



Consumer Federation of America



EXPANDING THE DIGITAL DIVIDE & FALLING BEHIND ON BROADBAND

**WHY A TELECOMMUNICATIONS
POLICY OF NEGLECT IS NOT BENIGN**

MARK COOPER

OCTOBER 2004

Contents

EXECUTIVE SUMMARY	1
I. INTRODUCTION	5
RHETORIC VS. REALITY	5
OUTLINE OF THE REPORT	6
II. A RADICAL SHIFT IN POLICY CREATES A NEW DIGITAL DIVIDE	7
NEGLECTING THE COMMITMENT TO UNIVERSAL SERVICE	7
THE HISTORY OF POLICIES TO PROMOTE AFFORDABLE ACCESS	7
HIGH-PRICED ACCESS	8
ELIMINATING UNIVERSAL SERVICE POLICIES FOR ADVANCED TELECOMMUNICATIONS NETWORKS	10
RELYING ON A COZY DUOPOLY OF CLOSED NETWORKS	11
III. THE PERSISTENCE AND IMPACT OF THE DIGITAL DIVIDE	12
THE URGENT NEED TO CLOSE THE DIGITAL DIVIDE	12
THE DIGITAL DIVIDE IN INTERNET ACCESS	14
BEING DISCONNECTED MEANS BEING DISADVANTAGED	16
ECONOMIC FACTORS ARE THE CENTRAL DETERMINANT OF ACCESS	22
IV. DIM PROSPECTS THAT CROSS-TECHNOLOGY COMPETITION WILL CLOSE THE DIVIDE	23
CABLE V. SATELLITE IN VIDEO	23
CABLE VS. DSL IN BROADBAND	24
PRICING PATTERNS	25
FALLING BEHIND IN BROADBAND	27
V. CONCLUSION: THE NEED TO BRIDGE THE DIGITAL DIVIDE	30
ENDNOTES	31

EXPANDING THE DIGITAL DIVIDE & FALLING BEHIND IN BROADBAND: WHY A TELECOMMUNICATIONS POLICY OF NEGLECT IS NOT BENIGN

EXECUTIVE SUMMARY

RHETORIC VS. REALITY

Within weeks of assuming the Chairmanship of the Federal Communications Commission (FCC), Michael Powell attacked the concept of the digital divide, declaring, “I think there’s a Mercedes Benz divide, I’d like one, but I can’t afford it.” Soon thereafter the National Telecommunications Information Administration essentially declared the problem solved when it published its first, and only, detailed analysis of Internet penetration, under the title *A Nation Online*.

The Bush Administration’s continuing hostility to policies to promote Internet adoption was recently reaffirmed when the Associate Director of the White House Office of Science and Technology Policy declared “we have not come out with a universal service platform,” and emphasized that the “goal is universal access, not adoption.” Instead of promoting universal service, the FCC excused cable and telephone companies from public interest obligations, allowing them to set high prices and exclude competitors from their networks. The Administration hopes that competition will bring prices down so that broadband becomes affordable. Chairman Powell is “buoyant” about broadband in the United States, declaring “we have turned the corner in the digital migration.”

Unfortunately, the reality does not match the rhetoric. *Business Week* recently noted that instead of vigorous competition, the FCC’s policies have created “a cozy duopoly of broadband providers: the Bells and the cable-TV companies” that has not served the public or the nation well since “The two sides have been slow to push for higher broadband speeds or fast price declines.”

As a result, the U.S. is falling behind other nations and the digital divide is growing.

- In the years that Powell has been Chairman of the FCC, the U.S. has fallen from third to thirteenth in broadband adoption. When per-capita income is taken into account, the U.S. is performing poorly in getting high-speed Internet to American households.
- Cross national comparisons of price show that Americans pay between ten and twenty times as much, on a megabit basis, as consumers in Korea and Japan pay. Three years ago the price gap was half as large.
- There has been almost no increase in the percentage of households with Internet access at home. Penetration has been stuck at around 60 percent.

- High prices that retard adoption of broadband hit low and middle income households the hardest. Over four-fifths of all households that lack Internet access at home have incomes below \$50,000.
- In the meantime, the Mercedes Benz class is switching to broadband. Half of all households with incomes above \$75,000 have broadband, while half of all households with incomes below \$30,000 have no Internet at home.

A RADICAL SHIFT IN UNIVERSAL SERVICE POLICY

The policy of relying solely on the market to make communications services affordable to all Americans represents a radical shift. The deployment of the telecommunications network over the 20th century was accomplished under a policy that embraced the availability of service at prices that ensured affordable access to a basic level of service. Local connectivity was the basic launching point for network access and the costs of the network were recovered from all of the services that used it.

Under the Bush Administration, the FCC has turned this approach on its head. The basic connectivity costs for advanced services are set by commercial interests and remain extremely high, undermining the affordability of access. Add on services are relatively inexpensive and make little contribution to the costs of the network.

The claim that broadband will solve the universal service problem by delivering services like Voice over Internet Protocol (VoIP) ignores the fact that in order to get VoIP the consumer must have a broadband connection, which costs more than basic telephone service, itself. Broadband-based alternatives are two to three times as expensive as narrowband Internet service.

Because the FCC has refused to define advanced telecommunications services as telecommunications services, it cannot raise universal service funds from the services or use universal service funds to make high-speed Internet access affordable. The legal divide that the White House and the FCC would like to create between the traditional telecommunications network and the advanced telecommunications networks (between the dial-up Internet and the high-speed Internet) has an even more perverse effect. As upper income households migrate to advanced telecommunications networks, which escape public interest obligations, the pool of resources available to support the narrowband network shrinks and the burden of maintaining the dial up network will increase dramatically. Prices will rise and the quality of service will decline. There are already proposals to raise basic dial-up rates by four dollars per month in charges that telephone services over advanced telecommunications networks would avoid.

BEING DISCONNECTED MEANS BEING DISADVANTAGED

There is an urgent need to close the digital divide because being connected is so important in the digital information age. Digital technologies change society very quickly.

The ability of a household to participate and prosper in the new economy will be severely restricted if a household is cut off from technology. The convergence of commerce and communications gives this technology a special transformative power. The Internet is not just a communications tool, a means of commerce, or an entertainment medium. It is also a technological revolution that promises to enhance productivity in many aspects of life and increase the standard-of-living for all those who use it. Moreover, as broadband rolls out and becomes the focal point of commercial activity, the design of services and applications changes to capture the characteristics of broadband. Offerings that are explicitly tailored for broadband may not work or certainly do not work very well over narrowband connections. Being locked into the narrowband Internet means falling farther behind.

The impact of being disconnected is readily apparent. Those without the Internet at home are much less able engage in information gathering, communications and political activities than those with the Internet at home. Narrowband users engage in about 1.5 times as much of these activities and broadband users are about twice as likely to engage in these activities as those without Internet access at home. In physical space, there are only minor differences between households in these activities, suggesting that if the disconnected had access to the Internet they would engage in a similar level of activity as the connected.

To summarize: about 55 to 60 percent of the population has access at home and uses it for many purposes. Another 10 percent does not have it at home but uses it much less often for these purposes in public places. The households that can afford broadband are overwhelmingly upper-income and make much more intensive use of the Internet at home. In this sense, the needs of the Mercedes Benz class are being well-served by the current system, at the expense of the low- and moderate-income Americans who, if they have access to the Internet at home at all, have access through the much-slower, but more affordable, narrowband connection.

THE “COZY” CABLE AND TELEPHONE DUOPOLY WILL NOT SOLVE THE PROBLEM

The Bush Administration’s response to the challenge of making high-speed Internet access affordable is to hope that competition between a small number of facility owners will lower prices for consumers. Cable operators are by far the dominant providers of broadband access and recent experience in the high-speed market and other markets dominated by the large cable owners calls this hope into question.

A decade ago, when satellite began to enter the video market, cable simply ignored it in its pricing decisions. Given the opportunity to push prices up after the passage of the Telecommunications Act of 1996, which deregulated much of the cable market, or to compete on price with satellite, cable chose the former, which allowed the industry to maximize profits at the expense of consumers. Econometric analyses prepared by the Federal Communications Commission and the Government Accountability Office show that competition from satellite has had little impact on cable pricing.

The reaction of cable operators to cross-technology or intermodal competition in broadband has been exactly the same as its reaction to intermodal competition in video. They have not responded by lowering prices, but rather by adding capacity and bundling services. This does not lower the price and make the service more affordable.

The resulting price is too high and dampens adoption. *Business Week* gave a stunning example: “Now, most markets are cozy duopolies, at best, where consumers can get broadband only from a phone or cable company. The result is that U.S. consumers can pay \$35 or more for a 1.5-megabit-per-second connection, compared with Yahoo! BB’s price of \$25 for 26 megabits.”

The most ironic twist in the faltering U.S. performance can be found in the Japanese progress. Well behind the U.S. in 2000, Japan surpassed the U.S. in 2003 by pursuing exactly the policy of nondiscriminatory access to the advanced telecommunications networks that the FCC has abandoned.

CONCLUSION

Under the logic of the 1996 Act, which the FCC and the Bush Administration have disregarded through the misclassification of advanced telecommunications services, as broadband spreads the Internet looks more and more like a service that merits the status of universal service support. The above analysis shows that the Internet certainly provides the essential functions identified by Congress and its ubiquitous adoption promotes the public interest. The case for aggressive policies to promote universal service is strengthened. Neglecting universal service and affordability threatens to turn the digital divide into a permanent, digital chasm.

The opposition of Chairman Powell and the Administration to a universal service policy that promotes affordable access to the Internet and the poor track record of the few intermodal competitors on which they rely to drive prices down does not bode well for closing the growing divide any time soon. Disregarding the evidence of this policy failure, the FCC and the Bush Administration recently appealed the *Brand X* case, which would have required the cable operators to allow exactly the type of intramodal competition for Internet access that has been so successful in the past in the U.S. and is working abroad. This is a pointed reminder of the dangerous commitment to a hands-off approach in markets that are not competitive, dangerous because it undermines the commitment to universal adoption of a service that is vital to the daily life of all citizens and consumers in the digital information age and threatens to turn the digital divide into a permanent, digital chasm.

I. INTRODUCTION

RHETORIC VS. REALITY

Less than a month after the Bush Administration took office, the newly-appointed Chairman of the Federal Communications Commission (FCC), Michael Powell, used his first press conference to signal a sharp change in direction in at least one prominent aspect of communications policy.¹ The flow of technology always starts with the wealthy and trickles down to the rest of the population, which is referred to as the “digital divide.” Closing the digital divide had been a constant theme of the Clinton Administration, but Powell took a dramatically different view.

I think the term [“digital divide”] sometimes is dangerous in the sense that it suggests that the minute a new and innovative technology is introduced in the market, there is a divide unless it is equitably distributed among every part of society, and that is just an unreal understanding of an American capitalist system... I think there’s a Mercedes Benz divide, I’d like one, but I can’t afford it... I’m not meaning to be completely flip about this – I think it’s an important social issue – it shouldn’t be used to justify the notion of, essentially, the socialization of deployment of infrastructure.²

Optimism is a long-running theme of Internet policy in the Bush Administration. The 2001 publication of the first and only computer/Internet supplement to the Current Population Survey (CPS) under the Bush Administration,³ *A Nation Online*, was accompanied by a cover letter from the Secretary of Commerce who declared that “increasing numbers of Americans have integrated these technologies into their daily lives and are using them in a variety of places and for a wide range of activities.” *A Nation Online* declared that “[b]roadband connections are also on the rise. These high-speed connections will make it easier for people to engage in distance learning programs or telemedicine and to access a whole new array of entertainment and services that are on the horizon.”⁴

In September of this year, the Chairman of the FCC expressed his content with the state of broadband deployment. In recent analyses,⁵ press statements,⁶ and briefings,⁷ Chairman Powell made clear his pleasure with the current state of high-speed Internet in America; one press account of a private briefing describes him as “buoyant.”⁸ His statements have adopted the campaign rhetoric of the Bush Administration, declaring that “this report will serve as a milestone that we have turned the corner on the digital migration.”⁹

Unfortunately, this rhetoric of optimism is not matched by the empirical reality. Buried at the end of the FCC’s most recent report is the fact that the United States ranks well down the list of broadband penetration in advanced industrial countries. The U.S. is falling behind in broadband

- In the three and a half years that Powell has been Chairman of the Commission, the U.S. had fallen from third to thirteenth in broadband adoption.¹⁰

- When per-capita income is taken into account, the U.S. is performing poorly in getting high-speed Internet to American households.¹¹
- Cross national comparisons of price included in the report show that Americans pay twenty times as much, on a megabit basis, as consumers in Japan pay.¹² Three years ago the price gap was half as large.¹³

The digital divide persists and is growing worse in some respects. The U.S. has made very little progress in connecting the disconnected in our society, even though the upper income, well-connected get more and more services.

- While the FCC proudly notes that penetration of broadband into American homes has tripled in the past three years,¹⁵ it ignores that overall Internet¹⁶ and telephone penetration has been flat.¹⁷ Internet adoption at home is stuck at 60 percent.
- Over half of all households without the Internet at home have incomes below \$30,000 and four out of five have incomes below \$50,000.
- The broadband migration that Chairman Powell has touted has become a migration to a massive digital divide.¹⁸ One out of every two American households with incomes above \$75,000 has high-speed Internet connections at home.¹⁴ One-out of every two American households with incomes below \$30,000 has no Internet connection at home at all.

OUTLINE OF THE REPORT

This paper describes the persistent problem of the digital divide and failure of the current Administration to address it. Section II demonstrates that the policies being pursued by the Bush White House and FCC are a radical break with past approaches, which focused in large part on ensuring that telecommunications services are affordable for all Americans. Not only has the current approach neglected universal service policy, but it would undermine the ability to promote universal service under the Communications Act.

Section III demonstrates that the digital divide is very real and that a new divide is growing between broadband and narrowband. It shows that being disconnected has a major impact on the ability of people to conduct all facets of daily activity effectively in the Internet Age. It concludes by demonstrating that the problem is still primarily an economic issue.

Section IV examines the likelihood that the digital divide will close by simply waiting for the market to deliver affordable access. Driven by a *laissez faire* policy that emphasizes competition between a small number of facility owners, rather than competition between service providers who have nondiscriminatory access to telecommunications facilities, the Bush Administration policy has driven thousands of small competitors out of the market and left dominant cable operators and telephone companies as the two competitors in most markets. Cable is by far the dominant player, which allows for a telling comparison with a closely-related area – the competition between satellite and cable as a driver of price

reductions and penetration – as well as cable’s pricing strategy for high-speed Internet services. This analysis suggests that there is little reason to believe that cross-technology competition will drive prices down anytime soon.

II. A RADICAL SHIFT IN POLICY CREATES A NEW DIGITAL DIVIDE

NEGLECTING THE COMMITMENT TO UNIVERSAL SERVICE

The public policy that flows from denial of the existence of a digital divide is a steadfast commitment to do nothing to speed adoption of broadband by those of limited means. This view is reflected in the Administration’s basic, hands-off view of policy.

In explaining the Administration’s policy on broadband, Richard Russell, Associate Director of the White House Office of Science and Technology Policy, declared that “we have not come out with a universal service platform.”¹⁹ When pressed about whether broadband should be the target of social policy, he reaffirmed that it simply was not part of the program. “Asked whether the Universal Service Fund should be used for broadband, as many suggest, Russell said ‘then you automatically assume that broadband pays into Universal Service.’ Cable, he noted, does not.”²⁰ The reason cable does not is that the FCC has refused to define the advanced telecommunications network operated by cable companies for broadband as a telecommunications service.

Others in the Administration have also expressed the trickle-down theme. For example, Undersecretary of Commerce- Technology Phil Bond “reiterated Bush’s goal of universal access to broadband by 2007... Bush’s stated goal is universal access, not adoption, Russell said.” Reliance on the market is clear as well in the statement of John Marburger, Director of the Office of Science & Technology Policy. “As for Broadband adoption, Marburger said new services and applications will make broadband more attractive to fence sitters. But Russell said a less-quoted line of Bush’s after the 2007 promise is endorsing “competition as soon as possible thereafter.” Russell predicted broadband prices will drop as more competitors enter a market.”²¹

Thus, having belittled the digital divide at the beginning of his term and refused to push policies intended to close the divide, the FCC and the rest of the Bush Administration have declared a policy that cannot substantially address the problem for many years to come. In the meantime, the needs of the Mercedes Benz owners are met.

THE HISTORY OF POLICIES TO PROMOTE AFFORDABLE ACCESS

The policy of relying solely on the market to make communications services available to all Americans represents a radical shift in policy. The deployment of telecommunications networks in the 20th century was accomplished under a policy that embraced both availability of service and the price at which it would be made available. Thus, the Communications Act

of 1934 embraced the “purpose of regulating interstate and foreign commerce in communications ... so as to make available, so far as possible to all the people of the United States a rapid, efficient ... communications service with adequate facilities at reasonable charges.”²² At the time, two-thirds of American households did not have telephone service.

In this approach, public policy sought to ensure affordable access to a basic level of service. Local connectivity was the basic launching point for access to the network and the costs of the network were recovered from all of the services that used it. In fact, a landmark Supreme Court decision in 1930 ended several decades of efforts by AT&T to shift the cost burden from long distance calling to local service.²³ The Communications Act of 1934 established a framework based on this principle. For half a century, premium services and enhancements to the network that facilitated business uses were not allowed to drive up the cost of basic service.²⁴ Affordable access for basic telecom services for all Americans came first, while enhanced uses that shared the network helped to cover its costs.

The use pattern of telecommunications services reflects this policy. Telephones have penetrated into over 90 percent of American households, and most Americans use traditional landline phones to make their local calls.²⁵ Still, a substantial number of households make few long distance calls. Half of all households make the equivalent of one, five-minute long distance call every three days.²⁶

After the breakup of AT&T, which envisioned competition in long distance, new mechanisms were instituted to preserve affordable network access service.²⁷ The 1996 Telecommunications Act made the commitment to affordable service explicit in section 254 of the Act and sought to extend it to new information services:

Universal service is an evolving level of telecommunications service that the Commission should establish periodically under this section, taking into account advances in telecommunications and information technologies and services. The Joint Board in recommending, and the Commission in establishing, the definition of the services that are supported by Federal universal service support mechanisms shall consider the extent to which telecommunications services – are essential to education, public health, or public safety, have, through the operation of market choices by customers, been subscribed to by a substantial majority of residential customers; are being deployed in public telecommunications networks by telecommunications carriers; and are consistent with the public interest, convenience and necessity.²⁸

HIGH-PRICED ACCESS

The FCC under the Bush Administration has turned this approach on its head. The basic connectivity costs for advanced services are set by commercial interests and remain extremely high, undermining the affordability of access. Add on services are relatively inexpensive and make little contribution to the costs of the network. Those who can afford the

hefty price of the service benefit, but the rest of the country loses out in technology adoption and the digital divide widens.

This change is best illustrated through the current favorite service of Chairman Powell: Voice over Internet Protocol (VoIP), which allows consumers to make telephone calls with Internet technology. The recent report on broadband refers to VoIP on the first page of the executive summary as the killer application that may drive adoption of high-speed Internet service. The Chairman's enthusiasm for it is boundless. He recently claimed that the unlimited local and long distance calling for \$30 per month that VoIP embodies is much better than the universal service that had been produced by regulation in the dial-up world.²⁹

Yet Chairman Powell did not figure in the cost of the broadband connection in making this statement. This is critical because consumers cannot gain access to VoIP without first having a broadband connection. The underlying network connection costs between \$30 and \$45 today, more than a dial-up connection supported by universal service, which costs about \$25, including all taxes and fees.³⁰ Thus, the cost of having telephone service over a broadband connection is \$60 to \$70 per month. The difference may not matter to members of the Mercedes Benz class, but is large enough to affect average consumers.

Low-income consumers are priced out of this market altogether. In contrast to broadband-based telephony, a low-income household on the lifeline program, which is not available for broadband connections, could have telephone service for as little as \$10-\$15 per month. Internet service is available for \$10 per month. Even those not eligible for lifeline could have Internet access for about \$35 dollars per month (\$25 for telephone service and \$10 for Internet access). Broadband-based telephony is twice as expensive – a far cry from Chairman Powell's claims.

The pattern of penetration that results from this policy should come as no surprise. Two recent reports from Nielsen/NetRatings, which chart the penetration of media, make the point crisply. In an April release entitled "Affluent Americans Power Internet Growth," Nielsen remarked on the importance of costs.

Costs play a tremendous part in Internet access patterns, said Kenneth Cassar, director of strategic analysis, Nielsen ratings. While broadband has become much less expensive over the past few years, it's still a significant cost compared to narrowband. Couple high-speed access with other utility expenses, and households with tighter budgets simply would not be able to afford the luxury of having broadband.³¹

In fact, the connectivity charges have not come down much, but the prices of add-on services have. In an August release, entitled "U.S. Broadband Connections Reach Critical Mass, Crossing 50 Percent Mark For Web Surfers," Nielsen noted that the penetration of Internet access had stagnated. "Despite a plateau in the growth of U.S. Internet access, we've seen continued high double-digit growth in users' broadband access."³²

Thus, the policies of the FCC and the Bush Administration are producing the Mercedes Benz divide that Chairman Powell predicted would be the natural order of things. They tout the growth of broadband access, which is taking place almost exclusively among upper income Americans, while ignoring the failure of Internet access to grow for low and middle-income households.

ELIMINATING UNIVERSAL SERVICE POLICIES FOR ADVANCED TELECOMMUNICATIONS NETWORKS

While the FCC and the Administration have taken a hands-off approach when it comes to promoting the public interest, they have taken a very hands-on approach when it comes to promoting the private interest of communications companies. The FCC and the Administration have aggressively sought to ensure that the cable and telephone companies can run their networks on a closed basis, excluding competitors.³³ They have sought to exempt or excuse advanced telecommunications networks from the public interest obligations that telecommunications service providers have met for almost a century.

For example, after a bipartisan FCC decision that would have kept the local telephone networks open to competition from competing local exchange carriers was overturned by the D.C. Circuit Court, the White House decided not to appeal the decision to the Supreme Court. It would not support a stay, while others sought Supreme Court review. As a result, Chairman Powell expects this competition to wither.³⁴ In contrast, when the Ninth Circuit Court overturned rules that allowed cable operators to close their networks to competition in the *Brand X* case, which would have forced the FCC to develop rules for competition between Internet service providers over the advanced telecommunications networks of the cable operators, the White House sought a stay and appealed to the Supreme Court. In both cases, the FCC supported the dominant incumbent network owners at the expense of small competitors and consumers.

A policy of exempting providers of advanced telecommunications services from public interest obligations exacerbates problems for those who cannot afford the high price services that the FCC is promoting. Because the FCC has refused to define advanced telecommunications services as telecommunications services, it cannot raise universal service funds from the services or use them to make high-speed Internet access affordable. Cable companies, which dominate the high-speed Internet market for residential customers, do not contribute to universal service funds, nor can those funds be used to make cable modem service affordable. The FCC has proposed to treat the use of the telephone network to provide high-speed Internet in the same way. Telephone companies would be allowed to exclude competing service providers and advanced telecommunications services would be cut off from considerations of universal service, either as a source or the target of funds.

Ironically, the courts have consistently found that the FCC has incorrectly classified advanced telecommunications services under the Telecommunications Act of 1996. The Ninth Circuit Court of Appeals has twice concluded that cable sells a telecommunications service to the public when it sells cable modem service. As a telecommunications service, it should be

subject to the public interest obligations of the Communications Act. Through rulemakings and stays of court rulings, however, the FCC has managed to prevent the public interest obligations from being implemented.

Thus, in seeking Supreme Court review, the FCC could permanently shut the door on public policies to ensure that adoption of advanced telecommunications services are spread throughout society. By seeking to convince the Supreme Court that high-speed Internet access is an information service, not a telecommunications service, the FCC will undermine the legal basis for policies to promote adoption among those who cannot afford the service.

The extreme nature of the FCC's position can be seen in its steadfast refusal to define advanced telecommunications services as telecommunications services but then selectively forbear from regulating them. As far back as 2000, when the Ninth Circuit Court first reprimanded the FCC for incorrectly defining the service, the Court invited this approach. If the FCC defined advanced telecommunications services as telecommunications services, it could still find sufficient competition to forebear from some regulation (such as imposing obligations of nondiscriminatory interconnections and carriage under Sections 201 and 202 of the Communications Act), but it could still require contributions to the universal service fund from and provide support for advanced telecommunications services under section 254 of the Telecommunications Act of 1996. Powell's well-known hostility to the public interest concept has driven him to the more extreme position that would eliminate the possibility of imposing any obligations on or providing universal service support for these services.³⁵

The legal divide that the White House and the FCC would like to create between the traditional telecommunications network and the advanced telecommunications networks (between the dial-up Internet and the high-speed Internet) has an even more perverse effect. As upper income households migrate to advanced telecommunications networks, which escape public interest obligations, the burden of maintaining the dial up network will increase dramatically. There are already proposals to raise basic dial-up rates by four dollars per month, in charges that telephone services over advanced telecommunications networks would avoid.³⁶ As more and more of the telecommunications activity of the Mercedes Benz class migrates to the high-speed Internet, the pool of resources available to support the narrowband network shrinks. Prices will rise and the quality of service will decline for those who cannot afford broadband and therefore must rely on narrowband or nothing at all.

RELYING ON A COZY DUOPOLY OF CLOSED NETWORKS

The FCC hopes that competition between two different technologies or modes of communications – that is, a policy of “intermodal competition” – will be sufficient to drive prices down. It has resisted and opposed efforts to stimulate competition within the technologies – intramodal competition. This, too, is a radical departure from the first generation of the Internet.³⁷ The dial-up network on which the Internet was born and thrived was a common carrier, an open network operated under the obligation to provide

nondiscriminatory access to telecommunications services. Chairman Powell has steadfastly opposed any such obligation for advanced telecommunications networks.³⁸

The policy of relying on a small number of closed networks has failed and continues to fail. Instead of vigorous competition, the FCC's policies have created what *Business Week* called "a cozy duopoly of broadband providers: the Bells and the cable-TV companies." *Business Week* concludes that this duopoly has not served the public well. "The two sides have been slow to push for higher broadband speeds or fast price declines."³⁹

III. THE DIGITAL DIVIDE DOES INDEED EXIST, DESPITE THE ADMINISTRATION'S POLICY OF IGNORING IT

This section presents quantitative evidence on the persistence of the digital divide. Ironically, one of the consequences of inappropriately denying the problem is that the Administration has devoted little attention to it and generated little data about it. The FCC relies on selective use of data from other sources, but has little of its own. The FCC's own data simply cannot address the fundamental policy questions it is confronted with. Data generated by private-sector firms and nonprofit entities suggest that the denial of the existence of the digital divide is simply wrong. In this paper, we use a data set for early 2004, almost three years after last NTIA study, based on surveys by different organizations, done at about the same time, to provide evidence for the existence and widening of the digital divide.

THE URGENT NEED TO CLOSE THE DIGITAL DIVIDE

Given the immense hype about the power of the high-speed Internet to change society, it can be argued that policies to promote rapid universal high-speed Internet access should demand even more support than they have in the past. Ironically, not long before he became Secretary of State, Colin Powell, Chairman Powell's father, expressed a strikingly different view of the digital divide, which serves well as a starting point for an assessment of where things stand:

We hear today about the "digital divide" – the gap between those who have access to the wonders of digital technology and the Internet and those who do not. When I address this issue I use an even stronger term: digital apartheid. What is at stake is today's digital "have-nots" – especially the young – and whether they may find themselves marginalized for life because they lack the skills and tools to participate in our globalized, knowledge-based economy. This is true in America and in the rest of the world.⁴⁰

The strong statement is well-deserved. How we define the problem dictates how we should measure and study it. The urgency in the need to close the digital divide rapidly reflects several important characteristics of the Internet Age.

First, it is well recognized that digital technologies change society very quickly.⁴¹ The ability of a household to participate and prosper in the new economy will be severely restricted if a household is cut off from technology for more than a decade. This affects current and future generations, as children of the have-nots grow up without Internet access and the benefits that come with it. Moreover, if a group is not well represented as the architecture of the Internet is defined and the patterns of deployment and development of content are established, the needs of the group may never be well represented in cyberspace. There is also a social value (or, in the language of economics, a positive externality) to open and ubiquitous communications networks – benefits that flow from a broad base of use, experimentation, and innovation.

Second, the convergence of commerce and communications in the digital information age gives this technology a special transformative power. The Internet is not just a communications tool, a means of commerce, or an entertainment medium. It is also a technological revolution that promises to enhance productivity in many aspects of life and increase the standard of living for all those who use it. It provides a communications platform, possibly a new form of mass media, and a major source of information. Some critics of the digital divide concept claim we should not worry because Internet access is spreading as rapidly as some consumer appliances, like TVs and VCRs. Yet such statements fail to acknowledge that access to the Internet is much more important than access to a VCR. Lack of access seriously disadvantages the household. VCRs are a convenience, a discretionary luxury; the Internet is a necessity if one is to prosper in the information age.

Third, these characteristics lead directly to another aspect of the analysis that is frequently overlooked in the discussion of the digital divide. While we start by identifying who has access to the Internet, we should devote at least as much attention to what people do with the Internet. If the Internet did not affect such a wide range of daily activities, closing the divide would not be critical. Because the high-speed Internet changes the fundamental way people use the Internet, it represents a generational shift that challenges public policy to speed adoption.

Fourth, the nature of the technology raises a special problem with respect to activities that make the digital divide difficult to overcome. As broadband rolls out and becomes the focal point of commercial activity, the design of services and applications changes to capture the characteristics of broadband. The predominant reason people switch to broadband is the speed of the connection.⁴² Offerings that are explicitly tailored for broadband may not work or certainly do not work very well over narrowband connections. Being locked into the narrowband Internet means falling farther behind.

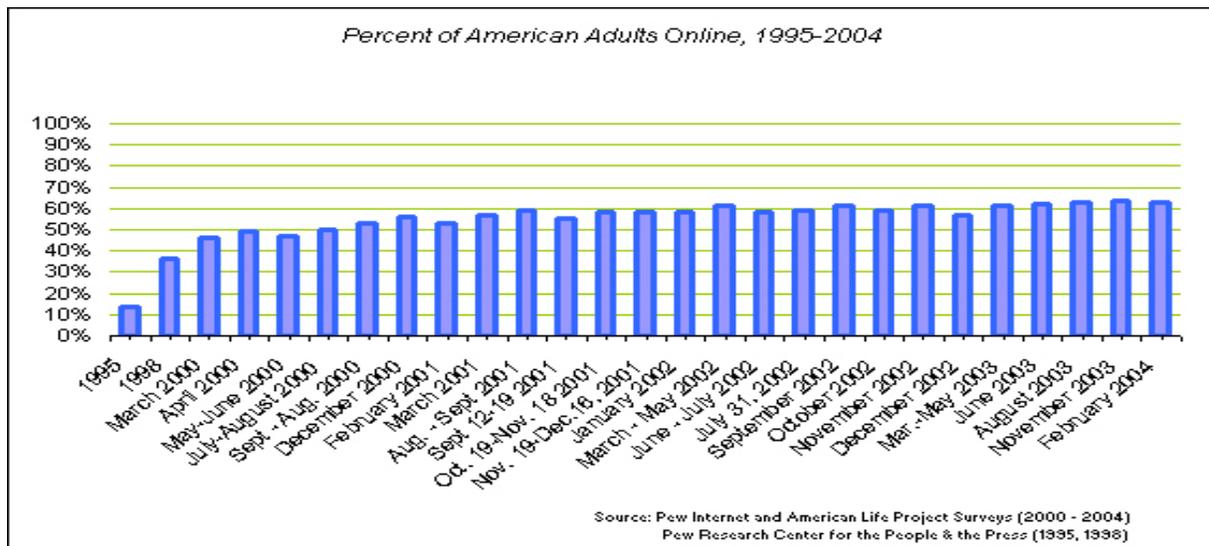
Fifth, because the Internet has an impact on a wide range of daily activities, we must focus attention on the ability of people to use the Internet at home. Most personal business is conducted from the home. Searching for information, looking for a job, and learning about local events – all frequent uses of the Internet – typically take place in the privacy of the residence. Stopping by the library to use the Internet or using it at work may be transitional

steps useful for creating skills in the population, or carrying out specific tasks associated with the activities of those locations, but in our society they are not a replacement for Internet availability in the home. For this reason, we must measure the digital divide, as we have measured universal telephone service, by the availability of the means of communications (telephone or the Internet) in the home.⁴³

THE DIGITAL DIVIDE IN INTERNET ACCESS

One of the cornerstones of the Administration’s denial of the digital divide is that access to the Internet has been spreading to lower-income groups. Exhibits 1 and 2 suggests that this argument should be given little credence. Progress has definitely slowed in the past four years. The growth of the percentage of Americans who have access anywhere appears to have slowed and is inching toward the two-thirds mark. And this does not even look at Internet at home, which we have argued in this paper ought to be the standard for whether a digital divide exists. As Exhibit 2 demonstrates, Internet access at home appears to have reached a plateau at about 60 percent.

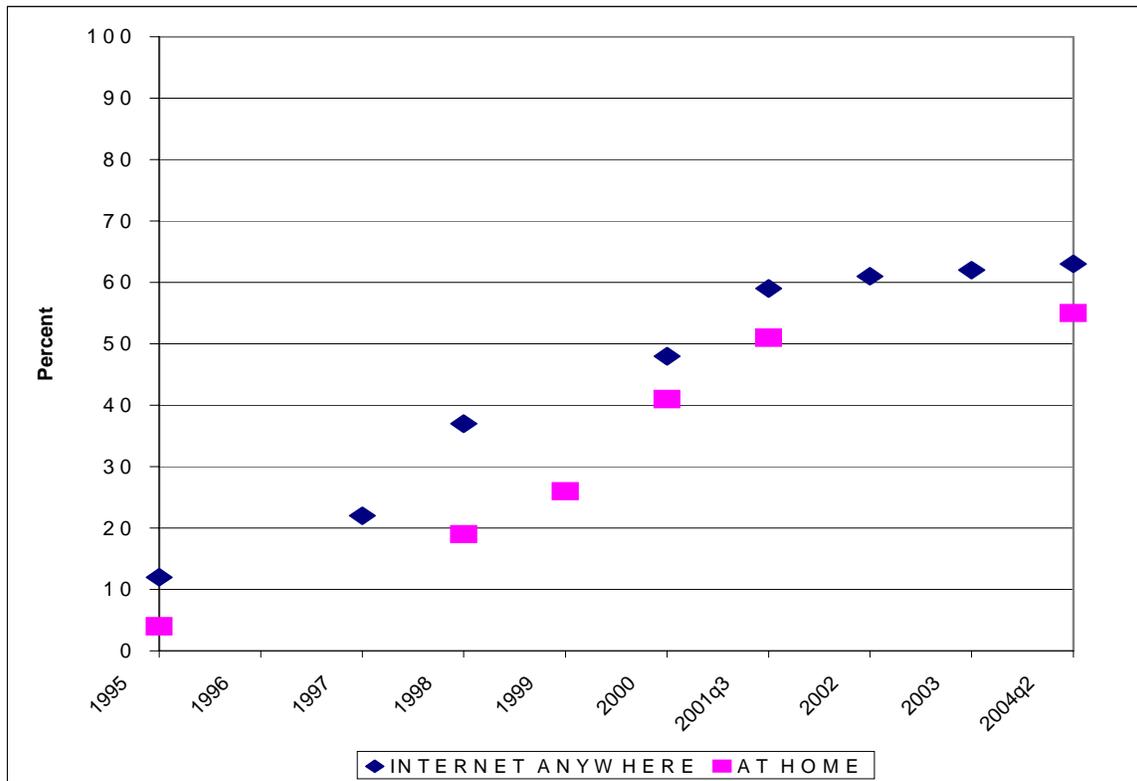
**Exhibit 1:
Penetration Of The Internet Has Stagnated**



Source: Pew Internet and American Life Project Surveys (2000-2004), Pew Research Center for People and the Press (1995, 1998)

Penetration across income groups reinforces this less-than-rosy view. Two-thirds of those with incomes below \$10,000 (about one-in-ten households) do not have Internet at home (see Exhibit 3). Less than half of all households with incomes below \$30,000 have Internet access at home, while over eighty percent of those with incomes above \$50,000 do. This

**Exhibit 2:
Internet at Home/Adults Online**

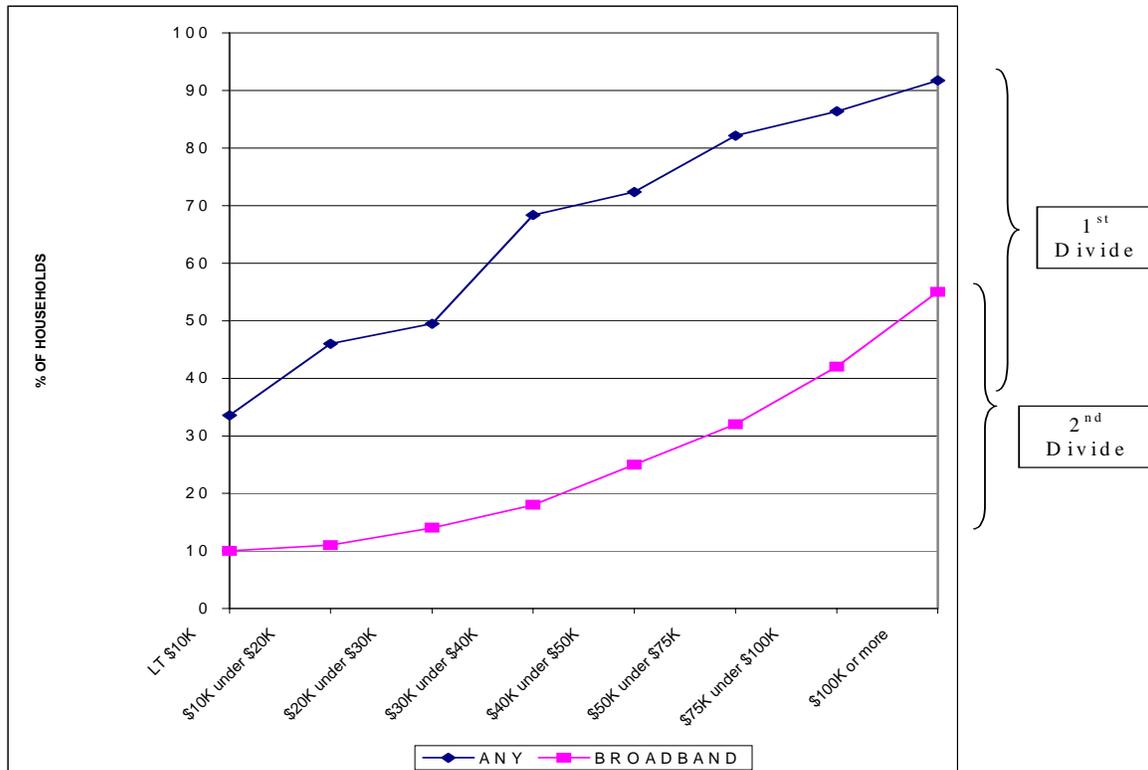


Sources: Nielsen/Netratings, “Afluent Americans Power Internet Growth,” April 19, 2004; National Telecommunications and Information Administration, *A Nation Online How Americans are Expanding Their Use of the Internet* Department of Commerce, February 2002); Pew Internet and American Life, *Percent of American Adults Online: 1995-2004*.

sharp contrast between lower and upper income households represents a very substantial divide in the population. About one-third of the households in the nation have incomes below \$30,000. About the same percentage has incomes above \$50,000.

And the low- and moderate-income households that do have access to the Internet often do not have access to broadband; they largely rely on the much slower narrowband connection. Although broadband now accounts for about half of all Internet access from the home, its distribution follows an uneven pattern predicted by Chairman Powell. Upper-income households have moved on to high-speed Internet service: Half of all households with incomes above \$75,000 have high speed Internet at home. About half of all households with incomes below \$30,000 do not have any Internet at home. The penetration of high-speed Internet in this groups is around 10 percent.

**Exhibit 3:
Penetration of Internet at Home by Household Income Reveals a Growing Divide**



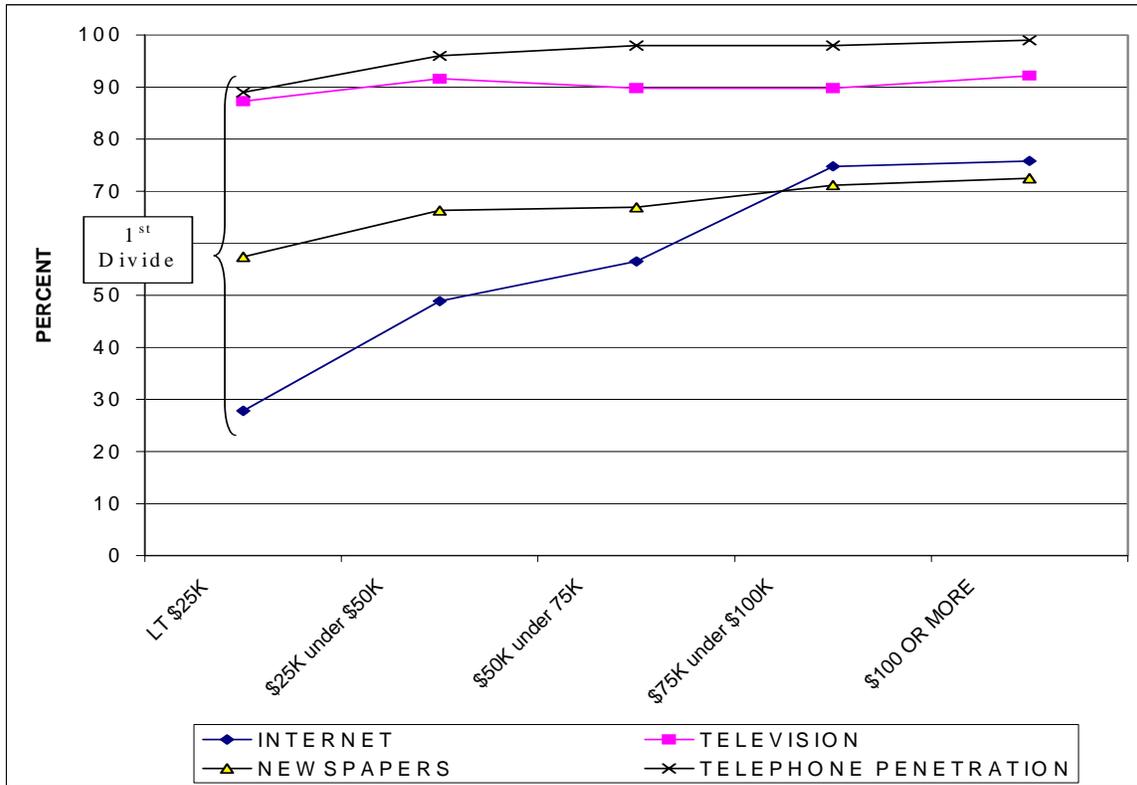
Sources: Nielsen/Netratings, “A affluent Americans Power Internet Growth,” April 19, 2004; Pew Internet and American Life Project, Database, February 2004.

BEING DISCONNECTED MEANS BEING DISADVANTAGED

The primary reason for concern over lack of Internet access is the impact that being disconnected has by cutting households off from activities in cyberspace. The best way to demonstrate this is by comparing the rates of activity in physical space to those in cyberspace.

Exhibit 4 shows the digital divide in the context of the major means of communications in an information society. If the Internet is to be a major means of mass communications – the new mass media of the information age – then the digital divide can be clearly identified with respect to use of television and newspapers. Television reaches approximately 90 percent of all adults in all income groups on any given day. Newspapers reach about two-thirds of households, and although there is a somewhat larger difference between groups for use of newspapers relative to television watchers, this gap is much smaller than that for the Internet. Upper-income adults are about as likely to have read a newspaper on any given day as they are to go on the Internet. Lower-income households, on the other

**Exhibit 4:
Adults Reached Yesterday by Major Media**



Source: Television Bureau of Advertising, *Media Trends Track*, July 2003; Federal Communications Commission, *Telephone Penetration in the United States*, August 2004.

hand, are twice as likely to read a newspaper as go on the Internet because they do not have affordable access.

Since the Internet is becoming the major means of personal communications and commerce in the information age, it is natural to compare it to telephone service, which was the major means of personal communications in the industrial age. Exhibit 4 does so, showing that approximately 98 percent of households with incomes above \$50,000 have telephone service at home, and just under 91 percent of households with incomes below \$25,000 have a telephone. This stands in stark comparison to Internet access. Among the lowest income households (with incomes below \$10,000), telephone penetration is above 80 percent, twice that of the Internet and eight times that of the broadband Internet.

It should be noted that there is at least an implicit basis of comparison for usage in the exhibits already presented. Just about everyone has a phone at home and makes a call every day (on average about five per day). Similarly, just about everyone has a TV and watches

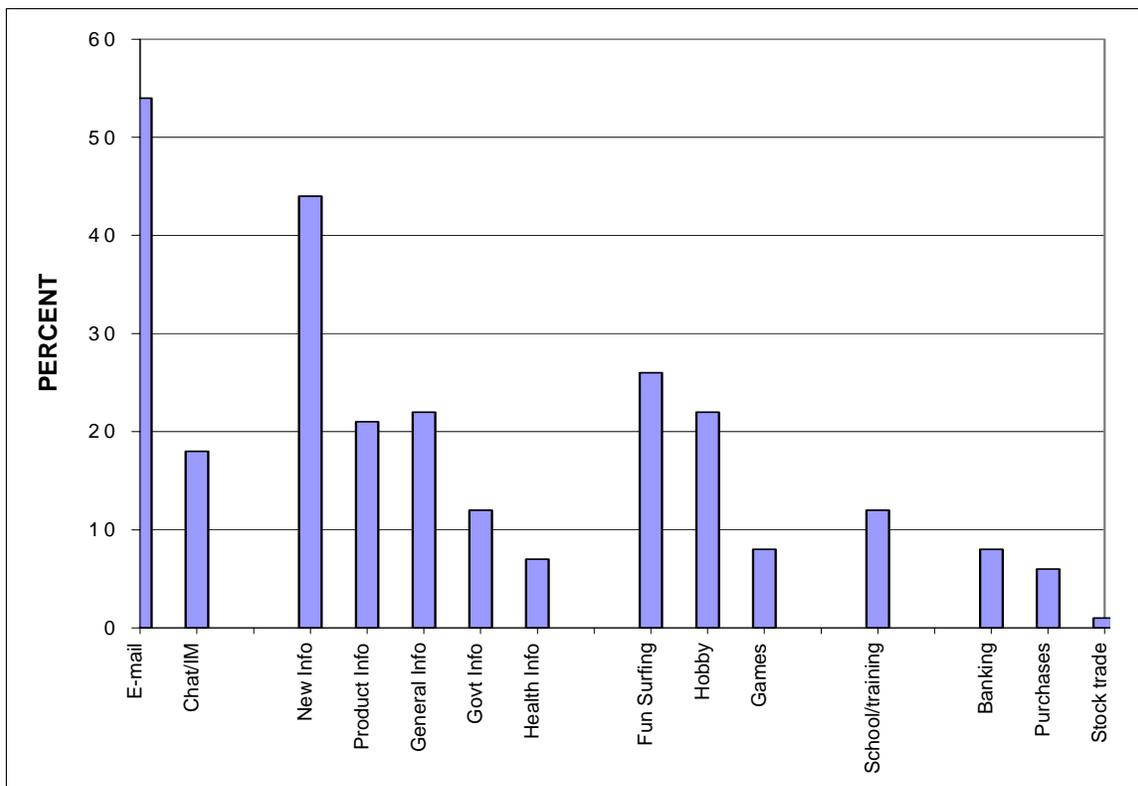
every day (the average households has it on 7.5 hours per day). Similarly, among lower-income households almost two-thirds report reading the newspaper every day, while among upper-income households about four-fifths do. In short, households engage in many communications and media activities in physical space. Our earlier analysis shows that physical space activities for people with and without the Internet are similar. It is the cyberspace activities where the differences emerge.⁴⁴

Researchers have conducted numerous studies on how people utilize the Internet. Unfortunately, they do not generally compare this with physical world usage patterns. In addition, they generally do not examine the frequency of usage. Nevertheless, it is clear that online activity spans a broad spectrum of activity.

The Pew Center has examined routine uses of the Internet (See Exhibit 5). It finds the following uses, in rank order: communications (e-mail, chat), information-gathering, entertainment, education, and commerce.

The Current Population Survey (CPS), which was used by the National Telecommunications and Information Administration, asked whether people have used the

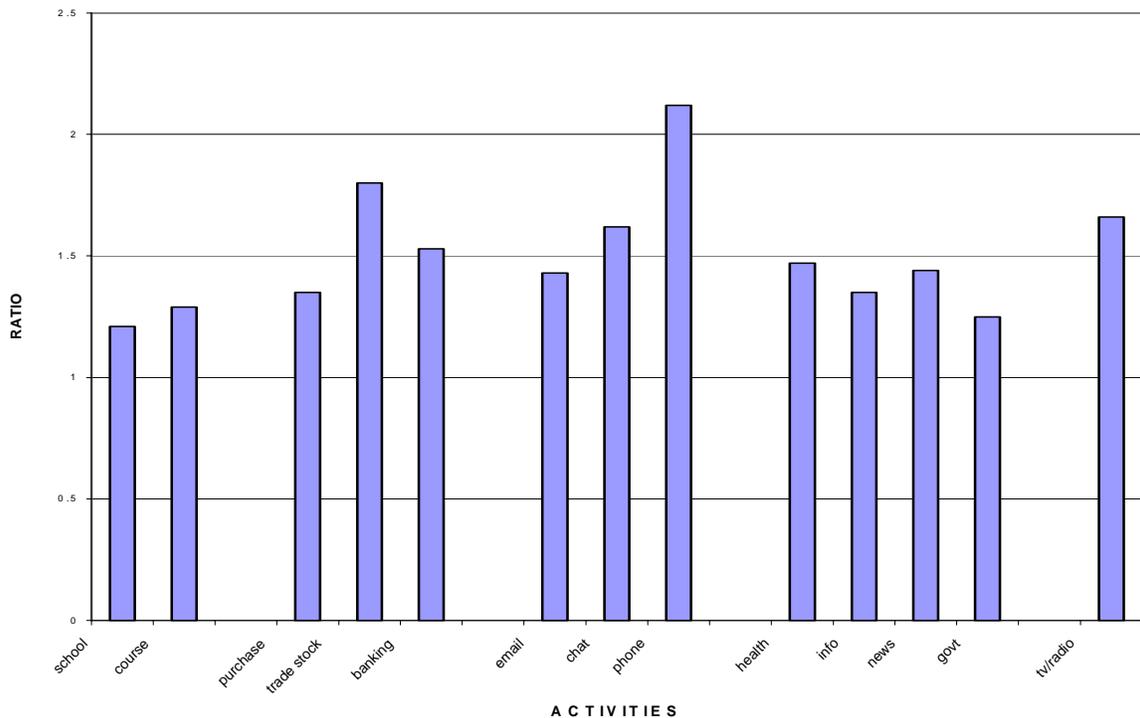
**Exhibit 5:
Routine Uses of the Internet**



Source: Mary Madde, *America's Online Pursuits*, Pew Internet and Life Project, December 2003.

Internet during the year for a specific purpose. This is not a very refined measure of use, but the differences between those who have the Internet at home and those who use it elsewhere are nevertheless substantial (see Exhibit 6). Those with home Internet access were 20 to 30 percent more likely to use the Internet for schoolwork and taking courses, for example. The differences in other activities are much larger, generally running in the range of 40 to 60 percent. On average, those with the Internet at home are 1.5 times more likely to say they use it for these 13 purposes than those who use it outside the home.

Exhibit 6:
Ratio of Cyberspace Activities For those With Internets At Home
To Those Who Use Elsewhere

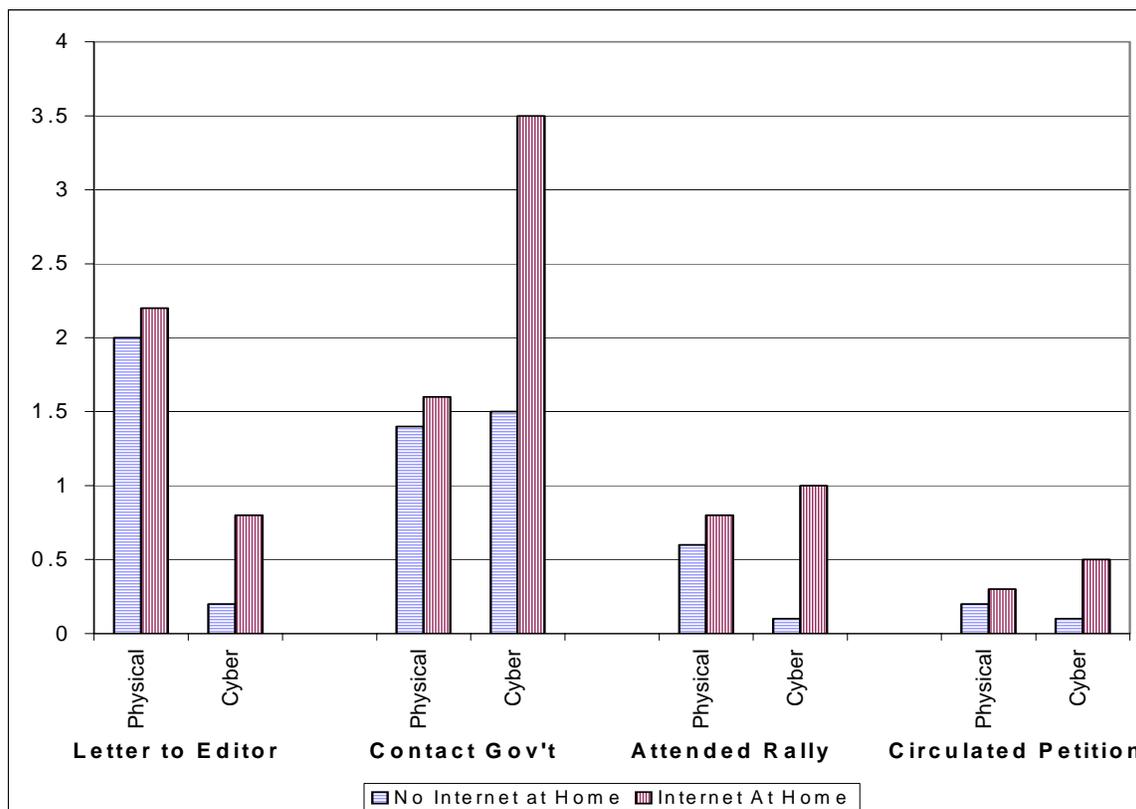


Source: National Telecommunications and Information Administrations, *A Nation Online* (Department of Commerce, September 2002).

What these surveys do not give us is a way to measure the relative deprivation by directly comparing cyberspace activities to physical space activities. Our earlier analysis included this dimension, and presents several activities that are direct parallels to the items included in the CPS survey. Those with the Internet at home are read about 25 percent more newspapers and magazines, but they use the Internet to gather news about four times as often.⁴⁵

As Exhibit 7 shows, those without the Internet at home are just about as likely to engage in civic politic activities as those with the Internet at home. However, there is a much larger difference for online activities. Although those without the Internet at home are able to

**Exhibit 7:
Political Participation Activities**



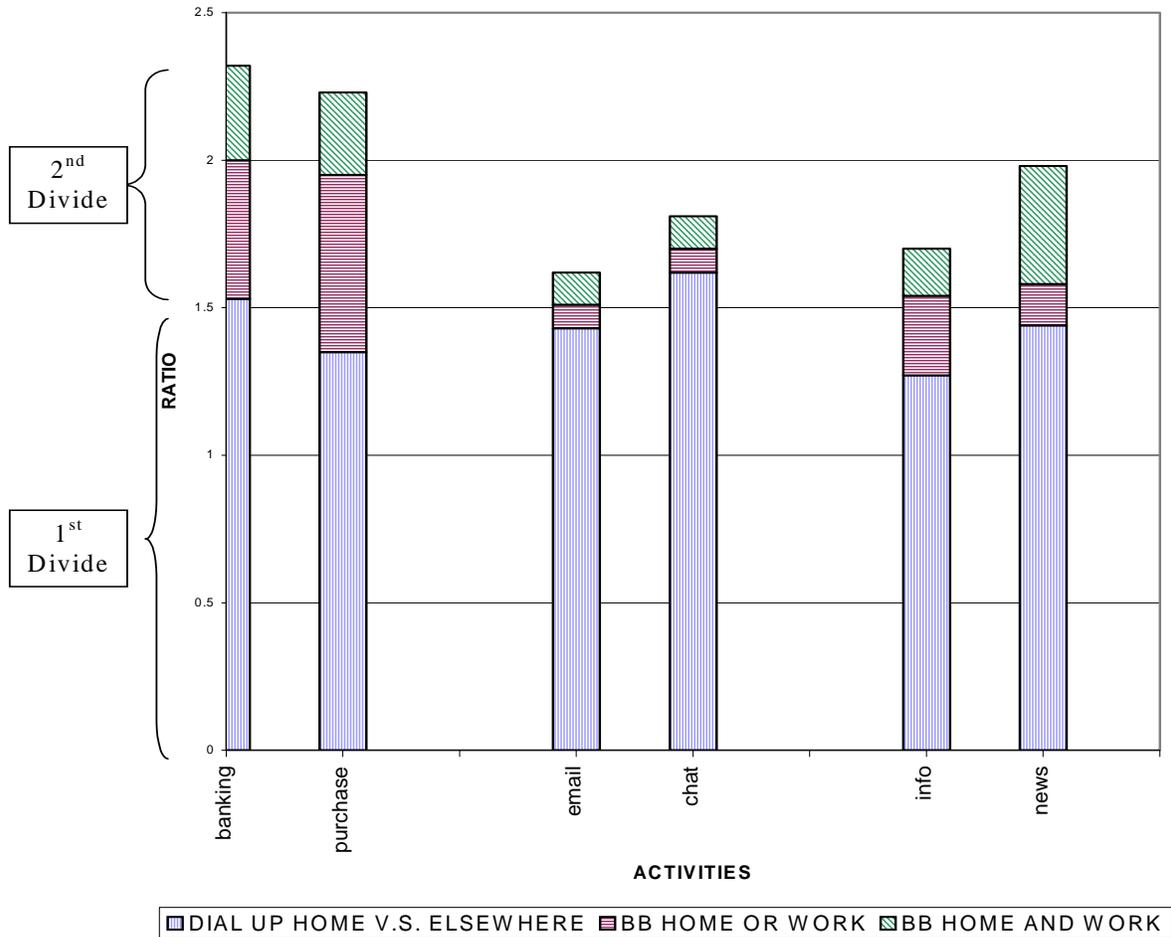
Source: Mark Cooper, “Inequality in Digital Society: Why the Digital Divide Deserves All the Attention it Gets,” *Cardozo Arts & Entertainment Law Journal*, 2002.

occasionally perform these activities, those with it at home are better able to routinely engage in these activities. Lack of access matters – in fact, it matters quite a bit.

Exhibit 8 shows the second digital divide by contrasting the Internet usage of those who use broadband with those who get by on narrowband. Those without access to the Internet are shown as the zero point. The Exhibit uses a couple of examples in each of the major categories of uses that are consistent between the two databases. Broadband users are about twice as likely to engage in these activities.⁴⁶ They also spend much more time online.⁴⁷

Broadband users have at least two advantages over narrowband users. First, they spend less time engaging in activities that are not bandwidth-intensive and second, they have the opportunity to use the more bandwidth-intensive applications. Econometric evidence shows that even when all of the other typical demographic factors are taken into account, having a high-speed connection has a statistically significant impact on usage.⁴⁸ In other words, after holding constant factors such as race, ethnicity, age, income, gender, etc., those with broadband access use the Internet more often than those with narrowband.

**Exhibit 8:
Comparing Cyberspace Activities Of Those With Broadband Internet Access to Those With Dial-up Access**



Source: National Telecommunications and Information Administrations, *A Nation Online*; Deborah Fallows, *The Internet and Daily Life* (Pew Internet & American Life Project, August 11, 2004), p.18.

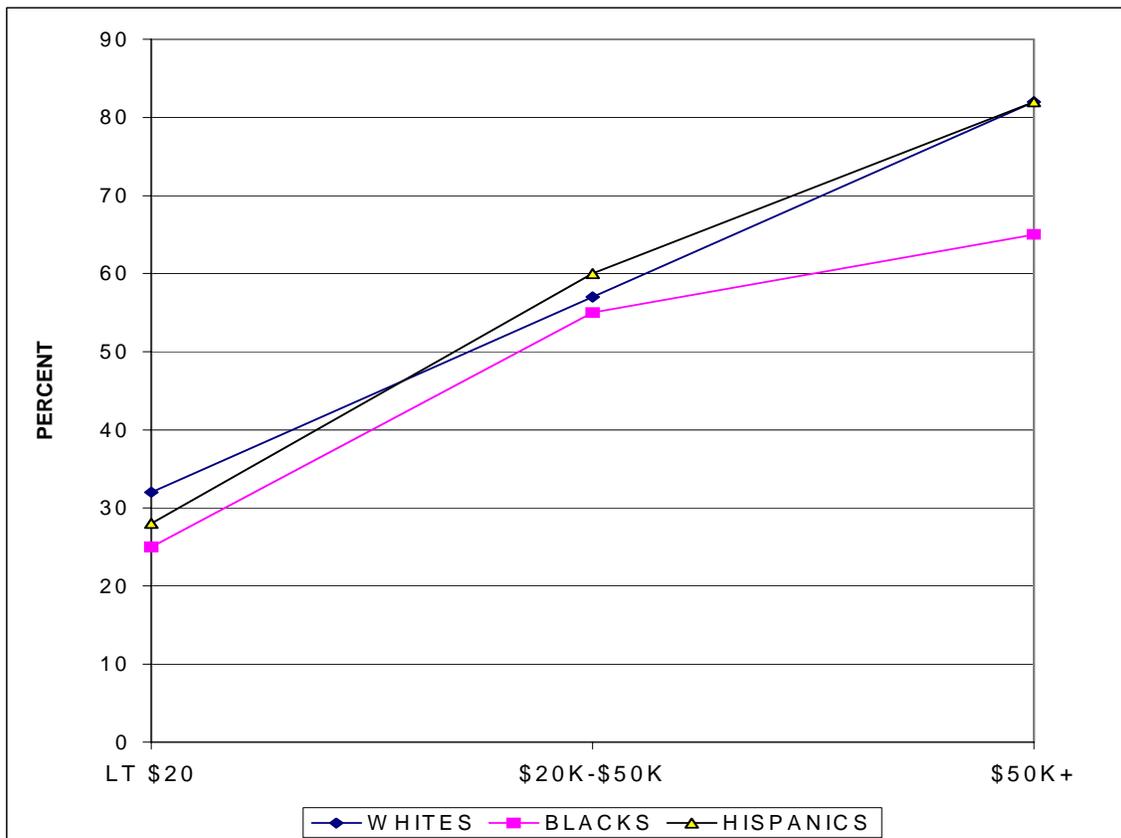
To summarize: We can say that between one-quarter and one-third of the population does not use the Internet at all. About 55 to 60 percent of the population has access at home and uses it for many purposes. Another 10 percent does not have it at home but uses it much less often for these purposes in public places. The households that can afford broadband are overwhelmingly upper-income and make much more intensive use of the Internet at home. In this sense, the needs of the Mercedes Benz class are being well-served by the current system, at the expense of the low- and moderate-income Americans who, if they have any access to the Internet at home at all, have access through the much-slower, but more affordable, narrowband connection.

ECONOMIC FACTORS ARE THE CENTRAL DETERMINANT OF ACCESS

The problem of affordability, which takes a back seat in the view of Chairman Powell and the Bush Administration, is obvious not only to those concerned about universal service, but also to those concerned about the efficiency of the commercial sector. As noted above, Nielsen sees the cost of broadband as a barrier to increasing penetration. It is important to recognize that the primary driver of whether a household owns a computer and has Internet access is income, as demonstrated by Exhibit 9. Over half of all households without the Internet at home have incomes below \$30,000 and four out of five have incomes below \$5,000.

When a number of variables are considered together, income, education and age are the three best predictors of access to the Internet at home.⁴⁹ Yet race also comes into play because, though not statistically significant on its own, race and income are correlated. Because of this,

Exhibit 9:
Internet at Home by Demographic Characteristics



Source: Amanda Lenhart, et al. "The Ever-Shifting Internet Population," *Pew Internet & American Life*, April 2003.

blacks and Hispanics – which have, on average, lower income than whites – are particularly disadvantaged with respect to the digital divide.

It should also not be assumed that those who do not have Internet at home do not want it or appreciate its value. In fact, many who do not have access understand the importance of the Internet but cannot afford the cost of even a dial-up connection. That is, economic considerations serve as the primary obstacle to obtaining Internet access.⁵⁰ For example, almost two-thirds of female heads of household with children say that they either cannot afford Internet or do not have a computer, compared with less than one-quarter who say they simply do not want Internet at home. In households without children, the percentages are reversed. When controlling for income, there is little difference between female-headed households with children and others types of households.

IV. THE PROSPECTS FOR CROSS-TECHNOLOGY COMPETITION CLOSING THE DIVIDE ARE NOT GOOD

CABLE V. SATELLITE IN VIDEO

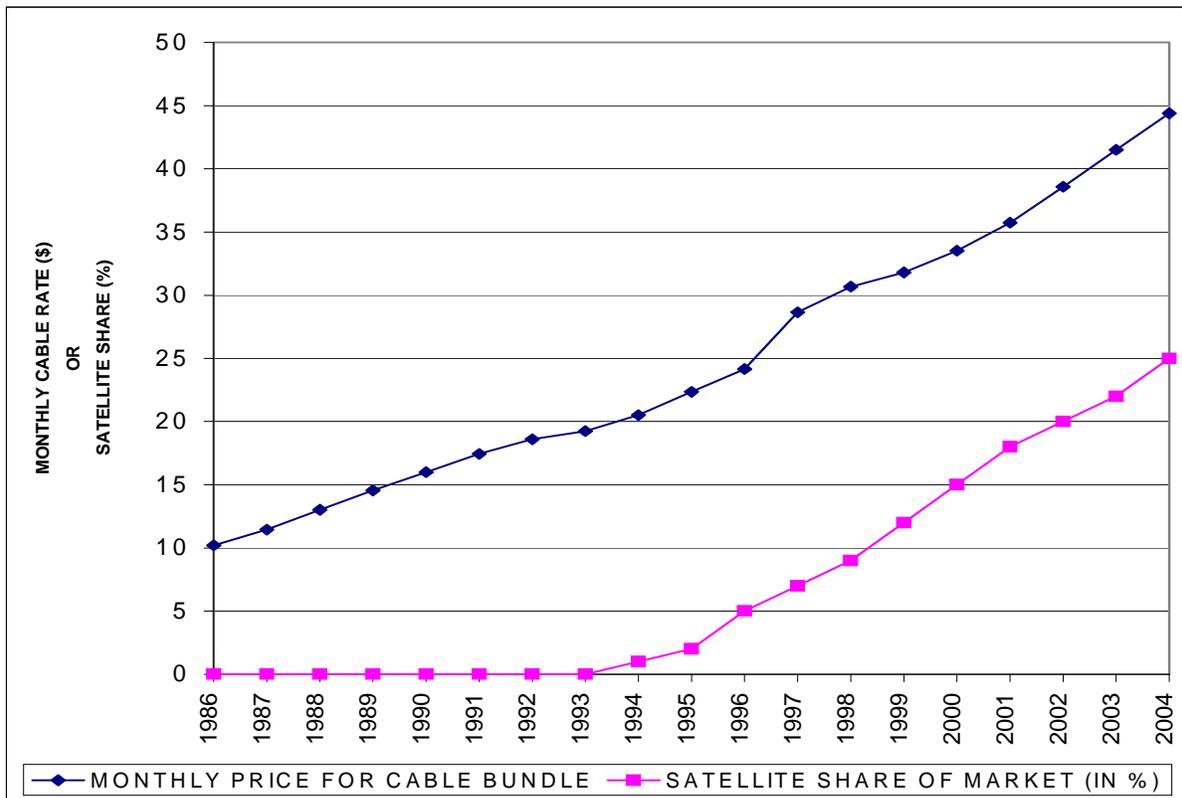
The Bush Administration’s response to the challenge of making high-speed Internet access affordable is to hope that competition between a small number of facility owners will lower prices for consumers. Recent experience in the high-speed market and other markets dominated by the large facility owners calls this hope into question.

The “cross-technology” competition on which the Administration relies has cable as the dominant form of broadband access. Therefore, it is appropriate to ask how cable reacts to such competition. In fact, we have a very good yardstick to measure such competition, one that the FCC frequently uses. In the past decade, cable has been confronted with cross-technology competition for video services from satellite. The results are not promising (see Exhibit 10).

A decade ago, when satellite began to enter the market, cable operators simply ignored it in their pricing decisions. Exhibit 10 shows the market penetration of direct broadcast satellite TV, the primary cross-technology competitor for cable, and the average monthly price of the cable bundle. Satellite did not provide a level of competition that led to lower cable prices; on the contrary, the cable industry’s monthly pricing schemes continued to increase. Interestingly, cable made substantial increases in penetration when prices were controlled in the early 1990s.⁵¹ Given the opportunity to push prices up after the passage of the Telecommunications Act of 1996, which deregulated much of the cable market, or to compete on price with satellite, cable chose the former, which allowed the industry to maximize profits at the expense of consumers.

Econometric analyses prepared by the Federal Communications Commission and the Government Accountability Office (GAO) both show that competition from satellite has had little impact on cable pricing.⁵² The FCC actually has found price increases. The GAO has

**Exhibit 10:
Competition From Satellite Has Not Slowed Increases in Monthly Cable Rates**



Source: Federal Communications Commission, *In the Matter of Annual Assessment of the Status of Competition in Markets for the Delivery of Video Programming*, Tenth Annual Report, January 5, 2004, Table 1; Ninth Annual Report, December 2002, Table B-1; Sixth Annual Report, Table C-1; for 1995 through 2002; Paul Kagan Associates, *History of Cable TV Subscribers and Revenues*, 1997, for pre-1995.

found that it has a small but statistically insignificant downward impact on prices. Both the FCC and GAO find that the only competition that has a significant effect on cable pricing is intramodal competition – direct head-to-head competition between cable providers⁵³ – which the FCC has undermined in the broadband market.

CABLE VS. DSL IN BROADBAND

The reaction of cable operators to cross-technology or intermodal competition in broadband has been exactly the same as its reaction to intermodal competition in video. They have not responded by lowering prices, but rather by adding capacity and bundling services. This does not lower the price and make the service more affordable. In addition, cable operators are aggressively bundling high-speed Internet with video services to gain competitive leverage. Their market power over high-speed Internet access gives them an

important anticompetitive tool. Cable has foreclosed competition for Internet access service over its platform.⁵⁴ Controlling the platform diminishes the potential competition from video streaming over the Internet⁵⁵ and becomes a lever against competition from other distribution technologies.

Looking carefully at specific product and geographic markets reveals little competitive overlap of different facilities.⁵⁶ Competition between different types of telecommunications services is weak at best. Technological differences give different facilities an edge in different customer and geographic markets.⁵⁷ Cable dominates the advanced residential high-speed Internet market, with a 75 percent market share for the residential market of speeds of greater than 200 kbps in both directions.⁵⁸ DSL, as deployed, is ill-suited to multimedia video applications,⁵⁹ but DSL⁶⁰ dominates the nonresidential market with a 95 percent market share, because businesses are disinclined to use cable. For the next generation telephone network technologies,⁶¹ “most experts agree that the DSL business case isn’t for everyone and won’t realize its full revenue potential for decades.”⁶² However, cable operators devote less than two percent of the capacity of their systems to cable modem service. They could easily expand that if they so desired. This gives them an immense advantage over telephone companies.⁶³

Satellite lacks the ability to offer a bundle of video and high-speed Internet to compete effectively with cable. Cable recognizes this and is aggressively bundling high-speed Internet with basic cable service – offering a percent discount on a bundle of basic cable and Internet compared to stand alone Internet service.⁶⁴ This does not lower the basic access price, which remains unaffordable for many who do not use all of the services in the bundle.

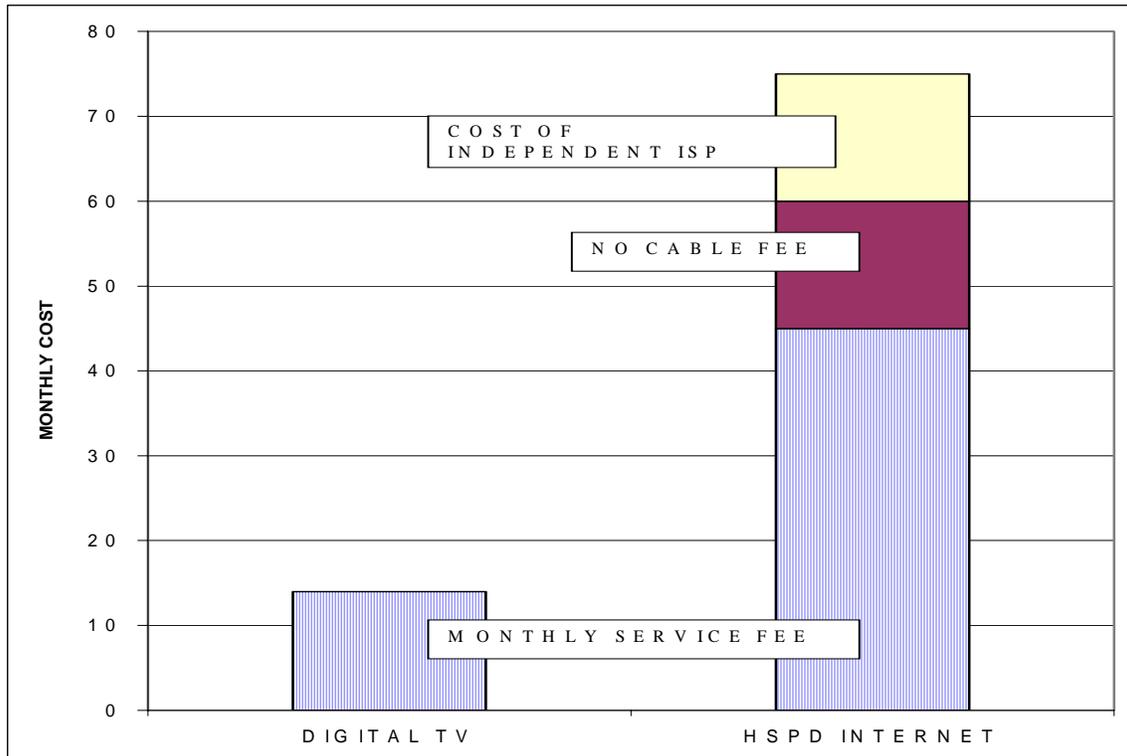
PRICING PATTERNS

With intramodal competition foreclosed, cable faces only weak intermodal competition. Cable has scoffed at the modest discounting efforts of the telecommunications-based DSL service providers.⁶⁵ The reason cable can ignore intermodal competition is simple: those discounted services are substantially more expensive on a megabit basis. Consumers pay for this lack of competition through higher prices. Unfortunately, those who are furthest behind in the digital revolution – low-income consumers – are hurt the most because of these high prices that are well above the competitive level.

Broadband companies had an opportunity to lower prices, with costs falling⁶⁶ and demand lagging in the midst of a recession. Instead, both cable operators and telephone companies raised prices.⁶⁷ Cable companies imposed a severe interruption of service on their customers, which, in a highly competitive market, would have been suicidal.⁶⁸ In 2003, Comcast, the dominant high-speed modem service provider, raised the price of stand-alone cable modem service by \$10 to \$15 per month. In 2003, some of the Bell companies offered discounts, but the cable companies refused to respond to telephone company pricing moves. DSL service is not competitive on price on a megabit basis. Since DSL cannot compete on a quality-adjusted basis, the cable operators ignore it. Their advertising harps on their speed superiority.

With the dominant technology insulated from cross-technology competition and operating a closed network, cable companies have strategically priced their digital services (see Exhibit 11). This becomes quite apparent to any consumer who tries to buy the service in the marketplace. If a consumer adds a digital tier, the charge would be an additional \$15 on average. If a consumer adds cable modem service, the consumer must pay \$45 (\$55 to \$60 if basic cable is not taken). Moreover, if the consumer wants to keep an unaffiliated ISP, the charge is an additional \$15.

Exhibit 11:
Strategic Pricing Of Cable Modem Service



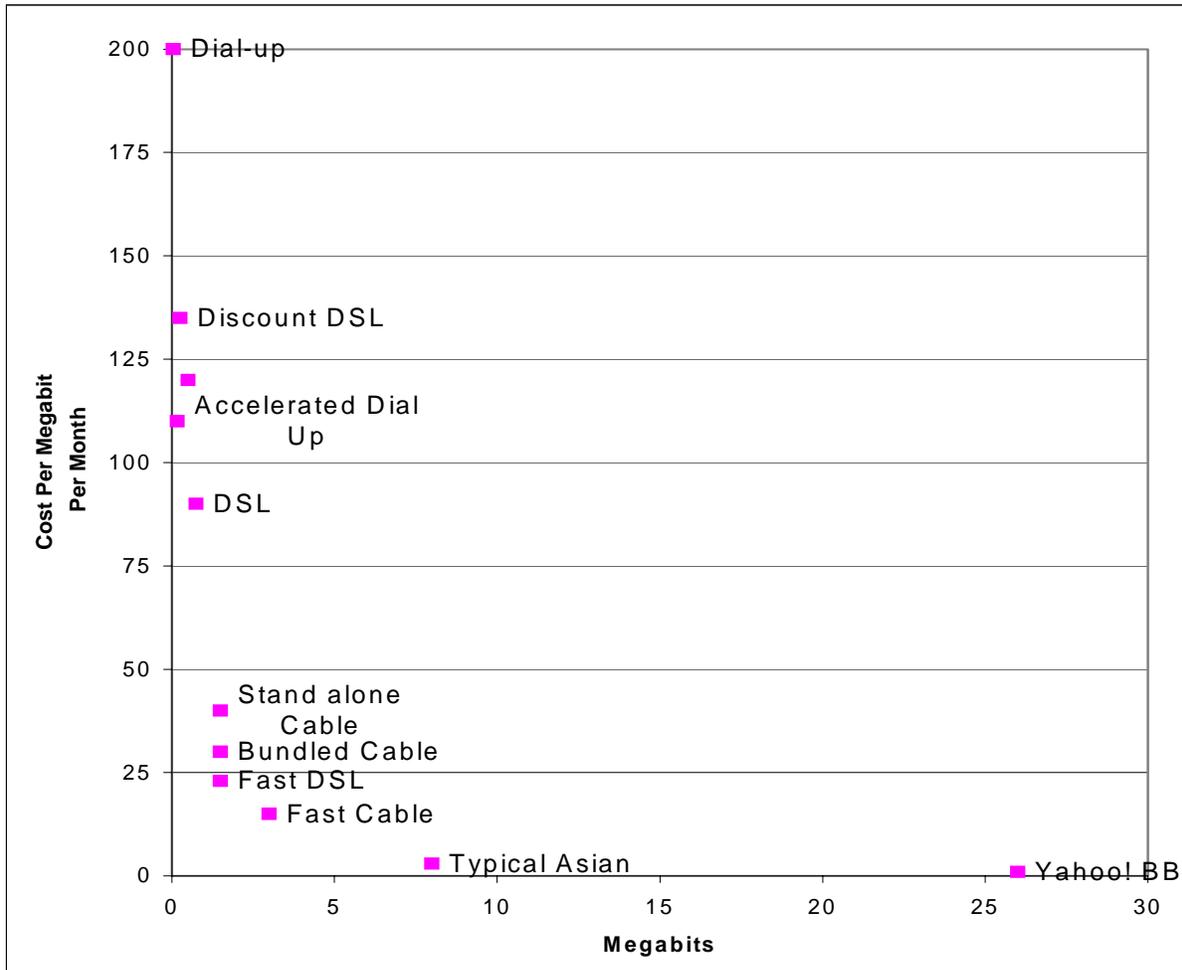
Source: Website visits.

The resulting price is too high and dampens adoption. *Business Week* gave a stunning example comparing U.S. prices to those in Japan (see Exhibit 12).

Now, most markets are cozy duopolies, at best, where consumers can get broadband only from a phone or cable company. The result is that U.S. consumers can pay \$35 or more for a 1.5-megabit-per-second connection, compared with Yahoo! BB's price of \$25 for 26 megabits.⁶⁹

In other words, on a megabit basis, DSL prices are over twenty times more expensive on a megabit basis and cable is "only" 15 times more expensive.

**Exhibit 12:
The Price of High-Speed Internet Service**



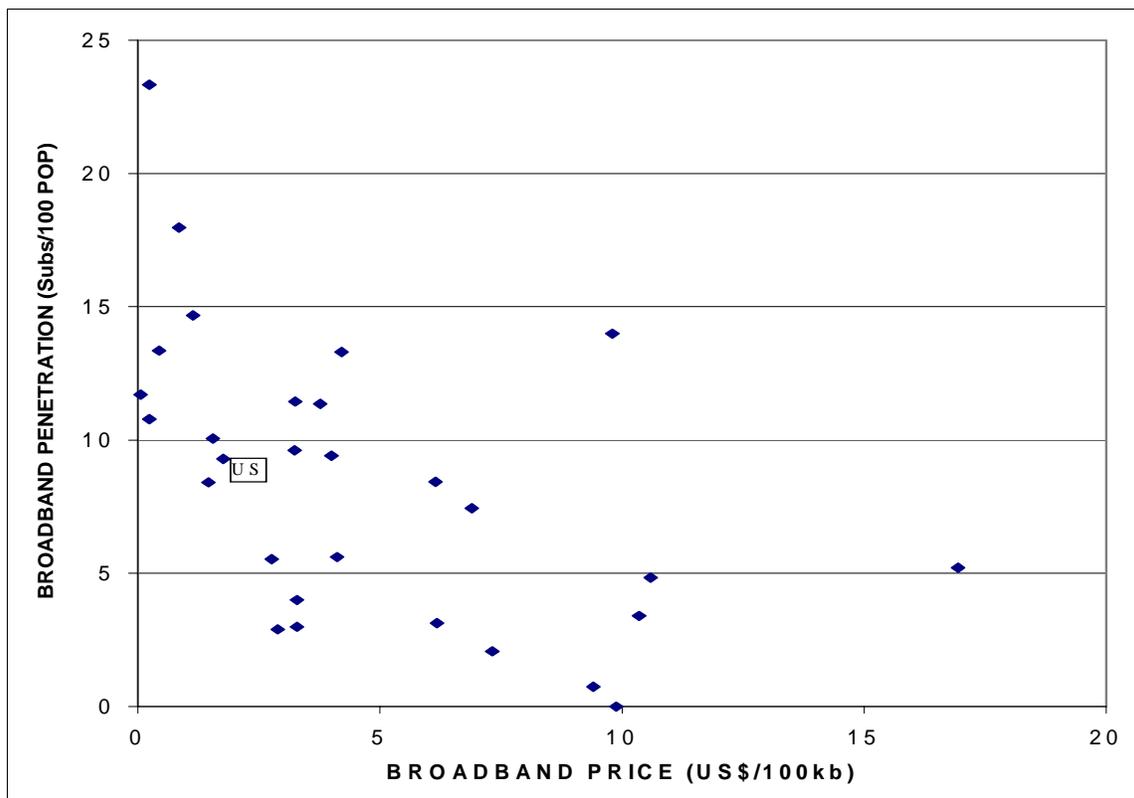
Source: Calculated by author from web site visits and data from Federal Communications Commission, *Availability of Advanced Telecommunications Capability in the United States*, September 9, 2004.

Exhibit 13 plots the lowest price for broadband against the penetration found in the most recent survey conducted by the International Telecommunications Union. It includes all of the major, high income nations, as well as the major Asian nations used in most broadband comparisons. Seven of the eight nations with lower prices have higher penetration than the U.S.

FALLING BEHIND IN BROADBAND

Business Week drew a direct connection between the failure to promote intramodal competition and the slowness of high-speed Internet to spread.

Exhibit 13: Broadband Price and Penetration in Major High Income Nations



Source: *The Portable Internet* (International Telecommunications Union, September 2004), Statistical Annex, Korea, Hong Kong, Canada, Iceland, Taiwan, Denmark, Japan, Switzerland, Netherlands, Sweden, Singapore, Israel, Finland, United States, Norway, Belgium, Austria, France, Germany, Spain, Portugal, Italy, Luxemborg, United Kingdom, Australia, Slovenia, New Zealand, Ireland, Greece.

What helped the rollout of broadband in Korea and Japan were not massive government subsidies, as some believe, but policies that allowed vigorous competition. In particular, those countries forced the incumbent phone companies to let startups use their networks at reasonable, government-set prices. Those startups, especially Hanaro in Korea and Yahoo! BB in Japan, waged fierce battles against giant rivals, driving prices down and speeds up.... On this score, the U.S. has blown it. This summer the Bells won an eight-year battle to stop competitors from using their networks at deep discounts. That prompted AT&T and MCI Inc., which had been using the Bell's lines, to retreat from consumer markets.

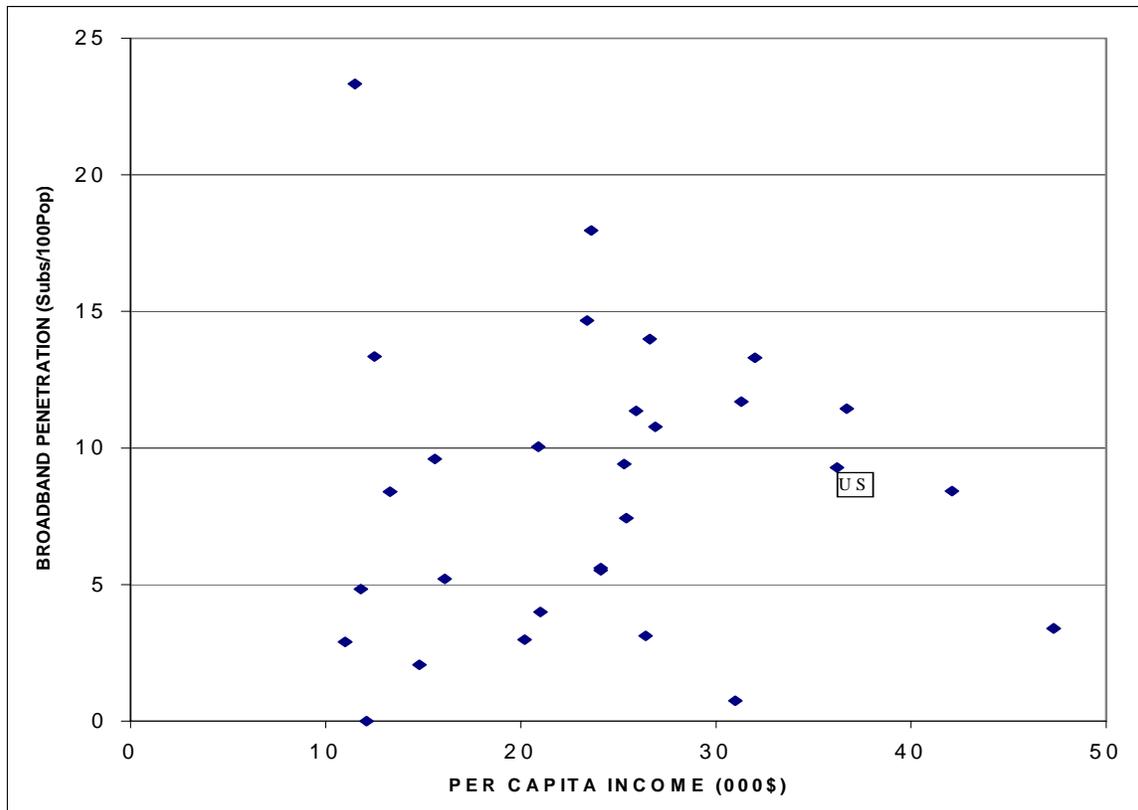
The huge bundles that the cable operators offer – basic cable, digital cable, high speed Internet, and soon cable Internet protocol telephony – and that Chairman Powell touts as the

solution to the universal service problem are priced in the range of \$120-\$130 per month. For the Mercedes Benz class, they are a bargain; for the vast majority of consumers, however, they are a luxury and for many, they are wholly unaffordable. For the forty percent of American households who do not yet have access to the Internet at home, which are overwhelmingly low- and lower-middle-income households, they are simply unaffordable and likely to remain so for the foreseeable future.

The dramatic difference between prices in the U.S. and several other advanced industrial nations has caught the eye of numerous observers. Penetration of high-speed Internet has lagged in the U.S. U.S. prices are quite high and the speed offered to the public quite low.

Prices in America are higher than in other nations with lower incomes and lower population densities. Indeed, when one plots per-capita income against broadband penetration, the weakness of the U.S. performance becomes easily apparent. Exhibit 14 shows

Exhibit 14: Broadband Price and Penetration in Major High Income Nations



Source: *The Portable Internet* (International Telecommunications Union, September 2004), Statistical Annex, Korea, Hong Kong, Canada, Iceland, Taiwan, Denmark, Japan, Switzerland, Netherlands, Sweden, Singapore, Israel, Finland, United States, Norway, Belgium, Austria, France, Germany, Spain, Portugal, Italy, Luxemborg, United Kingdom, Australia, Slovenia, New Zealand, Ireland, Greece.

relative position of the U.S. The poor performance in terms of the income/adoption relationship is clear. The correlation between density and penetration appears to be strong as well. However, we also see that the U.S. lags other nations that have similar densities.

The most ironic twist in the faltering U.S. performance can be found in the Japanese progress. Well behind the U.S. in 2000, Japan surpasses the U.S. in 2003 by pursuing exactly the policy of nondiscriminatory access to the advanced telecommunications networks that the FCC has abandoned. Indeed, much to the consternation of conservative commenters, the U.S. Trade Representative pressed the Japanese to open their telecommunications networks to competition.⁷⁰ When the Japanese took the model seriously, it ignited vigorous intramodal competition that has driven prices down and penetration up.

V. CONCLUSION: THE NEED TO BRIDGE THE DIGITAL DIVIDE

Lacking access to a vital service when a majority in society has such an important service, low and middle-income households find themselves at a severe disadvantage and in a vicious cycle. Lack of economic resources causes the initial lack of access in the first phase, but lack of access becomes a cause of lack of economic resources. The problem is compounded in a dynamic technology environment. We now encounter an even more vexing problem created by broadband. By promoting broadband without a commitment to affordability, the digital divide becomes even more severe, not only because broadband is expensive as it is being rolled out in this country (much more expensive relative to narrowband but also relative to broadband in other countries), but also because as it becomes dominant, it undermines the value of narrowband.

Under the logic of the 1996 Act, which the FCC and the Bush Administration have disregarded through the misclassification of advanced telecommunications services, as broadband spreads the Internet looks more and more like a service that merits the status of universal service support. The above analysis shows that the Internet certainly provides the essential functions identified by Congress and its ubiquitous availability promotes the public interest. The case for aggressive policies to promote universal service is strengthened. Neglecting universal service and affordability threatens to turn the digital divide into a permanent, digital chasm.

The opposition of Chairman Powell and the Administration to a universal service policy that promotes affordable access to the Internet and the poor track record of the few intermodal competitors on which they rely to drive prices down does not bode well for closing the growing divide any time soon. Disregarding the evidence of this policy failure, the FCC and the Bush Administration recently appealed the *Brand X* case, which would have required the cable operators to allow exactly the type of intramodal competition for Internet access that has been so successful in the past in the U.S. and is working abroad. This is a pointed reminder of the dangerous commitment to a hands-off approach in markets that are not competitive, dangerous because it undermines the commitment to universal adoption of a service that is vital to the daily life of all citizens and consumers in the digital information age.

ENDNOTES

¹ Press Conference, February 8, 2001.

² Press Conference, February 8, 2001; see also Schwab, Klaus, "The Digital Divide: Ignore it at Your Own Risk," *Cnet News.Com*, July 17, 2001, giving the text.

³ The series of studies appears to have ended early in the Bush Administration under a much more optimistic title; see National Telecommunications and Information Administration and Economic and Statistics Administration, *A Nation Online: How Americans are Expanding Their Use of the Internet* (Department of Commerce, February 2002).

⁴ *Id.*, p. 3.

⁵ Federal Communications Commission, *Availability of Advanced Telecommunications Capability in the United States: Fourth Report to Congress*, September 9, 2004.

⁶ Statement of Chairman Michael K. Powell, September 9, 2004.

⁷ Eggerton, John, "Powell Buoyant Over Broadband Rollout," *Broadcasting and Cable*, September 15, 2004.

⁸ *Id.*

⁹ "Statement of Chairman Michael K. Powell, September 9, 2004.

¹⁰ Yang, Catherine, "Behind in Broadband," *Business Week*, September 6, 2004, p. 88, gives the 2000 ranking. FCC, Availability, p. 40 shows the U.S. ranking eleventh at the end of 2002, but the most recent data shows the U.S. ranking thirteenth or fifteenth (see *The Portable Internet* (International Telecommunications Union, September 2004), Table 3.5 and Statistical Annex, Table 6). The lower ranking includes Israel and shows Finland slightly ahead of the U.S.

¹¹ ITU, *The Portable*, Statistical Annex.

¹² Yang, p. 89.

¹³ FCC, Availability, p. 44, shows the higher Yahoo BB price of roughly 8 MB for \$20.

¹⁴ See below, Exhibit 3.

¹⁵ FCC, Availability, p. 8.

¹⁶ Pew Internet and American Life Project Surveys (2000-2004), Pew Research Center for People and the Press (1995, 1998); "CTAM's Latest Pulse Show Consumers Continue to Make Homes More High Tech," July 19, 2004.

¹⁷ Belinfante, Alexander, "Telephone Penetration in the United States (Industry Analysis Division, Federal Communications Commission, August 2004), Chart 1.

¹⁸ Statement of Michael Powell, September 9, 2004, p. 1.

¹⁹ Ross, Patrick, "White House Sees Regulation as Must in Promoting Broadband," *Communications Daily*, July 29, 2004.

²⁰ *Id.*

²¹ *Id.* FCC, Availability, p. 9. 11, reiterates this approach, stating that "[T]his price-and-service competition, in turn, will have a symbiotic, positive effect on the overall adoption of broadband: and as subscribership grows, competition will constrain prices and incent further deployment of new and next-generation networks and ever-more innovative services... We expect subscribership to broadband services will increase in the future as new applications that require broadband access are introduced into the marketplace and consumers become aware of such applications."

²² Communications Act of 1934, 47 U.S.C.A. 151, et seq.

²³ Cooper, Mark, *Universal Service: A Historical Perspective for the Twenty-First Century* (Consumer Federation of America, Benton Foundation, 2001).

²⁴ Cooper, Universal; Cooper, Mark and Gene Kimmelman, "The Digital Divide Confronts the Telecommunications Act of 1996: Economic Reality v. Public Policy," in Benjamin M. Compaine (ed.), *The Digital Divide: Facing a Crisis or Creating a Myth?* (Cambridge MA: MIT Press, 2001).

²⁵ Cooper, Universal Service, Figure 2.1.

²⁶ Cooper and Kimmelman, *The Digital Divide*, Table 9.2.

²⁷ Cooper, Universal Service, Chapter 5.

²⁸ Telecommunications Act of 1996, Section 254 (c).

²⁹ Statement at University of California San Diego, December 9, 2003.

³⁰ Cable modem service costs about \$45 per month. DSL service costs about \$30. However, the local phone companies serving 85 percent of the nation require DSL customers to also take voice, making the basic connectivity costs for a high speed line that will support VOIP even more expensive. *UNE Fact Report 2004, Prepared for and Submitted by BellSouth, SBC, Qwest, and Verizon, In the Matter of Unbundled Access to Network Elements, Review of Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, WC Docket No. 04-313, CC Docket No. 01-338, October 2004. Federal Communications Commission, *Reference Book of Rates, Price Indices, and Household Expenditures for Telephone Service*, 2004.

³¹ "Affluent Americans Power Internet Growth, According to Nielsen/Netratings," April 19, 2004.

³² August 18, 2004.

- ³³ Cooper, Mark, "Anticompetitive Problems of Closed Communications Networks," in Mark Cooper (Ed.), *Open Architecture as Communications Policy* (Palo Alto: Center for Internet and Society, Stanford Law School, 2004).
- ³⁴ Statement of Chairman Michael Powell, *Re: Unbundled Access to Network Elements, Review of Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, WC Docket No. 04-313, CC Docket No. 01-338.
- ³⁵ Powell, Michael K., "The Public Interest Standard: A New Regulator's Search for Enlightenment," 17th Annual Legal Forum on Communications Law, American Bar Association, April 5, 1998.
- ³⁶ Intercarrier Compensation Forum, *Notice of Ex Parte Communications, Developing a Unified Intercarrier Compensation Regime*, CC Docket No. 01-92, August 16, 2004.
- ³⁷ Cooper Mark, "Making the Network Connection," in Mark Cooper (Ed.), *Open Architecture as Communications Policy* (Palo Alto: Center for Internet and Society, Stanford Law School, 2004).
- ³⁸ Powell, Michael "Preserving Internet Freedom: Guiding Principles for the Industry," *The Digital Broadband Migration: Toward a Regulatory Regime for the Internet Age*, University of Colorado Law School, Boulder Colorado, February 8, 2004, issued a challenge to the industry to voluntarily adhere to some of the nondiscrimination requirements of the Communications Act, but made it clear there would be no enforcement of obligations of nondiscrimination.
- ³⁹ Yang, Behind in Broadband.
- ⁴⁰ Colin Powell, "Is the Digital Divide a Problem or an Opportunity," Business Week, Special Advertising Section, 2000.
- ⁴¹ Cooper, Mark, "Inequality in Digital Society: Why the Digital Divide Deserves All the Attention it Gets," *Cardozo Arts & Entertainment Law Journal*, 2002, 20:1.
- ⁴² John B. Horrigan, *Pew Internet Data Memo* (Pew Internet and Life Project, April 2004), shows that 57 percent of respondents said speed was the reason they switched. Ten percent said job related tasks and 7 percent said the always-on feature or the need to use the telephone and the Internet at the same time.
- ⁴³ *A Nation Online*, (p. 5) shifted focus from households to individuals.
- ⁴⁴ Cooper, Inequality.
- ⁴⁵ Cooper, Inequality.
- ⁴⁶ Horrigan, John B., *Pew Internet Project Data Memo*, *Pew Internet and American Life Project*, April 2004.
- ⁴⁷ Rappaport, Paul N., Donald J. Kridel and Lester D. Taylor, "The Demand for Broadband: Access, Content and the Value of Time," in Robert W. Crandall and James H. Altemna (Eds.), *Broadband: Should We Regulate High-Speed Internet Access?* (Washington, D.C.: AEI-Brookings Joint Center for Regulatory Studies, 2002).
- ⁴⁸ Davison, Elizabeth and Sheila R. Cotton, "Connection Discrepancies: Unmaking Further Layers of the Digital Divide," *First Monday*, 8:3.
- ⁴⁹ Other variables, such as race, ethnicity, occupation, and household composition, still have a statistically significant relationship to Internet access, but the magnitude of their effect is smaller.
- ⁵⁰ Cooper, Inequality.
- ⁵¹ Cooper, Mark, *Cable Mergers and Monopolies* (Washington, D.C.: Economic Policy Institute, 2002).
- ⁵² Federal Communications Commission, *Report on Cable Prices*, April 4, 2002, Attachment D-1; February 14, 2001, Attachment D-1; June 2000, Attachment D-1; May 7, 1999, C-1; U.S. General Accounting Office (U.S. GAO), *Issues Related to Competition and Subscriber Rates in the Cable Television Industry*, October 2003; *Telecommunications: Issues in Providing Cable and Satellite Television Service*, October 15, 2003.
- ⁵³ Unfortunately, only 2 percent of Americans are served by competing cable operators.
- ⁵⁴ Only a consent decree forced Time Warner to allow modest access, and intense scrutiny forced AT&T to make some minor concessions, but the recent AOL/AT&T carriage agreement is thoroughly anticompetitive. "A New Model for AOL May Influence Cable's Future," *New York Times*, August 26, 2002, p. C1; Gilmore, Dan, "AOL Capitulates, Gives Up Struggle for 'Open Access'," *San Jose Mercury News*, September 1, 2002.
- ⁵⁵ Cooper, Mark, "Open Access to the Broadband Internet: Technical and Economic Discrimination in Closed, Proprietary Networks," 71 *University of Colorado Law Review*, 71: 2000;
- ⁵⁶ "Initial Comments of the California ISP Association, Inc.," *Further Notice of Proposed Rulemaking in the Matter of the Computer III Remand Proceedings: Bell Operating Company Provision of Enhanced Services; 1998 Biennial Regulatory Review – Review of Computer II and ONA Safeguards and Requirements*, Federal Communications Commission, CC Docket No. 95-20, 98-10, DA 01-620, April 16, 2001 (hereafter CISPA, 2001a), p. 7; "Comments of DirecTV Broadband, Inc.," *In the Matter of Appropriate Framework for Broadband Access to the Internet Over Wireline Facilities, Universal Service Obligations of Broadband Providers, Computer III Remand Proceedings: Bell Operating Company Provision of Enhanced Services; 1998 Biennial Regulatory Review – Review of Computer II and ONA Safeguards and Requirements*, Federal Communications Commission, CC Docket No. 02-33, 95-20, 98-10, May 3, 2002, p. 5; "Comments of Cbeyond, et al.," *In the Matter of Appropriate Framework for Broadband Access to the Internet Over Wireline Facilities, Universal Service Obligations of Broadband Providers, Computer III Remand Proceedings: Bell Operating Company Provision of Enhanced Services; 1998 Biennial Regulatory Review – Review of Computer II and ONA Safeguards and Requirements*, Federal Communications Commission, CC Docket No. 02-33, 95-20, 98-10, May 3, 2002 (Hereafter Cbeyond, et al., 2002), pp. 27-28.

⁵⁷ National Research Council report entitled *Broadband: Bringing Home the Bits*, (Washington, D.C.: National Academy Press, 2002), pp. 21, 152-154.

⁵⁸ Federal Communications Commission, High-Speed Services for Internet Access, June 2003, Tables 1, 2; Local Telephone Competition: Status as of December 31, 2002, June 2003, Tables 1, 13; NCTA, Overview 2003: Mid-Year, p. 1.

⁵⁹ Young, Shawn and Peter Grant, "How Phone Firms Lost to Cable in Consumer Broadband Battle," *Wall Street Journal*, March 13, 2003.

⁶⁰ "Comments of Ad Hoc Telecommunications Users Committee," *In the Matter of Review of Regulatory Requirements for Incumbent ILEC Broadband Telecommunications Services*, Federal Communications Commission, CC Docket No. 01-337, March 1, 2002, pp. 18-19. "Cable modem service presents serious security and reliability issues that, while present for residential users, are of far greater concern when used to support business applications... In addition, service quality for cable modem service not equivalent to ILEC standards... Additionally cable modem transmission speeds are not consistent, due to the "shared platform" architecture... Finally, cable modem platforms do not offer business customers a sufficient level of security."

⁶¹ Id.

⁶² Kuhl, Craig, "Writing the Business Case for VDSL," *CED*, April 2000. Extensive documentation of the technology difference is provided in Cooper, Mark, *Transforming the Information Superhighway into a Private Toll Road* (Washington, DC: Consumer Federation of America, October 1999).

⁶³ Hazlett, Thomas W. and George Bittlingmayer. *The Political Economy of Cable "Open Access."* Joint Center, Working Paper 01-06, May, 2001, argue that there is a strategic under allocation of capacity to high-speed Internet.

⁶⁴ Conquering the high-speed Internet access as a neighbor market of video has additional advantages in preserving market power in the primary market (see for example, Carlton, Dennis W. and Michael Waldman, "The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industry," *Rand Journal of Economics*, Summer, 2002; Rubinfeld, Daniel L. and Hal J. Singer, *Open Access to Broadband Networks: A Case Study of the AOL/Time Warner Merger*, 16 Berkeley Tech. L.J. 631, 2001; Ordover, Lansuz A. and Robert D. Willig, "Access and Bundling in High Technology Markets," in Jeffrey A. Eisenach and Thomas M. Lenard (eds.), *Competition, Innovation And The Microsoft Monopoly: Antitrust And The Digital Marketplace* (Washington, D.C.: Progress and Freedom Foundation, 1999); Salop, Steven C., "Using Leverage to Preserve Monopoly," in Jeffrey A. Eisenach and Thomas M. Lenard (eds.), *Competition, Innovation And The Microsoft Monopoly: Antitrust And The Digital Marketplace* (Washington, D.C.: Progress and Freedom Foundation, 1999).

Bundling basic video with Internet access has the effect of undermining competition for video services (by driving basic cable into households and reducing the value of satellite). Bundling video content with Internet access reduces competition for video services (See, e.g., Comments of the Competitive Broadband Coalition, *Implementation of the Cable Television Consumer Protection and Competition Act of 1992*, Cable Services Bureau Dkt. No. 01-290, at 10-11 [Dec. 3, 2001]). Bundling also raises barriers to entry by forcing competitors to build larger packages to compete: "AT&T is refusing to sell HITS to any company using DSL technology to deliver video services over existing phone lines because such companies would directly compete with AT&T's entry into the local telephone market using both its own cable systems and the cable plant of unaffiliated cable operators. AT&T simply does not want any terrestrial based competition by other broadband networks capable of providing bundled video, voice and data services." (Comments of the American Cable Association In the Matter of: Implementation of the Cable Television Consumer Protection and Competition Act of 1992, Development of Competition in Video Programming Distribution: Section 628(c)(5) of the Communications Act: Sunset of Exclusive Contract Prohibition, CS Docket No. 01-290 [filed Dec. 3, 2001]).

⁶⁵ Latour, Almar and Peter Grant, "Verizon May Set Off Price War," *Wall Street Journal*, May 5, 2003.

⁶⁶ Onramp, at 3, citing CFO Stephenson.

⁶⁷ Office of Technology Policy, *Understanding Broadband Demand: A Review of Critical Issues* (Washington, D.C.: U.S. Department of Commerce, September 23, 2002), p. 14.

⁶⁸ Spangler, Todd, "Crossing the Broadband Divide," *PC Magazine*, February 12, 2002 (noting pricing and service quality problems); Ploskina, Brian and Dana Coffield, Regional Bells Ringing Up Higher DSL Rates, *Interactive Week*, February 18, 2001; Braunstein, Yale, *Market Power and Price Increases in the DSL Market* (July 2001).

⁶⁹ Yang, Behind in Broadband, p. 89.

⁷⁰ Tsuchiya Motohiro and Adam Thierer, *Is America Exporting Misguided Telecommunications Policy? The U.S.-Japan Telecom Trade Negotiations and Beyond* (Washington, D.C. Cato Institute Briefing Papers, January 7, 2003), p. 1, argued that "The Office of the U.S. Trade Representative argued that Japanese officials should require their domestic telecom providers to share their networks with rivals at a generously discounted price to encourage greater resale competition. Those interconnection and line-sharing rules were borrowed directly from the U.S. Telecommunications Act of 1996, a piece of legislation that remains the subject of intense debate within the United States." Yang, Behind in Broadband, reports that the opening of the network is generally credited with driving price reductions and speed increases (see also "the Power of Commoditization," *Cook Report*, April-June, 2003).