

**PRESERVING THE PRIVATE SECTOR'S ROLE IN BROADBAND:  
A RESPONSE TO THE CRITICS**

Everett M. Ehrlich<sup>1</sup>

**INTRODUCTION AND OVERVIEW**

Over the course of this decade, there has been an explosion of broadband access in the United States, both in terms of the number of households with broadband connections – which has risen from three million to about 70 million since 2000<sup>2</sup> – and in terms of the average speed of those connections. Investment in this sector has reached \$120 billion annually<sup>3</sup>, and continues apace despite the downturn that has dogged the economy. While there are still notable gaps in that expanding broadband coverage – for example, access by rural Americans and by those on the wrong side of a pernicious “digital divide” – public policy, as reflected in the new administration’s stimulus package, is being oriented to address them.

But despite this success, there has been a desire on the part of some critics of the current broadband regime for the government to go significantly beyond this approach of “filling in the gaps.” Some suggest that the government should replace the private sector as the investor in, and proprietor of, a universal, high-speed broadband network. These critics point to other nations (such as Singapore or Australia) that are considering such as investments as models for U.S. nationalization. Other critics fall short of outright nationalization, but argue that the private sector should only be allowed to retain its primary role if it adheres to the policy of “common carriage” that was in place during the period when telephone companies were regulated as natural monopolies.

This paper responds to those proposals. It argues that these ideas are at best counter-productive, at worst dangerous, from the perspective of securing the investments that would

build the universal, high-speed network we seek. Substituting the government for ongoing private investment would not only cost hundreds of billions at a time when our nation has far higher priorities for these resources, but would also substitute the preferences of planners for those of consumers and the market regarding the shape of the broadband network – with a substantial chance that the government might guess wrong. And reinstating common carriage – or, as it is now called, “unbundling” – would bring the current wave of investment – one that occurred only after that very policy was removed – to a halt.

Moreover, these proposals are based on a pivotal, and incorrect, assumption – that the broadband market is fundamentally uncompetitive and that consumers are not “in charge” as they would be in a competitive market. The track record of this sector in recent years, however, demonstrates that this is not the case. We have seen the kinds of rising investment, rising deployment, declining prices, and rapid innovation that one would expect from a competitive market. And the future of broadband, one in which a variety of different platforms compete for consumers’ business – will clearly be more competitive, not less.

Government has an important role to play in building the nation’s broadband network – that of finding ways of filling the gaps, both geographically and demographically, in coverage. A broader substitution of government for private investment would distract us from these more important policy goals while reproducing what the private sector is already doing, and doing well.

### **The Critics’ View**

Understanding the problems inherent in the critics’ proposals requires a brief history of broadband in the last two decades. In the first term of the Clinton Administration, telecommunications policy faced an historic dilemma. Up until that time, the predominant telecommunications issue was voice – telephone calls – and the approach to it, ever since the 1984 Consent Decree that broke up (then) AT&T, was to let a “regional Bell operating company” (RBOC) operate as a monopoly for local calling, in exchange for submitting to

regulation regarding prices and allowing any and all prospective service providers to use their wires at a regulated price (“common carriage”). This was a bargain with obligations on both sides; the RBOCs would build telephone infrastructure and let anyone who wanted to use it do so for a regulated price and, in exchange, they would operate as government-sanctioned monopolies that were allowed to earn a guaranteed rate of return.

But by the early 1990s, a second communications network function was obviously about to become very important – transmitting data (as does the Internet today), instead of just voice. Moreover, it was increasingly apparent that both voice and data could be transmitted not just by phone companies, but by cable television companies, satellites, and other carriers. The Administration, represented by Vice-President Gore, began to speak of an “information superhighway” that would link the nation and combine the transmission of voice and data. As part of this new approach, the Administration reached a fundamental decision that the private sector would play the leading role in building the network.

The result was the Telecommunications Act of 1996. But the immediate effects of the Act and accompanying regulatory decisions were to deregulate only the cable television companies, freeing them to offer cable modems and Internet access to consumers. In contrast, telephone companies (“telcos”) continued to be subject to “common carriage” regulation – if they invested in costly new, high-speed networks, they would be forced to let their competitors use their new lines and cream skim their investment at government-mandated rates.

The telecommunications market in the late 1990s was shaped by these policy decisions. There was a wave of investment by cable companies, who had been freed from regulation, and by companies that provided Internet service using the telco infrastructure at subsidized prices by way of common carriage (the latter included, for example, companies such as EarthLink or Covad, which sold DSL service but made no investments in new local communications infrastructure).

This imbalance was conspicuous – telco companies were hindered from investing and few of the companies using regulation-priced access had incentives to build network infrastructure. By the turn of the century, the futility of having deregulated cable companies and highly-regulated telcos providing the same service became apparent. So, in 2003, the FCC eased the common carriage restrictions imposed on telco companies, thus inviting them to invest in creating new infrastructure.

The result was a resurgence of investment in the sector. And this new wave of investment created a higher level of competition – competition among not just *providers* using the same network (such as Earthlink and Covad), but a competition among broadband *platforms* themselves. That is, consumers can now choose among these platforms as they access the Internet through the offerings of cable companies, providers using conventional telco infrastructure, new services based on fiber-to-the-home, and increasingly, satellite and wireless-based access. This platform competition is rare among the nations that are moving toward broadband, and is an important reason why the U.S. has both made important progress in this area and promises to continue to do so.

With a new Administration arriving in 2009, the critics of current policy have advanced their arguments. For example, Derek Turner, research director of The Free Press, has recently written a report entitled Dismantling Digital Regulation<sup>4</sup> (“*Dismantling*”), in which he advocates reinstating common carriage (unbundling), and letting the FCC “promote” competition. Others have speculated regarding having the government build and operate a public, “wholesale” broadband Internet.

Much of the vision put forward in these comments and research derives from the assertion that we have turned over the provision of broadband to an uncompetitive “duopoly” of cable and telecom companies that either are using, or have the potential to use, their market power to gouge users and to retard the implementation of a universal, “open” network.

Once this assertion is made, it inevitably leads to some type of highly-regulated or nationalized broadband network. The argument goes like this: the uncompetitive cable-

telco “duopoly” stands in the way of a truly “open,” “neutral” Internet<sup>5</sup>. In order to achieve this goal, therefore, we need to go back to the common carrier model that the phone companies were obliged to provide a generation ago. (The difference, of course, is that those phone companies were regulated monopolies that were allowed to make approved investments without risk, as opposed to today’s cable, fiber and wireless broadband providers, who are betting their own money in a competitive market where consumers are in charge.)

But, if that entire infrastructure is going to be “unbundled,” then no private party would be interested in building it; if they did, they would have to invest massive sums of money and then hope that the regulatory system would let them earn it back. In fact, major investments in new and better Internet infrastructure by telephone companies didn’t happen until the policy of “unbundling” was abandoned.

So the critics are at a crossroads. No one will build the broadband Internet they want on the terms they want it – that is, no one will commit hundreds of billions to assets that will be subject to the endless series of regulatory hearings and challenges that are part of unbundling. So the argument has now taken a major step forward– that the U.S. should “look at” models such as those now being considered in Singapore and Australia and have the government build the nation’s broadband infrastructure on the federal tab and run it like a public highway or a regulated utility.

Regardless of the motivation, the argument for nationalizing broadband is a daring one. But in this instance, it is an argument based on an incorrect assumption. Broadband is not the product of an uncompetitive cable-telco duopoly. The largest firms, unlike classic “duopolists,” sell an intensely differentiated product with high fixed costs that must be spread over a growing number of customers in order to be profitable. Moreover, new entrants are challenging established players across the range of information services, and the fact that companies such as Verizon or Comcast sell broadband, telephone, and television makes them more vulnerable to competition, not less.

It seems pointless to have the government spend hundreds of billions to do what is already being done by private parties, at a time when those resources are needed to salvage the economy, build a universal health care system, improve education, pay down unprecedented levels of government debt, and answer a variety of other unmet challenges. Moreover, this universal mission would distract us from the *real* role that government *must* play – closing the digital divide, using broadband to revolutionize health care and education, and working with the private sector – as first outlined by Democratic Presidents, not Republican ones – to make the universal, high-speed network a reality. Given those dangers, in the balance of this paper, we demonstrate why the critics are wrong, and that we are moving in the right direction towards adopting a national, high-speed network.

## IS THE JOB GETTING DONE?

One important component of the critics' argument that the U.S. broadband market is uncompetitive is that the U.S. lags other nations in deploying broadband. According to Turner in *Dismantling*, the U.S. is 22<sup>nd</sup> in the world in broadband penetration<sup>6</sup>, as measured in broadband lines per hundred inhabitants, just below Japan and Israel, and just above the Faroe Islands (a province of Denmark) and Taiwan (all this as of 2007).

In one sense, the past is past, and the real issue is how to build the future. But the argument is so misleading that it deserves a response. To start, the merits of this measure are debatable, particularly insofar as the three “best” countries on this list are Bermuda, Denmark, and Iceland, none of which stands out as a solitary, innovative powerhouse.

But these comparisons reflect a host of factors other than what's actually happening with broadband. For one, the initial progress in many nations stems from the presence of national champions – public or private entities such as national telephone companies with subsidized mandates to get the infrastructure in place – Deutsche Telekom, NTT. Land use patterns also count – countries with highly concentrated urban centers obviously do better because there are more users on an individual loop – more dispersed, suburban

environments (such as our own) fare worse. Countries with higher fertility rates and larger families (and fewer adults living alone without children, again, as does the U.S.) will have better per capita measures, as they have fewer people in a family will share a connection. As Scott Wallsten has pointed out, if the measure “percent of households with broadband” is used, then the U.S. is ninth in the world, trailing Japan (which, together with Korea, is an acknowledged world leader) but ahead of the United Kingdom, France, and Germany.<sup>7</sup>

Moreover, Wallsten also notes that these data suggest that only five million high speed lines exist in American businesses, in contrast to the 81 million workers who claim to have such access at work (as counted by the Bureau of the Census), suggesting a sizable undercount of total lines to begin with.

But even if these data did have merit, the situation they describe is changing rapidly. For example, using 2008 data comparing the 50 states to the nations of the European Union, were France to be an American state, it would rank 31<sup>st</sup> among the states – the United Kingdom would rank 36<sup>th</sup>, Germany 49<sup>th</sup>. (And the same pattern prevails – the top ranked nations – the Netherlands and Denmark – and the top ranked states – New Hampshire and Alaska – have their populations concentrated in urban centers with a smaller share of their population dispersed elsewhere.) And the bottom line is that, since 2000, the number of American households with a broadband connection has gone from three million to 70 million in 2008<sup>8</sup>. The Census Bureau reports that fully 82 percent of Internet users in the home use a broadband connection – those that want broadband can get it, an important lesson for closing the “digital divide,” a topic addressed below. (A recent report by the Pew Internet and American Life Project notes that 87 percent of people who use the Internet at home have a broadband connection, which is consistent with this view.)<sup>9</sup> The U.S., to be sure, still lags behind Japan and Korea, nations with many of the advantages above that made an early policy commitment to broadband. But we can’t control what foreign governments do – we can only do everything we can to get a broadband network in place in America.

Ultimately, comparisons are not the acid test. Perhaps the more relevant question would be whether the U.S. is getting the results we would expect from a vibrant, competitive market for broadband – sizable investment, dramatic innovation, declining prices. We turn to those next.

## **Investment**

There is no question that investment in broadband Internet access started later in the U.S. than it did in some other countries. Cable companies had been investing to fend off challenges from satellite providers, but did not pursue broadband until they were rate deregulated in the 1996 Act. But it wasn't until the next decade that the regulatory environment created meaningful incentives for telephone companies to invest in new broadband infrastructure. Since then, real (inflation corrected) communications investment has risen sizably – from \$90 billion annually in 2002 to over \$120 billion annually in 2007.<sup>10</sup>

So the U.S. was in some sense late to the game, as the critics claim. But to use that late start as a pretext to reintroduce the very same regulatory constraints (i.e., “unbundling”) that *led* to the absence of investment would be absurd.

More importantly, there is no obvious deficiency in current American investment in broadband infrastructure. According to the OECD, from 1994 through 2005, that investment accounted for a higher share of total fixed capital formation than it did, on average, in all OECD countries.<sup>11</sup> Investment in public telecommunications *per capita* in the U.S., as of 2005, was the sixth highest in the OECD, and such investment, as a share of telecommunications revenue, was higher than in the OECD as a whole, as well as in France, Germany, Japan, or Korea.<sup>12</sup>

Verizon – the primary entity dedicated to building fiber infrastructure in the U.S. – has sustained the highest level capital expenditures by any company in the U.S. over the past five

years (2004 – 2008), over \$80 billion. For the last year recorded by the OECD, 2005, it dedicated the largest proportion of its revenues to capital expenditure among the 12 global telecomm companies with revenues over \$20 billion – slightly over 20 percent – and ranked 10<sup>th</sup> among the 57 such companies with revenue over \$1 billion – the first nine had average revenue less than a tenth that of Verizon.

## Deployment

According to the OECD, in mid-2006, the U.S. ranked 13<sup>th</sup> among the OECD nations with 18.2 percent of all its inhabitants having access to broadband. It ranked near Japan, with 19 percent, and France, with 17.7 percent. And since then, U.S. residential broadband penetration has risen – from three million households in 2000 to approximately 70 million households today.<sup>13</sup>

But one feature of the OECD data the significance of which could be overlooked is that, among those nations, the U.S. had the highest proportion of broadband users who connected through platforms *other than DSL using conventional telephone lines*. Four out of every seven broadband users in the U.S. connected to the Internet through cable, fiber, satellite, Ethernet LANs, or wireless means. Market research from Bernstein shows that these “other” platforms persist in getting half of the market today. A recent report by IDATE makes clear that fiber-to-the-home in Europe is substantially behind the U.S., as almost 80 percent of the connections occur in only six countries.<sup>14</sup>

This speaks to the strong *platform* competition that exists in the U.S. We are one of the few countries to have a system that openly encourages competition *among platforms*, not just among competitors *using the same platform*.

But the critics are not interested in this *platform* competition and see competition *on a single platform* as the model – that is, they are not interested in having a wide variety of ways to get to the Internet as they are in having one way and then many different competitors all use it.

In essence, they want the broadband network to operate like a public electric utility transmission line – where the government will build one or try to induce some private party to do so for them, and let whomever wants to offer service on it do so.

Turner, in *Dismantling*, argues that system succeeded in creating meaningful competition among thousands of Internet service providers – he cites the “thousands” of Internet providers that existed due to regulation in the late 1990s. Yes, there were “thousands,” but who were they? The vast majority of these were dial-up ISPs, which were sent packing by technological advance and the advent of broadband, provided first and most dominantly by cable companies in the U.S.

The handful of service providers that used unbundled phone lines to offer DSL services simply lived off the investment of the phone companies and merely duplicated what incumbent phone companies offered. They offered no new features for users over these unbundled phone lines, nor did they innovate or expand broadband capacity. Regulation allowed them cheap access to phone lines, and they, in turn, lived off that access. They disappeared when that subsidized access was cut off, having offered nothing to inspire consumer loyalty in the face of higher-speed services. Meanwhile, cable broadband continued to dominate the marketplace. By April 2003 the U.S. had an estimated 12 million cable modem subscribers and only six million using DSL.<sup>15</sup>

## **Price**

As you would expect as an outcome of competition, the price of broadband access and Internet access in general, is continually falling. But the extent to which it is falling can't be understood outside of the context of the *quality* of what's being bought.

The Bureau of Economic Analysis, for example, has for two decades used this “hedonic” approach to price measurement that recognizes the evolving quality of what is being sold. A ton of steel is a ton of steel and a box of cereal is a box of cereal; it's easy to measure by how

much their prices are falling. But prices for other, more innovative, goods that change dramatically over time are harder to measure. For example, a 2008 computer model and a computer manufactured ten years ago may have both cost \$1,000, but today's computer is much better in every aspect, meaning that computers' *effective* prices are constantly falling. It's as if the same amount of money that used to buy hamburger now buys steak.

This is the context surrounding the following chart, which is taken from data collected by USTelecom.

**Maximum Advertised Price by Downstream Speed Tier<sup>16</sup>**

Year	Up to 768 kbps	768 kbps to 1.5 mbps	Up to 3 mbps	Up to 7 mbps	Up to 15 mbps	Up to 30 mbps
2001	*	\$50	n/a	n/a	n/a	n/a
2002	\$28	\$32	*	n/a	n/a	n/a
2003	\$28	\$30	*	n/a	n/a	n/a
2004	\$30	\$33	\$46	*	*	n/a
2005	\$20	\$27	\$33	\$39	*	*
2006	\$20	\$23	\$28	\$36	*	*
2007	\$18	\$25	\$28	\$39	\$51	*

DSL-type connections of up to 768 kbps, for example, have declined in price from about \$28 per month in 2002 to \$18 in 2007. Connections of up to 3.0 Mbps were sold for \$46 per month in 2004 but in 2007 sold for \$28 per month. As successively better products enter the market, the price of these older services predictably declines.

This table can also be read horizontally – that is, for a monthly price of about \$40 to \$50, the connection available to a household has gone from the range of 765 Kbs to 1.5 Mbps to 15 Mbps today, an increase of ten- to twenty-fold. In fact, INSTAT, a leading market research firm, estimates that the average download speed experienced by U.S. users increased 47 percent in 2008 alone, and the average upload speed more than doubled, rising by 113 percent.<sup>17</sup>

But critics generally overlook these dramatic improvements and focus on nominal price alone. Karl Bode of Broadband Reports, for example, noted that the price of a connection

has not changed in this decade, which ignores these quality improvements. Even more bizarre is the accusation that, since broadband providers charge the same or similar prices, they are exerting market power and do not compete (remarkably, one example of this belief comes from Wall Street industry analysts<sup>18</sup>). So do the producers of *every* product when supply equals demand!

In fact, the stability of observed prices -- \$40 to \$50 monthly for “high-end” broadband connections, whatever they may be at the moment – is entirely consistent with a high level of competition in the broadband market. Broadband providers have learned that most households are willing to pay on the order of \$40 to \$50 monthly for a “very fast” connection – they then compete ruthlessly to provide that “best” connection. Cables and telcos have continually fought to leapfrog each other in this regard. Telcos generally offered broadband access speeds of 768 kbps when broadband deployment began in the latter part of the 1990s at a time when cable offerings generally averaged about 1 to 3 Mbps. But many cable companies are now installing a new system in response to competition from FIOS and other broadband providers that permits broadband speeds of 50 Mbps and beyond. And cable and telco offerings continue to take share from each other; according to Merrill Lynch, since 2006, the quarterly share of net new broadband subscribers for cable and for telco providers has been as high as almost 80 percent and as low as almost 20 percent, reflecting this series of leapfrog offerings. It is hard to see how this type of competition is less welfare-maximizing than the price competition waged over a static good.

## **ARE WE SITUATED FOR THE FUTURE?**

As stated above, the critics’ depiction of the broadband “problem” rests in large part on the assertion that the broadband market is dominated by an uncompetitive “duopoly” – a market dominated by only two producers.

That statement is an amalgam of several confusions. First, broadband doesn’t resemble the classical “duopoly” model. Second, the “broadband market” contains more than broadband

and more than two firms. And third, the integration of the largest firms across broadband Internet, telephony, and cable television delivery – often cited as a reason for their hegemony – actually makes them *more* vulnerable to competition, not less.

Let's examine each of these points in turn.

“Duopoly theory,” first set out by Cournot in the 1830's and then quantified by Nash over a century later, suggests that when two providers dominate a market, they come to anticipate each other's reactions to price changes and, therefore, arrive at a market equilibrium with higher prices and lower output than a competitive market would have supplied. Many critics have applied this model to the cable-telco presence in the broadband market.

But broadband is not the kind of product that Cournot and Nash described. First, a pivotal underlying assumption of the “duopoly model” is that the two producers produce the same, static good; there's no differentiation between their products other than price. That's why they have an interest in colluding on price, because price is the only thing that differentiates them.

That's obviously not the case for broadband – even where there was only a telco and cable in a local market, they would be competing to bring faster and more reliable service to users, along the lines of the “see how much \$40 to \$50 a month can buy” marketing approach discussed above. Competing on the basis of product speed makes price collusion not only impractical, but irrelevant.

A second problem with the duopoly model is that it assumes that the firms have rising costs – one reason why the two firms in the theoretical “duopoly” both seek to cut back their output is that the cost of expanding output rises, cutting into profits. But broadband providers have substantial fixed costs – recall that Verizon has invested more than any other public company over the past five years. Industry analysts estimate that about half of the costs of broadband provision are fixed. The key to earning back this investment is not to cut back on sales, but to spread these capital costs over as high a “yield” – the use of system capacity – as is possible. Thus, unlike the classic “duopolists,” the more units broadband

providers sell, the *greater* their profitability. This difference is compounded by the ability of the classic “duopolist” to use inventories to manage the flow of output to market; service providers can’t do that.

But an even greater, long-term challenge to the “duopoly model” is the presence of additional competitors beyond “cables” and “telcos,” the most important of which is WiMax and other wireless broadband providers. The growing availability of wireless broadband – first as 3G, then as WiMax, and soon as a host of wireless 4G providers – is now a major presence in the broadband market. While we are yet to see wholesale substitution, Nielsen recently reported that “43 percent of data card users say they most often use their data card at home, and 59 percent of data users say they might swap out their home ISP in favor of data card access. Clearly, Internet access is the next frontier of wireless substitution.” Many users who have *both* still report using their wireless access *in the home*<sup>19</sup>.

There is no question that wireless broadband is generally not as fast or as reliable as wireline broadband and is not today a true substitute for the vast majority of customers. But wireless telephony is not of the same quality as wireline telephony, and it has already made inroads, particularly among younger ones. Far from being a hegemonic “duopoly,” landline broadband providers could be challenged by increasingly capable mobile broadband networks over time, again putting pressure on landline networks to offer better features and capacity.

Critics often respond to this prospect by noting that many of the wireline broadband providers also provide wireless service – Verizon and AT&T do, and cable companies such as Cox plan to offer such a service. But the presence of cable and telco providers in all of these markets makes them *more* vulnerable to competition, not *less*.

Consider Verizon’s or Comcast’s “triple play” service offering broadband, voice, and television. It is now possible to get all three of these services without ever dealing with either the cable or telco incumbent: the user can get mobile Internet from WiMax or from rapidly improving 3G and, soon, 4G services; television from satellite services such as DirecTV or

Dish; and telephony from non-affiliated wireless services, or from VOIP. This “synthetic bundling” – putting together the services that firms like Verizon or Comcast offer without ever coming near them – is a major challenge to the integrated cable and telco providers. Customers who elect to get television from satellite and phone from wireless, would have incentives to look elsewhere for broadband as well. And if they do, then the discounts the integrated companies offer you to stay with them for all services disappear. Moreover, as the lines blur – for example, as television and video-on-demand move to the Internet – the “triple play” is subject to more competition. Moreover, as WiFi becomes more available and WiMax and 4G networks move into the market, the competitive pressures will only grow. In short, the presence of Verizon, Comcast, and a few other “triple play” providers in all of these areas doesn’t make them hegemonic in the market – instead, it exposes them to *greater* competition – to “synthetic bundling.” The future of broadband, therefore, is *more* competitive, not less.

There’s one last point to be made about competition. There’s competition underway right now in terms of price and speed, in terms of platform, but there’s also competition regarding a “delivery model.” That is, broadband, wireless, and every other type of producer are trying to figure out “what consumers want.”

For example, do customers want their various information services – telephony, mobile telephony, Internet access, and television – bundled for simplicity, or unbundled to allow greater choice? Do they want specialized, added, or exclusive content or applications as part of their broadband provision? How much speed do they want and what will they do with it? How will they value mobility and trade it off against other values? How much concern do they have about security online?

These questions are only now being answered in practice. Consumers, for example, generally want robust access to the full range of the Internet, with only those limitations they choose to impose on themselves and their families. Just as few would shop at a grocery store that stocked only house brands, no one would use an Internet service provider that provided only

proprietary content, as AOL learned almost a decade ago. But consumers do seem to like bundled models with service and devices sold in a package, in part because of the high levels of security available in such packages. Similarly, we're learning that there's room for both pre-paid and post-paid mobile telephony, and that niches for services (such as Jitterbug) abound. And we're watching broadband providers experiment with different service models – “all you can eat” plans, cheaper capped plans, and the like, all of which contribute to price competition.

That's how markets evolve. But one of the dangers posed by the critics' program is that it would end this experimentation and substitute a set of preferences that don't reflect what's going on in the market. In many ways, their arguments are not about policy so much as attempts to set out business models that reflect their views of how the markets should answer these questions. Paradoxically, requiring that all networks subscribe to a pre-determined set of characteristics and that they all use a single, government-owned network, these policies would actually *reduce competition*. This is also one of the several issues raised by the possibility of public ownership of broadband infrastructure, which is discussed in the next section.

## THINKING ABOUT PUBLIC OWNERSHIP

The most obvious issue raised by public ownership of the broadband Internet is cost. One estimate suggests that creating this infrastructure in Australia would cost \$30 billion for 90 percent coverage; for a nation with 21 million inhabitants, that comes to about \$1,667 per person, or about \$4,000 for each of eight million homes. There are about 305 million people in 114 million households in the U.S. This would yield an aggregate cost in the U.S. on the order of ten to fifteen times the \$30 billion Australia would spend to achieve a “universal” (90 percent coverage) broadband network. This is a staggering sum at a time when the federal government projects historic deficits as far as the eye can see.

Of course, much of this investment has already been made. Verizon, for example, has invested billions to date in its fiber network – would these facilities be purchased from Verizon, and at what price? Or, alternatively, would the government reproduce these investments and then compete with the cable and Verizon networks in the markets they now serve?

Wireless systems, such as WiMax, pose perhaps a more important problem. WiMax and other technologies such as LTE in the mobile environment may well be a good fit in the near term and could well evolve over time, especially if more spectrum is released. Absent management that responds to markets as they evolve, a “public” broadband network could prove to be a half-trillion dollar mistake as users flock to mobile devices for broadband data and telecommunications, much as they are doing for voice telephony.

This is one of many examples in which the critics have *presumed* what users want and risk doing a poor job of it. The presumption is that “broadband” means “fiber.” But it doesn’t – it requires *bandwidth*, regardless of source. Another area in which critics want to impose preferences on the market is speed. Many critics admire Japan’s system, which brings 100 Mbps to the household. But do all users need 100 Mbps? In fact, very few do today, and the fact that companies such as Mozilla or Google came from students with high-speed connections doesn’t mean that everyone wants or needs one. In fact, a variety of sources note that many of the applications we regard as important – telemedicine, education services, remote environmental controls – can be accomplished with less bandwidth.<sup>20</sup> Fiber networks offer significant advantages including higher quality and flexibility in the ability to upgrade relatively rapidly to higher capacities. But clearly we are seeing faster speeds being offered in the market today using a range of technologies and the market is evolving as do these technologies.

Moreover, a speed standard of 100 Mbps requires fiber to the home *everywhere*, in contrast to less extreme but nonetheless high speeds that can be achieved with a mixed system that uses fiber to a locality and wireless for the “last mile,” particularly in rural areas. This would

be far more cost-effective, yet could be precluded by the vision of the critics. Moreover, we could discover in the future that fixed wireless, or cable, or electric power lines, or any other medium, is the most effective way to deliver their desired speed. Once again, the “public” model *presumes* what markets exist *to figure out*.

There is the administrative burden of managing the system on an ongoing basis. The critics’ idea is for the government to build a wholesale network that would sell access to those who provide services on top of that infrastructure. It seems like a simple plan to implement, but it requires either that the government unilaterally determine rates for access to its \$400-\$500 billion broadband investment, *or*, an endless series of rate cases to which it or its network “manager” is a party. As President Clinton’s FCC Chairman, William Kennard, said in 1999: “...it is more than a notion to say that you are going to write regulations to open the cable pipe. It is easy to say that government should write a regulation... It is quite another thing to write that rule, to make it real and then to enforce it.... So, if we have the hope of facilitating a market-based solution here, we should do it, because the alternative is to go to the telephone world, a world that we are trying to deregulate and just pick up this whole morass of regulation and dump it wholesale on the cable pipe. That is not good for America.”

## WHAT SHOULD WE DO?

As stated earlier, one of the problems of the critics plan is that, regardless of rhetoric, it distracts attention from the *real* challenges we face regarding the shared goal of a national, universally accessible broadband network. The proposal that federal resources and attention somehow need to be directed to the broadband market currently served by private companies diverts attention from closing the digital divide, using broadband to promote health and education, or serving areas not covered by the network. Pursuing the “public” model makes *everything* a priority, and when everything is a priority, nothing is a priority. But there are real priorities that the government should address to realize our goal.

The first of these is the “digital divide.” Even though Internet use has tripled in the past decade according to the Census Bureau<sup>21</sup>, there persist important differences in the pattern of its adoption. A recent report by the Pew Center notes that 88 percent of households with annual incomes over \$100,000 use the Internet, while only 35 percent of those in households making \$20,000 or less do: 83 percent of those who finished college and 30 percent of those who did not finish high school; 65 percent of whites but 46 percent of Blacks.<sup>22</sup> In many cases, the trends are positive – gaps are being filled – but for others, particularly race, they are not, at least not as quickly. These facts speak to the persistence of the “digital divide.”

There are many reasons for it. The Pew Center found that price is not, at the national level, the primary obstacle, although income is certainly an issue for many families. “Computer literacy” and “relevance” were more important – recall that over four-fifths of computer users have broadband – once people learn about the Internet, they want improved access to it.

But they need to have access and the tools to use it. Remarkable people such as Judge Sotomayor can achieve great mobility in our society when a parent such as her mother encourages them to read. But that parent cannot encourage computer literacy, the compelling skill of the new millennium, when there is neither a computer nor a broadband channel in the home.

We need a multifaceted approach to this problem. For some – perhaps those who earn the Earned Income Tax Credit – there could be subsidies for computer equipment and broadband access. But we also need a computer literacy education program for young people in our school system, and a more diverse set of approaches for adults, including continuing education, voluntarism, AmeriCorps, and others. One way to draw more people to the Internet is to expand its daily relevance. This can be done by aggressively pursuing its application to the health care sector, education, and local government. There should be strong support for expanding web-based delivery of these types of services, including for

using them to distribute computers into low-income households and as a vehicle for broad computer literacy efforts. And, generally, we can expand the range of voice, video, and data services users are offered by rationalizing regulatory authority at the federal level over IP services and by refraining from implementing “net neutrality” regulations that would inhibit their development.

The Universal Service Fund is also due for both reform and expansion. But rather than burden it with unrealistic – and unneeded – goals such as fiber to the home in low-density rural areas, we should focus resources where they will make a real difference for rural broadband. We know, for example, that rural broadband costs are much higher than in urban areas. Data from NECA suggest that a key reason for this is the cost of backhauling traffic from local networks up to the Internet’s backbones. Focusing some USF funds on support for building “middle mile” networks (i.e., the transport from local networks up to the backbone) would help reduce the costs of rural broadband deployment. Focusing resources too on connecting major public facilities – such as libraries – with higher speed connections in rural areas could also help promote sharing of broadband more widely in less densely populated areas.

All of these objectives are important, but they all take resources that are hard to come by in this fiscal environment, which speaks to the importance of focusing on those areas where private efforts are not underway and not serving national purposes. The “core” of U.S. broadband development is working well; what is needed is a strengthening of the “periphery” – those areas where the goal of universal, high-speed broadband is not being realized, whether among demographic or economic groups, regions or areas, and sectors of national importance.

The goal of broadband policy should not be to rebuild what is being built or to impose preferences on a market where consumers are now in charge. It should be to fill these important gaps and let the progress we are experiencing continue. To do otherwise would divert the Administration and its important agenda.



<sup>1</sup> Everett M. Ehrlich is the President of ESC Company, an economics consulting firm whose clientele have included leading firms in the financial, accounting, pharmaceutical, energy, telecommunications, and other industries, and such diverse organizations as the Pew Center for Global Climate Change and the Major League Baseball Players Association. Financial support for this paper was provided by Verizon, but the paper's content was determined solely by the author.

<sup>2</sup> John B. Horrigan, "Home Broadband Adoption 2009," June 2009, Pew Internet & American Life Project.

<sup>3</sup> Bureau of Economic Analysis, U.S. Department of Commerce; NIPA Table 5.5.6, <http://www.bea.gov/national/nipaweb/TableView.asp?SelectedTable=147&Freq=Year&FirstYear=2000&LastYear=2007>

<sup>4</sup> Derek Turner, "Dismantling Digital Deregulation: Toward a National Broadband Strategy," Free Press, May 2009.

<sup>5</sup> This refers to the policy of "net neutrality," the doctrine that all traffic on the Internet must be treated identically. A more complete discussion of this proposal is beyond the scope of this paper. Yet the idea of "neutrality" is driven by the same assumption that we cannot allow an uncompetitive market (one unresponsive to consumer demands) to offer different standards for traffic lest they abuse that ability.

<sup>6</sup> Derek Turner, "Dismantling Digital Deregulation: Toward a National Broadband Strategy," Free Press, May 2009, page 16.

<sup>7</sup> Scott Wallsten, "Understanding International Broadband Comparisons," Technology Policy Institute, May 2008.

<sup>8</sup> John B. Horrigan, "Home Broadband Adoption 2009," June 2009, Pew Internet & American Life Project. Also, Robert Crandall, William Lehr and Robert Litan, "The Effects of Broadband Deployment on Output and Employment: A Cross-sectional Analysis of U.S. Data, July 2007, No. 6, Issues in Economic Policy, The Brookings Institution.

Pew reports that 65 percent of households currently have broadband. Assuming as the universe the 112 million occupied households according to 2008 Census data, this suggests that as of April, 2009, approximately 72.8 million homes had a broadband connection. The Census Bureau says that in 2000 there were 105 million occupied homes and Pew reported that approximately 3 percent of all homes had a broadband connection then.. This translates into about 3.1 million households with broadband in 2000. These numbers are consistent with the findings of Crandall, Lehr and Litan with The Brookings Institution. For more, see: <http://www.census.gov/prod/2001pubs/c2kbr01-13.pdf> and <http://www3.brookings.edu/views/papers/crandall/200706litan.pdf>

<sup>9</sup> John B. Horrigan, "Home Broadband Adoption 2009," June 2009, Pew Internet & American Life Project.

<sup>10</sup> Bureau of Economic Analysis, U.S. Department of Commerce; NIPA Table 5.5.6, <http://www.bea.gov/national/nipaweb/TableView.asp?SelectedTable=147&Freq=Year&FirstYear=2000&LastYear=2007>

<sup>11</sup> OECD, Broadband Growth and Policies in OECD Countries.

<sup>12</sup> OECD Broadband Statistics, December 2005.

<sup>13</sup> John B. Horrigan, "Home Broadband Adoption 2009," June 2009, Pew Internet & American Life Project.

<sup>14</sup> IDATE Consulting and Research - <http://www.idate.fr/pages/index.php?idl=7>

<sup>15</sup> Fulcrum Global Partners: "Wireline Communications" Figure 2, May 16, 2003.

<sup>16</sup> WirelineBroadband Pricing 2001-2007, USTELECOM: THE BROADBAND ASSOCIATION, June 2008, available at <http://www.ustelecom.org/uploadedFiles/Learn/Broadband.Pricing.Document.pdf>.

<sup>17</sup> Mike Paxton, "US Residential Broadband Speeds on the Rise," February 2009.

<sup>18</sup> Credit Suisse Equity Research, “The Road Continues Toward Duopoly,” May 30, 2007.

<sup>19</sup> The Nielsen Company, “Call My Cell: Wireless Substitution in the United States,” September, 2008.

<sup>20</sup> For example see: Communications Workers of America, “Comments of the CWA to the FCC,” June 8, 2009.

<sup>21</sup> 2007 Internet and Computer Use Supplement to the Current Population Survey.

<sup>22</sup> John B. Horrigan, “Home Broadband Adoption 2009,” June 2009, Pew Internet & American Life Project.