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# WORKING PAPER

**A New Future for  
Telecommunications  
Policy:  
Learning from Past  
Mistakes**

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# A NEW FUTURE FOR TELECOMMUNICATIONS POLICY

## Learning from past mistakes

*By Elliot Maxwell*

### EXECUTIVE SUMMARY

Government policies have had an enormous effect, both positive and negative, on the development of the telecommunications sector. Regulation sanctioned monopolies, but more recently has been used to foster, and even try to manage, competition. Existing telecommunications legislation and regulation have now been outrun by changes in technology and in the marketplace. While avowedly pro-competitive and deregulatory, today's policies are impeding the development of competition and the deployment of advanced technologies. A close examination of the 1996 Telecommunications Act in the United States reveals the need to fully update existing policy paradigms in order to take advantage of technologies such as cable television, licensed and unlicensed wireless, electric power lines and satellites to stimulate competition, increase investment, and prevent the development and exercise of market power, while making new services, applications, and content available to all.

Rather than continue regulations that reflect their origins in a world of monopoly telecommunications providers and treat various transmission media differently in a "vertical" or "stovepipe" fashion, the twenty-first century telecommunications industry requires a new "horizontal" model that better reflects the increasing digitization of information, the convergence of technology platforms and services, and the growing importance of the Internet. This study sets forth minimal regulatory requirements for Internet-like "openness" in telecommunications policy, including 1) requiring the interconnection of networks; 2) making available broadband transport for all on a non-discriminatory basis *without* government-determined pricing; and 3) promulgating rules barring "unreasonable" discrimination against the use of and access to various devices, applications and content. Processes for removing many of these requirements are described based on the development of facilities-based competition that erodes today's cable and telephone company broadband duopolies.

These limited requirements reflect the fundamental change resulting from broadband deployment: the separation of providing *facilities* from offering *services*. This change challenges the existing regulatory structure by allowing non-facilities providers to offer services, applications, and content in competition with facilities providers. The new model of regulation proposed here aims to treat similarly situated market participants in similar ways and would create an environment that fosters competition in the markets of transport, applications, and content. It would reduce the need for detailed economic regulation, better control market power, and encourage entry and investment by any player using any transmission media. This study also suggests mechanisms to support the availability of telecommunications services for the underserved, including a greater encouragement of competition in rural areas, more flexibility in meeting "provider of last resort" requirements and encouragement of an "open-spectrum" policy to facilitate the development of "inter-platform" competition from licensed and unlicensed wireless broadband providers. The study addresses existing regulations applied to narrowband

fixed line networks given the near-universal availability of multiple wireless providers and the growing competition from cable providers. Finally it offers recommendations on the future roles of state and federal regulators.

## **INTRODUCTION**

Fewer than ten years have passed since the Telecommunications Act of 1996, but it is already outdated in a telecommunications landscape that has changed dramatically since 1996. The bursting of the “telecommunications bubble” in 2000 devastated the industry, causing the collapse of dozens of companies and destroying trillions of dollars in shareholder value. AT&T, the company synonymous with telecommunications for anyone older than 35, first announced that it would no longer offer residential service to new customers and then agreed to be purchased by SBC, one of the seven local telephone companies that were divested from AT&T in 1984. A combination of wireless, e-mail, and instant-messaging services has cut the number of long-distance minutes purchased by wireline telephone customers by over 50% since 2000. (Richtel 2004). Over fifty million wireline telephone customers have switched service providers, and the number of wireless subscribers has risen to rival the falling number of wireline access lines (The Insight Research Corporation 2004). New, unlicensed broadband wireless services such as WiFi and WiMax are emerging, being deployed in “hot spots” from airports to Starbucks, and even finding their way into licensed wireless and wireline networks. (International Communications Union 2004a, and Reuters News Service 2005). Higher speed broadband connections now serve over half of U.S. households connected to the Internet. (Hu 2004a).

During all these changes, debates and litigation among the various industry players have continued endlessly, too often looking backward rather than forward. The provisions of the Telecommunications Act of 1996 that set out the rights of, and costs for, new competitors to use parts of the existing networks of incumbent local-exchange companies (ILECs), for example, have been the subject of litigation from the time the first regulations interpreting the Act were issued, and are still not finally resolved.

At the same time, regulators and legislators have not made clear what policy framework will apply to the broadband communications that now connect 37 million U.S. households (International Communications Union 2004b) and to the convergence in the capabilities of wireline and wireless, cable and satellite platforms to distribute digital data. Given the seismic shifts in telecommunications since 1966 it is critical to build a new regulatory structure informed by the lessons of the past but not perpetuating earlier mistakes.

Today’s telecommunications regulations reflect their origins in a world of monopoly telecommunications providers rather than today’s world of multiple competing platforms, expanded functionality, and increasing customer choice. Tomorrow’s regulatory paradigm, then, should be more consistent with the convergence of various service platforms and more reflective of the competitive state of the marketplace. It should be more flexible and dynamic in order to accommodate change; more effective in preventing abuses of market power; more oriented to incentives, innovation, and investment; and more efficient and equitable in achieving widely accepted social goals.

This study outlines a preliminary attempt to define some of this new paradigm, with a particular focus on the residential marketplace. The first section begins with a

background of the industry, explaining how telecommunications arrived at where it is today, and provides a snapshot of today's competitive marketplace and some developing trends, including the rise of broadband. This section also demonstrates how digitization of information and the convergence of platforms offering broadband services undermine existing regulatory assumptions and how today's "stovepipe," or vertical regulation is inappropriate. The next portion outlines a different form of regulation—"layered," or horizontal regulation—that is better suited to today's marketplace. This section also lays out the four principles of "openness," exemplified by the Internet, which should form the core of the new regulatory paradigm, and addresses the importance of spectrum policy for the development of competition. The analysis then shifts to examine other aspects of regulation including universal service, taxation, access to communications by law enforcement, access for those with disabilities, and robustness and restoration. The concluding section considers the future responsibilities of federal and state regulators.

This study is aimed at fostering debate, not providing an exhaustive set of recommendations. It is neither a call for total deregulation nor an endorsement of the status quo—a false duality. It is instead based on the belief that a new framework for regulation and new legislation are needed if the telecommunications sector—which is so important to other productive sectors of the economy and so crucial to the workings of our democracy and the creation of our culture—is to thrive, attracting investment, fostering innovation, and promoting fuller and richer communications for all.

The legislative process is complex and difficult, especially in the telecommunications arena where powerful interests often battle to a stalemate. Some progress can be made toward the recommendations in this paper without new legislation. But in the absence of legislative changes, any advances are likely to fall far short of those necessary to provide the telecommunications environment that Americans deserve.

## **THE EVOLUTION OF THE MARKET AND OF REGULATION**

Traditional telecommunications regulation was based on the assumption that the provision of telecommunications services was a natural monopoly—in other words that a single provider could offer services to customers at lower prices and extend the network to others more efficiently than could multiple competitors. The years immediately following the invention of the telephone saw the creation of many competing telephone companies, but governments eventually winnowed them down and provided a franchise to a single telecommunications provider, such as AT&T, within each jurisdiction. These monopolies became, over time, subject to a wide range of rules governing, among other things, the introduction and withdrawal of services, service prices, capital investment and returns, depreciation, accounting practices, organizational structure, and even the staffing of customer service offices.

The grant of a monopoly franchise was based on what was thought to be the efficiencies of scale and scope that could be offered by a single provider. The technology then employed by telecommunications providers inextricably tied service offerings to the telecommunications facilities that existed in a specific geographic area. A customer could not obtain telecommunications service from anyone other than the single company that was authorized to build and operate the single telecommunications network facility in that locale. Regulators exercised jurisdiction over the company that operated the facilities in their particular geographic area. The overall telecommunications service

structure was relatively simple—customers, monopoly service provider, and regulator.

Over the last 40 years, however, the notion that telecommunications is a natural monopoly has crumbled. Long-distance service, for example, was an AT&T monopoly, permitted because of the high cost of building a nationwide long-distance network. The prices AT&T charged were averaged across regions and did not reflect the costs of providing services in any particular area. When MCI sought to offer long distance services to large business customers with heavy volumes of traffic between specific points using point-to-point microwave technology, it could offer a lower price than the averaged nationwide price offered by AT&T. The AT&T pricing structure--filled with implicit subsidies and unrelated to the cost of providing a service in a particular area--was vulnerable to such a competitor. Soon what had been a monopoly market, point-to-point long-distance telecommunications services for large customers, had become competitive. In a pattern that has been repeated time and again, new technology, combined with changes in law and regulation, enabled competitors to enter a narrow market. Once in the narrow market, competition spread. Once the Pandora 's Box of competition is opened, it appears impossible to close—or successfully “manage”.

Through the narrow opening in point-to-point long distance services for large businesses came competitors that eventually offered long distance services to everyone.

Ultimately, the AT&T divestiture followed. The long-distance market, now viewed by policymakers as potentially competitive, was separated from the presumed “natural monopoly” local telecommunications markets. In order to promote competition in the long-distance market, an “equal access” requirement was imposed on the local providers, ensuring that all long-distance competitors could interconnect in a non-discriminatory way with the local monopoly provider. At the same time, the local monopoly provider was “quarantined” from the long-distance market to eliminate incentives that might exist for it to discriminate.

At the same time that AT&T was being broken up, another technology was developing that would challenge the idea that local telecommunications service was a natural monopoly. Wireless (radio-based) local telephony was initially restricted to a tiny number of radio channels. The introduction of new technologies--“cellular” radio and then digital modulation--into the wireless telephony market allowed licensed wireless companies to serve many more customers. Over the last 20 years, the wireless telephony market has evolved from a local monopoly to a duopoly to the present system of multiple nationwide providers with large blocks of the radiofrequency spectrum able to serve tens of millions of customers. Wireless telephony has developed from an expensive, business-oriented, low-quality service that complemented local wireline voice service, into a local and national voice and data service that business and residential users increasingly view as an acceptable substitute for local and long-distance wireline telephony and even as a way to gain broadband access to the Internet.

Regulators have encouraged competition among wireless providers by expanding the amount of spectrum available, requiring number portability among wireless operators, and forgoing many of the regulations that apply to the local wireline providers. This competition has led to lower prices, new service offerings, and a continuing increase in the number of wireless subscribers. Regulators have also begun to recognize the importance of the wireless market and the growth of wireless as a substitute for local wireline service by mandating wireline-to-wireless number portability and requiring

wireless service providers to ensure access to emergency services from mobile phones.

Technological progress has also been changing other telecommunications platforms, leading to a convergence of platform capabilities and further discrediting the theory of local telecommunications as a natural monopoly. Cable companies had originally installed coaxial cable to deliver video signals to homes where over-the-air broadcast reception was poor. Over time, cable networks were extended and enhanced. Cable owners upgraded their cable facilities in order to deliver more, and higher quality, digital video channels and interactive services. But these network upgrades also gave cable companies the capability to offer broadband Internet connections and voice over the Internet Protocol (VoIP) services in competition with local telephone companies. (Even before they began to offer broadband Internet services, some cable companies had begun to compete in the local voice telephone market by using the same circuit-switched technology employed by the telephone companies, but the technology and economics were not as attractive as those now available directly utilizing their own broadband cable plant and VoIP).

### ***How the Telecommunications Act of 1996 shaped the industry***

The Telecommunications Act of 1996 stimulated even more market convergence. It recognized the end of the natural monopoly era and abolished any remaining legal local telecommunications monopolies. It authorized the creation of new competitors called competitive local exchange carriers (CLECs) and data local exchange carriers (DLECs). These CLECs and DLECs were permitted to resell the incumbent local exchange carrier (ILEC) services, build their own competing facilities, or access the ILEC's facilities in order to create their own telecommunications offerings. Regulatory rules providing discounted access to ILEC facilities and requiring local number portability strengthened the ability of new entrants to challenge the incumbents. The Act made it easier for cable companies to offer voice services, and laid out a path for ILECs to offer competing video services. The Act also provided a carrot for those ILECs that had been excluded from the long-distance market; since long-distance companies would be able to enter local markets, an ILEC could enter the long-distance market after demonstrating that it had fulfilled a checklist of steps to open its own local market to competition.

The 1996 Act made positive contributions to the telecommunications industry, particularly by facilitating competition in local telecommunications. But it was built on a foundation of legal and regulatory categories created over the preceding 60 years that have grown increasingly inconsistent with today's marketplace. These inconsistencies now stand as a barrier to even more competition and even greater innovation. And while the Act was avowedly deregulatory, the FCC created more regulations than it eliminated, in effect attempting to stimulate competition while, at the same time, managing it.

But because of technological developments and the dynamics of the marketplace there is little remaining reality in the depiction of local telephone companies as monopolies. Any remaining franchise monopoly has been obliterated legally. Most residential customers have access to multiple telecommunications platforms from which to obtain local telecommunications services and which do not rely on ILEC facilities or services. The vast majority of U.S. households are passed by cable company facilities capable, or soon to be capable, of providing broadband services and VoIP (Martin 2004). Wireless providers reach almost all U.S. households; over 97% of the population lives in

counties with access to three or more wireless providers (Federal Communications Commission 2004). Many of these licensed wireless providers are upgrading their networks to provide broadband services. All residential telecommunications customers are connected to electrical power lines which, in the future, may provide a fourth facilities-based broadband services provider (or a fifth or sixth or seventh, depending on the number of licensed wireless broadband providers).

And technology continues to advance. New forms of wireless services are developing in the radio frequency spectrum's unlicensed bands, independent of existing telephone, cable, or terrestrial wireless companies' infrastructures. These unlicensed services began by offering very short-range-high-speed Internet access connections in "hot spots," but are now evolving into longer range, higher speed substitutes for local telephone or cable access lines. These unlicensed broadband wireless WiFi or WiMax services may prove well-suited for competition with the ILECs and other local access providers—and are even being employed by ILEC's (Belson 2004, Wall Street Journal). Satellite providers are once again entering the market with the ability to serve the millions of residences not served by cable companies or multiple licensed wireless providers (Wall Street Journal about "Wild Blue").

#### **A SNAPSHOT OF TODAY'S COMPETITIVE LANDSCAPE**

Changes in technology coupled with regulatory requirements designed to promote competition have led to competitive entry in all sectors of the local telecommunications marketplace. But the extent of competitive entry varies by market segment. Because the profit margins in serving business customers were highest, business customers received the benefits of competition first. Residential customers, also, increasingly have choices, but competitors generally choose to focus on the most profitable and easiest to serve. Not surprisingly they show little interest in those who are most expensive to serve or who generate little revenue and less, if any, profit—customers who, in the past, have been subsidized by the profits from serving more profitable customers.

Since the Telecommunications Act of 1996 was passed, customers in the tens of millions have obtained voice service from providers other than the ILECs. While a large majority of those have been served by companies reselling service offered by the ILECs or leasing ILEC facilities, an increasing number have chosen alternatives completely separate from the incumbent provider. For the first time since the Great Depression, ILECs are losing access line customers (Brown and Latour 2004).

Cable companies now provide voice service to well over two million customers (Frost and Sullivan 2004). They plan to offer broadband internet access and VoIP services ubiquitously by the end of 2006 (Gonsalves 2004, Hu 2004a). Goldman Sachs estimates that cable companies will serve 6% of residential households by 2007 and 20% of households by 2012 (Goldman Sachs 2003).

Wireless services have totally replaced wireline services in approximately 6% of (Wall Street Journal citing Forrester Research) homes and are viewed by many (particularly younger customers) as the preferred choice for communications (USA Today 2003). Licensed wireless providers are likely to offer even greater competitive challenges to wireline providers as new technology improves the functionality of wireless services. New wireless devices allow customers to use both licensed and unlicensed wireless services or to use previously incompatible wireless systems or to use wireless

services to connect to the Internet and exchange text, audio and video messages. Regulations that allow wireline customers to switch to wireless providers and still keep their telephone number have eliminated a major barrier to switching; the absence of regulatory restrictions on wireless offerings has allowed wireless companies to roll out new offerings in a far more flexible manner than the ILECs.<sup>1</sup>

Some estimate that over 20 million “off-net” business and residence customers (those not using resold ILEC services or leased ILEC facilities) have left the Baby Bells since 2000. The exodus is continuing. For example, Verizon, lost roughly 650,000 off-net customers in the third quarter of 2004. SBC lost approximately 675,000 such customers in the same quarter.<sup>2</sup>

Even a relatively small loss of customers can have a substantial effect on the ILECs. McKinsey and Company estimate that a loss by incumbents of 20% of residential customers could swallow up to 40% of incumbent’s profits before interest and taxes (Beardsley et al. 2004). Such a loss of profits would reduce these companies’ incentives to invest in their existing networks. Certain aspects of regulation may exacerbate this problem. For example, ILECs have been required by regulators to offer their services ubiquitously and to provide service to any customer in their service area who orders it. The architecture employed by the ILECs in the past allowed them to achieve this by building networks with a large number of dispersed wire centers. In these circumstances, even a small loss of the most profitable customers may lead to “de-scaling” with very significant consequences for ILEC profitability. Recent investments by ILEC affiliates in wireless and broadband and divestitures of access lines suggest a dim view by the ILECs of the prospects for their traditional access line business under existing regulation.

Even given these off-net losses, the largest portion of the competitive voice market is that served by those who resell ILEC services or who lease ILEC facilities on a wholesale basis. But that portion of the market is in the throes of regulatory and judicial turmoil. Recent court decisions regarding what new entrants will be able to obtain from the ILECs and how much they will have to pay make clear that competitors will have more limited choices and will have to pay higher wholesale prices that will squeeze their profitability. AT&T and MCI, the largest competitors to the ILECs have both agreed to be purchased by their former local service rivals and will cease their competitive challenges. What the effect will be on local competition is not yet clear.

Many CLECs claim that the increased wholesale charges will be so high that they will be unable to compete successfully for ILEC customers. They charge that, in order to win back lost customers, the ILECs are offering residential customers discounts so great that they are below what the ILECs have proposed as wholesale prices. Almost all competitors have argued that the ILECs are still dominant in their markets and have maintained their local dominance by competing unfairly.

The ILECs strongly disagree. While applying for wholesale price increases, they argue that the new prices will finally allow them to recover their costs for installing and maintaining the local networks. The ILECs have clearly been aggressively marketing to their lost customers and have begun to win some back. But the ILECs now face a dilemma: if they raise wholesale prices too much, they will increase the chance that residential customers will move not to the CLECs that are the ILECs wholesale customers but rather go to “off-net” platforms such as cable or wireless. ILECs would then lose even the wholesale revenues.

Even if one assumes that competitors relying on ILEC services or facilities will disappear, off-net providers such as cable TV or wireless companies are likely to continue to compete vigorously in the voice and broadband Internet access markets. These markets are a source of new incremental revenues to the cable TV and wireless companies that can enter them by using technologies that they are deploying to better compete in their core markets of video delivery and mobile voice services.

### ***ILECs in an increasingly broadband marketplace***

If the focus changes from traditional voice services to broadband services, the competitive picture is even more at odds with a view of ILEC dominance or monopoly. Cable providers have consistently led the ILECs in providing broadband services to residential customers, holding roughly 60% of the market. Here too the ILECs have been responding with a mix of discounts and aggressive marketing. In the first quarter of 2005, for example, the ILECs led the cable companies in broadband customer acquisitions.

Competition in broadband is likely to increase as cable continues its broadband deployment (broadband-capable cable facilities now pass 88% of U.S. households) and as licensed wireless providers extend and improve their broadband offerings (National Cable and Telecommunications Association 2005). Provision of broadband Internet access via unlicensed wireless services may also become more important as additional spectrum is made available for unlicensed services and as private companies and public entities spread unlicensed broadband Internet access across the country. This is happening in cities such as Philadelphia and in rural areas with low population densities where the cost of installing new wireline infrastructure is very high (Levy 2004). But at least for the short term, the broadband market more closely resembles a duopoly of cable companies and ILECs rather than being fully competitive, with up to 98% of the broadband customers served by these two industry groups. (“Connecting the Public: The Truth about Municipal Broadband.”, by Harold Feld and Gregory Rose, Media Access Project; Mark Cooper, Consumer Federation of America; and Ben Scott, Free Press, April 2005. p3.)

While it is difficult to predict the future in the rapidly changing telecommunications market, it seems probable that the long-term competitive threats to the ILECs will be less *intra-platform*—from firms that resell ILEC services, lease ILEC facilities, or replicate the ILECs’ existing platforms in competition with them--and more *inter-platform* from cable, licensed and unlicensed wireless, powerline companies and satellites that do not rely on ILEC facilities. There is little reason to believe that the competition to provide broadband services will not intensify even further, with multiple platforms competing for the more than 93% of residential customers (“Principles for an Open Broadband Future”, Public Knowledge, Washington D.C., p13) who today can be reached by an ILEC as well as by cable TV, powerline, and multiple wireless companies.

### **THE RISE OF BROADBAND AND IP**

The rise of broadband services, available over many different platforms, can be seen as an inflection point in the development of telecommunications regulation. In the past the ILECs either had a monopoly or were the leading, often dominant, providers of narrowband services, particularly voice. High-speed services were aimed at large customers, not the residential market. In today’s market for residential broadband

services, the ILECs neither have a monopoly nor are they dominant.

But it is not just the difference in market share that is important. Broadband connections provide the opportunity for a platform provider, *or any other service provider*, to offer IP-based services, including VoIP. The introduction of broadband and IP services has led to the separation of facilities provision from the offering of services and other applications. In VoIP, as with other IP applications, the owner of the underlying facilities need not be the provider of the service. In addition, the end-user customer pays for high-speed transport by subscribing to the broadband service so that new entrants providing broadband applications need to expend less capital.

The Internet allows anyone with a good idea to create an application that rides the Internet and make it quickly and widely available—a far cry from the traditional world of telecommunications with its highly centralized architecture and tight control over applications. Even if there are only one or two local broadband facilities providers in an area, there can be many more applications' providers offering voice and data services in competition with each other, as well as competing with the owner of the broadband facilities who is likely to be offering both facilities and services. The more broadband platform providers there are, the better it is for applications providers because the platform providers will compete for the applications providers' business to increase traffic on their broadband facilities and obtain a higher return on their platform investments. (The issue of the incentives for platform providers to make their platforms available to non-affiliated applications providers, and the policy issues involved, are examined in chapter six.)

The separation of facilities and applications is a major change in the telecommunications market from which today's regulation emerged. Moreover, voice applications are now being offered by companies far different than the ILECs or even the new entrants to the voice market such as cable companies. Windows XP has, since 2002, included capabilities for voice communications. Yahoo!, AOL, and MSN all include voice chat capabilities. In the gaming world, voice applications already supplement the core gaming experience. Among the most successful new voice providers is European based Skype, a peer-to-peer service that provides free service among those who downloaded the Skype software (over a million in the United States and over 40 million worldwide) and low-cost voice services for calls to Skype-less users (Granelli 2004). When voice applications are part of computer operating systems, messaging and peer-to-peer systems, and video games, it is hard to imagine that regulators or platform providers will be able to control these offerings. What has been commonly understood as telecommunications is becoming another shrink-wrapped application. Those companies that regulators would have once labeled telecommunications service providers now call themselves manufacturers, software houses, or game publishers.

The rise of broadband and IP applications such as VoIP is having another important effect on the telecommunications marketplace. Because applications providers do not have to be facilities providers, they can roll out new offerings far more quickly, even on a national basis. These companies can enter new local telephone markets in far less time and with far less expense than if they had to build facilities. Obviously it also would allow an ILEC to more easily enter the markets of other ILECs using VoIP.

The lower cost and increased functionality of IP-based applications are increasing the competitive pressures on existing providers. Most facilities providers have indicated

that they will move to IP-based offerings due to their superior economics and strong feature sets; the cost and functionality advantages of IP offerings will likely increase over time if they follow the trends well known to other information technology markets. In addition, the presence of voice capabilities in software, messaging, and games brings a whole new world of creative application developers into what has been the limited and arcane world of voice engineering. While there are only a relatively small number of VoIP users today, VoIP appears to have all the characteristics of a fundamentally disruptive technology for the telecommunications marketplace.

From a regulatory standpoint, the rise of broadband and IP applications has another important result. In the IP world, it is not necessary that a service provider be located in the same area as the facilities provider. While the local exchange carrier can be regulated because its facilities are in the same jurisdiction as the regulator, an IP-based applications provider may operate in another state or even in another country, potentially out of reach of the local regulator. Nor does the customer have to be located in the same regulatory jurisdiction. VoIP providers, unconstrained by geography, are already offering customers the area code of their choice, allowing the customer to reduce telecommunications costs by transforming what would have been long-distance calls into local calls. This is a far cry from the traditional world of telephony where facilities, services, and geography were closely bound.

It is important to note one final point about the new IP applications. Neither the facilities provider nor the regulator can assume that revenues from IP-based applications will support an investment in the underlying broadband transport facilities. In the world of monopolies, all the revenues from transport and applications could be assumed to flow to the facilities provider to support facilities investment. The facilities provider had 100% of the market. Now it is much more difficult to forecast revenues that will be available to support facilities investment, making it much harder to build a robust business case for such investment. While economic theory suggests that the presence of more applications providers will increase the overall demand for transport services above the level of demand that would be created with a single facility and service provider, it was far easier to plan and finance a facility when all the revenues--from both transport and applications--were available to support it.

## **THE SHORTCOMINGS OF TODAY'S TELECOMMUNICATIONS LEGISLATION AND REGULATION**

The very intensity of today's debates about the regulatory definition and treatment of VoIP or cable modem service is illustrative of a critical problem. Telecommunications laws and regulation have developed as new transmission media emerged and new services were offered. Specific laws and regulations were created to address the policy issues raised by the new platform or the new application, be it broadcast or cable TV or wireless telephony. As there was little or no overlap with existing technologies or applications, the regulations weren't necessarily consistent.

Each regulatory category balanced competing policy goals in a different manner. As new services emerged, regulators had to determine which regulatory category was appropriate, primarily based on the transmission media technology used. The choice of the transmission conduit determined the regulatory content. A separate body of regulation contained in Title II of the Communications Act was applied to local and long-

distance wireline common carriers; Title III incorporated rules for terrestrial wireless providers; Title VI contained the specific rules for companies offering cable television. For many years even the FCC was organized around the differing distribution technologies with Broadcast, Cable, Common Carrier, and Wireless Bureaus.

Regulation is also divided geographically. Federal authorities have jurisdiction over interstate wireline communications, while state officials set the rules for both local and long distance intrastate communications. For cable television, local authorities grant franchises, while federal authorities have a much more limited role. Federal and state authorities shared jurisdiction over mobile telephony providers until state rules concerning rates and entry were preempted by federal policy makers.<sup>3</sup>

These differences in regulatory treatment might not have mattered when different technologies were used to distribute different services. It might, for example, have been acceptable to treat a coaxial-cable-based cable TV company differently from the wireline telephone company because of differences in what was being transmitted, to whom, and by what means. This is no longer the case. The digitization of information means that voice, video, data, and image can all be represented by bits. These bits can be distributed by twisted wire pairs, coaxial cable, optical fiber, or via the radio frequency spectrum (in both bands requiring licenses, like the cellular mobile radio or satellite bands, and in those that do not, such as the unlicensed bands used for WiFi and WiMax.) The attributes of services are no longer determined by the distribution technology, and the distribution technologies are relatively indifferent to the services carried. But the different categories with their different regulatory treatments remain.

Even given this digital convergence, when a new service is offered it must be placed in a specific regulatory category to be regulated accordingly. The question of which category to choose is crucial to the service provider. The answer determines not only the nature of the regulation but who the regulators are and even the competitive position of the service versus similar services available via other media.

For the last several years regulatory authorities and the courts have attempted to determine the appropriate treatment for cable modem services that provide broadband Internet access. These cable modem services are offered by cable television companies but they don't resemble cable's traditional video delivery services regulated under Title VI. They appear functionally similar to the digital subscriber services (DSL) offered by wireline telephone companies regulated under Title II. But if cable modem services were placed into a different regulatory category than DSL services, the regulatory treatment of the two services would be very different. Traditionally common carrier telephone companies have had to provide broadband transport on a nondiscriminatory basis while cable companies have successfully resisted requests for transport service from unaffiliated Internet service providers. In another difference, revenues from DSL services are used to calculate the universal service contributions of wireline telephone companies while revenues from cable modem services do not increase the universal service contributions, if any, from cable companies.

So regulatory categorization matters. During the regulatory and legal battles over the last several years cable companies have fought to have cable modem services treated as information services which face far less regulation; until recently telephone companies sought to have Title II regulations such as "open access to all" applied to the cable competitors to DSL in the name of regulatory parity. (When it appeared possible that

they would be able to achieve greater regulatory freedom, the ILEC's began to argue for regulatory parity through reduced regulation on their own broadband offerings.)

To make a long and complex story short, the FCC concluded that cable modem services are presumptively information services with a telecommunications component to be regulated under Title I. The Ninth Circuit Court of Appeals on the other hand concluded that cable services are presumptively telecommunications services. In its recent Brand X decision the Supreme Court overturned the Ninth Circuit ruling. While acknowledging the similarities between cable modem service and DSL services, the Court upheld the FCC's basis for treating them differently and concluded that the Ninth Circuit should have deferred to the FCC's expertise. ((National Cable & Telecommunications Association v. Brand X Internet Services, No. 04-277)

The immediate impact of the decision was to ratify quite different treatment for functionally similar services. Recognizing the similarities between the two services the FCC has now tentatively concluded that DSL services are also information services subject to Title I regulation and has opened a proceeding to determine what regulatory treatment is appropriate under Title I for both cable modem and DSL services.

It may well be that regulatory parity will be achieved under Title I for these two services. And it might be that substantial deregulation is desirable given the competition between the two services and the outmoded nature of much regulation. But the deregulation might come at the cost of ILECs choosing to close previously open systems in which non-affiliated providers could obtain broadband transport and bundle it with other services. Such a result is suggested by recent comments by SBC Chairman Edward Whitacre, (Mohammed 2005, O'Connell 2005). This would reduce competition in the applications marketplace—particularly from Internet based voice and related applications. Such a decision might also reduce funds available for the support of universal service at precisely the time when pressures on universal funding have reached new heights. And if the FCC were to agree on the desirability of the openness requirements set out later in this paper, its power to impose them under Title I would be subject to challenge on the basis of a lack of specific congressional authority to do so under Title I.

There are many other examples of the difficulties caused by the use of outdated regulatory categories in the 1996 Act. A telephone company seeking to offer video services must obtain a cable franchise or operate an "open video system" with two-thirds of its channel capacity available to non-affiliated entities. Another alternative for the ILECs, competing with cable companies by offering IP-based streaming video services, raises yet another set of regulatory issues. Wireless services that are increasingly being substituted for wireline local and long-distance services are regulated differently than those services they are replacing.

In an era when communications are increasingly digitized, this "stovepipe" or "vertical" regulation, with different rules for each transmission medium, is illogical and increasingly unstable. As voice, data, video, and image are presented in digital form, there appears to be little basis for treating them differently based on the identity of the company making the offering or the transmission medium employed. The technology platforms of cable companies, telephone companies, and wireless companies have "converged" in capabilities; the services that they offer have likewise converged and increasingly overlap.

The Telecommunications Act of 1996 paid little attention to this convergence or

to the rise of the Internet which accentuated it, leaving in place regulatory categories inherited from a far different past. Convergence was left to swell into a tsunami breaking over the stovepipes.

Nor did the 1996 Act adequately anticipate the inter-platform competition that has arisen. It justifiably sought to encourage the entry of long-distance companies and others into the local telecommunications market and to stimulate video competition between cable and telephone companies. But its focus on narrowband voice services and traditional video delivery seems almost quaint in an increasingly broadband and IP-driven marketplace.

### ***Regulating the changing telecom market***

Regulation that has been overtaken by technological or marketplace changes may be unnecessary or counterproductive in creating conditions in which competition can thrive, or fail to protect consumers.. To continue to regulate as if this were still the era of monopolies, or to fail to respond in a timely way to increasing competition, has high costs. It encourages competitors and incumbents to engage in “regulatory arbitrage”, structuring their offerings based on regulatory categories as opposed to customer needs or market economics. By treating similar services in different ways, outdated telecommunications regulation undermines the very marketplace competition it seeks to promote.

Outdated regulation places particularly heavy burdens on those firms subject to more extensive regulation, particularly as they seek to respond to competition. Proposed responses to competition are scrutinized --with the active participation of competitors--and often delayed. (For those used to competitive marketplaces the very idea of having to ask for permission from regulators to respond to competitive threats seems otherworldly.) In a similar vein, firms in unregulated markets engage in service trials and market first to early adopters, while regulated firms can be discouraged from market experiments that validate investments in new services by regulations that require that new services or technologies be deployed ubiquitously.<sup>4</sup> Regulations may impose additional costs not incurred by their competitors by dictating specific organizational structures or requiring non-standard regulatory accounts in addition to those based on generally accepted accounting principles.

Because regulatory decisions are so important, firms compete for regulatory approval. Incumbents seek special treatment because they are required to serve all comers without discrimination; new entrants seek special treatment because of their role in bringing competition to the marketplace. The vagaries of regulation create uncertainty on the part of firms, discouraging investment by newcomers as well as incumbents. Regulated firms may fail to invest in new services due to fears that regulators will limit their economic returns or use revenues generated by the investment in order to subsidize other services or customers. Potential new entrants, and the investors that may back them, are forced to weigh the chances that existing regulation will be imposed upon them or that regulatory policy will limit their economic returns.

This is not to argue that all regulation is harmful or outmoded. Nor is it to argue that there is effective competition in the various telecommunications markets which would justify total deregulation. There is a need for regulation to create and maintain the conditions for competition and to prevent abuses of market power where it genuinely

exists. There is also a need for regulators to implement effectively and efficiently the social judgments that lawmakers embody in legislation, such as how to ensure some form of universal connectivity for the benefit of all those who use the network and for the society that utilizes communications in its most important economic, social, and political processes. But the time has come to review and update regulatory structures that are now impeding the further development of telecommunications in the United States

### **TELECOM REGULATION THAT FITS TODAY'S TELECOMMUNICATIONS MARKETPLACE—AND TOMORROW'S**

The FCC is not indifferent to the implications of treating similar services differently and has taken some positive steps to remedy the situation. Increasingly, the Commission is applying the same requirements to firms whenever they offer a functionally equivalent service, whether over wireline, cable, or radio waves—if not prevented from doing so by legislative requirements or other policy needs. For example, the FCC has recently announced that it is making the requirements for reporting service outages of a certain magnitude universal across all carriers, regardless of the technology platform employed. It has attempted to ensure that subscribers to networks that connect to the public network—be they customers of ILECs, cable companies, wireless providers or VoIP providers--can reach the appropriate authorities in case of emergency. It is also considering proposals to reform both the system of payments that carriers make to one another (intercarrier compensation) and the universal service support mechanism in order to treat similarly situated carriers in a similar fashion. One of the criteria in the FCC's review of the regulatory treatment of broadband services offered by cable and wireline companies is regulatory parity. The Commission has also responded to changes in competitive markets by removing some regulations in specific markets when competition has been convincingly demonstrated.

But given the existing state of the law, there are important limits on the FCC's freedom to reform, and these steps at the federal level are too few and too slow. Reform processes at both the state and federal levels are neither swift nor sure. They badly lag behind the changes in increasingly competitive telecommunications markets.

This is not surprising, given the political sensitivity of issues that must be addressed to create competitive markets, such as rebalancing (i.e., "raising") local residential telephone rates where they have been subsidized and do not cover costs. States have lagged behind the FCC in eliminating implicit subsidies in their rate structures, delaying even further the establishment of the conditions necessary to allow genuine competition.

The history of legislative efforts to change telecommunications regulation does not inspire confidence. The legislative process grinds slowly. The efforts to fundamentally redraw the 1934 Communications Act actually began in the late 1970s. The long history of the process shaped the nature of the 1996 Act, which was marked by compromises—necessary to actually pass legislation—as well as contradictions. But it is hard to argue against the need for new legislation after watching the FCC struggle to put square services in round regulatory holes or to apply yesterday's tools to today's problems.

The goals of such legislation are likely to be similar to those set forth in the 1996 Act. New legislation should aim to achieve the following goals:

- Promote intra-platform competition among providers that employ the same technology platforms and inter-platform competition among firms using different platforms.
- Be technologically neutral so as to accommodate inevitable technological changes.
- Facilitate the identification of market power and focus on its control, both by establishing conditions under which competition can flourish and by preventing its abuse.
- Establish a clear preference for the use of market forces rather than regulation but provide sufficient authority to regulators to deal with market failures as well as to quickly and easily forbear from regulating.
- Encourage the availability of advanced technologies, starting with today's comparatively low-speed broadband offerings, for all Americans but recognize the economic benefits of even more advanced services increasingly available in other countries.
- Provide mechanisms for ensuring that those most likely to be underserved have affordable access in a way that does the least damage to the achievement of a competitive telecommunications marketplace.
- Create a positive environment for innovation and investment so critical to economic growth.

To these should be added a goal based on the lessons that can be gained from a study of the success of the Internet so that the 21<sup>st</sup> century telecommunications system will

- Reflect the values of “openness” that has served as the foundation for the extraordinary growth of the Internet.

### ***The need for layered regulation***

While the goals of new legislation are similar to those of the 1996 Act, the nature of the regulatory framework must be different. Many academic experts and telecommunications policy analysts believe that a layered model of regulation, reflecting the layered model of the Internet, is more appropriate than the current “stovepipe” regulation, which was inherited from the railroad commissions of the 19th century and the regulatory categories that grew like barnacles upon the 1934 Communications Act as new transmission media emerged. As compared to today's stovepipe regulations, with different rules for each transmission medium, a layered or “horizontal” model better reflects recent changes in technology, particularly the increasing digitization of communications and the convergence of the capabilities of the various technology platforms. Such a layered model more easily accommodates recent changes in competition, particularly the importance of inter-platform competition and the increasingly central role of the Internet. Tellingly, the 1996 Act mentions the Internet in only two sections—those dealing with “communications decency” and universal service support for providing Internet access to schools and libraries.

Detailed proposals for layered regulation have been suggested by analysts such as Michael Katz, Kevin Werbach, Yochai Benkler, Doug Sicker, Rick Whitt among others; many others have provided useful commentaries. Proponents generally agree that a layered model would include three or four layers: 1) the infrastructure or transmission layer-- the physical media over which bits are transported--such as twisted wire pairs, optical fiber, coaxial cable, or radio waves; 2) a layer providing for the operation and

control of the transmission media; 3) applications such as voice services or video delivery that ride upon the transmission media; and 4) content utilized in or included in the applications. The boundaries of the layers are not firm and unchanging and need to be carefully defined, but a shift from stovepipe regulation to layered regulation facilitates market analysis of each layer and allows the regulator to focus on the central task of detecting and controlling market power in each layer.

Each layer can be analyzed separately to address whether any participant has market power in that layer. If so, appropriate regulation can be employed to foster competition or prevent abuse based on the specific conditions or policy issues within that layer. Regulators could concentrate on those layers that exhibit bottlenecks or other sources of market power and prevent such market power from affecting competition in other layers. Open interfaces between the layers could serve as barriers to the extension of market power from one layer to another.

In such a model, layers that are relatively open and in which there is robust competition would not be subject to economic regulation, although non-economic regulations to meet social goals might still apply. The infrastructure/transmission layer presently appears to be the least competitive largely due to the higher capital costs required to participate. Here economic regulation would likely play a more central role. Regulators would attempt to detect and control market power in this layer and ensure that it is not extended to impede competition in the higher layers. Such a check would be particularly important if a facilities provider is vertically integrated, participating in the higher layers.

If a facilities provider lacks market power in the physical layer there is no reason why it should not be able to participate in all of the other layers. (Rules that would create conditions under which any facilities provider, whether they had market power or not, could participate in any or all of the other layers are set out in the following section.) Allowing vertical integration seems more likely to increase competition in the other layers than the quarantine approaches that, for example, blocked ILEC entry into the closely related long-distance market or the more distantly related information services market. In addition, firms participating in the infrastructure/transmission layer may well have competencies related to the higher layers.

In addition to improving the regulatory structure here, adoption of a layered form of regulation in the U. S. would make it easier to harmonize U.S. regulation and that of Europe, which already uses a “functional equivalence” test in its regulatory categorizations. This may become more important as European service providers begin to offer services from Europe into the United States and vice versa.

Support for the theory of layered regulation is widespread among policy experts even though they may differ in their analyses of the extent of market power in the physical layer. For example, some competitors to the ILECs claim that the ILECs have clear market power in the lowest layer and therefore should continue to be extensively regulated. (Whitt 2004)

A detailed analysis of market power in this layer is beyond the scope of this paper. Earlier sections of the paper described the dramatic increase in competition in the network layer. Today there are multiple platforms over which voice services are being provided. Even though two broadband providers dominate the broadband facilities market today, others are likely to enter the market.

Even assuming for the sake of argument that broadband facilities providers have market power in the transmission/infrastructure layer—an assumption that would need to be examined very carefully-- it would be crucial to prevent such market power from negatively affecting competition in the upper layers. The Internet provides some useful lessons in this regard that are discussed in the following section.

#### **FOUR OPENNESS PRINCIPLES THAT SHOULD BE CENTRAL TO TELECOMMUNICATIONS REGULATION**

The Internet's openness has contributed profoundly to its success. It is built upon open standards and many of its functions are powered by open-source software. Anyone can connect to it with any device capable of using the TCP/IP set of protocols, and users can reach others connected to the Internet anywhere. There is no controlling party at the Internet's center to authorize applications, so the hundreds of millions of people with Internet access can create and post applications and content that are immediately available around the world.

Traditional wireline telecommunications (or the other platforms subject to the FCC's jurisdiction such as cable and wireless) have not been marked by that same openness. Litigation and regulatory action were required to guarantee consumers the right to attach devices of their own choosing to the wireline network, subject to rules designed to prevent network harm. The Congress mandated a similarly competitive set-top box marketplace with respect to cable. (See Section 629 of the Communications Act, as added by Section 304 of the Telecommunications Act of 1996.) The introduction of "enhanced" (data) services by telephone companies took decades. One source of delay was inherent in the centralized control over the network exercised by telephone companies, which required exhaustive coordination before a new service could be offered. Another source of delay was the regulatory concern over the entry of monopoly telephone companies into the unregulated data processing markets, which, in conjunction with previous consent decrees slowed the process to a snail's pace.

The ILECs were initially banned from providing data services. Eventually the FCC allowed them to do (subject to detailed regulations) so long as non-affiliated companies were assured non-discriminatory access to ILEC facilities and services that they needed to compete. These competitors were guaranteed access comparable to those utilized by the ILEC or its affiliates.

The program access rules applied to cable companies played a similar role. Because cable companies are vertically integrated and have financial interests in programming, policymakers recognized the possibility that they would deprive new entrants into the video delivery market of access to programming necessary for them to compete. Policymakers therefore intervened requiring that programming in which cable companies had a financial interest be made available on a nondiscriminatory basis for a limited period of time. (FCC Report and Order in the Matter of: Implementation of the Cable Television Consumer Protection and Competition Act of 1992 Development of Competition and Diversity in Video Programming Distribution: Section 628 c (5) of the Communications Act Sunset of Exclusive Contract Prohibition (June 28 2002))

With this regulatory experience as a backdrop, and with the success of the Internet as a guide, there are four principles that should be embedded in regulation to help prevent the exercise of market power to thwart competition and innovation.

The first “openness” requirement is for the availability of interconnection for all “public” networks which seems to be the regulatory requirement of “motherhood and apple pie.” Interconnection has played a major role in the development of competition in local telecommunications and is credited, for example, with a major role in wireless development as the far larger wireline networks were required to accept traffic from and send traffic to the nascent cellular radio companies. But while all agree in principle, the issues regarding payment for interconnection and transport have not been easily resolved and are likely to require continued regulatory monitoring.

A second and much more contentious requirement is that unaffiliated entities be guaranteed non-discriminatory access to broadband transport by any broadband service provider, regardless of the transmission platform that such provider employs. Broadband transport providers would be allowed to bundle transport and applications into broadband services, but non-affiliated entities would have non-discriminatory access to broadband transport and could then create their own bundled offerings.

This is not the extensive unbundling of network elements required under the 1996 Act. The requirement is limited to making available basic broadband transport. Without such transport non-facilities based providers would be unable to provide bundled services in competition with today’s limited number of broadband facilities providers.

One of the major hurdles for even considering this requirement has been the issue of price. Regulators have had difficulty in the past setting prices for services; the fact that prices for identical long distance access services differ among states and between the states and the federal jurisdiction shows the difficulty of the problem.

Government price-setting would certainly be opposed by broadband facilities providers. But other alternatives are available. A preferable course would be to allow the market to operate on its own to the extent possible. Given the size and sophistication of the participants, it might be possible to simply rely on normal contract negotiations. But the resistance of some broadband facilities providers to making such transport available, and their established positions in the marketplace, suggests that a way to bring the negotiations to a successful conclusion may be needed.

One way to prevent a broadband platform provider from using its market position anti-competitively and unduly delaying the process, would be to require professional baseball-style commercial arbitration, with strict time limits for a decision, if negotiations over the price of broadband transport were not completed within a set period of time. The decision would need to cover contracts for a sufficient period of time—perhaps three years—to allow for both parties to implement their plans. Most participants would probably prefer to avoid the risks of arbitration, which would tend to moderate their negotiating positions; this form of arbitration usually leads both parties to submit final offers which they believe have some chance of being accepted.

While initially there would be relatively little market information to guide the commercial arbitrator, there will be some pricing data from those carriers that have agreed to lease broadband transport. More would be available as arbitrations were concluded. Regulators would not set prices; rather, commercial arbitrators would do so if negotiations between the parties failed.

The use of commercial arbitration by the FCC is not unprecedented. In its approval of the acquisition by NewsCorp of a controlling interest in Direct TV the FCC

applied the program access rules and binding commercial arbitration to ensure non-discriminatory access to programming for which there was no acceptable substitute. (General Motors Corporation and Hughes Electronics Corporation, Transferors and the News Corporation L, Transferee, for the Authority to Transfer Control. FCC Memorandum and Order. (December 19, 2003) Sections 41 and 222. FCC 03—124)

Consumers would also be able to purchase broadband service from a broadband facilities provider without being required to purchase other services, such as voice services, from the same facilities provider. A number of ILECs have been offering, or plan to offer this “naked” DSL but others have resisted. (Bell South Telecommunications, Request for Declaratory Ruling WC Docket No. 03-151 (March 25 2005). Given the nature of the broadband market, such services would not be subject to the normal tariffing rules applied to basic voice services but there might be recourse to the regulatory agency if the price of “naked DSL” were so high as to eliminate any real choice by consumers of competitive voice offerings.

A third openness rule would ensure that customers could utilize any device that does not harm the network. This would encourage innovation in the equipment sector and make the underlying networks more valuable to users. There may be a good rationale for more extensive restrictions on attaching devices, such as a rule against connecting devices used for theft of service, but any such proposed rules should be subject to review by regulators. (Obviously theft of service, for example, could be punished directly, without unduly restricting a customer’s ability to connect equipment of his or her choice.) In the past, companies have restricted connection of home networks and WiFi equipment to broadband lines on the grounds that they enabled theft of service or violated terms of service. While companies have, in the face of customer complaints, stopped enforcing such rules, broad rules potentially restricting the freedom to connect remain in many customer contracts. The right to attach non-harmful devices to networks was hard-won and worth applying to all broadband services.

A final openness rule would ban unreasonable discrimination in the use of applications and in access to content. Users should be able to create and employ applications as well as provide and access content as they choose. Rules against unreasonable discrimination are similar in concept to the rules applied today to common carriers but not to cable companies. Some providers have in the past imposed “acceptable use” contracts that forbid customers from hosting Web sites or providing other services, while other providers have monitored the content being transmitted. Numerous reports have arisen about local telephone companies preventing customers from using VoIP applications that could compete against the local company’s offerings; the FCC has recently moved against just such a practice. (In the Matter of Madison River Communications LLC and Affiliated Companies File No. EB 05-IH-0110, DA 05-543, March 3 2005)

Such a rule would not ban all discrimination but *unreasonable* discrimination. There are sure to be different business arrangements between different parties, and these differences would not by definition be unreasonable. For example, local and long-distance telephone companies, subject to much more extensive regulation, have made unique arrangements over the years with different customers based on the particular circumstances of the customer.

There are likely to be many arguments raised in order to justify discrimination in

the telecom arena. An argument could be made, for example, that the management of bandwidth could provide a justification for discriminating among applications. But while it might be reasonable for a cable company to charge different prices for using different amounts of bandwidth, it would be highly suspect for a cable company to use bandwidth management to justify the outright banning of streaming video offered by a non-affiliated firm that uses cable broadband transport. The fact that such streaming video might compete directly with the cable company's video delivery business makes an outright ban highly suspect. Similarly, it would be as unreasonable for a cable company to degrade connections to non-affiliated content providers that compete with the cable company's content offering as it would for an ILEC to degrade the network connections of alarm providers competing with the ILEC's alarm services.

In contrast, it might well be reasonable for companies to deny access if they lack capacity. As part of the conditions imposed during the AOL-Time Warner merger, unaffiliated Internet service providers were allowed access to broadband transport on the merged company's cable systems (FCC Memorandum and order in the Matter of Applications for Consent to the Transfer of Control of Licenses and Section 214 Authorizations by Time Warner Inc. and America Online, Inc., Transferors to AOL Time Warner, Transferee. CS Docket No.00-30 22 January 2001); unlike telephone companies which in theory had to provide "open access" to an unlimited number of unaffiliated companies, only a few companies had access to the AOL Time Warner cable systems due to capacity limits resulting from cable's different architecture.

The successful implementation of such openness policies would eliminate the need for structural remedies or limits on vertical integration or bundling. It would foster competition in today's broadband market, dominated by cable and wireline telephone companies. Providers of transport platforms subject to these rules, and those entities that obtain transport from them, would be free to participate in all layers and to be as creative as they can be in fashioning new bundled services. One small but positive effect of this openness would be improved IP applications, such as VoIP, that benefit from close coordination with the platform provider; the ability to control the bandwidth of the transport element when providing VoIP, for example, allows for greater control of service quality. The participation of the largest number of capable players in all layers should further stimulate competition and innovation. In a virtuous cycle, increased competition should stimulate new applications and encourage the production of additional content, which should in turn increase the value of the underlying platforms and support further infrastructure investment.

While there is considerable support for the principles of non-discrimination regarding access to devices, applications, and content, there has been vigorous opposition to rules implementing these principles, particularly rules requiring the availability of broadband transport for all subject to commercial arbitration. Cable companies have, in the past, vigorously opposed requirements for non-discriminatory access to broadband transport; some ILECs that have previously argued that cable companies should be required to provide nondiscriminatory access have recently argued that the telephone companies should be relieved of this same obligation in the interest of regulatory parity. When the FCC decided to regulate cable and telco broadband access under Title I, it endorsed openness principles but it has yet to propose rules requiring their implementation.

***Opposition to openness: arguments against openness regulation***

There are a number of arguments likely to be made in opposition to regulations based on the openness principles. Based on a preference for deregulation and the use of market forces, it might be argued that no new regulatory requirements should be imposed without evidence of anti-competitive activities by broadband platform providers. But the fears of anti-competitive behavior are not speculative and the evidence not hard to find. Some cable companies have denied transport to unaffiliated firms, restricted streaming media applications, and banned home network and WiFi connections to cable modems. New cable technology standards include provisions that allow the blocking of access or degradation of connections to unaffiliated providers. Some ILECs have already attempted to block competitive VoIP providers. (See more generally “Network Neutrality and Broadband Discrimination,” *Journal of Telecommunications and High Technology Law*. 141 (2003) by University of Virginia Law Professor Tim Wu and Wall Street Journal October 21, 2005 “Phone, Cable Firms Rein in Consumers’ Internet Use.)

A related argument is that regulation is unnecessary because, as economic theory suggests, platform providers will see it as in their long-term interest to provide broadband transport to all customers who want it in order to maximize revenues from use of their facilities. But, at least in the short run, cable providers have resisted such a course. More recent economic analysis makes a similar argument about the long-term advantages of providing transport to all, but acknowledges that firms might resist if regulators set a price that that doesn’t cover costs, if transport providers mistakenly believe they could obtain above normal economic returns from their application affiliates, or if providing transport interfered with legitimate forms of price discrimination. With both parties negotiating a price subject to commercial arbitration, the first possibility would be eliminated.<sup>5</sup> Greater than normal profits obtained by favoring an affiliate might suggest anti-competitive behavior and should not be allowed to justify a denial of transport. Cable companies can and do engage in many forms of legal price discrimination, most commonly in offering tiered packages of pay programming, but maintaining such price discrimination by, for example, not offering transport to non-affiliated firms that might compete with them by offering streaming video should not be acceptable.

Those who oppose such openness policies might also argue that non-discrimination rules would reduce innovation by barring varying contractual arrangements between broadband platform providers and their customers. In that view every arrangement would have to be like a tariffed offering, available to all. But differing arrangements for different customers have existed in the common carrier world for generations and would be as readily available today. The rules would not bar all discrimination, but only *unreasonable* discrimination. Because there might be frivolous charges of unreasonable discrimination, it might be worth considering changing the burden of proof so that a complaining party would bear the burden of showing both discrimination and its unreasonable character; it should be recognized that the broadband facilities provider has access to the data most relevant for a judgment about discrimination.

Perhaps the most common argument against openness requirements is that they would discourage investment in broadband facilities. (Statement by FCC Chairman Martin) That surely would be the case if the prices were set by regulators and didn’t

cover the costs plus a reasonable return on investment—but in this case prices would be set via commercial negotiation rather than by regulators..

Taking the investment argument a step further, if the investment provides new capabilities and is highly risky, the investing firm would likely want to capture all the returns on the investment in order to justify it. But having other customers for broadband transport would provide the company with additional revenue from unused capacity. The increased innovation resulting from multiple applications providers should increase the demand for transport and the returns available from new facilities.

Moreover the arguments regarding the impact of openness should take into account other goals—among them, the promotion of innovation and the impact on other competitive markets. There is widespread agreement that limits on access to broadband transport will negatively affect the ability of Internet service providers not affiliated with cable or telephone companies to compete with facilities based providers. (“Brand X: Cable Broadband Overhang Eased, Door Open for New Bell Deregulation” in Legg Mason Telecom/Media Regulation June 28, 2005 p.1) Such an effect should be weighed against arguments that investments in broadband facilities might decline.

Today’s broadband market offers real-world evidence that the presence of inter-platform competition—whether between cable companies and ILECs in the broadband Internet, voice, or video markets, or between cable companies and direct broadcast satellites in the video delivery market—provides the most effective incentive for infrastructure investment. Without below-cost regulatory pricing or regulatory appropriation of revenues to subsidize other services, any negative effect of the openness requirements on investment incentives is likely to be overwhelmed by the imperative to invest to compete.

Another argument against openness in the telecommunications industry is that having one “open” platform, that of the ILECs, is sufficient. All things being equal, the open model should be more attractive to customers (as well as to providers). But asymmetric regulation inevitably distorts competition. If in the interest of regulatory parity (see interview with Chairman Kevin Martin of the FCC Wall Street Journal June 29 2005 B9 by Amy Schatz) the existing common carrier open access requirement were to be eliminated as some ILECs are suggesting, ILECs might choose to emulate the closed cable model. That this is a real possibility can be seen in the recent comments by the Chairman of SBC. The “closing” of today’s open wireline platform could dramatically reduce competition in the applications arena, just when applications are being separated from facilities and becoming a competitive check on today’s limited number of broadband facilities providers.

But doesn’t the intensifying inter-platform competition make openness requirements unnecessary? This argument has considerable power. But what exists today in the broadband transport market is not full-scale competition. Cable companies and telephone companies control up to 98% of the broadband market. Broadband wireless services—licensed or unlicensed—are not yet comparable in terms of capability

or availability to either cable modem or DSL services. Satellite providers have a negligible share of the market though they potentially have an advantage in reaching rural markets. Broadband powerline is just emerging even though it has recently gained powerful supporters. Although it appears highly likely that there will be viable third and fourth and fifth broadband transport providers, this is not yet the case.

While full-blown inter-platform competition is not yet present, its arrival should be anticipated. It would be helpful to set the conditions for the removal of the requirement to provide broadband transport. One way would be to impose a sunset date.. To supplement this, in case robust interplatform competition arrives more quickly, there might be another standard for the elimination of the requirement. Thus the requirement for non-discriminatory provision of broadband transport would sunset in, for example, seven years, or would be removed when there are four or more broadband providers with no more than one counted from each transmission medium. An alternate performance standard which would demonstrate an effective market for broadband transport would be if, for example, 25% of the broadband transport was purchased by unaffiliated application providers.

Opponents of such requirements might argue that they are premature and should only be imposed in the future if anticompetitive behavior is detected. But the potential negative effects on competition in applications and content are such that the remedy would have to be swift and sure--words that are rarely used to describe FCC enforcement proceedings and the succeeding legal appeals. Other anticipatory remedies, such as requiring structural separation on any participation by a facilities provider in the upper layers, could make it easier to discover unreasonable discrimination, but at the far greater cost of more detailed regulation and the elimination of any efficiencies arising from vertical integration.

In the final analysis, a balancing decision must be made. Are the costs of requiring non-discriminatory access to broadband transport and prohibiting unreasonable discrimination greater than the benefits? The costs of the requirements appear low. ILECs that already have to follow such rules have demonstrated that they can be followed without substantial cost—particularly if similar rules apply to all similar offerings. Replacing regulatory pricing with commercial negotiations removes the most obvious source of problems. Compliance with the AOL/Time Warner merger requirements demonstrated that such requirements can be implemented in the cable environment even if cable's architecture limits the number of unaffiliated parties that can utilize the cable network. The recent Canadian decision to mandate cable open-access and to adopt a set of regulations governing it also validates the idea, even if this proposal differs in the details (Canadian Radio-Television and Telecommunications Commission 1999 and 2003). The attenuation of investment incentives for facilities providers, the most important argument regarding the potential societal cost of the regulation, seems quite speculative when compared to the increasing investment incentives arising from growing inter-platform competition.

If the costs of such a requirement are low, the benefits appear high. Abuses that have taken place in the past can be prevented. Regulatory symmetry can be achieved. Most important to the benefit side of the equation is the positive benefit for competition. A far greater number of firms could lease broadband transport, bundle it with applications, and compete against vertically integrated broadband facilities providers in all layers.

Innovation is likely to increase, coming as it would from a far greater number of market participants. Regulation, including pricing regulation, regulation of vertical integration, and regulation of unbundling and bundling, could be reduced overall. The many users of telecommunications service should have more and better choices in applications and content. Clearly any policy that stimulates competition in the content market has important benefits for the “marketplace of ideas” central to our democratic system.

### **SPECTRUM POLICY**

Most policy makers have, until recently, viewed spectrum policy—who has access to the airwaves and under what conditions—as a backwater, relevant only to the limited number of services that depended on the airwaves, such as over-the-air broadcasting and mobile telephony. But spectrum policy has moved to the center of competition policy.

The digitization of wireless transmission, and the resulting remarkable growth in the capacity of the airwaves to efficiently transmit all forms of increasingly digitized information, has unsettled decades of spectrum policy. Policymakers are now benefiting from a vigorous debate about spectrum and a fundamental rethinking of the proposition that spectrum is a scarce resource. Continually improving information technology has led to “smart” radios, “smart” antennas, and improved signal processing. These improvements, in turn, allow much more intensive use of already-allocated spectrum without harmful interference. These same trends have enabled the creation of what might be called “synthetic” spectrum through the use of “underlays” and “overlays” in existing spectrum allocations that allow other users in the bands already allocated and licensed if they do not cause interference. “Open spectrum” usable for any form of information transmission subject to interference controls is replacing the traditional and static view of scarce spectrum broken up into blocks usable only for a specific service by an often limited number of specified users subject to particular rules.

In order to maximize the benefits of wireless services for increasing competition, the FCC should continue to expand access to the spectrum, enabling even greater intra-platform competition among licensed wireless services, as well as heightened inter-platform competition. Expanded civilian access should come from transfer of government spectrum to the civilian sector and reallocation of lightly used UHF television spectrum. Additional “unlicensed” spectrum should also be made available, as it is in these unlicensed bands that some of the most remarkable innovation has taken place, including the development of various forms of WiFi and WiMax which are empowering new inter-platform competitors. The FCC should also continue to encourage the development of ultrawideband communications—low power communications that can be spread over vast amounts of spectrum—and new contractual arrangements for spectrum, which will allow even more intensive spectrum use. At the same time the FCC should continue to pay careful attention to the need to protect existing licensed users from harmful interference and to maintain caps on electromagnetic interference in general.

The prospect of wireless services providing inter-platform competition is particularly important in rural areas. The high cost of building fixed wireline or cable facilities in low-density areas has resulted in fewer competitive choices for rural consumers. The use of wireless communications eliminates many of these costs. (It should be noted that at present there are tradeoffs between “wired” and “wireless”

services in terms of reliability and quality—but technological progress is improving the quality and reliability of wireless services on a daily basis.)

The FCC has already permitted the use of wireless communications for inter-platform competitive purposes in rural areas by allowing wireless carriers to receive universal service support if they qualify as eligible telecommunications carriers (ETCs). Creative wireless pioneers are already using the unlicensed bands to offer Internet access and other services in rural areas where the cost of new landline investments is prohibitive; satellite companies offer less capable connections but can offer them anywhere (Mobile Pipeline News 2004).

Wireless service offerings in rural areas should be encouraged. Spectrum use in rural areas is, fortunately, much less intense, providing the opportunity for creative solutions for making more spectrum available, including new arrangements for access to spectrum for competitive purposes on either a primary or secondary basis. (The entry of powerline providers into rural telecommunications markets should also be encouraged, as these providers do not have to build entirely new facilities.)

Rather than insulating rural telecommunications providers from competition, as some have argued, regulatory policies should encourage competition. In the long term this is the most efficient way of providing choices for consumers in high-cost areas and for bringing down the total cost of ensuring access to advanced telecommunications throughout the country.

One other comment should be made about wireless in the context of competition policy. The Regional Bell Operating Companies (RBOCs) have been criticized for not aggressively entering each other's regions to provide facilities-based wireline local competition. They have, however, competed vigorously in each other's regions via their wireless affiliates. This competition is welcome, particularly as licensed wireless broadband services emerge as inter-platform competitors to the local wireline telephone and cable companies. It will be important to ensure that the full potential of wireless to heighten inter-platform competition is realized. If the wireless market continues its trend toward concentration, regulatory and antitrust authorities will need to consider very seriously the effect on inter-platform competition from the removal from the marketplace, by means of merger or acquisition, of wireless carriers not affiliated with RBOC's or cable companies.

## **EXISTING ECONOMIC REGULATION REVISITED**

In the world of monopoly telecommunications providers, economic regulation sought to prevent the abuse of monopoly power and encourage efficiency through regulatory oversight of virtually every aspect of the monopolist's business. Regulation was a substitute for the effects of competition. Network plans were reviewed, the addition of lines or the cessation of service required approval. Costs were allocated among various services, and prices authorized. Tariff filings and specialized accounting reports allowed regulators to review offerings and operations; rate of return proceedings provided the basis for the monopolist's capital structure. The organizational structure of the firm was subject to regulation and could be changed to avoid anti-competitive actions.

As intra- and inter-platform competition has increased, however, the need for pervasive economic regulation has diminished. In an increasing number of circumstances, the effects of the marketplace should be allowed to replace regulation. Effective

competition should lead to the end of regulatory controls on prices and cost allocations, service offerings and deployment, organizational structures, and specialized accounting and depreciation practices.

Determining whether there is effective competition within a particular market is a complex and difficult process. But it is critical to the transition that must be made from a world of detailed economic regulation to a world in which competition, rather than regulation, controls the behavior of firms. The first step toward this change is to develop a road map and a schedule so that all parties to the process can know what questions must be addressed, present probative evidence before an impartial fact-finder, and obtain a decision in a timely manner.

The FCC has, in the past, examined specific markets and removed certain elements of regulation. In some of its most extensive and contentious proceedings, those regarding the entry of the RBOCs into the long-distance market, the Commission had to determine whether the RBOCs had effectively opened their markets to competition as specified in the 1996 Act. While these proceedings are not exemplary models—they were long and complex and the Commission had to learn while doing—eventually the issues to be addressed were clarified, relevant evidence identified, and decisions made.

Congress and the FCC should now lay out a path away from pervasive regulation and set reasonable timetables that allow for deliberate but not interminable proceedings. Regulatory processes can be prolonged by the participants if they believe it is in their economic interest to do so; given the high stakes for the firms involved, fixed timetables and a firm hand are necessary to ensure that decisions, at least by regulators, are made in a timely way. (Legal proceedings have also delayed final resolution of crucial issues. Congress should consolidate all FCC appeals in one court to build expertise in this complicated field and to increase consistency in the rulings, and should consider some form of expedited handling of appeals from deregulatory FCC decisions.)

This study has focused on the importance of making the world of broadband competitive and creative. Yet even with the dramatic rise in broadband connectivity, in the near term large numbers of customers will continue to rely on an existing narrowband telecommunications network, either by choice or by necessity. Some have suggested that these older legacy networks should continue to be regulated in the same way as they are regulated today—“old rules for old wires.” But that will not ease the movement toward a broadband future.

Reform should begin with what might be the single most sensitive telecommunications issue—the price of local voice service. In a world where consumers can choose among multiple voice providers there is little economic justification, for example, for regulating one firm’s retail price for voice telephone service absent convincing evidence of market power. If there are adequate and sufficient substitutes, consumers will vote with their checkbooks. The number of customers who literally have only one choice for their narrowband communications is likely to be very small given the near-ubiquitous coverage of wireless companies and the broad reach of cable companies.

Where there are alternatives, ILECs should be able to set retail prices for their local voice service. Prices should be allowed to rise, with annual caps on upward movement of rates for several years in order to prevent rate shock. If rates do rise, other providers will take more customers from the incumbents than they already doing. Rates for local voice service in rural areas, where costs are higher, should be treated in a similar fashion;

currently, these rates are often subsidized to be below those charged to customers in urban areas that are cheaper to serve.

In evaluating the potential impact of such price changes, it should be noted that even though local rates have increased slightly over the past decade, telephone penetration rates have been relatively stable. Universal service reforms, discussed in the next section, rather than implicit subsidies, should provide a safety net for those most likely to be significantly affected by price increases.

Other regulations can and should be eliminated. The goal should be to foster competition, particularly for broadband, and, over time, encourage customers of narrowband communications to migrate to more capable and cost-effective broadband networks. The goal of regulation should not be to provide life support for today's offerings at the expense of future innovation.

At present, ILECs have limited incentives to invest in their legacy wireline networks. They should be authorized to employ whatever technologies they believe can most efficiently serve their narrowband customers and to price them accordingly. ILECs should also be allowed to organize the provision of these services in the way they determine to be most cost effective. Vestigial regulations inherited from the monopoly world, such as those that deal with staffing of customer-service offices or that prevent electronic billing, should be quickly eliminated.

In deciding whether to retain any particular regulation, it will be important for regulators to gauge its effectiveness and the potential impact of its elimination. Conscientious regulators can, and should examine all of the possible negative effects of each regulation's removal. But the positive effects of deregulation--such as the far greater likelihood of increased innovation and a heightened focus on customers rather than regulatory compliance--should be explicitly weighed, along with the negative effects of regulation described earlier. Congress should express a specific preference for market based competition rather than regulation to encourage this. The possibility of negative effects from deregulation should temper change, not veto it.

In the long run, encouraging competition in both urban and rural areas is the most effective check on increased prices and the abuse of market power. Affirmative actions to facilitate competition, such as requiring complete intra- and inter-platform number portability, will help. The universal service system should provide the mechanism for protecting low-income customers and those in high-cost areas—not hidden subsidies or other actions that distort or discourage competition.

## **UNIVERSAL SERVICE AND TAXATION**

Since the early days of telecommunications there have been discussions about the best means of encouraging the extension of the telecommunications network and providing services to customers in high-cost areas. The issues are still critical to debates about regulation, given the importance of access to telecommunications for participation in the economic, social, and political life of the nation and the benefits provided to every network participant by the additional of additional subscribers.

In the days of monopoly providers, the costs of providing service to everyone—those expensive to serve and those less so--were incorporated into the overall costs of the monopolist. The monopolist would then be allowed to charge rates that would cover these costs and provide a return on investment. The rates charged to different customers

did not correspond to the different costs of serving them. Business customers subsidized residential users, (and still do, with business rates roughly double those of residential rates for functionally equivalent services). High-volume users subsidized low-volume users, residential customers who bought value-added services like call-waiting subsidized those who didn't, and long-distance users subsidized local users. As markets have become more competitive, these differences between the costs incurred and the prices charged have signaled to competitors those markets most attractive to enter.

The 1996 Act sought to eliminate subsidies buried in rates so that the prices for various services would better reflect costs, sending the correct economic signals and encouraging efficient competitive entry. Subsidies to support universal service were to be made explicit. While much has been done in this area at the federal level, the process is by no means complete, and there is much more work to be done at the state level. To the extent that retail rates remain regulated, implicit subsidies must be removed and rates rebalanced if efficient competition is to be achieved.

Even today, when there are proliferating choices for local voice service, the ILECs remain the carriers of last resort, required to provide affordable service to all who request it. But increased competition has led to the loss of their more profitable customers and has caused profit margins to shrink, undercutting the ILECs' ability to serve less profitable customers from profits generated from other customers. At the same time the funds available to support universal service are under pressure due to a decline in revenues, particularly from interstate services, and the asymmetric universal service contributions by various market participants. (For example, ILEC universal service contributions reflect their broadband service revenues, while cable companies' universal service contributions are based on their circuit-switched telephone service revenues but do not include revenues from cable modem broadband services) This is raising serious questions about the capacity of today's universal service system to continue to fund universal service as it is presently defined.

How should universal service, particularly for low-income consumers and those in high-cost areas, be defined and supported? In the past legislators could leave the issue in the hands of regulators and not have to worry about funding universal service during the federal budget process. But the effects of competition may soon force legislators to act, because the universal service contributions required from marketplace participants now has reached unpalatable levels and some of the possible solutions may be beyond the present reach of regulators.

Some principles regarding universal service are nearly self-evident. Support should be targeted to those who most need it. What is supported should be clearly defined and should reflect what is broadly purchased in the marketplace. The means of providing support should not distort competition that regulation seeks to foster.

The best solution is that long preferred by economists: Rather than relying on implicit subsidies within telecommunications prices or supposedly industry-wide contribution programs that may not encompass all the relevant players, it would be better to simply recognize the social, economic, and political importance of universal connectivity and support it via direct governmental funding. Such funding is as appropriate as the funding of other social programs. It could be distributed in a variety of ways, with the most attractive being the provision of funds directly to customers via vouchers, which they could use to help purchase the services they want from providers

they choose.

In an era of multibillion dollar deficits, the best solution economically may not be the best politically. If political pressures force the funding of universal connectivity to remain internalized in the telecommunications industry, it should reflect the same principles that underlie the layered model of regulation. The varying levels of universal service contribution from ILECs, CLECs, long distance, cable, wireless, satellite, and powerline companies need to be rationalized, with providers of similar services treated in a similar fashion. Recent universal service proposals that base contributions on the number of telecommunications lines or telephone numbers are a step in that direction. In the same way, if funds are not provided directly to end-user customers, there should be no preferences as to which companies can draw from the fund. Incumbents and newcomers, if offering similar services, should be treated in a similar fashion.

This leaves several important questions. The first is what services should be subsidized. Will narrowband connectivity optimized for voice continue to be given a preference? While it may be attractive to propose broadband connectivity as the definition of what universal service should support today, it is more appropriate to see universal broadband access as a goal to be achieved over time. Not even a plurality of U.S. households has chosen broadband today. Until there is greater societal agreement that broadband connections are essential, it is premature to say that tax payers (or other telecommunications customers) should provide support based on the cost for services that they are as yet unwilling or unable to obtain for themselves. Congress has recognized that universal service definitions will evolve, so a determination today to limit funding support to certain services should be revisited in five years based upon a report to Congress from the FCC. (On the other hand, if universal service support is provided directly to them, customers should be able to use the funds to help them pay for the services they choose.) But universal service funding is not the only way for the government to support the goal of providing universal access to broadband. Congress was wise in the 1996 Act to direct the FCC to encourage the deployment of advanced services. Such an encouragement of technological advancement is equally essential today. The future belongs to broadband with capacities far greater than the FCC's present definition of 200 kbs; connection speeds far greater are now widely available in many other countries. Creating the conditions for robust inter-platform competition will stimulate broadband investment by companies seeking to offer new services or to respond to their competitors. Competition is reducing (and will continue to reduce) broadband service prices to levels closer to those which consumers are paying for today's narrowband services; this is already true in some markets. More inter-platform competition, particularly from wireless providers, should accelerate this process..

But government can and should play a more active role, supporting research on broadband delivery systems and applications and providing tax incentives for investment in broadband platforms or for applications that will stimulate broadband use such as telework. Government programs already provide grants and loans for rural broadband development, and these programs can be expanded to include a broader base of eligible recipients. The government can also eliminate barriers to broadband services such as restrictions on use of government rights of way or limits on reimbursement for services such as telehealth that would create demand for broadband facilities. As the country's largest purchaser of information technology and telecommunications, the federal

government can support the extension of broadband infrastructures into every government outpost and fund broadband connectivity for programs such as low-income housing or community-based social programs. States can do the same.

A second question is, who should receive universal service support? The virtue of directly supporting customers is that aid can be targeted. Support for low-income customers is easy to justify, as historically they have been shown to be much less likely to be connected to the telecommunications network than higher income customers. A harder question is whether all customers in high-cost areas, rich and poor alike, should be subsidized—either directly or via support given to service providers.

Such social policy decisions should be made by legislators rather than regulators. Broad social agreement is crucial for the continued support of universal service, particularly if it involves direct government funding. One way of maintaining that support is by limiting universal service funding to some percentage of the average price of a service or to some specific amount adjusted over time. And while it may be easiest to justify providing support based simply on income in all areas, high cost or low, another alternative would be to provide support to all customers in areas where costs are two or more times the national average.

Regardless of who receives support or what services are covered, every effort should be made to reduce the cost of universal service. Any qualified provider utilizing any technology that can deliver the defined service should be allowed to receive support either directly or via customer vouchers. There obviously needs to be a means of ensuring that the provider is capable of delivering the defined service and continuing to do so. There are creative ways of accomplishing this, such as by requiring companies to obtain insurance bonds against default. Promoting competition via universal service funding is better than maintaining today's arrangements where, for example, rural telephone companies are the providers of last resort and competition, which would help reduce the cost of connectivity, is discouraged in order to protect them. Non-rural ILECs should also be able to receive support for providing services in high cost areas rather than being expected to fund their provider of last resort services through higher prices to other customers.

Another question is how to allocate the support. One interesting possibility is using auctions, and in particular, reverse auctions. Prequalified carriers willing and able to serve would bid for the lowest amount of universal service support to provide a service to a defined area for a given period of time. Companies willing to compete without receiving support could still serve that area and would be encouraged to do so.

### ***Taxation and telecommunications***

A quick look at the issues surrounding taxation of telecommunications is appropriate as new legislation is being considered. Various telecommunications providers are treated quite differently with respect to the level of governmental fees and taxes that they pay. Tax treatment should be rationalized in order to encourage efficient inter-platform competition with similar taxes imposed on similar services.

But there is a more important point to be made. Given the key role that telecommunications now plays in our economy and our society, it is striking that the telecommunications industry is among the most highly taxed. Because it provides an essential input for other productive activities, the telecommunications industry should not

be used to collect general revenues via an excise tax whose origin dates to the Spanish American war. A rationalization and lowering of taxes on telecommunications would serve to stimulate the use of information processing and telecommunications. Reducing taxes would also reduce the price of broadband, thereby stimulating greater broadband subscription.

### ***Other regulatory requirements***

In addition to taxes, numerous other forms of regulation are applied to the telecommunications industry. An increasing challenge is to determine whether regulation is still required to accomplish a particular goal, and, if so, how to achieve that goal in the most efficient way with the least impact on the competitive marketplace. The goals, in general, should be set by political rather than regulatory bodies. Broad-based industry groups and public-interest representatives should be used to propose efficient and effective means for accomplishing these goals.

For example, traditional wireline carriers have provided their customers with the capability to connect to emergency 911 services. Over the last several years the licensed wireless industry has been mandated, at considerable cost, to provide emergency 911 services as well. Recently the FCC has mandated that voice service providers who connect to the public network using the full range of transmission media (other than peer to peer providers, will have to provide a means for their customers to connect to emergency authorities. (Cite)

A key question in areas such as E911 service requirements is whether entrants employing new technologies will have to replicate the systems in place or will be allowed to implement innovative systems that meet social goals in different ways? Innovation in finding new means to fulfill societal aims should be as welcome as new technologies for providing competitive telecommunications products. Industry advisory groups can help the regulators in addressing such issues and the rule of similar (but not necessarily exactly the same) treatment for companies similarly situated should be applied. In order to foster innovation, regulators should be setting out performance requirements rather than defining the means to accomplish them.

Similar questions arise with respect to access to telecommunications services for individuals with disabilities. The 1996 Act reflected a societal decision that guaranteed such access. Some new competitive service offerings are less hospitable to the needs of the disabled community. Will they face the same requirements or should the providers be challenged to bring forward innovative solutions? Broadly based advisory groups could be helpful here too.

In the post-9/11 environment two other non-economic issues that have been the subject of regulation have grown more important. The first, and more hotly debated, is the issue of access by law enforcement to communications carried by various providers. Traditional wireline carriers have provided such access pursuant to certain due process requirements. As telecommunications networks became increasingly digital, these same carriers have been required to make accommodations in their networks to enable continued law enforcement access, raising the question of the degree to which new providers must make the same access available. The FCC conducted a proceeding in this area and appeared to be trying to walk a fine line between imposing similar requirements on a broad group of similarly situated players, while not imposing requirements on

market participants beyond its jurisdiction. Some creative responses were proposed in the proceeding which, while not exactly replicating the ILECs' arrangements, might have been sufficiently robust to accomplish the societal goal. The FCC has recently issued an order imposing substantial new requirements on a wide variety of players which are being challenged as overreaching and needlessly intrusive and expensive. (See, for example, <http://pulverblog.pulver.com/archives/003193.html>) Once again it might have been preferable to engage in further dialogue with a broadly representative group including industry and civil society to try to reach agreement on performance standards and a range of implementations.

Even with its most recent decisions, serious issues remain. Some software implementations such as instant messaging pose entirely new challenges to law enforcement access. Because of the separation of services from facilities, there are now providers based in other countries that are offering services in the United States, and these providers are likely to resist any assertion of U.S. jurisdiction.

Less widely discussed are the issues of robustness, resiliency, and restoration of the telecommunications network. In the past, the very limited number of local and long-distance firms made it possible for the government and industry participants to cooperate in planning for network restorations, particularly in the event of an emergency. In the post-9/11, and post Katrina/Rita/Wilma environments it is necessary to contemplate truly large-scale outages. It is increasingly important, but increasingly difficult, to bring together today's wider range of market participants to determine how to improve the robustness and resiliency and interoperability of the telecommunications network as a whole, and to anticipate and plan for catastrophic contingencies. Government leadership in this area, from funding research on improving resiliency to convening broad-based restoration planning activities, would be helpful as would clear legal authority for the appropriate officials to be involved in restoration planning and related activities.

## **THE ROLE OF FEDERAL AND STATE REGULATORS**

Just as competition has changed the telecommunications marketplace, it has also changed the role of regulators. Rather than overseeing all the activities of a monopoly provider that served the entire market, regulators must now focus on increasingly complex markets that include participants over whom they have no jurisdiction.

Changes are most likely to affect state regulators. Rather than setting local rates or limiting entry into the local telecommunications market, state regulators will need to be experts in competition policy, focused on understanding their local markets and eliminating barriers to competition such as the tough technical infrastructure issues associated with rights of way and tower sites. Closer to the consumers of telecommunications, state regulators are likely to be better at protecting the customer and more responsive to complaints. Cooperation in consumer protection between local and federal regulators will, however, be necessary to respond to anti-consumer activities that transcend local boundaries. Closer to the people served by telecommunications, state regulators are less likely to make difficult decisions on rate rebalancing or raising universal service funds—these activities are better handled at the federal level. State regulators, on the other hand, are better situated to determine how to best use universal service funds to increase connectivity, given the specific circumstances of their

jurisdictions.

The most important change will be in the determination of which services are regulated by which regulators. Today, telecommunications services are classified as intrastate, subject to the jurisdiction of state regulators, or interstate, under the purview of the FCC. IP-based services, such as VoIP, which are likely to be the future of telecommunications, are of indeterminate location, offered from anywhere to anyone. These services should be regulated at the federal level rather than left subject to differing rules by 50 different state regulators. Similarly, basic decisions about competition in video services should be made at the federal level rather than requiring potential competitors to seek franchises from thousands of local authorities—particularly if the video services would be Internet based. Legislation should provide for franchising at the state level, as is currently done in 5 states but should establish criteria that would allow rapid entry by existing network providers. Municipalities should retain a role dealing with local infrastructure issues involved in providing telecommunications and offering video such as rights of way etc. In the interest of similar treatment for similarly situated entities, the fee structures should be rationalized.

## **CONCLUSION**

FCC and state regulators are now examining the regulatory definition and treatment of Internet-protocol services, including VoIP. But beyond this, a look at the very fundamental issues of how, and to what extent, we regulate the entire telecommunications industry is needed. What form of regulation is appropriate in a world of converging platforms and IP services? Can today's regulatory structure be justified in the presence of multiple competing platform providers or where there is no longer an unbreakable tie between facilities ownership and service provisioning, nor a match between regulatory jurisdiction and the location of service providers? Given the growth of competition, where, if anywhere, does market power exist? How will regulation accommodate further technological change as functionality and service move from central offices to the desktop?

The intellectual foundation of today's regulation is, at best, under siege. The next challenge is to provide a process for reform and a design for regulation that reflects a world of convergence, not stovepipes. The confines of today's regulatory categories—which emerged to deal with disparate transmission media with different capabilities—cannot drive the future of telecommunications regulation; these diverse technologies now provide functionally equivalent services while being regulated differently. More effective and efficient ways must be found to promote effective competition, particularly inter-platform competition, and to reduce or remove regulation as competition develops. Anti-competitive acts should be prevented, and the industry should draw upon the lessons of the Internet in promoting open systems, such as ensuring that all of the disparate platforms can be interconnected. A key component of policy in the new era of telecommunications will be the principles of openness—openness regarding platforms, network attachments, applications, and content—and the prevention of unreasonable discrimination that reduces openness. Structural remedies or quarantines should be left in the past, and the focus should instead be on encouraging the greatest possible innovation by all market participants. In the increasingly broadband world, steps must be taken to ensure that all broadband platforms provide broadband transport in a non-discriminatory

manner to non-affiliated providers so that anyone can provide bundled services. The focus should be on incentives rather than control; investment instead of costs; the power of innovation, not the threats from change.

The important societal goals of telecommunications, such as the universal availability of advanced technologies, should not be abandoned; the most vulnerable must not be disconnected. Other social aims merit re-examination to determine how they can be most efficiently and effectively accomplished, as well as whether present arrangements should apply without alteration to the plethora of new and varied market participants.

The challenge to create a new regulatory paradigm and pass legislation that meets the needs of policy makers and is broadly acceptable to consumers and the industry alike is enormous. But everyone from the chairman of the FCC, to the Chamber of Commerce, to the Communications Workers of America has suggested a need to rethink regulation. That common ground is a good start in the process of designing a new system of telecommunications regulation for the 21st century. The 1996 Act is broken. Because the process of fixing it is likely to be a long one, the work of repairing telecommunications regulation should go forward at full speed.

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<sup>1</sup> Number portability allows the customer to bring the number he or she was issued by a carrier to another carrier when switching service. Being able to keep a number eliminates what has been perceived as an important barrier to changing carriers and increasing competition.

<sup>2</sup> Line losses are reported by individual carriers on a quarterly basis and compiled by the Precursor Group. The figures cited by Precursor include the net impact of changes in stand-alone UNE loops (loops leased to CLECs, which then connect them to their own switching equipment), as well as Bell-switched lines. If one were to net out the impact of standalone UNE loops, the results would change slightly, though the magnitude and direction of change is practically the unchanged (for example, third quarter losses for Verizon would be closer to 675,000, while SBC's would be closer to 650,000. See also [www.precursor.com](http://www.precursor.com).

<sup>3</sup> In those cases in which facilities are used for both interstate and intrastate traffic, regulatory jurisdiction turns on whether there is sufficient interstate traffic to "contaminate" the facility and make it subject to federal regulation.

<sup>4</sup> One long-distance provider selling prepaid telecommunications services includes advertisements while customers connect, and argues that the service is therefore an information service, not subject to regulation because of the advertising. See Skrzycki 2004.

<sup>5</sup> See generally, volumes one and two, *Journal on Telecommunications & High Technology Law*, University of Colorado Law School

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