who use broadband.). It is unclear at this point in time whether the rapid provision of high-speed access in these other countries is financially remunerative for the firms deploying the services.

education and health care may also become quite significant. Meanwhile, in the United States, broadband penetration rates are growing substantially, but nevertheless are still at levels below those in Japan and Korea.⁴ Moreover, it is not certain that broadband providers will soon offer the much higher speed services of 8 to 40 megabits per second per household that are evidently being offered in Seoul, Tokyo, and other Asian cities.⁵ A wise communications policy would assess the state of American broadband provisions, define goals, and lay out sensible means to achieve the desired outcomes.

Communications in the modern world often involve sending information across national boundaries, yet networks by definition always have a local, physical manifestation and local, social, and economic impact. It should follow that sensible policy creates both new jobs and productive work because employees can use innovative techniques to build, maintain, and utilize networks. So, another test of the wisdom of policy should be whether productive new jobs are created as a result of that policy. At the same time, it must be admitted that less productive, old jobs may be replaced and the sheer number of jobs in the business of providing service may decline as new technologies permit any employee to do more work than was possible in previous years.

As set forth in more detail below, communications policy should extend the operation of market forces more fully to wireline and broadband communications markets. It would assure that new firms with new technologies can easily enter and provide service. And, it would obtain universal participation in communications markets by techniques that do not undercut either of these two goals. To these ends, Congress and the Federal Communications Commission (“FCC”) in 2006, as well as every state regulatory commission, must change many existing laws and regulations. Although the prescriptions herein are legitimately subject to debate, they are not fundamentally ideological in their content. Therefore, it is reasonable to ask that the Bush administration and Congress agree to create a bipartisan and independent commission to suggest a complete overhaul of the law and policy for communications, and to do so as soon as possible. This Article is aimed at starting the sort of discussion such a commission would pursue. While, as the architect Mies van der Rohe

4. *Id.*

5. *See id.* at 114; *see also* Reed E. Hundt, *Reforming Telecom Policy for the Big Broadband Era: Why Is Government Subsidizing the Old Networks When “Big Broadband” Convergence is Inevitable and Optimal*, 14 *New Am. Found. Spectrum Series 2* (2003), http://www.newamerica.net/Download_Docs/pdfs/Pub_File_1431_1.pdf (arguing that as much as 10–100 megabits per second should become available for household use and 1–10 gigabit per second should be available for business use).

famously said, “God is in the details,”⁶ it is also true that blocking out the main issues is not an unworthy first step and certainly is as much as this Article hopes to achieve.

II. ACCESS NETWORK COMPETITION

The fundamental problem of all communications policy is the access network, also called the last mile or local loop. In the context of the household, the access network is the economically powerful but visually humble line that typically stretches from the house along the driveway to the telephone pole, where it is tied to other telephone lines and carried down the street until it hits a box in a building called a central office. In some cases, the access network is wireless so the traffic is collected from wireless signals and relayed to a central office either through wires or through additional wireless connections.

More than half of households have two primary wireline access lines—the wire-based telephone company and a cable television company.⁷ In some areas, there is only a single network. In the future, power lines may be a cost-effective way to provide alternative wire-based access, but today scarcely any homes have such a service.⁸

At the central office, traffic is combined and signals are directed where the sender wishes. Calls originate from an access network and terminate on an access network, which may have a different proprietor⁹ or different architecture¹⁰ than the originating network. Any time a network is accessed calls are both originated and terminated (e.g., e-mails are both sent and received, Web sites are accessed or information is downloaded from a Web site). Calls are directed through a specialized computer called a switch; a router directs communications that occur via the Internet. A more complicated and hence more precisely accurate description can be provided, but this suffices as a means to describe the economic issue: a firm incurs a fairly large cost to build an access network and a minimal cost for each use of it. To put the same point in numerical terms, a telephone company, or for that matter a cable company installing a modern access

6. Wikipedia, Ludwig Mies van der Rohe, http://en.wikipedia.org/wiki/Ludwig_Mies_van_der_Rohe (last visited Nov. 20, 2005).

7. Kevin Martin, Chairman, FCC, Bucks for Broadband Summit 11 (Jan. 12, 2005), www.fcc.gov/commissioners/martin/documents/summit011205.ppt (showing a 53% overlap in high speed cable and DSL availability as of 2003).

8. See Amendment of Part 15 regarding new requirements and measurement guidelines for Access Broadband over Power Line Systems Carrier Current Systems, *Report and Order*, 19 F.C.C.R. 21,265, paras. 4–9 (2004), available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-04-245A1.pdf.

9. For example, a Verizon customer may call a Bell South customer.

10. For example, a wireline customer may call a cell phone.

network capable of serving video in addition to communication services, has to spend between \$1000 and \$3000 to string the lines from switch to house, or in the case of cable, head-end to house for a typical suburban area with buried plant.¹¹

Every call on a wireline network requires little if any extra capital expenditure and minimal incremental cost. For wireless networks, the capacity of the access network correlates more directly to the volume of traffic so that upfront fixed costs are proportionately smaller than in wire networks.¹² However, even for wireless networks, the upfront costs are still quite large.

In a long-run competitive equilibrium, prices tend to marginalize cost. In an industry with large sunk costs and small marginal costs, like most of the telecommunications industry, pricing that goes to marginal cost will not provide an adequate return to the investors who provide capital. Investors will be cautious about investing money upfront because *ex post* competition could drive prices to nonremunerative levels. For example, the long-distance industry has large fixed upfront costs and extremely low incremental costs. Long-distance firms deployed large amounts of capacity in the late 1990s that greatly exceeded total demand, even for a number of subsequent years.¹³ As a result, competition drove prices down substantially.¹⁴ Collectively, the long-haul industry has likely produced negative return on invested capital. In the long run, perhaps only two or three national long-haul carriers will be able to stay in business.

With access network, very similar scenarios are plausible that investors may be reluctant to support new entrants. However, product differentiation is one way for new entrants to attract capital for network build-out. For example, a mobile service or a lower cost or higher quality network may be better able to acquire funding than a duplicate fixed wire network.

Economists studying access networks for many decades tended to believe that wire-based access networks may be a natural monopoly, meaning that production by a single firm results in the lowest cost

11. Nicholas J. Frigo, AT&T Labs, Presentation to Federal Communications Commission: Whatever Happened to Fiber to the Home? 16–17 (April 17, 2003), http://ftp.fcc.gov/oet/tac/TAC_III_04_17_03/fiber_to_the_home.ppt.

12. GEORGE CALHOUN, DIGITAL CELLULAR RADIO 83–91 (1988).

13. David Kaserman & John May, *Competition in the Long-distance Markets*, in 1 Handbook of Telecommunications Economics 509, 521 (Martin E. Cave et al. eds., 2002).

14. See INDUS. ANALYSIS & TECH. DIV., FCC, STATISTICS OF THE LONG DISTANCE TELECOMMUNICATIONS INDUSTRY 13 (2003), available at http://www.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/ldrpt103.pdf (scroll down past the Public Notice).

provision per unit.¹⁵ Belief that any access network is a natural monopoly led many years ago to decide to regulate such networks for two principal purposes: first, to set a price that assured the builder that the fixed cost—often called historic or embedded cost—would be recovered and second, to set a price below the maximum that the consumer would be willing to pay given the lack of choice among offerings.¹⁶

The historic view of a natural monopoly, however, may not be valid, or at least may not be valid when the existing allegedly “naturally monopolistic” network can be replaced by a network that has a radically different total cost or generates a materially different set of services. As evidence of this, cellular networks provide both lower cost per added subscriber and different functionality from fixed-line networks since mobility is different than stationary calling. For example, cable networks provide multichannel video as well as, in some cases, voice, while satellite networks provide more channels than cable. So, each of these examples provides access to full or partial substitution of the allegedly naturally monopolistic fixed line telephone access network. As a result of the last quarter-century of competition policy in America, the so-called monopoly in the telephone network has given way to a market that includes, just for voice, five wireless providers, sometimes a cable company offering communications services, and the traditional telephone company. Of course, cost, services, and quality vary across these networks such that the case for or against natural monopoly is not closed. Yet, the phenomenon of different networks converging to provide alternative forms of similar services appears to be quite real.

This multifirm market leads to the real possibility that as long as government does not allow too many mergers in the access market to take place, then retail price regulation is no longer necessary. The prospect of retail price deregulation is reasonably bright for voice, video, and data services since each of these three genres of communications markets is marked by multifirm competition in many geographic areas. The virtue of deregulating prices is that each consumer can then signal the price it is willing to pay and can purchase different services, not merely traditional local phone service, but perhaps mobile or high-speed Internet, and providers have the incentives to invest in the services that consumers desire. This should result in productivity gains and high paid jobs as well as benefits to consumers. It should also produce best utilization of capital over

15. See STEPHEN G. BREYER, *REGULATION AND ITS REFORM* 1, 15–19 (1982) (stating and countering this proposition).

16. See generally KIP W. VISCUSI ET AL., *ECONOMICS OF REGULATION AND ANTITRUST* 377–411 (2d ed. 1995) (discussing natural monopolies).

time, although in high-fixed cost industries the risk of wasted capital is always significant.

However, the maximum benefits of deregulation will result if both actual and potential competition exist in the provision of the deregulated services. Therefore, a necessary part of deregulation is the continued application of antitrust principles.

The first step for communications policy, then, is to achieve retail price deregulation where multifirm competition is available. To this end, Congress and the FCC need to order states to deregulate retail prices where at least three firms offer similar services. A crucial question will be whether wireless and wireline are considered to provide similar services. But that is an antitrust issue and is routinely answered by economic studies relating to substitution.

Any move to deregulate dominant firms should be cushioned by annual caps of price increases at a number that, if somewhat arbitrary, did not produce meaningful declines in subscription. For example, regulators could limit retail price increases to a maximum of 5% increase per year for traditional local telephone service offered by any regulated firm that wished to take advantage of price deregulation. In addition, a quantity-based rule might make sense for firms with a large market share. This would help to take account of quality changes for different services. For example, if a firm offered a higher quality service, it would be allowed to charge a higher price. A possible rule would be that if any firm has more than 60% market share for any particular kind of communication service, it would not be allowed to raise prices to a level that causes more than 5% per annum reduction in subscriptions in the market as a whole. These somewhat rough, but perhaps useful protections of consumers, of course, can be debated by the proposed independent commission. This approach is very likely to be vastly superior to the detailed rate regulation currently in place.

Wireless firms would have no such restrictions as long as the market remains as competitive as it is today. The FCC deregulated all retail pricing regulation in the early 1990s.¹⁷ The wireless marketplace has multiple competitors and the market is performing well, at least from any economist's perspective, although investors may find the competition unappealing compared to other markets. Cable and satellite competition,¹⁸

17. Implementation of Sections 3(n) and 332 of the Communications Act, Regulatory Treatment of Mobile Services, *Second Report and Order*, 9 F.C.C.R. 1411, paras. 12, 14–16 (1994) (hereinafter *CMRS Second Report and Order*).

18. See generally Telecommunications Act of 1996, 47 U.S.C. § 543 (2000) (giving an express preference for competition in cable).

coupled with possible video entry by telephone companies, and other forms of access to video, such as broadcast, streaming media, and rental, all suggest that video price regulation is not necessary; it scarcely exists now.¹⁹ Therefore, the proposal here relates principally to the means for deregulating the wire-based phone company. High speed data services are generally provided by two firms: cable and telephone companies. Currently, those two providers are not regulated; with a third provider, the proposed rule would give more assurance of deregulation. Nevertheless, this proposal should provide very large incentives to invest efficiently while at the same time protecting consumers. But will it produce a natural monopoly in time? That is not easily predicted, and should be guarded against by the additional rules proposed below.

Under any circumstances, one outcome of a more market-oriented policy is likely to be network architecture that is not uniform across the country and has prices that vary significantly from place to place. This is a good outcome—it encourages competition for the purchase of equipment and other network inputs and provides competition and comparisons between different types of architecture. It leads to efficient scale and scope since these economies differ across geographic areas. Different modes of access networks also reflect varying costs of providing network services to different areas of the country and reflect varying demand for network services. In some areas, for example, stringing fiber to every home and business would not be prohibitively expensive, whereas in other areas, the cost would be significantly higher.²⁰ The framework outlined above should be flexible enough to allow prices in different areas to move toward cost.

The policy recommended here should permit new firms to enter. These firms may be backed by private investment or even municipal investment. Contrary to the Supreme Court decision in *Nixon v. Missouri Municipal League*²¹ that gave states the ability to bar cities and towns from providing telecommunications services to their residents, Congress should pass a law declaring that communities should have the ability to use their funds in a way that they see fit. The government should make it clear that if citizens decide to operate their own co-op or municipally owned franchise to provide broadband services on a wireless, wireline, or hybrid basis, they can legally do so. It is astounding to think that government instead may bar

19. See 47 U.S.C. § 543 (c)(3)–(4) (ending the regulation of cable programming rates for § 543 (c) after Mar. 31, 1999).

20. The Federal Communications Commission's Hybrid Cost Proxy Model presents estimates of the costs of constructing a network to various different locations. FCC, Hybrid Cost Proxy Model, <http://www.fcc.gov/wcb/tapd/hcpm/welcome.html> (follow "hcpm_install.zip" hyperlink and the instructions on Web site) (last visited Nov. 20, 2005).

21. *Nixon v. Missouri Municipal League*, 541 U.S. 125 (2004).

citizens from coming together to buy common communications capability. This possibility is economically unwise as well as inequitable. Conversely, no municipality should be able to use law or public property to compete unfairly against a private firm. For example, municipalities should not be allowed preferential access to public facilities.

The goal of access network competition should be to produce long-term consumer benefits by providing competition and incentives for firms to invest and innovate. Access networks that arise under these criteria will be highly productive. In competition, over time the most efficient network is likely to prevail. In short, in any particular geographic market a winning network may emerge and others may fall into desuetude. To this end, government must not tip the scales for or against a particular competitor.

One way that such tipping occurs is the imposition of selective taxes on different providers. At this time, governments impose substantially different taxes depending on whether the phone uses wireline, wireless, or VoIP service.²² Tax policy should not be used to differentially advantage competing service providers. Congress should pass a law to this effect. Differential tax policy can have a variety of effects—businesses and higher income individuals may have better access to alternatives such as VoIP that have lower taxes than conventional telephone service. Thus, lower income households may wind up paying higher taxes. State and local governments have levied fairly high taxes on mobile phone service²³ that may make wireless less of a competitive threat to wireline service.

Another way to distort the access market is to impose unnecessary or unreasonably high charges for necessary inputs, such as spectrum or access to telephone poles or rights of way. Public property should be available at the same price for all providers, and preferably the price should verge toward cost (including opportunity cost²⁴), so as to permit firms to dedicate their funds to maximizing the carrying capacity of the network as opposed

22. See Ellen Muraskin, *Bill Would Let States Tax VoIP*, EWEEK, July 22, 2004, <http://www.eweek.com/article2/0,1895,1748841,00.asp> (last visited Nov. 20, 2005); see also Mark Rockwell, *Carriers Find States Taxing*, WIRELESS WEEK, Feb. 1, 2005, <http://www.wirelessweek.com/article/CA499943.html?spacedesc=Departments> (last visited Nov. 20, 2005).

23. Rockwell, *supra* note 22.

24. "Opportunity cost" is the value of the resource in its next best alternative use. Spectrum serves as a great example. The actual use of spectrum does not cost anything. Yet, spectrum is highly valuable and has fetched high prices in government auctions. By selling spectrum at an auction, the winning bidder should pay the value of the second highest bidder. This means that the purchaser of spectrum pays the opportunity cost of the spectrum, which is the appropriate cost to society of its use in any particular service. Wikipedia, Opportunity cost, http://en.wikipedia.org/wiki/Opportunity_cost (last visited Nov. 20, 2005).

to paying for wireless licenses or some other input. As set forth in more detail below, Congress should work to minimize the cost of all public property inputs needed by access networks, including spectrum rights.

A. *Spectrum Policy to Develop Access Networks*

Because the economic characteristics of spectrum-based networks differ from wire-based networks, and the different services spectrum-based networks can provide, spectrum is likely to facilitate the creation of important alternative access networks. The best way to get new spectrum-based networks is for the FCC to make large amounts of spectrum available to potential access network providers.

The FCC needs to adopt a clear and systematic approach for spectrum currently available and to set forth a clear and immutable policy for the treatment of spectrum that will come to the market in the future. Unfortunately, the FCC has a poor track record, and that poor record is not just historical. In November 2002, the FCC's Spectrum Policy Task Force issued a report that said the FCC should generally rely on market forces, and gave an outline for how to increase the amount of spectrum in the market and how to use market forces to govern the use of spectrum and to increase flexibility.²⁵ That report did not go far enough in its ambitions for spectrum management.²⁶ But by and large it could be the basis for a good law. It certainly is superior to the actual decisions of the FCC in the last few years.²⁷

By law, the FCC should be required to publish a blueprint for making spectrum available to the public and obliged to follow the blueprint. The proposed independent commission should describe such a blueprint. This blueprint should recognize that the entire spectrum is interrelated, and therefore, should auction all spectrum in a short period of time. Some spectrum is likely to be used currently for any number of purposes. If

25. SPECTRUM POLICY TASK FORCE, FCC, REPORT 38 (2002), http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-228542A1.pdf.

26. See generally *Statement of Reed E. Hundt Before the United States Senate Committee on Commerce, Science and Transportation*, 108th Cong. (2004), <http://commerce.senate.gov/pdf/hundt042804.pdf> (laying out a basic plan to increase competition in the telecommunications market).

27. See generally Thomas W. Hazlett, *Spectrum Tragedies*, 22 YALE J. ON REG 242 (2005) (arguing that spectrum regulations have empirically failed to account for tragedy of the commons); Gregory L. Rosston, *The Long and Winding Road: The FCC Paves the Path with Good Intentions*, 27 TELECOMM. POL'Y, 501 (2003) (highlighting the Commission's difficulty in moving to a market based approach); Gregory L. Rosston, *A Losing Battle for All Sides: The Sad State of Spectrum Management*, 56 FED. COMM. L.J., 437, 440 (2004) (reviewing JENNIFER A. MANNER, *SPECTRUM WARS: THE POLICY AND TECHNOLOGY DEBATE* (2003)) (observing that FCC compromise of a spectrum dispute ended in a wasteful, inefficient use of the spectrum).

auctioned, the buyers should have the right to pay the current users to stop using the spectrum. The FCC will need to describe a mediation process to facilitate such clearing. However, the more spectrum sold, the more liquid that market will be; efficiency will then be served.

The ultimate goal would be to have spectrum not be a scarce resource and to have the price be zero. That requires ensuring that a sufficient supply of spectrum is made available with maximum flexibility, that firms enjoy returns from using spectrum efficiently to innovate and introduce new technologies, and to make spectrum available to others who can use it more efficiently. In other words, the FCC would try to eliminate scarcity or monopoly rents accruing to spectrum rights holders while at the same time ensuring that spectrum is able to be used in its socially most valuable ways. We would know that this policy was successful if prices for spectrum were close to zero.

After all, spectrum is not an end in and of itself—people do not consume spectrum. Spectrum is an input into other services such as radio broadcasts or Wi-Fi access. Although spectrum has many different possible uses, some are incompatible. Also, all spectrum is not created equal. Some spectrum is very good for use in satellite transmissions, other frequencies are very good for narrow point-to-point transmissions, and other spectrum is very good for wider area mobile use. Consequently, Congress and the FCC should make all spectrum available for all possible uses, and thereby permit firms to make the investments that the market will bear, instead of the investments that regulators determine wise. The reason is not that regulators are ill-motivated, but that they cannot have enough information to make the necessary decisions about spectrum use.

To implement a good spectrum policy, the government should immediately make more spectrum available. The two key ways to do this are to increase the supply of spectrum outright and to get rid of use and eligibility restrictions on spectrum.

As of now, the FCC is considering auctions of various blocks of spectrum.²⁸ Some of the spectrum under consideration includes the PCS C and F block 1.9 GHz spectrum, the PCS H block in the 1915-1920/1995-2000 MHz band, 90 MHz in the 1710-1755/2110-2155 MHz bands, the 700 MHz UHF television bands, the MDS/ITFS bands and 37/42 GHz bands (37.0-38.6/42.0-42.5 GHz).²⁹ In addition, the FCC has proposed to

28. For a list of scheduled and future auctions that have yet to be scheduled, see the Auctions Web site. FCC, Auctions Summary, http://wireless.fcc.gov/auctions/default.htm?job=auctions_all (last visited Nov. 21, 2005).

29. Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993 Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services, *Tenth Report*, 20 F.C.C.R. (forthcoming 2006), paras. 75, 82,

designate the 3650-3700 MHz band for unlicensed operations.³⁰ The FCC needs to establish comprehensive rules for this spectrum. Given current advances in auction technique, it is possible to put all of the spectrum on the market at the same time and to facilitate clearing of incumbents.³¹

All of the auctions should be on a cash basis so that the FCC no longer has to act as a banker, security holder, or litigant in bankruptcy court. Immediately after the auctions, all spectrum should be freely tradable, just like the buyers at the Google IPO were able to sell their stock the same day. As discussed in virtually all FCC statements, but only put into practice in certain circumstances, the FCC should not place artificial use restrictions on the licensees. Licensees should be allowed to compete to provide whatever service they think will serve consumers' demand provided that they do not cause undue interference to other spectrum users. The FCC should not impose any build-out requirements because firms may choose to postpone investment while waiting for a market to mature or a technology to be invented or improved.

If Congress or the FCC decides on social goals that involve the use of spectrum, it should specify and quantify these goals, and then pay for them explicitly either out of general revenues or from auction revenues. For example, suppose the government wished to have over-the-air digital television made available to all Americans. It could dedicate general revenue or divert from receipts to general revenue a portion of spectrum auction revenues to pay for this outcome. Then, set-top box manufacturers and digital television makers would enter an auction to provide digital tuners in return for money, and the lowest bidder would win the subsidy.

In making spectrum available for access networks, the FCC can treat spectrum as private property, public property, or a combination of the two. The law states that the public owns the spectrum,³² but the method of

86-87 (2005), available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-05-173A1.pdf.

30. Wireless Operations in the 3650-3700 Mhz Band, *Report and Order and Memorandum Opinion and Order*, 20 F.C.C.R. (forthcoming 2006), paras. 21 n.33, 22, available at <http://www.broadbandwirelessreports.com/pressreleases/files/FCC-05-56A1.pdf>.

31. The FCC has cosponsored three conferences with the Stanford Institute for Economic Policy Research and the National Science Foundation to refine and improve package bidding and expressive bidding techniques. The results of these conferences should improve the ability of the FCC to hold more complex auctions and lead to greater efficiency. Summaries of presentations and some of the papers presented at the conferences are available at the FCC Web site on Conferences, http://wireless.fcc.gov/auctions/default.htm?job=past_conferences (last visited Nov. 21, 2005).

32. 47 U.S.C. § 336 (authorizing the FCC to distribute licenses to operate on the spectrum in accordance with the public interest); see also *Red Lion Broadcasting v. F.C.C.*, 395 U.S. 367 (1969) (holding that the public's rights to the spectrum outweigh individual

allocation could mimic private ownership or provide open access like public parks. The government should pick the method or methods that produce the most efficient market for access networks.

As private property, the frequencies can be zoned or limited in use. The owner could subdivide, consolidate, or transfer the rights to use the property. As public property, zoning or restrictions in use could be mandated. The difference is that with private property, the owner has the right to exclude others from using the frequencies. While exclusion may sound antithetical to obtaining the maximum value of the spectrum, certain types of exclusion may help to increase the value of the spectrum because of the ability to control interference.

Generally, the property rights approach is termed a licensed approach; whereas, the public property approach is the unlicensed or commons approach.³³ A combination of the two would be the underlay approach.³⁴ With underlay rights, a licensed user might have the right to transmit on specific frequencies, but others might have the right to transmit as well, subject to certain rules that limit the interference they might cause to the licensed user.

Licensed use is a system where a user has the right to use spectrum in a designated geographic area. That user has control over the spectrum, essentially the right to exclude other users. Under the licensed approach, it is possible for the user to sublease or sublicense the spectrum use rights to others in a market transaction or to retain sole use of the spectrum.³⁵ For example, cellular and PCS providers have licenses for the use of particular frequencies in particular geographic areas.³⁶ Currently, they are the only ones with a legal right to broadcast over those frequencies. However, these rights are not comprehensive or absolute. The government still retains the ability to set technical standards or acceptable use policies in these licensed bands.³⁷ Hence, because they are not limited to preventing interference externalities, they do not match completely with a pure property rights approach in their implementation.

broadcasters').

33. SPECTRUM POLICY TASK FORCE, *supra* note 25, at 5, 35–42.

34. *Spectrum Policy Recommendations: Comments on the Federal Communications Commission Spectrum Policy Task Force Report: Before the S. Commerce Comm.*, 108th Cong. 4 (2003) (statement of Gregory L. Rosston, Deputy Director, Stanford Institute for Economic Policy Research), <http://commerce.senate.gov/press/03/rosston030603.pdf> [hereinafter *Spectrum Policy Recommendations*].

35. SPECTRUM POLICY TASK FORCE, *supra* note 25, at 55–58.

36. *See, e.g.*, Amendment of the Commission's Rules to Establish New Personal Communications Services, *Memorandum Opinion and Order*, 9 F.C.C.R. 4957, para. 83 (1994).

37. SPECTRUM POLICY TASK FORCE, *supra* note 25, at 5.

The FCC has set aside some specific bands for unlicensed use.³⁸ In these bands, instead of a specific user being allowed to determine the use of the band, anyone who meets the equipment standards is allowed use of the band.³⁹

A third approach is the underlay licensing. This is combinable with either of the other two models of spectrum licensing. One implementation of this is known as ultra wideband, although it is not the only possible implementation of underlay use.⁴⁰ Essentially, underlay use gives users the right to use spectrum provided that they do not cause interference to the primary user or users of the spectrum.⁴¹ For example, a very low power use of spectrum might go undetected by a television broadcaster and its viewers and hence not cause any interference or degradation of the signal.⁴² Under this approach, such noninterfering signals would cause no harm and would create additional consumer benefit.⁴³ The two keys to the underlay use of the spectrum are setting the levels that would provide truly noninterfering use, and setting a method for determining how to allocate responsibility if interference occurs. In essence, an underlay system limits the rights of the licensee to specific tolerances and does not give them the right to exclude non-interfering users from using the same frequencies.

Licensed spectrum does not have to remain in the conventional licensed use. For example, an equipment firm, group of firms, or an entrepreneur may decide to participate in an FCC auction for licensed spectrum with the express intent of using the spectrum like an unlicensed commons. Companies like Cisco and Microsoft have expressed a desire for unlicensed spectrum.⁴⁴ They might be able to figure out a way to pay for the opportunity cost of the spectrum and to promote the use of unlicensed devices. If the government wants to allocate spectrum for a commons use, it would be useful to know the opportunity cost of that use by having the

38. For example, the FCC allocated 255 MHz of spectrum for unlicensed uses in 2003 in its Revision of Parts 2 and 15 of the FCC's Rules to Permit Unlicensed National Information Infrastructure ("U-NII") devices in the 5 GHz band, *Report and Order*, 18 F.C.C.R. 24484, paras. 1, 3 (2003).

39. *See id.* para. 2.

40. *Spectrum Policy Recommendations*, *supra* note 34, at 4.

41. *Id.*

42. *Id.*

43. One possible exception to the "no harm" might be from additional competition so that the additional use might cause harm to the incumbent. We ignore that harm.

44. *See* Cisco Systems High Tech Policy Guide, *Wireless and Spectrum Management*, http://www.cisco.com/en/US/about/gov/networks/wireless_spectrum_management.html (last visited Nov. 21, 2005); Microsoft PressPass Information for Journalists, *New Radio Spectrum Allocations Help to Bring Wireless Data Worldwide*, www.microsoft.com/presspass/features/2003/jul03/07-09wrc-03.msp (last visited Nov. 21, 2005).

government either participate in an auction or set a reserve price in advance. If the reserve price were not met, then the government could set the spectrum up as a commons. This would create a market test regarding the value of spectrum in a commons compared to spectrum in a more conventional licensed allocation. Such an approach could be an extension of the “band manager” concept the FCC introduced for the 700 MHz Guard Bands.⁴⁵ Indeed, the various band manager allocations should be aggregated and auctioned in this way.

None of the approaches discussed has been implemented in the U.S. in a pure fashion. For example, in the licensed approach, the government has succumbed repeatedly to politically irresistible use and eligibility requirements despite a clear cost to consumers.⁴⁶ Unlicensed use has also been subject to different power limits and etiquettes that may not be optimal.⁴⁷

Proponents of licensed use argue that markets, while not perfect, provide incentives for efficient use of spectrum.⁴⁸ Unlicensed advocates argue that the licensed approach will not create access to spectrum because incumbents would have incentives to block access to spectrum by new entrants who threaten existing businesses and business models.⁴⁹

Unlicensed advocates believe that either devices or protocols can solve interference problems sufficiently well so that no exclusion from use of a particular frequency is necessary.⁵⁰ Licensed advocates argue that the

45. See Service Rules for the 746-764 and 776-794 MHz Bands, *Second Report and Order*, 15 F.C.C.R. 5299, para. 2 (2000). See also Gregory L. Rosston, *The Long and Winding Road: The FCC Paves the Path with Good Intentions*, 27 TELECOMM. POL’Y 501, 504-06 (2003).

46. See Thomas Hazlett, *The Wireless Craze, the Unlimited Bandwidth Myth, the Spectrum Auction Faux Pas, and the Punchline to Ronald Coase’s “Big Joke”*: An Essay on Airwave Allocation Policy, 14 HARV. J.L. & TECH. 337, 462-71, 477-81 (2001); Rosston, *supra* 45, at 506.

47. See, for example, a proposal for new unlicensed etiquettes, Pierre De Vries & Amer Hassan, Sr. Director of Advanced Technology and Policy & Marketing Chair, Microsoft, Spectrum Sharing Rules for New Unlicensed Bands (Dec. 11, 2003), http://www.wifi.org/membersonly/getfile.asp?f=Spectrum_Sharing_Rules_NewUnlicensedBands.pdf.

48. Promoting Efficient use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets, *Comments of 37 Economists* 2-4 (Feb. 7, 2001), <http://www.aei-brookings.org/admin/authorpdfs/page.php?id=176>.

49. Yochai Benkler, *Some Economics of Wireless Communications*, 16 HARV. J.L. & TECH. 25, 72 (2000); see also, e.g., Kevin Werbach, *Supercommons: Toward a Unified Theory of Wireless Communication*, 82 TEX. L. REV. 863, 915-18 (2004) (giving the example of Sprint’s attempts to obstruct unlicensed access). However, it should be noted that Sprint PCS has allowed other providers such as Virgin Mobile to use its spectrum and network to provide service to customers. See <http://www.virginmobileusa.com/greatrates/howitworks.do?jsessionid=D2LvlnZp23CxXn6D2TSQj67wwgl4jQQGQ7TnQ9syczJ6BvF9WQv!-410112968!-839916648!7501!7502>.

50. Benkler, *supra* note 49, at 32.

problem is not likely to be easily solved nor are the solutions free—equipment requirements and protocols impose costs.⁵¹

Licensed spectrum allows users to block access to specific frequencies. With a sufficient amount of spectrum available disbursed among enough different licensees, no licensee would have an incentive to block access to another potential spectrum user that had a higher value use. Not enough spectrum is now available to dispense with this concern. Moreover, spectrum in specific bands is not a perfect substitute for other bands. Just as land next to Central Park is extremely valuable, the spectrum below 1 GHz is also very valuable. It is valuable because of its propagation characteristics and because the handset equipment and the equipment necessary to deploy a network is substantially cheaper than the equipment required in higher bands.

We think that other mechanisms can provide better use of the federal government spectrum in the longer term, and such mechanisms should be encouraged today. For example, the United Kingdom has attempted to force government agencies to realize at least some of the opportunity cost they impose through their use of spectrum by charging each agency a fee for the use of the spectrum.⁵² One task for the proposed independent commission would be to reach agreement on which spectrum should be licensed, unlicensed, or subjected to a hybrid approach. The goal in such debate should be maximizing the amount of spectrum used to provide access network solutions, so as to facilitate the most competitive access market and to expedite the deregulation of retail pricing for all communications services.

B. Access Network Competition and Unbundling

The intent of the Telecommunications Act of 1996 was to create competition in the access market, as well as long distance, without belying the economies of scale, scope, and density that exist for networks.⁵³

51. See Bruce M. Owen & Gregory L. Rosston, *Spectrum Allocation and the Internet*, in *CYBER POLICY AND ECONOMICS IN AN INTERNET AGE* (W. Lehr & L. Pupillo eds., 2002), available at <http://siepr.stanford.edu/papers/pdf/01-09.pdf>.

52. Martin Cave, Professor, An Independent Review for Department of Trade and Industry and HM Treasury, Review of Radio Spectrum Management 26 (March 2002), http://www.see.asso.fr/ICTSR1Newsletter/No004/RS%20Management%20-%20202_title-42.pdf. As discussed above, the opportunity cost imposed by government use of the spectrum is the value of the precluded commercial service that could otherwise make use of the spectrum. *Id.* at 16–17.

53. Telecommunications Act of 1996, 47 U.S.C. §§ 251–252 (2002) (governing development of competitive markets in the local exchange service). See also Gregory Rosston, *The Telecommunications Act Trilogy*, 5 MEDIA L. & POL'Y 1, 1–12 (1996) (discussing the economic barriers for local exchange carriers before the 1996 Act and what

Meanwhile, the Act intended to share, by law, among rivals.⁵⁴ The Act did this by providing three different modes of entry—facilities based entry including but not limited to wireless and cable voice, entry using unbundled network elements, and resale.⁵⁵ The techniques of the Act focused on sharing certain facilities of the incumbents with their rivals, including but not limited to elements of the access network, directories, central offices and numbers.⁵⁶

Facilities-based entry, no matter how extensive the facility, depends on fair charges to interconnect and exchange traffic with the incumbent. A new entrant can compete by leasing portions of the incumbents' networks only if the price for the lease is low enough to compare to the incumbents' true operating cost, which means that the price has to be forward-looking.⁵⁷ And resale, for a reasonable duration, can be a mode of entry only if the margin between wholesale and retail is large enough to permit the reseller to cover costs. These simple postulates lead to important debate over the appropriate price for interconnection, termination of traffic, leasing, and wholesale purchase. In the eight years between 1996 and 2004, the FCC has changed its mind on such prices from time to time,⁵⁸ courts have interfered repeatedly in such pricing,⁵⁹ states have injected distinct and different decisions on these issues,⁶⁰ and in general investors have not had a clear and consistent answer to the question of what price new entrants would have to pay for interconnection, termination, leasing, or wholesale.

As of the end of 2004, indecision and confusion on this topic reign at the FCC. No state has the capability to promulgate or enforce a regime that can have a significant national effect. As to big bandwidth networks, the

the 1996 Act did to promote competition).

54. 47 U.S.C. §§ 251–252 (2002).

55. *Id.* at § 251.

56. *Id.*

57. See generally Gregory L. Rosston & Roger Noll, *The Economics of the Supreme Court's Decision on Forward Looking Costs*, REV. NETWORK ECON. 81 (2002) (explaining forward-looking pricing rules, their rationale and implications).

58. See, e.g., Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, *First Report and Order*, 11 F.C.C.R. 15499 (1996), *reconsidered by Order on Reconsideration*, 11 F.C.C.R. 13042 (1996), *reconsidered by Second Order on Reconsideration*, 11 F.C.C.R. 19738 (1996), *reconsidered by Third Order on Reconsideration and Further Notice of Proposed Rulemaking*, 12 F.C.C.R. 12460 (1997) (showing the FCC's change in its stance on interconnection from 1996 to 1997).

59. See, e.g., *Iowa Utils. Bd. v. FCC*, 120 F.3d 753 (8th Cir. 1997), *aff'd in part and remanded*, *AT&T v. Iowa Utils. Bd.*, 525 U.S. 366 (1999).

60. For a summary of such different pricing, see Billy Jack Gregg, *A Survey of Unbundled Network Element Prices in the United States*, <http://www.cad.state.wv.us/Une%20Page.htm> (last visited Nov. 21, 2005).

FCC has determined to abandon at least unbundled elements and wholesaling as techniques for introducing competition in access networks.⁶¹ Meanwhile, competitors hoping to offer either wireless or VoIP do not need leasing or wholesale, although other regulations are desired by new entrants offering these services.

Soon, Congress and the FCC need to decide whether to maintain or disband unbundling and wholesaling. Although these techniques might be useful in some market situations, history shows that FCC vacillation and judicial interference produce such negative results for industry conduct and performance⁶² that perhaps other more reliable techniques for introducing competition now should be preferred. The problem, in any case, remains the same: obtaining maximally beneficial performance from access networks is difficult in light of the economics of these networks.

C. *Competing Access Networks Require Interconnection*

Regardless of the structure, conduct, and performance of the access market, different originating service providers will always need to send communications to terminating service providers. However, in the case of any particular instance of communication, the originator may not have a choice of terminators. Suppose for example that the consumer elected the telephone company's line as its choice of access. Anyone wishing to communicate to that consumer would be obliged to connect, directly or indirectly, to that consumer's telephone company. But, that company could then charge a monopoly price to the incoming caller. If all companies behaved in this manner, the total effect would be monopolistic pricing, thereby defeating the purpose of access network competition.⁶³ Moreover, firms with relatively larger customer networks could choose to charge discriminatory prices to smaller originating firms, so as to drive small firms out of business. Other tactics that would deter competition can be imagined and have been practiced in the history of communications.⁶⁴ To preclude

61. Unbundled Access to Network Elements, *Order on Remand*, 20 F.C.C.R. 2533, para. 29, 34, 48, 62–63 (2005), available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-04-290A1.pdf.

62. See, e.g., Stanley M. Besen & Robert Crandall, *The Deregulation of Cable Television*, 44 LAW & CONTEMP. PROBS. 77 (1981) (discussing FCC vacillating regulation of cable television).

63. See Joseph Farrell, Former Chief Economist, FCC, Prospects for Deregulation in Telecommunications: Mildly Revised Version (May 30, 1997), <http://www.fcc.gov/Bureaus/OPP/Speeches/jf050997.html>.

64. For example, AT&T's discrimination against its long-distance rivals was the basis for the breakup. See generally Roger G. Noll & Bruce M. Owen, *The Anticompetitive Uses of Regulation: United States v. AT&T*, in THE ANTITRUST REVOLUTION 290 (John Kowka & Lawrence White eds., 1989) (discussing AT&T's anticompetitive efforts).

such means to an anticompetitive end, government needs to provide a competitive benchmark for intercarrier compensation—the charges firms will pay each other for terminating calls.

To this end, in 2004, a group of local exchange providers, long-distance companies, and competitive-service providers presented the FCC with a proposal that could eventually become a bill to solve the voice traffic problem.⁶⁵ Although the proposal is more detailed than this Article's level of discussion, its essence is to have every originator charge its customer for access and to lower charges for interconnecting among originators (i.e., to lower termination charges) very close to zero.⁶⁶ Of course, carriers could enter into other arrangements voluntarily. The proposed commission should consider this proposal, among others, and recommend adoption of this or a similar notion to the FCC. Congress should mandate that such a plan be put into place. It should preempt any state regulation, especially since the contemplated communications will freely cross state lines.

The reduction of interconnection charges to zero has been termed "Bill and Keep."⁶⁷ A Bill and Keep system addresses the terminating monopoly problem discussed above and means that network service providers charge their own customers for connection and traffic charges, but do not compensate other networks for the termination of cross network traffic.⁶⁸ A Bill and Keep system will not be optimal in all circumstances.⁶⁹ However, Bill and Keep moves prices closer to a situation where customers pay for their own connection and face the cost of the choices they make. If a customer chooses a wireless provider with per-minute rates as opposed to a wireline provider with a higher fixed monthly fee, the customer making the choice would be faced with the cost of that choice under the proposed system. Also, current regulatory charges that are not cost based, such as above cost per-minute access charges, create distortions in the marketplace

65. Letter from Gary M. Epstein & Richard R. Cameron, Counsel for The Intercarrier Compensation Forum, to Marlene Dortch, Secretary for FCC, Notice of Ex Parte Communication (Aug 16, 2004), <https://neca.org/media/ICF082004.pdf>.

66. *Id.*

67. See Patrick DeGraba, *Bill and Keep at the Central Office As the Efficient Interconnection Regime* para. 15 (FCC Office of Plans and Policy, Working Paper, 2000), http://www.fcc.gov/Bureaus/OPP/working_papers/oppwp33.pdf (describing Bill and Keep as a default internet connection regime not allowing a called party's carrier to charge an interconnecting carrier to terminate a call and making the calling party's network responsible for the cost of transporting the call).

68. *Id.*

69. For extensive discussion of the situations where optimality is and is not achieved, see generally Patrick DeGraba, *Reconciling the Off-Net Cost Pricing Principle with Efficient Network Utilization*, INFO. ECON. & POL'Y 475 (2004).

that cause consumers to make inefficient choices. These distortions in consumer choice ultimately lead to inefficient network design and investment decisions as well. With a more cost-based system, competition should minimize these inefficiencies, especially when firms have the ability to negotiate alternative arrangements.

III. SERVICE COMPETITION

A. *Openness*

If access network providers have market power, the question arises as to whether the access network will be open to all users and information providers. At least three kinds of openness have provoked a great deal of debate in the last decade. The first concerns whether software protocols for using the network should be visible to new firms that might want to emulate them and to application providers that might want to write software that interoperates with such protocols. The second addresses the ability of any firm, including a competitor of an access network proprietor, to transmit over the access network—for example, whether anyone can send an e-mail over a consumer's access network—or by contrast may the access provider close the network to some would-be transmitters. The third relates to whether any terminal, or customer premises equipment, can be attached to the access network, or by contrast whether the access provider may discriminate among different terminals. None of these questions is easy because mandating openness even as to firms with market power may deter investment by that firm or restrict its ability to provide services more efficiently in an integrated manner.

As to the first question, the history of cellular argues for the merit of relying on the marketplace to set standards, even if they are proprietary and not open. The FCC chose the transmission standard for the first generation of cellular service, analog.⁷⁰ But subsequently, the government actively declined to mandate a transmission standard.⁷¹ Qualcomm was able to develop a proprietary standard from which it obtains license fees to this day.⁷² Qualcomm's standard competes in the marketplace with other

70. Cellular Telephone Service, <http://www.decodesystems.com/mt/96nov/> (last visited Nov. 21, 2005); Gregory Rosston, *An Economic Analysis of the Effects of FCC Regulation on Land Mobile Radio* (1994) (unpublished Ph.D. Dissertation, Stanford University) (on file with author).

71. See Amendment of the Commission's Rules to Establish New Personal Communications Services, *Memorandum Opinion and Order*, 9 F.C.C.R. 4957, paras. 159–62 (1994).

72. Qualcomm Technology and Solutions, CDMA 101, <http://www.qualcomm.com/technology/cdma101.html> (last visited Nov. 21, 2005).

competitive standards. The returns to successful investment are consistent with a market-based approach. We suggest then that with respect to communications protocols, the government should permit and encourage standards competition. However, if a standard achieves monopoly status, apart from the limited terms of patent protection, it might frustrate new entry and further standards competition. In that event, traditional antitrust principles can be used to limit the effects of monopoly. In this respect, antitrust officials must recognize that network effects can give an incumbent substantial market power. In any event, interconnection policy, as set forth below, will also be a necessary antidote to competition problems.

The second kind of openness—non-discrimination as to content—has been law with respect to the telephone network and practice, sans law, with respect to the Internet.⁷³ Again, as of now, it appears that the government need not mandate this kind of openness. However, the government should reserve the right to declare it obligatory as a matter of law. Specifically, that would mean applying Title II of the Telecommunications Act to all networks, but forbearing from the specific enforcement of its provisions unless and until inefficient results occur.⁷⁴

Two arguments are asserted in favor of ordering openness immediately. First, some firms want access to physical portions of the incumbents' access networks. In effect, this is a claim for partial leasing or occasional wholesale purchasing, and harkens back to the problems of the 1996 Act illuminated above. Second, others—advocates of “net neutrality”—ask for a government mandate that now and forever the owner of the access network may not restrict the ability of its end user customers to access specific content or to run particular applications.⁷⁵

For those who are inclined to think instantly that this argument has merit, consideration should be given to the fact that the government hardly ever tells a retailer that it cannot refuse to put on its shelves anything any

73. Jason Oxman, *The FCC and the Unregulation of the Internet* 12–13 (FCC, Office of Plans and Policy, Working Paper No. 31, 1999), http://www.fcc.gov/Bureaus/OPP/working_papers/oppwp31.pdf.

74. This would mean that all of the networks would be considered telecommunications services providers and potentially subject to regulation as such. By putting all networks under the same framework, there would be no incentive to try to distinguish one's network to avoid regulation.

75. François Bar et al., *Defending the Internet Revolution in the Broadband Era: When Doing Nothing is Doing Harm* 4 (Berkeley Roundtable on the International Economy, E-economy, Working Paper No. 12, 1999), <http://e-economy.berkeley.edu/publications/wp/ewp12.pdf>; see also Tim Wu, *Network Neutrality, Broadband Discrimination*, 2 J. ON TELECOMM. & HIGH TECH. L. 141 (2003) (comparing the general approaches of broadband regulation and favoring less intrusive measures).

customer wants or ever tells a publisher that it must print any book any reader asks for. Nevertheless, serious attention should be paid to the contention that this form of openness would maximize both investment and individual freedom.⁷⁶ In addition, advocates of this approach assert that content creation would be maximized if all information were accessible without technical, substantive, or price alteration from the originator of the information.⁷⁷ The direction of this argument is that high-speed access facilities—the local cable, DSL, fiber facility, and in the future, wireless carriers—should essentially be common carriers and should not be able to exclude anyone or any content from the local or backbone portions of the Internet.

The fear of “open access” advocates is that local broadband providers such as DSL and cable modem services could be bottlenecks, threatening the openness objectives. Of course, the pursuit of bottleneck status, from which rents can be garnered, is in fact the goal of competitors in competitive markets. Using law to preclude winning in competition can discourage investment and hence lead to less efficient networks, producing suboptimal results for the economy.

Nevertheless, the open access argument typically does not object to an access network “winning” in competition, but instead to any network provider marrying transmission with content.⁷⁸ The objection has a “Back to the Future” quality since its proponents object scarcely at all to monopoly at the physical layer, or tangible access network, and protest vigorously almost any unique commercial combination by the access network provider of transmission with content, or even with the software protocols that permit transmission.

Of course, insofar as a telephone call is content, telephone networks have since Bell’s patents combined content and conduit. Furthermore, the open access argument requires not only open conduits, but also a legal mandate that new versions of the Internet, or for that matter new versions

76. For general support that network neutrality will improve openness and investment, see generally LAWRENCE LESSIG, *THE FUTURE OF IDEAS: THE FATE OF THE COMMONS IN A CONNECTED WORLD* (2001); *The Government’s Role in Promoting the Future of Telecommunications Industry and Broadband Deployment: Hearing Before the S. Comm. on Commerce, Science & Transp.*, 107th Cong. (2002) (statement of Lawrence Lessig, Prof. of Law, Stanford Law School), available at <http://commerce.senate.gov/hearings/100102lessig.pdf>.

77. See Michael K. Powell, Chairman, FCC, Remarks at the University of Colorado School of Law Boulder: The Digital Broadband Migration: Toward a Regulatory Regime for the Internet Age 3 (Feb. 8, 2004), http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-243556A1.pdf.

78. See generally Bar et al., *supra* note 75, at 1 (arguing that FCC’s enduring openness and competition policy has created the widest array of choices for the consumer).

of any network access, be subject to a legal decree that they be backwards compatible. Only in this way can content on today's networks use tomorrow's.⁷⁹

Currently, as discussed above, neither cable firms nor DSL companies appear to be excluding content to a large degree. However, cable and DSL firms have suggested that they might treat other content providers in a discriminatory fashion, just as Microsoft has also done with respect to its operating platform.⁸⁰ Whether such discrimination, hypothetical or actual, is anticompetitive, reasonable people have debated without reaching consensus.

If open access becomes a large problem in the future, or if it becomes clear that a single provider of broadband access will have a monopoly, then policymakers should have the ability to step in to undertake corrective measures at the time. To this end, the FCC should declare all access networks subject to Title II regulation as discussed above. The FCC gains maximum flexibility—it can and should forbear from regulation should the market prove to be sufficiently competitive. At the same time, should market power problems arise that can be safely solved with government intervention, it has the flexibility to act.

The third kind of openness—the right to attach any appliance to the network—has been advocated by the High Tech Broadband Coalition.⁸¹ Consumers should be able to attach any device to the network that does not harm the network and works within the rules of the service the consumer has purchased. Similar issues have been debated in the past with respect to the telephone network.⁸² When the FCC required AT&T to allow third party equipment to hook up to the network, consumers benefited from the

79. See generally Bruce M. Owen & Gregory L. Rosston, *Local Broadband Access: Primum Non Nocere or Primum Processi? A Property Rights Approach*, (Stanford Inst. for Econ. Policy Research, Discussion Paper No. 02-37, 2003), <http://siepr.stanford.edu/papers/pdf/02-37.pdf> (discussing the economics of open access).

80. See Nondiscrimination in the Distribution of Interactive Television Services Over Cable, *Comments of The National Cable Television Association* 50 (Mar. 19, 2001) (arguing that mandatory nondiscriminatory access policy is unconstitutional), http://ncta.com/pdf_files/CS_Dock_01-7Comments.PDF.

81. Appropriate Regulatory Treatment For Broadband Access to the Internet Over Cable Facilities, *Comments of High Tech Broadband Coalition* 9 (June 17, 2002), http://www.ce.org/shared_files/recent_actions/75COM%20Cable%20Modem%20Service%20FINAL.pdf.

82. Historically, AT&T blocked the attachment of “foreign” devices even though they caused no harm to the network. See *Hush-A-Phone Corp. v. United States*, 238 F.2d 266, 267-69 (D.C. Cir. 1956). The FCC later decided to allow non-AT&T equipment to be used in the network. See *Use of the Carterfone Device in Message Toll Telephone Service, Decision*, 13 F.C.C.2d 420, 426 (1968), *reconsideration denied, Memorandum Opinion and Order*, 14 F.C.C.2d 571 (1968).

additional competition and choice.⁸³ It may be reasonable for the network owner to charge differential pricing for different services, but equipment discrimination is less likely to have the same positive benefits so that this openness should be adopted by law and regulation.

Before leaving this important topic, we should note that a different way to discuss openness is the structural approach. Two varieties of restructuring access networks can be identified. The first restructured openness is the separation of any network between a firm owning access and a firm owning the switch and the switch-to-switch connection.⁸⁴ This separation roughly equates to edge as opposed to core portions of any network. Some contend that law or regulation should mandate such structural separation.⁸⁵ The contention falters, however, on these points: (1) cellular networks, for example, do not show such clean demarcation points, and therefore, such a structural remedy might not be evenly applied to all networks, raising the possibility that inefficient or biased competition might result; (2) even if structurally separated, an access network owner could attempt to exercise monopoly market power over termination and, therefore, would have to be subjected to the regimes outlined above, raising the possibility that the separation might be fruitless; (3) data traffic can be routed in various ways that might defeat the goals of such separation; (4) structural separation may cause more harm than good in terms of new investment and efficiency because it would restrict integrated service provision; (5) with competing networks structural separation may not provide any consumer benefits that would offset the costs of nonintegration.

The second kind of structural openness is the division of a network into a physical layer, a communications protocol layer, and a service or application layer. The contention here would be that the bottom layer could be a regulated monopoly, the middle an open and free software stack, and the top a field for unregulated competition.⁸⁶ This paradigm is appealing in

83. GERALD W. BROCK, *THE SECOND INFORMATION REVOLUTION* 181 (2003).

84. The switch-to-switch connection is loosely referred to as backbone. Kevin Werbach, *Digital Tornado: The Internet and Telecommunications Policy* 10–12 (FCC Office of Plans and Policy, Working Paper No. 29, 1997), http://www.fcc.gov/Bureaus/OPP/working_papers/oppwp29.pdf.

85. Robert E. Hall & William H. Lehr, *Rescuing Competition to Stimulate Telecommunications Growth* 28–31 (Sept. 28, 2001) (White Paper prepared on behalf of AT&T), <http://www.techcentralstation.com/media/docs/hlpaper.pdf>.

86. See Richard S. Whitt, *A Horizontal Leap Forward: Formulating a New Communications Policy Framework Based on the Network Layers Model*, 56 *FED. COMM. L.J.* 587, 590–92 (2004) (discussing this view). But see Adam D. Thierer, “Net Neutrality” *Digital Discrimination or Regulatory Gamesmanship in Cyberspace*, 507 *CATO INST. POL’Y ANALYSIS* 1 (2004), available at <http://www.cato.org/pubs/pas/pa507.pdf> (advocating for

the abstract, but plagued by the need for the same sort of regulations at the physical layer as applied above to an integrated access network where one firm owns all three layers. If this form of openness does not produce more competition with less regulatory cost, perhaps it accomplishes less than its advocates would prefer. In any event, this is a topic that should be studied seriously by the proposed independent commission.

In that discussion, it is also important to note that, as with patent policy, providing incentives for investment in the network is also important. To the extent that profits at different levels provide the necessary returns, then a structural openness policy may be counterproductive.⁸⁷ Also, structural separation may be difficult to implement when network technology is in flux or may affect network design while reducing the ability to coordinate product development across layers.

B. VoIP as a Case in Point

Much regulatory angst and competitive fervor is currently engendered by the 4 letters—VoIP. VoIP, Voice over Internet Protocol, is a way of transmitting voice calls as data packets over the packet-switched Internet data network, which is an alternative to routing voice calls as circuit-switched calls over the telephone network. Companies like AT&T, Vonage, Packet 8, and Skype are providing VoIP services. The incumbent telephone and cable companies are also initiating VoIP offerings.⁸⁸ These generally offer a host of features along with attractive long distance calling plans.

In the future, a larger portion of voice communications will be part of the Internet data stream, along with music and movies. So in this sense voice will go over the Internet, using Internet protocols to describe beginning and ending calls, and to pick the route of the traffic on the way from originator to terminator. Because voice traffic uses only a small amount of bandwidth, especially compared with applications like music and movies, the marginal cost of VoIP voice traffic is likely to be extremely low.

State regulators fear VoIP because, as currently priced and regulated, it threatens the sources of funding for universal service programs. Incumbent telephone service providers view VoIP both as a threat and as

vertical integration).

87. See generally Owen & Rosston, *supra* note 79.

88. For example, Verizon is offering “VoiceWing.” Verizon VoiceWing FAQs, <https://www22.verizon.com/ForYourhome/voip/FAQ.aspx?LOBCode=C&PromoTCCode=VWS02&PromoSrcCode=L&POEId=TL1FH> (last visited Nov. 21, 2005).

an opportunity. The threat is to their existing businesses; the opportunity is in selling new services and having the ability to avoid entrenched regulations.

Instead of treating VoIP as a threat, regulatory authorities should view it as an opportunity to reformulate the existing regulations that do not serve the purposes of efficiency and social welfare. Instead of trying to push VoIP into the tent with historic switched access service and the attendant inefficient access charge regime, regulators should explicitly and rapidly rule out access charges for all traffic and move to a more efficient method for revenue collection.

A revamped system would remove the fears of the regulators and enhance the opportunity for providers and more importantly for consumers. By setting a stable system that focuses universal service revenue and cost in a directed system, the threats from arbitrage would be minimized. In addition, the need for extensive programs would be reduced. In all, while regulators would oversee smaller programs, these programs would be more stable and more effective at achieving the goals of universal service.

IV. NETWORK EFFECTS, ECONOMIES OF SCALE, AND UNIVERSAL SERVICE

A. *More Valuable for All Users*

According to a so-called law attributed to one of the founders of modern Internet communication, Bob Metcalfe, the value of a network equals the square of the number of users.⁸⁹ This formula is more an opinion than a mathematically valid proposition. However, it expresses the intuitive observation that any new participant in any network adds to the value of the network for each existing user because all the old subscribers now have one new subscriber to call. Since the value of the network accretes as subscribers are added, the willingness of subscribers to switch to a new network declines unless an interconnection right, as described above, exists. In addition, a network provider ought to be motivated to add new subscribers at declining prices if the provider can charge less to the new user than to the old ones. In fact, network operators have a strong motivation to try to attract additional subscribers to increase the value to existing customers, increasing existing customers' willingness to pay. In

89. More precisely, Metcalfe's law states that the number of connections is proportional to the square of the number of users. The number of possible connections in a network is $N^2 - N$, which approaches N^2 as N gets larger. This does not place a value on the additional connections. See NEWTON'S TELECOM DICTIONARY 555-56 (16th ½ ed. 2000).

unregulated markets—such as what communications should become—one practical way for the seller to achieve this result is to use temporary discounts, long-term contracts with scaled-up fee structures, and other marketing and pricing techniques that in effect create differential pricing. These tactics maximize value for the economy and society. Policy should support, not ban, such means of delivering service.

Moreover, policy should aspire to induce subscriptions from those who lack a willingness or capability to pay for network access because even bringing the recalcitrant or impecunious user on to the network creates more value for existing users. To this end, subsidy programs that bridge the gap between what a customer can or will pay and the price offered can be economically beneficial. From the perspective of social benefits, delivery of such government services as medical advice, education, public safety, and other services often can be done efficiently over a network. Therefore, bringing everyone on to at least one access network can serve social goals. Furthermore, a ubiquitous network can also serve social goals.

The question, then, is not whether a universal service program—defined as a network in which everyone can participate, anytime, from anywhere—is a good idea, but how society, acting through government and through private firms, can put in place such a program with the minimum amount of money spent in order to achieve the maximum social and economic benefit. Anyone can recognize that to meet this goal the social benefit will have to be quantified, so as to be expressed in the same terms as the cost and economic benefits. However, many tools exist to make such quantifications, and this paper need not address that topic. Our concern, instead, is that no such program has been proposed by the government. Moreover, the existing mishmash of policies and programs that are called universal service plainly fall grossly short of the desired goal.

The current universal service policies have many defects. They include at least the following:

(1) The allocation of universal service objectives to both federal and state jurisdiction produces confusing and inefficient practices and widely varying outcomes in different states.⁹⁰

(2) In general, urban consumers pay more than they would in an efficient market, and, in effect, pay an implicit tax that is awarded to rural

90. Gregory L. Rosston & Bradley S. Wimmer, *The 'State' of Universal Service*, 12 INFO. ECON. & POL'Y 261, 282 (2000), available at http://www.sciencedirect.com/science?_ob=MIimg&_imagekey=B6V8J-416C1V7-5-1&_cdi=5872&_user=1105409&_orig=-browse&_coverDate=09%2F30%2F2000&_sk=999879996&view=c&wchp=dGLzVzz-zSkzk&md5=9f5c08325e5342ff8d646e17700d3819&ie=/sdarticle.pdf.

users who in turn are asked to pay less than they are willing to pay. This transfer from urban to rural ignores the fact that many urban residents have low incomes and many rural residents have high incomes. The result overall is to reduce the amount consumers would be willing to pay for communications services and the quantity of network usage.⁹¹

(3) Universal service programs create incentives for firms and consumers to elect ways to bypass existing collection mechanisms, thereby creating inefficient competition and inequitable collection of funds to pay for social benefits.⁹²

(4) Universal service subsidies in general perpetuate the maintenance of the oldest features of communications services, instead of providing an incentive for firms to build the most efficient networks.⁹³

Congress should mandate a complete overhaul of universal service, according to the precepts set by the independent commission proposed herein. These precepts must include the following at an absolute minimum: all implicit and indirect subsidies should be absolutely banned; all jurisdiction for universal service funding should be vested in the federal system; and all implementation should be done by state authorities, according to federal guidelines. Social benefits must be quantified and added by formula to economic benefits so as to be balanced with costs.

B. Most Efficient

A key to a wise universal service policy is to use funding to catalyze the construction of the most efficient networks. In some cases the outcome may be construction of all or mostly fiber networks to the premises of users. In some instances wireless networks will be optimal. In still other situations, a mixture of wire and wireless will be desirable.

In any case, auction techniques can be used to minimize universal service subsidies while at the same time guaranteeing a level of service. Many of these issues were explored by the FCC at the time of initial implementation of the Telecommunications Act of 1996.⁹⁴ Auction techniques show promise for substantially increasing the efficiency of

91. Gregory L. Rosston & Bradley S. Wimmer, *Winners and Losers from the Universal Service Subsidy Battle* (Stanford Inst. for Econ. Pol'y Research, Working Paper No. 99-8, 1999, in *THE INTERNET UPHEAVAL: RAISING QUESTIONS, SEEKING ANSWERS IN COMMUNICATIONS POLICY* 401–404 (Ingo Vogelsang & Compaine, eds., 2000).

92. Gregory L. Rosston & Bradley S. Wimmer, *The ABC's of Universal Service: Arbitrage, Big Bucks, and Competition*, 50 *HASTINGS L.J.* 1585, 1586–88 (1999).

93. Hundt, *supra* note 5.

94. See Federal-State Joint Board on Universal Service, *Report and Order*, 12 F.C.C.R. 8776, para. 70 (1997).

universal service payments.⁹⁵ It is time to pursue these techniques.

Federal and state governments already provide a number of different universal service programs. For example, low-income and high-cost households, schools, and libraries are explicitly targeted as subsidy receivers.⁹⁶

The Telecommunications Act of 1996 created the schools and libraries fund.⁹⁷ Unlike the other subsidy funds, this fund is directly related to Internet access. This amounts to \$2.3 billion per year.⁹⁸ This money has connected the vast majority of classrooms in the country.⁹⁹ The money is currently being used to subsidize the costs of continuing the Internet connections in the classrooms, substantially classrooms for schools in lower income areas.¹⁰⁰ This program could be expanded to include funding of broadband and equipment for classrooms. Among its positive attributes are the use of competitive bidding to obtain the lowest price for access services and the use of matching grants by end users so as to assure a sincere desire for the access.

Universal service at any level will require funding. An essential aspect of a wise policy is not to mandate that any service provider lower prices or alter service offerings to achieve universal service. Nor should the burden of providing universal service be assigned to one or more service providers. Instead, funds should be placed in the hands of users, such as

95. See generally Paul Milgrom, Procuring Universal Service: Putting Auction Theory to Work, Lecture at the Royal Swedish Academy of Sciences (Dec. 9, 1996) (providing an optimal auction for universal service), <http://www.market-design.com/files/milgrom-procuring-universal-service.pdf>.

96. Lifeline provides a subsidy, about \$680 million per year, to reduce the cost of monthly service for low-income households. INDUST. ANALYSIS & TECH. DIV., FCC, TRENDS IN TELEPHONE SERVICE 19-12 chart 19.4 (2004), http://www.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/trend504.pdf. Federal Linkup, which provides about \$30 million per year for federal payments, matched by state subsidies, reduces the initial hookup charges for telephone service for low income households. *Id.* The FCC and states also have different high-cost fund subsidy programs. Currently, explicit high-cost funding is \$3.5 billion dollars per year. See Universal Service Fund: Estimated Annual Support Amounts Based on Projections for 1st Quarter, 2004 (showing \$3,584,403,813 for “All Companies” “Total”), available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-03-4071A2.xls (last visited Nov. 21, 2005).

97. 47 U.S.C. § 254 (2000).

98. Universal Serv. Admin. Co., 2004 Annual Report 1, available at <http://www.universalservice.org/download/pdf/2004AnnualReport.pdf> (showing “Schools and Libraries Support” in billions of dollars) [hereinafter 2004 Annual Report].

99. Jay Rockefeller, Senator, U.S. Senate, Written Statement for Senate Commerce Hearing on the E-Rate (Oct. 4, 2004) (“The most recent statistics for classroom connection are amazing—92% of all classrooms are connected, and 89% of the poorest classrooms are connected.”), <http://www.ala.org/Template.cfm?Section=erate&Template=/ContentManagement/ContentDisplay.cfm&ContentID=77007>.

100. 2004 Annual Report, *supra* note 98.

through assignable credits. To generate the funds, government should go to a common pool of revenue that is drawn equitably from a base that is not tilted toward or against any particular provider. The reason is to assure that inefficient competition is not a byproduct of universal service.

Examples of reasonable funding sources include a flat tax on all communications users, assignment of monies from a general pool of revenues, a sales tax on all communications services, and tax credits assignable to any and all providers through competitive processes.

V. PRACTICAL PROCESS

A. *National Versus. State Jurisdiction*

Seventy years ago, long before the Internet and even before widespread long-distance calling, when communications were predominantly local, Congress decided that communications should be regulated primarily on a state level.¹⁰¹ But now, virtually all business and consumer uses of communications freely and regularly cross state lines. Under these circumstances, the right answer is to assign national decisions to federal jurisdiction and local decisions to local authorities.

Federal regulatory authorities should set interconnection and openness policies, should deregulate retail pricing, and should assure procompetitive market structures. Local jurisdictions should assure that rights of way and other public property rights are available to all service providers, consistent with a general federal mandate. The physical infrastructure is necessarily local, but the use of the system is inherently national or even worldwide. In essence, consumers should now pay for access to a network that allows them to communicate anything to anyone anywhere. Far too much litigation has already consumed time and meaning to no rational end result of jurisdictional allocation. It is time for Congress to show the insight and will to mandate a sensible ordering of responsibilities.

B. *FCC Organization*

1. Staff

The FCC has suffered, from time to time, a reputation for agency capture by special interests, mind-boggling delay, internal strife, lack of competence, and a dreadful record on judicial review. Much of the

101. See Communications Act of 1934, Pub. L. No. 73-416, 48 Stat. 1046 (1934) (current version at 47 U.S.C. § 152(b) (2000)) (denying FCC jurisdiction over many carrier issues).

reputation is unfair; some is accurate. Reform steps have long been discussed, but long delayed. An essential aspect of a wise communications policy is the creation of an adept and effective regulatory, or rather, deregulatory agency. To this end, the FCC should be about half the size, and about half the personnel should be engineers, economists, and other technical advisers, as opposed to lawyers. No field offices or other industry support groups should exist.

Preferably, the agency should be headed by one commissioner and not a group of five. The single commissioner ought to serve for a five-year term and not be eligible for renewal. Also preferably, the job would be nonpartisan. The commissioner should be given *Chevron* deference¹⁰² by the court of appeals, as a matter of congressional mandate. Congress should annually review the commissioner's performance in a written assessment. An independent bipartisan commission should review the same performance every other year in a published, detailed report.

2. Gathering Data

The FCC should be more aggressive in its use of its ability to gather and subpoena information. Subject to appropriate protections for confidentiality, it should make such industry information available on a timely basis. In addition it should publish detailed reports on an annual basis concerning network usage, engineering efficiency, pricing for any and all communications services, network outages, and other information pertinent to any disinterested observer's scrutiny of the networks.

Instead, the FCC has limited exposure of network outages.¹⁰³ Either the FCC or Congress has occasionally limited—officially or through behind-the-scenes pressure—agency power to gather information.¹⁰⁴ As networks evolve, the FCC has done an increasingly poor job of gathering and reporting information. That trend needs to be reversed.

The FCC's Web site is badly in need of change to make it more accessible and easier for outsiders to find relevant information. Web links should be mandated in all documents. Every party petitioning the FCC should put its filings on its Web site in the same standardized, non-PDF format, subject to open search techniques.

102. See *Chevron U.S.A., Inc. v. Natural Res. Def. Council, Inc.*, 467 U.S. 837 (1984).

103. New Part 4 of the Commission's Rules Concerning Disruptions to Communications, *Report and Order and Further Notice of Proposed Rulemaking*, 19 F.C.C.R. 16,830, para. X, *Order Granting Partial Stay*, 19 F.C.C.R. 25,039, para. 3 (2004).

104. See Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, *Eighth Report*, 18 F.C.C.R. 14,783, 14,927 (2003) (statement of Comm'r Copps, concurring), http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-03-150A2.pdf (discussing the FCC's inability to gather data).

The Freedom of Information Act¹⁰⁵ should be amended to permit any commissioner to discuss any matter confidentially with any other commissioner, assuming that Congress fails to reduce the number of commissioners to one.

3. Culture

The FCC's reversal rate in the courts is scandalously high.¹⁰⁶ Congress should require quarterly reporting to the public on the reversal rate. In the event that it rises above 50% for any three of four sequential quarters, all commissioners sitting during those three quarters should be obliged to leave office within a quarter thereafter.

Commissioners should be obliged to receive one month of intensive training after confirmation before they can assume their seats and vote in FCC matters. All commissioners should be instructed at least rudimentarily in economics, antitrust, network operation, and administrative procedure. Congress should be obliged by law to vote on confirmation of commissioners within ninety days of their appointment.

The FCC's General Counsel should sign any decision by the FCC, certifying that he or she believes that it complies with law.

The agency should be required by Congress to provide training funds equal to a fixed amount per employee per year. Employees who do not obtain training on a regular basis should be terminated. Every two years a mandatory minimum number of employees—to be set by the proposed independent commission—should leave the agency, either voluntarily or by compulsion, and be replaced by new hires with up to date technical competence in law, engineering, economics, or other appropriate disciplines.

The agency should be reorganized forthwith according to functions with industry silos disbanded. No employee should be permitted to remain within a particular functional unit for more than five years.

C. Antitrust Enforcement

Communications, like all other sectors of the economy should be subject to the antitrust laws. The *Trinko*¹⁰⁷ decision notwithstanding, Congress should make it clear that the Telecommunications Act and other

105. 5 U.S.C. § 552 (2000).

106. See *Prometheus Radio Project v. FCC*, 373 F.3d 372 (3d Cir. 2004) (remanding the FCC's cross-media ownership limits decisions for justification or modification), *cert. denied*, 125 S.Ct. 2904 (2005); *U.S. Telecom Assoc. v. FCC*, 359 F.3d 554 (D.C. Cir. 2004) (reversing major portions of the FCC's *Triennial Order*), *cert. denied*, 125 S.Ct. 313 (2004).

107. *Verizon Comm., Inc. v. Trinko*, 540 U.S. 398 (2004).

subsequent legislation does not give a free pass to companies that violate the laws that protect consumers from anticompetitive practices.

From time to time, communications markets may not be perfectly competitive. As a result, government should be more, not less, concerned to disapprove mergers that lead to excessive concentration. Given the dynamic nature of the industry and the structure of regulation, particular concern should be given to mergers that not only result in a loss of actual competitors, but also result in a loss of potential competitors. For example, cable and telephone companies are competitors today in data services, but they also appear to be likely competitors in voice and video services. Ignoring the potential benefits from future competition would not be wise antitrust policy.

In order to create a much wiser antitrust policy, the FCC and the Department of Justice ("DOJ") every two years should publish a joint analysis of structure, conduct, and performance of communications markets. In this analysis, the FCC should publicly state its goals for the next two years, and the DOJ should outline the sort of mergers it is likely to approve and those it is likely to reject. This is little different from the farsighted policies of Antitrust Division Chief William Baxter, who supervised the breakup of AT&T under President Reagan. An independent commission of bipartisan makeup should critique this analysis within three months thereafter.

VI. CONCLUSION

Congress and the FCC need to set an aggressive path for the near future so that consumers can get the full benefits of the telecommunications revolution. For far too long, the level of action has been reaction and business as usual. With the advent of broadband and promise of wireless, a new vision at the FCC is needed. Revamped pricing rules are needed so that they reflect a true structure of competing networks, not a network of adjacent monopolies. Congress also needs to act. It needs to ensure that the regulatory structure is set in place for a world-class worldwide communications system. This means alleviating all of the jurisdictional infighting that throws sand into the gears of the system and ensuring that the FCC has the mandate and authority to setup the necessary rules. It also requires holding state and local authorities accountable for ensuring that their citizens have access to the physical networks that will provide the on-ramps to the information highway.

Because of the political baggage that has hampered the FCC and Congress from doing an effective job in setting a market-oriented communications policy, the first step should be the appointment of a nonpartisan independent commission. This independent commission should

have a clear charge with a limited time frame. The independent commission's recommendations should form the basis for new laws and FCC rulings that take effect within a very short time from the conclusion of the independent commission's report.

