Enabling the Future: Communications Law Should Anticipate Future Trends, Avoid Stalemates Over Issues that Will Soon Become Moot

A JOINT ECONOMIC COMMITTEE STUDY

Chairman Jim Saxton (R-NJ)

Joint Economic Committee
United States Congress

May 2006

Abstract

The communications industry has experienced rapid innovation but the nation's communications laws have not kept up. For legislation to encourage future advancements rather than impeding them, it must provide the public with greater certainty about the main goals of communications policy but allow much greater flexibility in achieving them.

In the future, most video, voice and data will flow through the Internet, rather than dedicated channels. It will also be mobile. This will threaten traditional business models but will release a great amount of investment, social welfare and economic growth. It will also change the nature of most current communications issues.

Congress should foster this trend by encouraging the rapid spread of high-speed broadband and ensuring active competition in all markets of the communications sector. This will inevitably threaten many existing business models. One of the best ways to spread broadband is to ensure that radio spectrum is used to maximize social value.

Joint Economic Committee
433 Cannon House Office Building
Washington, DC 20515
Phone: 202-226-3234
Fax: 202-226-3950

Internet Address:
http://www.house.gov/jec/

Enabling the Future:

Communications Law Should Anticipate Future Trends,
Avoid Stalemates Over Issues that Will Soon Become Moot

Introduction

A common observation about the Telecommunications Act of 1996 is that it failed to anticipate the rapid pace of technological change in communications technology, especially the rise of the Internet. As a result, the law does not incorporate enough flexibility to guide public policy through a period in which the traditional assumptions about industry structure no longer hold. One decade after passing this major rewrite of the nation's communications laws, Congress is in the process of updating it again.

If new legislation is going to have a longer life, it must simultaneously provide greater certainty and flexibility to both regulators and the private sector: greater certainty over the main goals of public communications policy and greater flexibility in how to reach those goals. Congress must concentrate on the broader goals that it wants to achieve, such as providing a minimum level of service to everyone, maintaining competition, and encouraging lower prices and technological innovation. But government needs to give up control over exactly how these goals are met, because precise rules that reflect today's markets may be totally inappropriate and even counterproductive tomorrow.

This paper argues that the broad outlines of the future communications market are already visible and promise large increases in consumer welfare and economic growth. Although many important details are undetermined, future communications will center on broadband Internet access from multiple sources, with the Internet becoming the central gateway through which most data, voice and video communications pass. Using the Internet to reach consumers offers content providers several advantages: 1) with new technology recording and uploading content continues to become easier and cheaper; 2) content that conforms to Internet protocols can take advantage of the existing Internet infrastructure including fiber, cable, wireless, and satellite; 3) placing content on the Internet makes it available to a worldwide audience without the need for third party agreements or government licenses; and 4) the Internet enables a broad range of business models including free access, content accompanied by advertising, pay-per-view, and sale.

The main goal of new legislation should be to facilitate the realization of this future as soon as possible by; 1) encouraging the rapid deployment of broadband access via whatever media possible and 2) ensuring adequate competition in the markets providing both programming and broadband service. Far less attention should be paid to the exact method of getting there. Specifically, the private interests of specific industry groups should not be allowed to delay the delivery of these social and economic benefits just because the changes threaten existing business models. Especially since the public benefits of a better communications policy far outweigh the transitional costs to any one group.

In addition, Congress should maximize the social value of radio spectrum in a way that ensures competition and future innovation among spectrum users. Current policy reflects past technology rather than future opportunities and the law makes it very difficult to shift uses. As a result, the spectrum is delivering only a fraction of the social value that could now be realized. While the transition will be difficult and contentious, the exact distribution of gains and losses should not be allowed to significantly delay a reallocation of spectrum use. How the reallocation is achieved is far less important that that it is achieved soon.

A movement toward the Internet as the dominant supplier of content fundamentally changes the nature of other aspects of communications policy. If everything is on the Internet, then everything is potentially available to anyone at any time. And with the development of mobile communications it is also available anywhere. As this trend continues, the rationale behind many of the issues that now cloud the communications debate, such as franchise and multicasting requirements, will become moot. Others, such as universal service and indecency standards, will take a fundamentally different form than they now have. Too much attention to the short-term turf fights created by current technology and policy will weaken Congress' ability to shape the long-term evolution of the computer, communications, and entertainment industries.

The History of Government Encouragement of Communications

The next communications act will contain a number of what Paul Starr terms "constitutive choices."[1] These are decisions, often made without conscious choice or a full understanding of the consequences, which shape the future development of public and private activity for many years. Communications legislation creates a certain path dependence for future developments. Although the final shape of an industry may not be substantially affected, today's choices can dramatically change the timing of innovations and investments and the distribution of rewards. Mr. Starr describes two characteristics of past constitutive choices that have made the American communications industry historically successful.

The first characteristic that distinguishes American policy from others is that each new technology has initially been allowed to develop free of high taxes or heavy regulation. Congress generally left most initial decisions to the private sector. In many cases, such as postage rates for newspapers and rural telephones, service was subsidized. In fact, subsidies to major infrastructure networks and public services such as canals, railroads, highways, electricity and broadcasting are not new. Although these subsidies usually outlived their purpose, the initial expenditures produced high social returns.

Second, the government generally did not prevent a consolidation within each market. This period of consolidation helped companies gain volume and thereby lower costs to the consumer. The government did, however, prevent firms from extending their dominance of one form of media into another. This is important because industry

[1] Paul Starr, *The Creation of the Media: Political Origins of Modern Communications*, Basic Books, 2004.

incumbents are generally more interested in protecting old technologies rather than developing new ones.[2] Thus, the Post Office was not given control over the new telegraph industry and the government intervened to prevent Western Union from playing a dominant role in the new telephone industry and then prevented AT&T from using its monopoly of long distance lines to dominate broadcasting. The future of the communications industry is likely to be heavily influenced by new entrants, as opposed to the more established companies. These entrants must be free to offer new products and services irrespective of the interest of the incumbent firms.

Congress needs to always keep in mind that the incumbent media and communications companies have a strong interest in the status quo. Their shareholders benefit from higher profits whether or not consumer welfare is maximized. And their lobbyists try to shape legislation to maximize their clients' competitive advantage, not social welfare. On many issues the interests of incumbent companies and consumers overlap. But on other issues they diverge significantly, especially those affecting the competitiveness of new entrants and new technology. Congress must recognize when this divergence occurs and should side with consumers, even if this threatens the viability of current business models.

Signs of Movement Toward the Internet

The dominant trend in communications is the movement of content toward the Internet through converged networks. In the future almost all content will be acquired through the Internet, rather than being delivered outside it.[3] While movies, newspapers, and other non-Internet media will still exist, even they will be closely tied to a strategy of Internet content designed to maximize their audience. This trend is greatly beneficial because it increases access to content while reducing the marginal cost of delivery. It also frees up valuable radio spectrum for other uses. The main purpose of future communications legislation should be to encourage this trend and to ensure the rapid spread of high speed Internet access.

Right now, the most important developments in Internet content involve video. There are two reasons for this. The first is that video over the Internet requires high transmission speeds. Broadband access has therefore become a constraining factor, impacting further development of new communications products and services. Second, one of the most promising ways to deliver broadband access is through wireless transmission. Yet much of the most valuable spectrum for this potential use is currently devoted to broadcasting radio and television. Although over 100 megahertz of this spectrum will be released as

[2] *See*, Clayton M. Christensen, Erik A. Roth, and Scott D. Anthony, *Seeing What's Next: Using Theories of Innovation to Predict Industry Change*, Harvard Business School Press, 2004.

[3] This could be accomplished in two ways. In the first, voice and video would be transmitted using Internet Protocol technology and go over the same medium as Internet traffic, but would be delivered as a separate service. In the second, content would be delivered directly through the Internet. For example, viewers would go to the NBC website in order to watch *The Tonight Show*. In the second option, content providers can reach anyone who has a broadband connection, irrespective of whether they subscribe to a specific service. Both trends are likely to happen, but the second will gradually prevail because of the advantages it gives content providers.

part of the transition to digital television sometime after 2009, the rest will remain underutilized in broadcasters' hands.

Over the last year, the movement of video content to the Internet has accelerated dramatically. The movement is still in its early stages but is likely to continue growing rapidly due to a number of on-going changes.

Perhaps the most important change is that consumers are gaining greater freedom in what they watch or listen to and when. The expansion of cable and satellite television began several decades ago. More recently satellite radio has gained market share against traditional broadcasting. The introduction of VCRs and now digital video recorders make it much easier for viewers to record programming for later use, quickly skipping over commercials. The spread of video on demand has multiplied the choice of content. More recently, the spread of Video iPods, video phones, and Slingbox give consumers access to content wherever they go. Viewers increasingly expect a broad range of programming to be available on demand, whenever and wherever they want it. Consumer habits and expectations will continue to grow more demanding, forcing changes in traditional forms of programming.

This shift is already affecting the finances underpinning the broadcast industry. Advertisers are increasingly uneasy with the traditional model in which broadcasters sell packages of 15- and 30-second ads. A recent poll of advertisers showed that majorities think traditional TV advertising has become less effective and intend to cut their TV budget once digital video recorders become widely used.[4] These companies are looking for other ways to capture the consumer's interest. One tactic is to return to the original model of sponsoring an entire show. Other possibilities include longer advertisements that contain their own plot; a series of ads with an ongoing storyline, such as the Taster's Choice ads that ran between 1990 and 1997; and product placements in shows. But advertisers also increasingly see the Internet as a valuable medium for communicating their ideas. The shift in advertising dollars threatens broadcasters' traditional revenue model, forcing them to look for new funding sources.

Responding to these events, content providers have begun putting more programming on the Internet. A large number of radio stations allow people to listen to live broadcasts over the Internet. More recently, television networks have put content on their own websites and have entered into agreements with companies such as Apple and AOL to make both past and current shows available online.[5] In some cases these downloads are free, in other cases they contain advertising that the viewer may or may not be able to skip through. Hollywood has also begun to make movies available for downloading, through either cable and satellite companies or third parties such as MovieLink and

[4] Eggerton, John, "RIP 30-Second Spot?" *Broadcasting & Cable*, March 22, 2006.
[5] Noguchi, Yuki, "TV When – and Where – You Want It," *Washington Post*, February 12, 2006, p. A1; Delaney, Kevin J. and Bobby White, "Choices Expand for Watching TV on your PC," *Wall Street Journal*, February 2, 2006, p. D1.

CinemaNow.[6] In some cases, networks are even developing content solely for mobile viewing.[7]

Although the decision to follow the viewer onto the Internet further undermines the traditional business model, it promises large benefits. First, because it seems that viewers attach great value to the ability to watch whatever they want whenever and wherever they want to, putting content on the Internet significantly increases consumer welfare. Second, this trend can also increase producer surplus by giving programmers direct access to a worldwide audience. Third, it increases the value of old programming owned by the networks. Although networks have increasingly put old shows on DVD, the Internet allows them to follow the consumer anywhere he or she goes. Last, and perhaps most important, the technology allows just about anyone to upload content and reach the consumer directly without having to invest in expensive equipment or pay for scarce transmission capacity.[8]

Maximizing the Social Value of Radio Spectrum

One of the largest constraints on the Internet's continued growth is the availability of high-speed access. The lack of cheap, fast, and widely deployed transmission capacity is now slowing the development of new technology and products. Just as the rapid decreases in the price of processing power and computer storage spurred a new industry of software programs that took advantage of it, the spread of high-speed Internet connections will result in a host of high-value products and services. Future innovations will ensure that broadband gets cheaper and faster, but competitive markets are needed to speed the process up.

The United States currently trails many other developed countries in the proportion of the population with broadband connections. But traditional statistics fail to capture the real problem. Many connections that qualify as broadband are unable to handle the heavy demands that video and other emerging uses make. Even over the medium term, the focus of federal policy ought to be ensuring transmission speeds of 6 megabits or higher. Other countries have invested in transmission capabilities of between 100 megabits to 1 gigabit. Because one of the most promising technologies for delivering these connections to rural and low-income urban areas is a form of wireless transmission called WiMAX, it makes sense to ask whether current policy is maximizing the value of public spectrum.

Broadcast spectrum is a public good. Under current law spectrum belongs to the public and the government manages its use. In managing this public resource, the dominant goal should be to maximize the social value of the spectrum, while balancing governmental and commercial interests. It is not at all clear that this goal motivates

[6] McBride, Sarah, "Movie Debut: Films for Sale by Download," *Wall Street Journal*, April 3, 2006, p. B1.
[7] Noguchi, Yuki, "CBS to Make a Soap For the Smaller Screen," *Washington Post*, January 12, 2006, p. D5.
[8] Heffernan, Virginia, "Who Makes Short Shorts? Anyone and Everyone," *New York Times*, April 3, 2006, p. B1; Siklos, Richard, "Online Auteurs Hardly Need to be Famous," *New York Times*, March 13, 2006, p. C1; Glocer, Tom, "Old Media Must Embrace the Amateur," *Financial Times*, March 8, 2006, p. 15.

current policy. Many spectrum licenses are renewed almost automatically even though they service technologies that existed half a century ago. When new technologies make alternative spectrum uses more valuable, the procedures for taking advantage of them are often complex and lengthy. There will undoubtedly be debates about how to best maximize social welfare, the wisdom of different business models, and the value of competing services and products. But it is quite clear that current policy is failing to make the most efficient use of what is still a scarce resource.

Maximizing the social value of the spectrum is not the same as maximizing federal revenues from spectrum auctions. In some cases, decisions that increase auction revenues by selling or licensing spectrum may reduce the social value of the spectrum by several times the auction revenue because they preclude more valuable unlicensed uses. In other cases, high auction revenues may reflect the fact that bidders expect to make above average profits due to the absence of competitors. Limiting competition almost always reduces social welfare.

Federal auctions have traditionally been most efficient at maximizing the usage of spectrum when the government is providing the right to use frequencies to a limited group of people, thereby enabling them to earn above market rates of return. For example, giving a small set of companies the exclusive right to broadcast television signals to a specific metropolitan area is likely to enable them to make high profits. Although the level of profits may be reduced by competition among local television broadcasters, it is likely that national broadcasting companies would be willing to pay significant sums in order to secure licenses. In these cases, auction revenues would likely come out of the producer's surplus.

However, auctions are less appropriate when the government is opening up spectrum to a broad range of unlicensed uses or is licensing enough spectrum to ensure vigorous competition. In this case, ease of entry into the market and competition between providers should work to keep profits down. A company is likely to enjoy high profits only if it succeeds in delivering a superior service or product on a continued basis. In highly competitive situations, bidders will be forced to pass any auction payments on to consumers. Increased revenues are then offset by higher prices and the auction effectively becomes a way of taxing consumers.

Currently, radio spectrum operating at frequencies anywhere from 300 kilohertz (kHz) to 806 Megahertz (MHz) is widely used for broadcasting radio and television programs. This licensing of use has not materially changed for several decades. The initial decision to license this spectrum to broadcasters was driven by two dominant facts about communications technology that are no longer true. The first fact was that there were few other uses for this spectrum. The dominant use for this spectrum at the time AM radio was invented in the 1920s was for wireless telegraphy. In the past few decades, a broad range of other uses have been developed, most importantly cell phones and wireless broadband. These alternatives have dramatically increased the opportunity cost of current policy.

The second dominant factor was that there was no other efficient way for programming to reach a vast audience. Laying physical lines would have been prohibitively expensive compared to over-the-air broadcasting, especially at a time when a large portion of the population was still not hooked up to the electrical grid. It therefore made sense to use large portions of the unused spectrum to deliver AM radio, FM radio, VHF television, and, ultimately, UHF television to the public. However, with the rise of cable, satellite, fiber, and now wireless broadband and possibly broadband over power lines, connections delivering more capacity with better quality are now widely available. Their continued spread is highly desirable because, besides delivering broadcast radio and TV, they also enable Internet access. Already the vast majority of Americans can choose from at least one cable company and two national satellite providers to see traditional TV channels and phone companies are spending billions of dollars to offer competing services.

The Current Use of Television Spectrum

The result is that large portions of the spectrum are no longer used for their most valuable purpose. To see this we can examine the proportion of viewers that actually depend upon over-the-air television on a typical evening.[9] The first sign that social value is not being maximized is the fact that in each market a great deal of frequency remains vacant in order to avoid interfering with nearby channels. The New America Foundation and Free Press recently surveyed a number of cities to see how much of the frequency will be occupied after the transition to digital television is complete.[10] In Boston, Massachusetts 38 percent of all television frequency will be unused. In Dallas, Texas the fraction is 40 percent. In San Francisco, California, it is 37 percent. The "white space" of unused frequency tends to be even higher in rural areas. In Fargo, North Dakota and Juneau, Alaska the proportion of white space is 82 and 74 percent respectively. Much of this unused spectrum could be devoted to the delivery of wireless broadband and other services.

In May 2004 the Federal Communications Commission (FCC) proposed allowing new wireless devices to use this white space, subject to restrictions designed to ensure that the devices do not interfere with nearby television transmissions.[11] Despite the large social benefits that could be realized by opening up this frequency for use, the broadcast industry has heavily opposed any efforts to share it.

Second, even during prime time, only a fraction of individuals are watching television. Many others are using other communications technology such as making mobile phone calls, using wireless systems to link their computer or entertainment equipment to a central server, or accessing Internet content. Currently, these individuals are not benefiting from the use of radio frequency. But they could if the frequency was devoted

[9] Although the following discussion focuses on television, the case of over-the-air radio is similar.

[10] *Measuring the TV 'White Space' Available for Unlicensed Wireless Broadband*, New America Foundation and Free Press, November 18, 2005

[11] *In the Matter of Unlicensed Operation in the TV Broadcast Bands*, ET Docket No. 04-186. If policy is changed in order to put this spectrum to use, it is not clear that unlicensed uses will produce the most social value. A better alternative may be to license the spectrum to someone who has an incentive to use it for its most valuable purpose, whatever that turns out to be.

to alternative uses. The point is that even individuals who are not actively using radio frequency pay a cost for the current inefficiency of spectrum policy. These individuals may be passive users, hooked to various systems such as home alarm systems, health monitors, and child locators. The effectiveness and affordability of these existing and potential devices depends on the ready availability of cheap wireless connections whenever communication is suddenly needed. Making more spectrum available would improve quality and lower prices.

Third, even if we only consider the needs of television users, it is difficult to justify the current practice of devoting broadcast spectrum exclusively to television. According to a recent FCC survey, during the 2004-2005 television season, nonbroadcast channels accounted for a combined average share of 53 percent of prime time viewers.[12] In other words, most viewers are watching stations that do not use spectrum to reach any of their intended audience.

Finally, current spectrum policy benefits only a small share of those who watch programming from the broadcast networks. According to the same report, nation-wide roughly 14 percent of the population relies exclusively on over-the-air reception for television programming. The rest receive network programming through a multichannel video programming distributor such as cable or satellite.[13]

Whereas in the 1970s broadcast frequency was being used to reach 100 percent of the total television audience, now a small and declining fraction rely on it. Cable and satellite have revolutionized television not only by providing programming from new stations, but also by serving as the gateway for the vast majority of viewers who still watch network programming. In the meantime, more valuable uses for the spectrum are put on hold and the technologies and products that depend on them remain unrealized. Some of the most important of these aim at providing viewers with mobile access to a wide range of data, video and voice communications in far more flexible forms. Rather than using the spectrum to relay only radio or television signals to a small minority of the population, better policy could increase the supply of affordable, high speed access to the full range of communications media, including radio and television.

It is true that other spectrum is already being used to provide mobile communications, wireless computer hookups, and satellite television. But there is something special about radio spectrum. Mobile phone towers and Wireless Fidelity (WiFi) centers have a limited range, necessitating frequent handoffs and a large number of transmitters. Satellite subscribers currently need to have a southern exposure in order to receive signals and usually need a separate service for their Internet connection. But radio spectrum has the capacity to penetrate walls and cover a much larger geographical area. Television

[12] *Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, FCC, March 3, 2006, p. 48. The percentage for all-day viewing was 59 percent.

[13] *Ibid*, p. 50. In addition, many households that subscribe to cable or satellite may also use over-the-air reception for second or third televisions in their home. This does not appreciably change the argument that current spectrum use benefits only a small and diminishing minority of all Americans and prevents the delivery of tremendous social value.

frequencies can cover an area with a radius of at least 30 miles. One expert testified that decreasing the frequency of a broadcast signal by 700 MHz roughly doubles the coverage area of a single transmitter.[14]

Present law does not allow broadcasters to devote the spectrum licensed to them to these higher uses.[15] First, their licenses only permit the broadcast of television signals. Although more valuable uses exist, the broadcasters cannot take advantage of them by, for example, ceasing their transmissions and selling the freed spectrum to another company or by using the spectrum themselves to transmit broadband Internet access. Second, current laws give television stations an important commercial advantage over other program providers, but only because they hold broadcasting licenses. Remember that the networks depend on cable and satellite to reach roughly 86 percent of their audience. The 1992 Cable Act gives broadcasters the right to force cable companies to carry their local signals without compensation. Although the requirements on satellite companies are not as strict, a satellite company that carries even one station within a local market must carry all of the stations. Networks without FCC licenses do not have this right. Thus a broadcaster that stopped transmitting over-the-air signals used by 14 percent of its audience would also lose guaranteed access to the other 86 percent.

According to testimony before Congress, current spectrum policy costs the economy about $77 billion per year.[16] A central goal of new legislation should be to overcome this impasse and speed the reallocation of spectrum use by better utilizing the unused spectrum in each market and by devoting all spectrum to its most valuable use. The Progress and Freedom Foundation recently issued a report calling for new spectrum allocations based on property rights so that license holders have an incentive to maximize the value of this resource.[17]

---

[14] Statement of Charles Townsend, *Hearing on the Digital Television Transition (Part II)*, Senate Committee on Commerce, Science, and Transportation, U.S. Congress, July 12, 2005. In his written testimony, Mr. Townsend estimated that frequency in the 700 MHz band of spectrum could provide broadband services to rural areas at one-half to one-third the cost of personal communications service frequencies now used by the cellular carriers.

[15] It is interesting to speculate on what would have happened if broadcasters truly owned the frequency licensed to them and could use it for any purpose. It is doubtful that they would still be letting large sections of it go unused and devoting the rest only to radio and television broadcasting. It is possible that they would bear the cost of transitioning to digital television in order to free up the spectrum for a variety of other uses, much as the cellular phone companies did with their spectrum. It is quite possible that they would someday cease broadcasting altogether after making suitable arrangements for viewers to get either cable or satellite coverage. Current spectrum policy does not give them these options, however.

[16] Prepared Testimony of Jerry Ellig, *Hearing on Convergence and Competition*, Senate Committee on Commerce, Science, and Transportation, U. S. Congress, March 30, 2006, p. 5.

[17] *Report from the Working Group on New Spectrum Policy, Release 1.0*, The Progress and Freedom Foundation, March 2006. While current licensing practices could theoretically allocate spectrum to the most valuable uses, in practice the inevitable delay and rent-seeking is likely to cause actual policy to lag far behind optimal policy, especially in the face of rapid changes in technology. Giving companies property rights in spectrum avoids delay. As long as sufficient spectrum is in a number of hands, competition should prevent any one company from enjoying monopoly profits.

Traditional Issues Reexamined

The movement of content to the Internet will fundamentally change many of the topics currently being debated in Congress. These include franchising requirements, bundling, and content standards. The danger is that too much discussion of these near-term issues under present conditions might distract policymakers from the long-term goals of communication policy. Policy on these issues must anticipate how future developments are likely to impact them. Just as important, disputes over the distribution of gains from future industry growth should not slow the realization of those gains by deterring the investment and technology needed to achieve them.

1. Franchising Requirements

If an increasing amount of content is going to be linked to the Internet, and if extensive broadband coverage is needed to access this content, then the rapid deployment of broadband connections is extremely important. If local jurisdictions always acted in the interest of their constituents, we would expect them to move quickly to encourage phone companies and others to offer their voters an alternative to the traditional cable station. Even then, however, the need to negotiate separate deals with each jurisdiction might delay deployment.

The nature of franchising must change. As Kent Lassman has pointed out the relationship between cable companies and local governments has traditionally involved two separate issues that are often lumped together.[18] Municipalities have a legitimate interest in right-of way issues. These include verifying that companies comply with local rights-of-way, working to minimize congestion and physical disturbances, ensuring safety and reliability, and recovering the cost of repair and maintenance. These issues will continue to be relevant for all broadband providers, including telephone and wireless companies. We should expect these negotiations to continue, but since deploying new networks takes time anyway, they need not delay the start or the progress of delivering new services. Instead they may be viewed as an integral part of installing new equipment on public property.

However, municipalities have often added additional requirements onto their franchise agreements, which did not reflect the proper management of rights-of-way. The more reasonable requirements include carrying a number of public access, educational, and government channels, wiring municipal buildings, and paying a percentage of revenues to local authorities. These negotiations reflected the fact that, in bestowing a franchise, the municipality usually gave the cable company a de facto monopoly. Negotiations helped ensure that the cable operator did not take too much advantage of its ability to raise prices, that it met certain minimum service levels, and that it shared some of its monopoly profits with the community.

[18] *Video Franchising: Two Big Ideas for State Legislators*, Progress & Freedom Foundation, Progress Snapshot 1.26, December 2005.

These negotiations make less sense when a company is offering only one of several broadband channels into the home. In a competitive environment, the danger that government will harm consumers by delaying the delivery of new technology begins to outweigh the danger that companies will unfairly exercise market power. Congressional hearings have highlighted many examples where a local government seemed guided by its own interests or the desire to protect an incumbent cable company than by the interests of the average citizen. Of course, once competition exists in a given area the justification for requirements on the cable company also goes away. In the long run, all content providers ought to operate according to the same rules.

It is true that franchising fees represent a significant source of revenue to local governments. But while companies should reimburse governments for the repair of rights of way that are used in building a network, the justification for an ongoing share of subscription revenues decreases in a competitive environment. When the local government was bestowing a cable monopoly, one could argue that franchising fees came out of company profits rather than consumer pockets. Since monopolies typically earn above-average rates of return, a combination of price regulation and profit sharing can protect consumers. But in a competitive environment companies have a difficult time earning above-average profits unless they deliver better service than their competitors. In this case, franchising fees are likely to be passed on to consumers, resulting in higher bills rather than lower company profits. One expert estimates that cable franchising already costs consumers approximately $10 billion annually.[19] While franchise fees may be a convenient substitute for other forms of taxation, it is not clear that they are better.

Local jurisdictions also often require cable stations to carry a number of stations that few viewers watch. These include public access, educational, and government channels. These agreements reflect an age where cable was the only or primary large-scale transmission system for distributing local content and public service information. Supporters of this practice have traditionally argued that without franchising requirements, local content has no way of reaching viewers. However, with modern technology any group can upload programming to the Internet, making it available worldwide. Continued technological advances are rapidly decreasing the cost of producing high quality broadcasts. Thus it will be increasingly possible for local governments and citizens to broadcast their content over the Internet to all who want to view it. Programming that delivers value can suddenly reach a much larger audience. Programming that does not should not receive government backing.

The spread of broadband should be encouraged, not delayed by local franchising requirements. Congress recognized this when it eased the entry of satellite television into the market in the Telecommunications Act of 1996. However, the broad public interest in ensuring rapid broadband access cuts both ways. Municipalities need to recognize that the rationale for local franchises is disappearing and that businesses will be less likely to enter their jurisdiction when encumbered by franchising requirements. At the same time, cable and telephone companies have to recognize that local jurisdictions should not be

[19] Prepared Testimony of Jerry Ellig, *Hearing on Convergence and Competition*, Senate Committee on Commerce, Science, and Transportation, U.S. Congress, March 30, 2006, p. 6.

required to wait on the private sector for investments in broadband, especially to low-income and rural areas. The encouragement of broadband coverage is a legitimate goal of public efforts and reflects historic communications policy. There is a valid debate over the best way to manage and pay for these services, but when companies like Google are promising to give the population of San Francisco free wireless access, cities should not be prevented from accepting it.

2. Must-Carry Regulation

A similar issue exists with must-carry regulations. There is little reason to think that in a competitive market good content from the main television networks would not be carried over other communications networks such as cable, satellite, and the new lines that phone companies are installing. In fact, it is likely that content providers will increasingly reach around communications companies by putting their programming directly on the Internet where it can be downloaded by anyone with an Internet connection. The exact price and conditions by which this would occur should depend on private negotiations, however. Present law gives television broadcasters (but not radio broadcasters) the right to force cable companies to carry their main programming without compensation. Satellite providers have it little better: they must choose between carrying none of the stations in a local market and carrying them all.

In the absence of this requirement, the main networks would probably still have a great deal of negotiating power. Most viewers want to see traditional broadcast stations. A cable or satellite provider that did not offer them would have a hard time getting subscribers, especially when competitors did. However, must-carry legislation may be having two perverse effects. First, it makes it easier for broadcasters to force cable stations to carry other, less desirable stations in exchange for permission to carry the main station. This gives networks that are owned by broadcasters a competitive advantage over independent networks and may speed consolidation of the industry. Tying arrangements may also result in an increase in the number of low-value channels that viewers are required to purchase, decreasing the transmission capacity that is devoted to broadband service.

Second, the policy artificially links market power with the use of scarce radio spectrum. The bargaining power of a network should depend on the value of its programming. With must-carry, even a poorly rated television show can force its way onto cable and satellite, solely because it has an FCC license. This encourages the demand for broadcast licenses and increases broadcasters' resistance to changes in the status quo. If a broadcaster abandoned its license because only 14 percent of its viewers rely on over-the-air signals, it would also lose guaranteed access to the other 86 percent of its market. This also increases the number of low-demand channels that cable stations end up carrying. The rationale for giving this preference to small stations was stronger when cable was the monopoly carrier. It is much weaker in a competitive market and will be weaker still as technology allows every station to broadcast a signal over the Internet.

With high quality, pervasive broadband there is no need to order cable or satellite companies to carry certain channels. In fact, there is no need for them to carry any channels at all. Whatever communications capacity they have is likely to be far more valuable to society as a pipeline to the Internet rather than dedicated to delivering only one form of content. And stations are much better off making their programs available through the Internet. The rationale for current must-carry and carry-one-carry-all requirements disappears. Niche channels that currently rely on these requirements will find themselves in a brave new world with a vast potential audience and lower costs, but a much more uncertain revenue stream.

3. Content Standards

The government currently regulates the content of images and language that can be broadcast over licensed spectrum. Lately the FCC has sought to toughen enforcement of these standards by fining networks that violate them. However, the movement of content to the Internet is likely to significantly reduce the government's ability to enforce community standards on content providers.

When content moves to the Internet, the government's role in regulating content is fundamentally changed for two reasons. First, content on the Internet is much more difficult to regulate. Pornography has always been an early adopter of technological advances in communications, from cheap novels and 8-millimeter film, to toll-free numbers and VCRs. The Internet is no different. However the ability to distribute objectionable material now promises to become pervasive. In Europe pornographic content for video phones and iPods is a rapidly growing business. The same will happen in the United States. The discovery of how easy it is for teenagers to access this content is already an issue among parents, but it is hard to see how the government can effectively stop it. The government's ability to control Internet content is much weaker than its ability to control the press. The cost of uploading content continues to fall and the sourcing and development of content is global.

Second, the legal rationale for regulation is much weaker. Congress has wisely sought to protect the Internet from regulation. While this makes good policy, it also reflects Constitutional limits. The government's role in regulating broadcast content has traditionally been justified by the nature of the medium. Unlike publishing, broadcasting requires scarce spectrum. Once radio spectrum was recognized as a public resource, the government necessarily became involved in deciding who had the right to use it. Since these decisions were to be made in the public interest, courts approved a focus on content that they would not have allowed in publishing.

But once spectrum is used mainly to deliver broadband access, which can be expected to compete with similar access provided by cable, telephone, and even electric companies, this rationale disappears. Spectrum no longer becomes the only medium available to reach most viewers. More important, the content it delivers is much more amorphous, not linked to any entity receiving scarce government licenses as a trade-off for content regulation. Courts are likely to impose a much stricter First Amendment standard on

government regulations, resembling that used for publishing, and even this standard will be difficult to enforce against overseas publishers. Even as the FCC debates extending content guidelines to cable companies, a new, much more serious challenge is looming before it.

4. Universal Service and Nondiscrimination

Congress has often subsidized the delivery of essential services, such as electricity and water, to rural and low-income areas. The Universal Service Fund (USF) imposes a fee on interstate and international revenues to pay for the extension of phone service. Unfortunately, the Fund has developed several problems that need to be addressed. First, it places the fee mainly on traditional telephone bills, omitting many of the new sources of competition for telephone service, including Voice over Internet Protocol (VoIP). This has increased the price difference between traditional phone lines and cable and Internet telephone service. As a result, the revenue base has stagnated and the marginal fee has grown to over 10 percent. Second, Fund revenues have often been used to subsidize rural telephone companies rather than to extend phone service at the lowest cost.

In a world where most communication occurs over the Internet, a subsidy only for telephone service will make little sense. Businesses and homes will need access to broadband service that connects them with the full range of data, voice and video content. The two leading contenders for making this happen in rural areas may not be the traditional telephone and cable providers, but wireless broadband and broadband over power lines (BPL), neither of which require laying new lines into each home. In extending service, Congress will have to decide whether the purpose of the Universal Service Fund is to prop up traditional companies that are unable to compete in the new markets, or to extend communications services to the greatest number of people at the lowest cost. Either way, the revenue base for raising funds should be broadened.

Concern that new entrants will only serve the most affluent consumers is often used as an excuse to favor an incumbent monopolist, thereby ensuring that no one benefits from improved service and lower costs. Those who are concerned about providing service to low-income and rural areas should remember that the economics of doing so usually tilt in their favor as new technology is deployed. First, delivering service to those with the highest disposable incomes and marginal utilities provides companies with the revenues needed to expand. Second, the value of the network increases as it grows, making it more attractive to other consumers. Third, as companies gain experience and technology improves, the cost of equipment and service continues to fall. Lastly, the extension of cheap broadband to even a portion of the population motivates investment in a broad array of new technologies that increase economic growth and national competitiveness. The extension of broadband to low-income and rural areas is an important concern. But conditioning the entry of new competitors on build out rates is likely to prove self-defeating; ensuring that service to all areas is delayed.

5. Network Neutrality

With past technologies, Congress has generally not intervened in how the markets developed until the market was relatively mature and the need for monopoly regulation was clear. As a result, in both publishing and broadcasting the dominant business model that eventually emerged relied heavily on advertising to keep user costs low or free. Despite initial resistance, when faced with a choice, the public generally preferred low prices to an absence of advertising. It is quite possible that the same model will dominate much of the Internet. The business model of Google and AOL seems to depend on it.

Yet many people are now urging Congress to legislate how the Internet will develop by imposing a variety of mandates in the name of net neutrality. Although it is not always clear what they mean, the effect would be to place most of the cost of Internet service directly on consumers. Several factors argue in favor of caution, however.

First, most of the most valuable networks for providing broadband connections to the Internet have not yet been built. Their future existence requires the expenditure of tens of billions of dollars in private equity. Judging by the stock prices of cable and telephone companies, the markets are not persuaded that building high-speed lines is a wise investment. Any limitations on how companies can use these lines will increase the probably that they will never be built.

Second, we need to distinguish between Internet access and the delivery of proprietary content. Government has not dictated how much of their capacity cable companies should devote to Internet access as opposed to delivering video programming or phone service. Similarly, if telephone companies build a network that can be used to deliver both Internet access and proprietary content, the government would have little justification in dictating how it should divide that capacity. Both the telephone and cable companies are likely to run private networks for some time. However, given the poor performance of services like AOL and CompuServe that relied on exclusive content, much of the content over this private network is likely to be common to all providers, thus limiting the ability to charge more than competitors.

Another possibility is that communications providers will restrict or impair access to legitimate web sites, especially those offering services that compete with theirs. Although communications companies have a theoretical motive for doing so, in practice any company that attempts it is likely to alienate its customers and invite legal action from both the websites harmed and the FCC. This type of interference is especially unlikely if there is active competition for providing broadband access. This is another reason why a main focus of legislation should be to encourage additional routes into the home.

A third possibility is that broadband providers will create a second or third tier of faster transmission speeds and charge content providers for using it. Proponents of net neutrality already admit that broadband providers should be able to charge more for faster service, but they believe the Internet is somehow threatened if content providers rather

than consumers are asked to bear this cost. Yet the threat they most commonly cite, that small companies will not be able to afford the access fees, is at least partially offset by the lost value to consumers who do not sign up for broadband because it is too expensive. Moreover, companies with a good business model have the ability to raise capital by selling equity or borrowing funds, as did Google, Amazon, and Yahoo. A full analysis of this threat should keep in mind several facts.

First, it is important to allocate bandwidth efficiently. Broadband providers must be allowed to protect the quality of the service they provide. This quality is likely to be measured against standards of speed and reliability. As long as broadband speeds are a constraining factor in the development of new products and services, and they are likely to be for some time, it is desirable to allow providers to charge more for services that use more broadband, especially in situations like a local cable loop, where heavy usage by one person can significantly degrade the service of others. This general policy of allowing high margins on products that address quality constraints has driven rapid improvement in other communications and computing markets, such as the cost of memory and processing speeds. Charging heavy users more gives providers an economic incentive to invest in faster connections.

Of course, in the long-run the best answer to this scarcity question is to promote the expansion of bandwidth by a variety of competitors, but this will take time and money. As it happens, the threat of any provider exercising undue influence will fall. In the meantime, some sort of prioritization of content, such as already occurs for other forms of Internet traffic, makes sense.[20]

A second reason for caution is that it is not clear why all the cost of extending broadband coverage should be borne by consumers rather than by the content providers whose services require large amounts of bandwidth. With competitive broadband markets, fees on content providers are likely to result in lower connection fees rather than higher profits for broadband providers. The experience of television shows that consumers often prefer a business model where the direct cost of content is free. And such fees would give content providers a continued incentive to adopt technology that minimizes the bandwidth they require. Most important, at a time when some experts are debating the merits of moving toward a new Internet,[21] it is premature to define the business model for providing broadband coverage, especially when the FCC already has adequate power to deal with clear abuses. A better solution would be to focus on the main goal: ensuring competition in the market for providing high-speed broadband connections.

There is, however, a distinction between charging all content providers the same fees based on bandwidth or speed and discriminating against specific content providers by denying them access or charging higher fees. High-definition television, if delivered over the Internet will require much faster transmission speeds than is currently available to most users. However, this does not mean that a provider should be allowed to charge

[20] Douglas Holtz-Eakin, "Why We Should Think Twice About 'Net Neutrality,'" *Financial Times,* March 16, 2006, p. 13.
[21] *See,* "Reinventing the Internet," *The Economist, Technology Quarterly,* March 11, 2006, pp. 32-33.

more for watching an independent station than for watching one affiliated with its company. This sort of discrimination between specific content providers does threaten the traditional openness of the Internet. To a certain extent Internet access should be evaluated according to common carrier standards. Most jurisdictions restrict trucks from certain public roads and some are experimenting with HOV lanes and congestion pricing in order to reduce overuse. But all apply the same rules to Toyota cars that they do to Fords. The grounds on which providers are allowed to discriminate should face some limits, most of which are already imposed by general antitrust statutes.

Sources of Value in an Internet World

The spread of content to the Internet depends on the spread of high speed Internet access. As stated above, a great deal of licensed radio spectrum can be more productively used to provide broadband Internet service to all areas. The rapid spread of high speed access will spur economic growth by encouraging significant investments in new products and services. One researcher estimated that utilizing just the spectrum freed up by the transition to digital television will increase national welfare by $200 billion to $432 billion.[22] Similar gains could be had by maximizing the social value of all radio frequencies. The cost of delaying these gains for even one year is therefore significant and far outweighs the value of many of the issues that are currently holding up progress.

Although it is clear that large social gains will occur, there is still a great deal of uncertainty over which business models will justify the investments in technology and equipment needed to capture a share of this value. One source of value is likely to go to content providers such as television stations, movie studios, and news sources. These providers may adopt a variety of revenue models including traditional advertisements, pay-per-view, and subscription services. Although some stations may fail once their access to a scarce resource such as spectrum or cable capacity is removed, many others will flourish as they use falling production costs and an expanded audience to fill unique market niches. In this respect, video and radio markets are likely to develop the diversity that characterized print media earlier in the last century. Eventually consolidation will be needed in order to further reduce costs. Also, certain programming will always require the larger budgets and risks that only bigger companies can provide. However, overall diversity should increase dramatically.

Unfortunately for cable and telephone companies, the mere transmission of programming is likely to become a commodity. Companies that provide more bandwidth and faster transmission speeds may temporarily earn higher profit margins. However, the high capital and low marginal costs characterizing communications, as well as the emerging threats from wireless broadband and broadband over power lines make it unlikely that these margins can be sustained for long. As a result, cable stations and telephone companies may experience economic difficulty. The stock prices of telephone and cable companies indicate that investors do not anticipate high profits from the billions of dollars of infrastructure investments. These companies are betting that by providing an

[22] Coleman Bazelon, *Analysis of an Accelerated Digital Television Transition,* Analysis Group, Washington D.C., May 31 2005, p. 10.

integrated bundle of mobile data, voice and video services, they can reduce total costs and build a relationship with customers that is relatively insensitive to price.

At the same time, a new market is likely to open up for providers who can set up and provide service for interconnecting homes. The vast array of information uses will require new connections and new expertise. While common standards may ease the problems of interconnection, many consumers are likely to pay professionals to set up and maintain home communication systems. Equipment manufacturers, broadband providers, and software companies are all likely to compete for this market, as are companies that try to offer new products and services that use fast, cheap interconnectivity to meet a wide variety of consumer desires.

Conclusion

Communications markets are already moving toward much heavier reliance on the Internet to deliver content that is available anytime to anyone, anywhere. Doing so maximizes the value of the content and the freedom of both content providers and consumers. This process creates hundreds of billions of dollars of new economic growth in the form of better content, new products, more jobs, and faster technological progress.

Communications law should anticipate and facilitate this development. Because these market changes threaten existing business models, their development is likely to take some time. Some of these impediments reflect natural inertia within established companies comfortable with historic business models. This will be offset by the pressure of new companies such as Google and Yahoo, whose existence depends upon the rapid expansion of broadband availability and Internet content. The transition will also be helped by consumers and advertisers who anticipate it and shift their purchasing decisions accordingly.

However, resistance will arise from vested interests that benefit from existing government licenses and subsidies, which now have more productive uses. Congress must distinguish between the interest of these groups and that of the broader public that these groups often claim to represent. All parties are engaging in a significant amount of rent-seeking as they try to ensure that the legislative process gives them a competitive advantage over their rivals. The problem is that focusing on the exact division of spoils delays the deregulation needed to allow the markets to evolve. Significant delay in making this transition imposes an opportunity cost of tens of billions of dollars each year in the form of services and products that are not brought to market and investments that are not made. Government policy should release this value and ensure that no group has the ability to prevent the implementation of more valuable communications technology.

Joseph V. Kennedy
Senior Economist