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DEPLOYMENT OF BROADBAND TECHNOLOGIES

HEARING

BEFORE THE

SUBCOMMITTEE ON TELECOMMUNICATIONS, TRADE, AND CONSUMER PROTECTION

OF THE

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HOUSE OF REPRESENTATIVES

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DEPLOYMENT OF BROADBAND TECHNOLOGIES

THURSDAY, MAY 25, 2000

HOUSE OF REPRESENTATIVES,
COMMITTEE ON COMMERCE,
SUBCOMMITTEE ON TELECOMMUNICATIONS,
TRADE, AND CONSUMER PROTECTION,
Washington, DC.

The subcommittee met, pursuant to notice, at 11:06 a.m., in room 2123, Rayburn House Office Building, Hon. W.J. "Billy" Tauzin (chairman) presiding.

Members present: Representatives Tauzin, Oxley, Stearns, Gillmor, Deal, Largent, Shimkus, Pickering, Fossella, Ehrlich, Bliley (ex officio), Markey, Boucher, Gordon, Rush, Eshoo, Wynn, Luther, Sawyer, Green, and Dingell (ex officio).

Staff present: Justin Lilley, majority counsel; Cliff Riccio, legislative analyst; and Andy Levin, minority counsel.

Mr. TAUZIN. The committee will please come to order. Good morning and welcome to the second hearing on high-speed broadband deployment issues conducted by the subcommittee this year. The Chair will recognize members in order for opening statements, first with himself.

Let me take you back to 1995, the year we spent crafting the legislation that would become the 1996 Act. Seventy witnesses appeared before the House and Senate Commerce Committees. They represented local, long distance companies, cable and broadcast entities, think tanks, Federal and State governments. Not one of those 70 witnesses was a small Internet service provider or a company whose primary business was operating an Internet backbone.

Why were they not appearing before the committee to protect their new growing digital businesses? It is because, frankly, they understood the bill was not about them. Instead, the Act's primary purpose was to open the publicly switched telephone network to competition. Internet was not even on the radar screen. When we were debating the Act, there was no AOL or Hotmail. Case in point, the Internet is only mentioned in the Act a few times. I brought a Webster's dictionary with me published in 1995. Look for the word "Internet." You will not find it. Webster's does not even contain a definition of the Internet.

As a result, we are faced today with some extraordinary consequences that flow from the 1996 Act and we are here to examine them as they affect the deployment of broadband services across America.

One of the biggest concerns is that the Act, which was designed to set up a process by which telephone companies would eventually compete in one another's market and was designed to set up a process at the FCC by which evidence of competition would, in the local market, would allow local companies to compete in the long distance market across lines drawn on a map by a court here in DC following the decision to split up AT&T.

We are now faced with a situation where, with this entirely new thing called broadband Internet, those old rules are restricting the capacity of competition in deployment across America. We hear a lot about a thing called a digital divide here in Washington and we hear a lot about how Washington is going to cure that digital divide or the proposals advanced here in Washington to cure the digital divide. And yet, consumers across America have invested in miles and miles and thousands of miles of broadband capable fiber optics in the ground that they have paid for with bills that have been dictated by regulators on the State and local and Federal level. Now, they have paid for all this fiber that still cannot be used because these old rules defining local and long distance restrict the delivery of broadband services across those networks.

So we face a situation where, indeed, some people are predicting that 4 years from now, half of America will either have one broadband competitor or none at all and that that quarter of American which will have no competitor happens to be rural America and urban center city America. The poor, the rural, those who need probably broadband Internet access more than anyone else in this country to catch up with the rest of this country will, unfortunately, be left out.

I brought with me a couple maps to illustrate the point. Teddy, would you put up the map illustrating the points of presence, first of all, in Louisiana, just to give you an idea in my own State what the problem looks like. Points of presence are sort of the landing points, the big airports for the superhighway in broadband. They are the points of presence of the Internet backbone. In my own State, we have two, one in Baton Rouge and one in New Orleans, and the map illustrates a 60-mile radius around those points of presence. If you live without those 60-mile radiuses, you can have broadband services provided for you in Shreveport or Lafayette or Monroe but you cannot connect to those big broadband points of presence and so you are left out of the network.

Now, there is an easy solution for connecting, and Teddy, if you will put up the map that illustrates the miles and miles of fiber that is laid across the State, you will see that Louisiana is well connected. It is well connected with fiber that could carry broadband from all parts of my State to the broadband points of presence in Baton Rouge and New Orleans, and yet all that fiber crosses those blue lines called LATA lines that were drawn on a map by a court to separate voice communications in the local and long distance marketplaces of America.

And until my State gets permission from the FCC to allow the local phone company, the Bell Company in our State, to compete in long distance, those LATA lines remain as a barrier to the deployment of broadband services across my State and they serve as a barrier to the connection between the cities across my State, like

Thibodaux, Lafayette, and Alexandria and Shreveport and Monroe to broadband access.

That example is duplicated and replicated across the country and the question arises today as we hear the testimony of our witnesses today whether or not we can change that, whether or not we have to wait for the FCC to open that door or whether we in Congress should consider opening that door. And so we will hear today about broadband deployment, about whether or not Americans will have a digital divide and whether or not competition will answer that question or whether, in fact, regulation will answer that question, whether regulation stands in the way or regulation is the salvation for the problems we face in access to broadband.

But I will tell you what we were not thinking about in 1995. We were not imagining what we saw in Texas this week as heralded on the front pages of the New York Times. The New York Times contains an amazing story. Teddy, I want you to put up the document so everyone can see it. It is an amazing story of a flyer that was placed into the paychecks of Time-Warner employees in Texas. The flyer invited their employees to earn $100 or some free AOL service, I think, if, in fact, they did the following thing: If they called SBC, the local Bell Company in Texas, and asked the Bell Company to connect them to the Internet on DSL.

If they did, in fact, achieve a connection, they were told to order it disconnected immediately, to abandon the application, and then to report back to the company. They also obviously wanted to know whether or not there were any places that the Bell Company could not provide DSL service in order to identify those places in the marketplace where the phone company could not be a competitor to Time-Warner in offering these services.

Now, there are two awfully perverse effects here. It illustrates how in 1995 we had no idea that when the Internet and broadband became the issue of the day, that companies would be able to game the system the way they are obviously gaming it here. One of the adverse effects, of course, is that the Bell Company and its customers in Texas may have a $350 to more expensive charge for each one of these connect-disconnects set up by the employees of a competitor.

But even worse and even more perversely, those disconnects count as negative points in SBC's application before the FCC right now. Each time one of those employees connects and disconnects on the SBC system, it counts as a negative point against the company as it seeks to break out into long distance competition before the FCC in its application currently being considered by the FCC.

We never guessed that that kind of gaming would occur. We never guessed that CLECs would form up, joining the unions with ISPs, Internet providers, and soak the Bell Company and their customers in something called reciprocal compensation, where we found out that one such company even hooked up a horse barn and turned the Internet on and let it run all day so that they could soak money away from the local phone company and its customers and split that profit with the ISP. We never guessed that those kinds of games would be affected upon the marketplace. All we wanted was open and fierce competition.

So today, we are going to examine the elements of whether or not broadband is being deployed openly and in that same sense of fierce competition that we hoped or whether or not we have set up a process as defined by Reed Hunt in his book. I hope you will read it. Do not buy it, for heaven's sakes. Borrow my copy. I will loan it to you.

But I hope you borrow the book and read it. In it, you will get a sense of the arrogance, the intense and amazing sense of power the FCC felt it had as it met with the Vice President to discuss—this is his quote—to discuss our agenda in the political year, and as he tells of how the 1996 Act, as the FCC read it, gave them so much power that he, Reed Hunt, became the most powerful person in the country, maybe the world, in communications, 40 rulemakings, the power to interpret the Act any way they wanted to.

I am beginning to believe maybe Mr. McCain was right. Maybe for all the good in the Act, maybe we set up the FCC with too much power to regulate, too much power to stand in the way of competition, and maybe it is time for us to take down those regulatory barriers and open this beautiful new Internet marketplace, this huge potential of broadband to every consumer in America.

I will be sick, sick to death, if this high-speed train leaves and the folks in Thibodaux and Lafayette and Alexandria and Shreveport and Monroe and all the small towns in my State are left behind, left behind immeasurably because we failed to get rid of the regulatory restrictions that currently exist in the law and in the mind of the regulators at the FCC that prevent citizens to use the lines that they paid for, to use the fiber they paid for, that is in the ground today waiting to serve them, but incapable of connecting them to broadband high-speed learning and long distance medicine and the amazing new world of entertainment and information and freedom that broadband is going to give citizens of this world that are going to be denied people in my rural State because we only have two POPs and the lines we pay for cannot connect to them. It is time we think about doing something about it and I think we are going to learn a lot about that today.

I yield to my friend from Massachusetts, the gentleman from Massachusetts, the ranking minority member of the committee.

Mr. MARKEY. I thank the chairman very much. I thank you for holding this very important hearing today.

Without question, Merriam Webster probably is not as familiar with the Internet as it should be in its dictionary, but they do not have to be because this subcommittee was. Whether or not a dictionary catches up with what we know and have known for the last 15 years really is not relative. In fact, the reason why the Internet is not mentioned as often as it should be in the 1996 bill was that the Science Committee was very jealous of their jurisdiction and they did not want us to use the word. Mr. Boucher is a member of the Science Committee.

So what we did instead was we used the word "advanced telecommunications services" wherever the word Internet should have been, but a rose by any other name. The Internet by any other name is still the Internet. So whenever you are looking at the 1996 Act and you see the word "advanced telecommunications services,"

assume that we had crossed out the word "Internet" and written it in in order to be sensitive to the Science Committee's feelings about what we were doing with the telecommunications policy of our country in 1996.

Now, let us go back in time a little bit. It is 1967. The United States government goes to AT&T and IBM. They ask them if they will take money from the Federal Government to build something called DARPANET, the Internet. AT&T says, no, we do not want the money. We do not want to build a packet switch network. We already have a monopoly. IBM says, no, we do not want to build a packet switch network. We already have a monopoly.

And so they gave the contract to a company up in my district, BB&N, Bolt, Baranick, and Newman, and for the next 22 years or so, they built the Internet on a government contract. The Internet was built by the government on a government contract because the private sector did not want it because in the telecommunications sector they had monopolies until 1992 when we passed it over to the private sector, which is why people might not have heard of it until then, but it was not as though it did not exist. It was not born out of whole cloth immediately in the middle of the 1990's. It had to come from someplace, the Federal Government.

AT&T as of 1982 had yet to purchase its first square foot of fiber optics. Hearing after hearing in this committee indicated quite clearly that they had no intention in doing so because they were, again, a virtual monopoly. And so the government had to break it up. Now, it was after this subcommittee had voted 15 to nothing at the end of 1981 to break it up, and as we know, Judge Greene then used the model of our bill to formulate the breakup. Many people in this room were there when we cast that vote. What happened immediately thereafter? AT&T starts to buy the worldwide supply of fiber optic because MCI and Sprint and dozens of other companies are now deploying a fiber optic network around the world—competition.

In 1987, again, this committee forced the FCC not to move to per minute but rather to flat rate charges for Prodigy, AOL, and CompuServe, the only companies that were really in existence at that time, and it was after we had a hearing on information services with a virtual hearing with France with their company Minitel and the chairman of Minitel who was here showing us what they were doing in information services at that time so that we would create the right policy, and they had been going to per minute and we realized that was a mistake and we forced our FCC to move us to that direction.

And then in 1996, we passed the Telecommunications Act, breaking down the final barriers so that every one of these ISPs to be—it is hard to exist if you cannot gain access—ISPs to be would have the ability to be able to reach every consumer in the United States.

So historically, what this committee has done, it has counterintuitively sided with the companies that did not exist yet against the larger existing monopolies. That is really our entire history. And now we look at the success of the policy.

In the year 2000, right now, today, 95 percent of the population of the United States is within 50 miles of a high-speed Internet point of presence. What an incredible success story, the envy of the

rest of the world. We are now talking about the final 5 percent. That is a great discussion for us to have. Well, let us celebrate the incredible success of our policies, especially the 1996 Telecommunications Act, which was a very complex piece of legislation. But ultimately, as we know, our goal was to induce paranoia in all sides.

So yes, there is a picture over here of Road Runner, but the reason that Road Runner is so concerned is that Wile E. Coyote down there in Texas is also trying to figure out how to provide the same service, and why do they each have to think about it? Because if they do not move, the other one will move, and ultimately, that is the core principal of competition. It is induced paranoia in a marketplace that requires each company to move faster than the other one because they are not sure if the other one will capture the market before them.

So the bill is a success, Wile E. Coyote and Road Runner battling it out, and there are others, too, the wireless revolution in 1993, 200 megahertz transfer has helped this whole revolution, as well, all of it part of this great story line of this subcommittee.

We should all be very careful as we move forward because, ultimately, we are, at this point, being cautioned by NARUC, by NASUCA, by all of those consumer and regulatory agencies at the State level that we should be very careful in what we are doing because this is working. It is a success story.

The domino theory really did not work when we were analyzing Vietnam, but it does work in telecommunications. When one falls, they all fall. When one company starts to do it, they all start to do it. But you have to have many companies out there with different strategies in order to force them all to do it and that is what we have in the marketplace today. That is what we are seeing in Texas. That is what we are seeing in the rest of the country.

Now let us talk about how we can ensure that the final 5 percent is also served. But they are the end of the story, not the beginning of the story, which is what I think some people would like to have this hearing represent. We knew what we were doing in 1996. Advanced telecommunications services are now reaching most Americans if we want them and we should be celebrating there. Thank you, Mr. Chairman.

Mr. TAUZIN. I thank the gentleman.

The Chair wishes at this point, in fairness to Tom Warner, to introduce into the record a letter dated May 25 and directed to Dave Marventano on my staff in which Time-Warner acknowledges that the actions in Texas were inappropriate, that it has been stopped immediately and they want us to know that Time-Warner Cable sincerely regrets the actions occurred and that they intend to toughen and extend awareness of existing compliance programs which guide franchise practices to ensure that events such as this are not repeated. We can have that entered into the record, without objection.

[The letter follows:]

TIME WARNER
May 25, 2000

Mr. DAVID MARVENTANO
Legislative Director
Honorable W.J. Tauzin
2183 Rayburn House Office Bldg.
Washington, DC 20515

DEAR MR. MARVENTANO: I am writing today in regard to questions regarding a recent incident in Houston involving Time Warner Cable. I have looked into the matter, and want to provide you and Mr. Tauzin with the facts of what happened and assure you that we have taken steps to correct what was an error in judgement by the local staff.

According to our preliminary investigation, a mid-level manager in our Houston division sent a flyer to the division's employees, asking for their assistance in "locat(ing) areas in Houston that Southwestern Bell . . . can and cannot service with their high speed online service, DSL." The flyer asked employees to sign up for DSL through Southwestern Bell, receive a letter from SBC confirming their installation appointment, and then cancel the appointment.

Local employees undertook these actions intending, to gather accurate information as to whether DSL was being offered at particular addresses in their service area, and not to interfere with SBC's customer service. Nevertheless, their actions were clearly inappropriate and as soon as senior management learned of it, it was stopped immediately.

Based on our preliminary investigation, it also appears only a small fraction of the Houston division employees to whom the flyer was sent had placed calls to SBC before the initiative was halted.

I want you to know that Time Warner Cable sincerely regrets that these actions occurred. In addition, we intend to toughen and extend awareness of our existing compliance programs which guide franchise practices to ensure that events such as this are not repeated.

As always, we look forward to working with you and to answering any of your additional questions or concerns.

Sincerely,

JEFF ZIMMERMAN
Assistant General Counsel, Time Warner Cable

Mr. TAUZIN. The Chair now recognizes the chairman of the full committee, Mr. Bliley.

Chairman BLILEY. Thank you, Mr. Chairman. This morning, the subcommittee resumes its inquiry into the state of broadband deployment. Thus far, we have learned quite a bit. More than anything, we have learned that the marketplace is responding to consumer demand. We know, for example, that DSL technologies are rolling out faster than ever. Analysts project that over 13 million homes will be subscribing to DSL technologies by 2005 and that revenues will surpass $11 billion by then, as well.

Even the local telephone companies are prospering in this rapidly growing market. Their revenue from data services grew between 32 and 41 percent in the first quarter of 2000. That is impressive, indeed, but it is not surprising. Contrary to what some say, there is nothing under current law that precludes local telephone companies from participating in the residential broadband market.

Meanwhile, we have also learned that the cable industry is responding, as well. Two-point-five million homes now use high-speed cable modems to access the Internet. That number is projected to grow to 14 million by 2005. And wireless and satellite providers are nipping at the heels of the cable and telephone giants. They have broadband dreams of their own, one that frees the consumer of wires and cables.

Who will win this race? Nobody knows, and frankly, I do not care. As long as the rules of the road are fair and predictable, which they are today, I intend to simply watch and let consumers and the marketplace sort this one out. Yet some still think consumers and industry need the help of Congress at this point. This puzzles me because I cannot seem to see the problem for which others have a solution.

These current and projected statistics impress me. They convince me that Congress got it right in the 1996 Act. Congressional action at this point in time will, if anything, force investors to pull back and bring deployment to its knees. Like that old saying, if it ain't broke, don't fix it. I hope that today we will learn more about precisely what the supposed problem is that requires a governmental solution.

I yield back the balance of my time, Mr. Chairman.

Mr. TAUZIN. I thank the gentleman.

The Chair recognizes the ranking minority member of the full committee, the gentleman from Michigan, Mr. Dingell.

Mr. DINGELL. Mr. Chairman, thank you. I commend you for holding this hearing. I think it is very useful.

I would like to begin by agreeing with my good friend from Massachusetts, Mr. Markey. We use the words "advanced telecommunications service" instead of Internet. However, I would also note that these words are nowhere to be found in Section 251 or Section 271 of the Act. These are the sections that dictate the extent to which the Bell Companies are required to open their network to competitors. I think this is an important point that should be kept before us.

I would note that no one can find these words because we intended to break open the local telephone market to competition, but I want this to be known by all, not to regulate advanced telecommunications services provided by these companies. This is precisely the practice in which the FCC is now diligently engaged, and they are probably the biggest threat to the provision of competition in this particular area of telecommunications services.

I would simply note that we have moved splendidly forward in terms of making these kinds of services available, but I would note also that 90 percent of the market share of the residential broadband market is held by, guess who, the cable companies, and why would this be so? The only thing that we can assign it to is the simple fact that the FCC regulates the local service telephone companies in their provision of this and frees up almost everybody else. Is this a fair, level, even playing field? Are the consumers permitted to benefit and to achieve the benefit of competition? Clearly not.

I think that is the purpose of this hearing, and that is to highlight that and also to find what it is that we can do to speed it up, because there are no end of people, both in industry and in also the home market, who are being denied access to broadband or clear choice in broadband service by reason of the FCC's diligent holding on to the idea that they ought to regulate and ought to slow down the provision of competition for all users of this kind of service.

Today, we address the next logical question after that which was presented to us in the last hearing of this kind. In that one, we

heard testimony about the critical role of high-speed Internet applications in building the Nation's new economy. Today, the next logical question is addressed, not simply how the country will benefit but how quickly, and I might note also, why the country is not benefiting more quickly from this and what it is that is holding it up. Clearly, I think the answer is the good old FCC that seems to be incapable of reading the legislation and incapable of moving forward to competition.

Now, the question then is, how do we encourage the roll-out of new technologies to all Americans regardless of where they happen to live in the most expeditious manner? Is this to be done by impeaching the FCC or burning the building down or just what? With the resistance of the FCC, it would appear that certainly something of that kind may ultimately have to be considered.

There are thornier questions, then, that must be addressed by the committee and the sooner and the better that we address them will we see the full benefits of the new economy take root for the good of all of the consumers in this country of this kind of service. We began to write the law which became the 1996 Telecommunications Act in 1993. At that time, the vast majority of the public was scarcely aware of Internet's existence and potential. In fact, it is amusing to recall that some of these people we regard today as technological visionaries, including some who might be, let us say, located in Redmond, Washington, initially failed to understand the importance of the World Wide Web.

It should be known that much has changed since then. More than half the country now does have Internet access and the number is expected to double in the next few years. But even with this explosive growth, the Internet is still in many ways grinding along in low gear. While we hear about the benefits of the information superhighway, the truth is that most Americans are relegated to the slow lane. Too many people are still stuck in the narrow band, low-speed dial-up service. So some folks are not getting their fair share out of this.

Unfortunately, the Telecom Act did little to create the proper environment for the deployment of broadband Internet services. Worse, it unwittingly created disparities in the law with regard to how different companies would be treated when they attempt to compete in this area and to provide these advance services, and I think this is a matter on which this hearing can well focus today.

Today, several broadband technologies compete to provide high-speed Internet service, but the two most prevalent are cable modems and DSL. A recent FCC report shows that the cable modems currently have a significant advantage in terms of market penetration. While it is still without question a nascent market, I repeat, the fact is that the cable companies now command more than a 90 percent share of residential broadband market, and if we are to focus on antitrust questions, this is, I think, at least a nascent antitrust question.

Certainly, the role of Congress here is not to pick winners and losers. That would be wrong. But it is our duty to make sure that the right policies are in place to prevent the Internet from becoming a de facto monopoly for any one provider and to see to it that the intent which we expressed in the 1996 law is carried out, that

there is competition and that the forces of competition make available the best possible choice and the best possible availability of service to the American people.

As technological conversion allows cable and telephone wires in every home to deliver virtually the same service to these American people, it makes no sense to treat these wires differently under the law and that we should, in fact, address these as devices for delivering service as opposed to some kind of different sort of mechanical device. It grossly distorts the market by giving one wire, then, an artificial advantage over the other, and that is not in the interest of the consumers or, indeed, the economy, or, indeed, the United States.

Complicating these matters further, this regulatory disparity has led to a bitter dispute over broadband open access policy in the Congress and in cities and States across the country. At the heart of the debate is whether consumers who subscribe to broadband Internet service from their local cable company should be forced to travel through the cable company's proprietary gateway to the World Wide Web or whether the consumer should be guaranteed a choice of Internet service providers. I think it is plain that I come down on the side of giving the widest choice to the consumers, and I think the consumers do, too.

In the end, however, it can be noted that the debate may be beside the point. It accepts the premise that modern cable modem technology has an impenetrable lock on broadband services markets, but that monopoly should not happen and does not have to happen. Chairman Tauzin and I, along with better than 200 members of this body, believe that we can cure this regulatory anomaly by acting on legislation to deregulate all broadband Internet services without further delay. Specifically, H.R. 2420 would allow providers to compete on a level playing field with none able to leverage an antiquated regulatory scheme to develop a monopoly position or to further entrench an existing monopoly position.

If we act now, we can see many competitive platforms flourish and the consumer is going to be the clear beneficiary instead of some provider of service. In a word, the consumer will not be held hostage and should not be held hostage. Freedom of choice would be guaranteed by the market instead of by the Congress or by the FCC, which is thoroughly dug in on the matter. Experience teaches us that this is a wiser, more efficient, better way of promoting good telecommunications policy. It lets competition flourish and it lets the consumer get the choice that is best in his judgment and his interest by using the choice which competition provides.

Thank you, Mr. Chairman.

Mr. TAUZIN. I thank the gentleman.

The Chair recognizes the vice chairman of the subcommittee, Mr. Oxley.

Mr. OXLEY. Thank you, Mr. Chairman. The Time-Warner incident which has been alluded to is but one more example of what has gone on almost since the day after the bill, the Telecom Act, was signed into law, and it seems like it is becoming a commonplace attitude and activity. It is not enough for firms to try to lower their own cost, they have to try to drive up competitors' costs. They harass each other in court, in Congress, and at the FCC. It is not

enough to try to reduce their own regulatory burden. They try to deny regulatory relief to the competition. Firms should be less concerned with how they can burden their competitors with discriminatory regulations and apply more of their energy to serving new markets.

My rule of thumb is pretty simple. If a regulation has outlived its usefulness for protecting consumers, whether due to technological innovation or market competition, it ought to be revealed. That is why I favor data relief for the Bell Companies and that is why I am against imposing mandatory open access regulation and horizontal ownership caps on cable systems. I can imagine I have been critical, Mr. Chairman, of the Bells in the past for litigating. I think we lost, frankly, 2 years of broadband advancement as a result of that litigation and I am frustrated by that delay.

That said, I am rather impressed by the present rate of broadband deployment. The Telecom Act was enacted a mere 4 years ago last February. That deregulatory legislation is credited with fueling the Internet economy, spawning billions of dollars in investment. Four years ago, most consumers had no choice in local phone and there was virtually no electronic commerce. Today, there is local phone competition in every State. Most telecom startups offer a range of services from telephony to high-speed Internet access services, putting pressure on incumbents to innovate and to lower prices. Today, the vast majority of households can reach an ISP with a local call and upwards to 95 percent of homes can choose from at least four different ISPs.

There has been tremendous growth in broadband infrastructure, especially with advanced cable modem services with about a million subscribers nationally. The competitive broadband marketplace is developing quickly, with offerings from ILECs, CLECs, satellite data, and wireless data in addition to cable. But businesses and individuals always want more, faster, cheaper Internet access and e-commerce transactions and I am all for granting additional regulatory relief to accelerate that deployment.

The goal should be to move all market participants toward deregulated parity. That is the best way to foster investment, creativity, innovation, and competition. We started in 1996 with the Telecom Act, which is historic. Many of us on this panel worked for 10 years to get to where we were. It has had an enormous impact and it has advanced the cause of broadband and all telecommunications for these last 4 years.

The effort, it seems to me, over the next several months for this committee is to take a look at where regulatory burdens are keeping competitors out of the marketplace and denying consumers the ability to have high-speed Internet access and broadband capability. That is a worthy goal, one that I think the committee is up to, and I yield back the balance of my time.

Mr. TAUZIN. I thank the gentleman.

The Chair recognizes the gentleman from Virginia, Mr. Boucher.

Mr. BOUCHER. Thank you very much, Mr. Chairman. I want to commend you for organizing this discussion today on a very timely subject. I also want to commend you and the ranking Democratic member of this committee, Mr. Dingell, for your success in obtaining the cosponsorship of more than 200 of our colleagues in the

House for your measure that would broadly deregulate all broadband services. I am pleased to serve as a cosponsor of that measure and I think it would accomplish a number of very important public policy objectives.

Chairman Tauzin in his remarks this morning talked about the fact that there is a broad under-investment in Internet points of presence in many of the rural reaches of the United States. That under-investment tends to coincide with the fact that those areas are served by Bell operating companies. Rural regions that are served by other local exchange carriers, independents, do not have that kind of under-investment in Internet points of presence.

And the reason that the Bell Companies have not made these investments is very simple, and that is that under existing law, they simply cannot carry the data from their own point of presence to the Internet backbone. If it crosses a LATA boundary, they have to hand that traffic off to somebody else. And so the incentive for them to make an adequate range of investments in rural America that will bring the benefits of broadband service to rural residents simply does not exist.

By deregulating the offering of interLATA data services, we can resolve that problem and incent the creation of a sufficient number of points of presence throughout the rural regions of this Nation to make sure that this aspect of the digital divide is appropriately addressed. Now, that is one very important reason to enact this measure.

Another reason has not been mentioned this morning, but let me highlight it, and it relates to the question of the pricing for Internet backbone services. There was a time in the early years of the Internet as a broad commercial medium in our country when the owners of the various segments of the Internet backbone treated each other as peers, and what that means is that they agreed without charge to simply transfer each other's traffic from one segment of the backbone to another. They made the rough assumption that each segment was delivering to the other segment an essentially equal share of data.

But as we have seen concentration in the ownership of the Internet backbone, those peering arrangements have broken down and now what used to be free passages have become tollways and charges are now being imposed when data is transferred from one segment of the backbone to another. Now, I do not know what the future holds in terms of the potential for even greater concentration in the ownership of the Internet backbone. We certainly have one major merger pending that could potentially have that effect. But even with the existing amount of concentration, we are seeing charges imposed where the traffic used to flow for free, and I think this fact argues very strongly for the injection of greater competition into the offering of Internet backbone services.

The legislation that Chairman Tauzin and Ranking Member Dingell have put forward would accomplish that goal and would bring five very capable companies into the offering of backbone services. It would encourage them to make the investments that are necessary. Passing this bill, I would add, does no violence to the 1996 Act. This point has been debated by some of my colleagues this morning, but let me just add a couple of thoughts.

Section 271 is the gateway requirement for the ability of Bell operating companies to offer interLATA information. Information in the terms in which we discussed it in 1996 did not refer to the Internet. We were not talking in those days about data at all. All of the discussions, and I sat in on them so I can testify as a witness, were about voice-based long distance services. It was an $80 billion market then. I am sure it is higher than that now. Voice-based long distance was the subject of Section 271. And the carrot of the ability to offer interLATA long distance service that is voice-based was held out to the Bell Companies as an incentive for them to open their local exchanges. We were not talking about data. We were not talking about the Internet in 1996.

Now, the legislation which my friends have introduced would simply say that the Bell operating companies could now offer data across LATA boundaries. It would not give them the permission to offer voice-based long distance until they get permission to do so under Section 271, and it is a very easy matter to determine whether or not they are offering voice-based long distance perhaps through the Internet protocol or other means. You simply look in the phone book and see if the service is being sold. It is not a hard determination to make.

This measure is necessary. I strongly support this deregulation of broadband services. I am pleased that finally this morning we have an opportunity to begin a discussion of this timely and important subject and I very much hope that this discussion will lead to an early reporting of the Tauzin-Dingell measure from this subcommittee.

Finally, Mr. Chairman, I just want to say a word of welcome this morning to our first witness, our friend and colleague from Virginia, Bob Goodlatte, who represents a district that adjoins mine. I have the privilege of co-chairing with him the House Internet Caucus and he and I together have put forward a bill that has many of the elements of the legislation sponsored by Mr. Tauzin and Mr. Dingell. Our measure is pending in another committee and perhaps we will be successful in having that measure reported from that committee in the very near future. We are glad to have Mr. Goodlatte here this morning. He has a deep expertise in this subject and I am sure that he will educate us well.

I look forward also to hearing the testimony of the other witnesses and I thank you again, Mr. Chairman, for today's exercise.

Mr. TAUZIN. I thank the gentleman.

The Chair reminds the members that the chairman will call members in the order of appearance when the gavel fell. Next in line will be the gentleman, Mr. Shimkus.

Mr. SHIMKUS. Thank you, Mr. Chairman. All I want is high-speed Internet access that is timely, that competes fairly and provides service to all geographical areas in the 20th Congressional district, and with that, I will yield back my time.

Mr. TAUZIN. I thank the gentleman.

The gentleman from Texas, Mr. Green.

Mr. GREEN. Thank you, Mr. Chairman. The opening statements are really worth the price of admission this morning. I mean, what other committee can you go to in this House and have our ranking member suggest we might need to storm the FCC because of all

our frustration with them. Maybe we can borrow Pat Buchanan's pitchforks. They are not being used right now.

Mr. Chairman, when you mentioned the Time-Warner Road Runner situation in Houston that is in my district, and with our ranking member of this subcommittee's mention of Wile E. Coyote, with all due respect to ABC-Disney that is here, hopefully with competition, we will keep us from having a Mickey Mouse system in the Houston area, and by that, competition. I say that because I know ABC-Disney is here.

The issue in today's hearing has far-reaching consequences on the shape of telecommunication policy in the future. Broadband will allow for high-speed data traffic to flow to our homes and businesses, ushering in a new level of e-commerce. And while I was reviewing the witnesses' testimony last evening, I noticed a fairly even difference of opinion on whether this committee should reopen the 1996 Telecom Act to more specifically address the issue of data. I understand that it is a complicated issue with a tremendous amount of disinformation hovering overhead, but I want to express the same frustration, I think, that other members have. This is a complicated issue and this subcommittee should begin holding in-depth hearings to focus directly on the problem. The continued hide and seek over the true nature and scope of the past hearings does nothing to help us address the issue of data.

H.R. 2420, the Internet Freedom and Broadband Deployment Act, which I am one of those 200-plus cosponsors, seeks to speed the delivery of broadband services throughout our country. It is unfortunate there is disagreement among differing sectors of the telecommunications community over who should be allowed to offer broadband and under what circumstances. I want to say very clearly that our first priority should be for our constituents and our consumers. They should be able to receive the best broadband service available regardless of who provides it or in what form it is delivered.

Recently, I had meetings with two wireless broadband providers that represented truly revolutionary technology. They can provide consumers with Internet access many times faster than either DSL or cable modem. While both technologies are still in the early stages of production, the advantage they offer cannot be overlooked. I do not want to stifle innovative technology like this that would allow for wide and rapid deployment of broadband.

The passage of the 1996 Act was a watershed event in deregulating the telephone industry. Unfortunately, we did not foresee and thus did not create clear guidelines with respect to data traffic. This confusion has left many consumers waiting to fully experience the benefits of broadband. We need to address this issue, hopefully during this term of Congress.

The telecommunications world is rapidly changing and consolidating to the point that RBOCs and CLECs are quickly becoming irrelevant. The telecommunications industry has gone global. By 2002, over 90 percent of all traffic flowing over our telecommunications system will be data. Congress must ensure that all this data can move seamlessly to every community in America.

The Internet is here and growing rapidly. Mr. Chairman, this is such an important issue for our constituents. I hope that we can

move the legislation that you and our ranking member of the full committee have been so successful in gathering cosponsors, and I yield back my time.

Mr. TAUZIN. I thank the gentleman.

The gentleman from Florida, Mr. Stearns, is recognized.

Mr. STEARNS. Thank you, Mr. Chairman, and let me commend you for having this hearing. I think many of us have said, when you have asked us to go on your bill, we said, Mr. Chairman, we would rather have a hearing before we go on the bill to fully understand the implications, and so I commend you for doing that and I look forward to the testimony.

In listening to some of the opening statements, particularly from Mr. Dingell, who I have great respect for, he had the expression that some folks are not getting their fair share. We also heard him say there are winners and losers and we as a government should not pick them. I would say to the audience and to my colleagues that by having the government step in, we actually are setting up more regulation and we are actually in some ways picking winners and losers. So I think what I want to hear today, whether there is need for regulation, particularly the Goodlatte-Boucher bill, as well as Chairman Tauzin's bill.

Many of us are aware that there are companies like Covad that are providing DSL very successfully and they have a large amount of money invested. There are many, many companies who have gone public. There are billions of dollars invested. If the Tauzin bill passed the House floor, all that money would be in jeopardy. So when you hear the expression, some folks are not getting their fair share, you have got to be careful because the implication is the U.S. Government should step in so that they get their fair share, and that is not what we want to do, which goes back to Mr. Dingell's earlier statement, we must not pick winners and losers.

I think Chairman Bliley touched upon a point that we should reflect on, is that there is a great deal of movement toward broadband and that the market will take care of itself. Surely the FCC, whether they are right or wrong, did not exist in the computer industry and the computer industry has innovated and developed much competition and so I think if the FCC did nothing, I think we would see ultimately broadband coming out there, not just through the land-based carriers but also through companies dealing with satellite, direct TV.

In my hometown of Ocala, Central Florida, they are now providing broadband through satellite. Time-Warner is providing it through the Road Runner all throughout Central Florida and it is also coming in in other wireless fashions, and, of course, there are many companies like Covad that are out there providing DSL.

So I think all of us should be very careful whether we want to go back and rewrite the Telecom Act of 1996 and we should let this percolate a little longer. So I urge my colleagues to attend the hearing and to listen to most of the testimony. And again, Mr. Chairman, I compliment you, and as I told you in the beginning with your bill, I think that it is important that you have this hearing. I would be glad to write letters and so forth. I think the ultimate result of this hearing will determine whether you should go to

markup in the full committee or not, so I look forward to the testimony. Thank you, Mr. Chairman.

Mr. TAUZIN. I thank the gentleman.

The Chair recognizes the gentleman from Minnesota, Mr. Luther.

Mr. LUTHER. I have no statement.

Mr. TAUZIN. Then the gentleman from Illinois, Mr. Rush.

Mr. RUSH. Mr. Chairman, I also want to commend you for having this hearing. This subcommittee has held a series of hearings on the broadband deployment. Because of these hearings, I personally have learned a great deal about the innovative methods being used to deploy broadband and the way it is being used by the average consumer.

Mr. Chairman, I would like to ask for unanimous consent to insert into the record a report by Keegan Media Appraisers on the state of broadband competition.

Mr. TAUZIN. The gentleman makes a unanimous consent. Is there any objection?

[No response.]

Mr. TAUZIN. Without objection, the report will be admitted into the record.

Mr. RUSH. Thank you, Mr. Chairman.

[The report follows:]

THE STATE OF BROADBAND COMPETITION

An Analysis of Cable, Telco DSL, Fixed Wireless and Satellite Competition for High-Speed Data Services, 1999-2000

March 2000

Compiled for the *National Cable Television Association*

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The STATE OF BROADBAND: 2000
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EXECUTIVE SUMMARY

To say that broadband grew in 1999 would be gross understatement.

Broadband *exploded.*

Consider: At the beginning of 1998, "broadband" was a phrase linked to cable's focus on connecting its customers' home PCs to the Internet, at vastly faster speeds than dial-up. "Techies" used the word. Non-techies pronounced the word with an expression of mild distaste, not wanting to dismiss the techies' mantra completely. Onlookers whispered "risky" to MediaOne's decision to change its marketing tagline to "this is broadband, this is the way," not fully believing what would soon become a clever move of prescience. Skeptics decried the category as a hype-magnet, pointed out a tiny, 580,000-household universe of cable modem and telco DSL users.

And look at broadband now. In 12 months, the word joined the general lexicon of both business media and Wall Street, seasoning financial newscasts and creating over $200 bil. in public market funding. The number of specific industries wanting to offer broadband widened and deepened, with dozens of new DSL, wireless and satellite contenders challenging cable for its early lead.

The services of broadband widened, too. It's not just high-speed connections to the Internet anymore, but rather anything that is based on Internet Protocol and works better when more bandwidth is involved. Indeed, broadband is the conduit for every major service provider's foray into bundles of telephone, video, and data services.

And subscribership deepened, both in numbers of actual users, as well as the number of service providers per market. Cable, DSL and wireless added almost 2 million customers to broadband's total subscriber line in 1999. We think broadband could sail over 6 million customers by the end of this year, or 12.5% of the 48 mil. U.S. homes that own a PC and take an Internet subscription.

If technology is besting itself in "Internet time," then broadband itself is gaining recognition in broadband Internet time. And this one's only in its second inning.

I. CABLE ADVANCED SERVICE DEPLOYMENTS

Cable continued a solid thrust to upgrade its networks for advanced services in 1999, simultaneously upgrading channel capacity and activating the return signal path, from its subscribers homes to headends.

The latter capability, known interchangeably as "bidirectional signalling" and "two-way," is a critical component of advanced services deployments. Without a usable link from consumers to cable headend equipment, the industry's hybrid-fiber coax networks still had to rely on a telephone return line for any interactive signals.

Although sustained cable consolidation may cause a slight lag in the actual two-way tally (below), our research indicates impressive levels of two-way plant. We use the word "impressive" by referencing 1997 levels of two-way, which hovered at less than a quarter of all plant.

This year, MSOs will continue to discern how much two-way is completed vs. how much needs to completed from newly acquired properties. By the end of 2000, as much as three-quarters of U.S. cable plant will be upgraded for two-way:

% of Subs Served by 2-Way Cable Plant

Year	% 2-Way
1998	56%
1999	68%
2000	75%

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From a total subscriber standpoint, the table above translates into nearly 51 mil. U.S. cable subscribers with access to two-way services, such as high-speed data, telephony and interactive TV, by the end of this year. (Note that two-way is the first of at least two steps in any advanced service deployment, the second being the installation of headend equipment for the associated advanced service type.)

The cable upgrade process almost always includes both two-way extensions and channel expansion. Progress is similarly bullish along the bandwidth expansion front, as shown by the two tables below. The push to higher bandwidth, below, shows that nearly three-quarters of U.S. cable plant will run at 750 MHz capacity by the end of this year.

U.S. Cable Bandwidth by % Capacity Increase

Bandwidth	Equivalent Ch. Capacity	1998	1999	2000
% < 550 MHz	<82 channels	28%	13%	8%
% 550 MHz	82 channels	22%	17%	10%
% 750 MHz	115 channels	48%	65%	72%
% > 750 MHz	135 channels	2%	5%	10%

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The associated impact on U.S. cable subscribers is shown below, where as many as 48 mil. existing cable customers will be served with 115 channel (750 MHz) capacity by year-end 2000:

U.S. Cable Bandwidth by Subscriber Count

Ave. Upgraded Subscribers	Equivalent Ch. Capacity	1998	1999	2000
< 550 MHz (mil.)	< 82 channels	18.3	8.67	5.43
% 550 MHz (mil.)	82 channels	14.4	11.3	6.67
% 750 MHz (mil.)	115 channels	31.4	43.4	48
% > 750 MHz (mil.)	135 channels	1.31	3.34	6.67
Total (mil.):		65.40	66.70	66.80

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CABLE-DELIVERED HIGH SPEED DATA

The cable sector attracted 811,000 new high-speed data customers in 1999 – a 164% increase over 1998 -- for a year-end total of 1.45 million customers using cable modems to connect to the Internet at shared speeds of 27 Megabits per second (Mbps). With Canadian deployments, the total North American cable segment logged 1.72 million high-speed data subscribers at the end of 1999.

Driving cable's high-speed data growth in 1999:

1. Pent-up demand. Cable providers entered 1999 with a strong desire to "get on with it." They had just spent a year waiting for equipment that met the CableLabs DOCSIS specification, despite market pressure to continue buying proprietary gear so as to meet consumer demand.

2. A lengthening list of CableLabs-certified vendors. In March 1999, the first two vendors received DOCSIS-certified status, meaning they had successfully passed a battery of interoperability tests. The benefit: DOCSIS-certified modems used in one cable system would also run in in another MSO's territory, if the consumer opted to move. Subsequent certification waves through the year produced 13 approved vendors by YE'99. Another 10 were certified in March 2000. **There are currently 23 manufacturers at the ready to make cable modem equipment.**

3. Competition. Cable entered 1999 with a comfortable lead over telco DSL – 550,000 subscribers vs. 50,000 DSL – but the gap would close quickly. Swift moves by telcos and national DLECs (Digital Local Exchange Carriers, like Covad, Northpoint and Rhythms) attracted about 560,000 residential and business consumers to DSL alternatives during the year, an order of magnitude increase over 1998.

CABLE HSD GROWTH

U.S. cable operators added, on average, about 17,500 new high-speed data subscribers per week in 1999. Already, in 2000, the combined weekly install rate of just three cable providers -- AT&T Broadband, Time Warner Cable and MediaOne -- is at 20,000/week. Using rational growth assumptions, we think cable will add 2.1 million new high-speed customers in 2000, for a year-end total of 3.6 million. That means the industry needs to install, on average, about 40,300 cable modems/week – or about half the number of digital set-tops it installed per week in 1999.

The following factors will increase cable's weekly install rates for cable modems:

1. Retail availability of cable modems will gain momentum. The whole point of the CableLabs DOCSIS specification – cross-vendor equipment interoperability – will come into play this year. Cable providers are already engaged in test markets with retailers, and now need to sort through business issues (mostly the question of how a retailer gets paid: a one-time "bounty" or a cut of monthly subscription fees).

2. PC manufacturers will build cable modems into PCs. We expect at least one "internal card" cable modem to pass through CableLabs certification this year, perhaps as soon as May. That will open the opportunity for PC manufacturers to build cable modems into the computers they manufacture. That removes a major decision point for consumers – whether or not to buy a standalone cable modem.

3. "Do it yourself" installs won't require a truck roll. Cable providers are focused on providing "self provisioning" modem kits, where a consumer can buy a cable modem, bring it home, and hook it up via a single call to the cable operator for activation. **This is a critical component to lift weekly run rates, and one already in play by telco DSL providers.** In some U S West's service areas, for example, the telco attracts consumers with a modem and self-install kit that doesn't require a technician at the house.

Feature-enhanced modems, such as those that plug into home PCs via a simple USB (Universal Serial Bus) connector, will also boost weekly run rates. Among the newly certified DOCSIS vendors in March 2000 were three cable modems that include a USB connector. The following table indicates the quarterly growth in 1999 for the 8 largest cable providers:

Quarter-by-Quarter Subscriber Growth for Eight Cable HSD Providers

	1Q'99	2Q '99	3Q '99	4Q '99	Avg. wkly installs
Cable Operator	(in 000)	(in 000)	(in 000)	(in 000)	(in 00)
Adelphia	20.8	26	31.8	39.4	0.76
AT&T BIS	27.0	82.8	113.6	207	3.98
Cablevision Systems	17.1	22.3	31.5	52.1	1.00
Charter	n/a	33.7	47.9	65.6	1.26
Comcast	71.6	94.2	112.9	141.9	2.73
Cox	88.9	112	140.4	186.9	3.59
MediaOne	114	140	173	220	4.23
Time Warner	n/a	179.7	250	328	6.31
Total:	312.4	690.7	901.1	1240.9	23.86

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CABLE DIGITAL VIDEO

Cable, in its third year of digital video deployments, ended 1999 with nearly 5 million digital video subscribers. Perhaps more importantly, the sector's weekly hookup rate, at 95,000 subs/week, showed long-awaited proof that the industry had settled into a sustainable digital gait.Cable's per-week digital video rate more than doubles DBS, which is adding about 40,000 new digital video customers per week.

AT&T Broadband again came in first, with 3.3 million subscribers, including the rural systems served by AT&T's "Headend in the Sky (HITS)." Time Warner, which turned on its digital video spigot in 1999, sailed to 425,000 digital video subs from a cold start in March. In 2000, Time Warner is likely to end the year with 1.75 million digital video customers.

Even if cable didn't increase its weekly run rate (which it will), the sector will add another 4.9 million digital video subs this year, for a YE'00 total of 9.8 million We think they will increase the pace. Cablevision Systems, for one, will pick up the slack later this year, when it starts putting in the widely publicized Sony digital boxes it ordered, in Sept. '99, for use by 100% of its subscriber base (and not part of a digital tier upsell). That project is still headed for tests by mid-year, and installs by the end of 2000.

Quarter-by-Quarter Subscriber Growth for Eight Cable HSD Providers

MSO	1Q	2Q	3Q	4Q
Cable Provider	(in 000)	(in 000)	(in 000)	(in 000)
Adelphia	22.7	89.6	170.7	240.00
AT&T BIS	n/a	1400	1700	3300.00
Cablevision Systems	0	0	0	0.00
Charter	n/a	86.8	113.7	155.40
Comcast	n/a	225.9	355.4	515.30
Cox	0	144.6	201.7	265.30
MediaOne	0.2	14	24	56.00
Time Warner	0	40	250	425.00
Total:	22.9	2000.9	2815.5	4,957.00

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CABLE TELEPHONY

Cable providers remained mixed on their telephony focus in 1999. Cox and MediaOne continued a heavy push; AT&T Broadband announced plans to deepen its involvement with an analog technique ("RF telephony"), while increasing its focus on 2000 and 2001 deployments of a new digital technique, IP (Internet protocol) telephony.

The industry ended 1999 with about 195,000 telephony customers, not including most of Adelphia's phone subscribership (Adelphia includes its business telephony customers in its count.)

The table, below, shows the quarterly telephony customer count of 8 top MSOs:

Quarter-by-Quarter Subscriber Growth for Eight Cable Phone Providers

Cable Provider	1Q	2Q	3Q	4Q
	(in 000)	(in 000)	(in 000)	(in 000)
Adelphia	34.6	191.2	250.2	325.2
AT&T BIS	n/a	n/a	n/a	8.3
Cablevision Systems	0	4.7	6.6	8.9
Charter	0	0	0	0
Comcast	0	0	0	0
Cox	0	59.7	80.9	101.8
MediaOne	7	26	42	66
Time Warner	0	0	0	0
Total:	41.6	281.6	379.7	510.2

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II. BROADBAND BOOM: TELCO DSL, FIXED WIRELESS, SATELLITE BURST INTO THE GAME

Broadband became much more than a one-trick pony – cable-delivered high-speed data – in 1999. ***Consumers and businesses located within every top 10 Neilsen DMA, for example, have at least 10 broadband providers to call for service; and some smaller markets show two and three broadband service options.***

DSL produced the biggest gains for the year, as regional Bell operating companies—especially U S West and SBC Communications – aggressively pursued residential DSL subscriptions.

National DLECs (Digital Local Exchange Carriers) like Covad, Northpoint and Rhythms stormed onto the broadband scene, commanding successful IPOs and market perception as leading provides of DSL for businesses. The combined equity capitalizations of the big-3 DLECs, as of 3/16/00, stood at $14.54 bil. That represents 18% of the $75.13 bil. in combined equity capitalization for the 16 publicly-traded DSL provider and supplier companies we track.

Two new satellite-based proponents emerged as well: iSky, a Denver-based provider with plans for a winter 2001 launch of high-speed data services, and Gilat, which will provide high-speed services in combination with EchoStar.

The number of terrestrial wireless players grew wildly, as well.

DIGITAL SUBSCRIBER LINE (DSL)

The DSL sector attracted 390,940 new high-speed data customers in 1999 – a 1300% increase over 1998 -- for a year-end total of 420,940 customers. On a per-week basis, DSL providers installed at a rate of roughly 7,500/week, about 10,000/week short of cable's 17,500/week. That's from almost cold starting point of 30,000 total DSL subs in January, 1999.

Driving DSL's growth in 1999:

1. Fear of Second Line Revenue Losses. The swift DSL growth 1999 stemmed partly from fear of cable, an interloper poised to remove a lucrative revenue source: The second phone lines purchased for dial-up Internet access.

2. Regulatory Boosts. The 11/18/99 decision by the FCC to force incumbent carriers to share copper lines with DLECs was received with great zeal by companies like Covad, Northpoint and Rhythms. Before the Nov. 18, 1999 ruling, when a customer ordered DSL from a DLEC, they had to buy a second phone line from the local telco for the data service – a cost impediment for the new DLEC entrants. Customers who purchased DSL from telcos didn't need a second line, because the telco could obviously provide both voice and data service on the existing line. The FCC ruling ended an automatic advantage telcos received, valued at roughly $20/mo./DSL customer. The decision goes into effect around May '00.

3. Competitive Pricing. Under pricing pressure from cable, DSL providers slashed monthly fees in 1999, and earlier this year starting dropping their prices. SBC trimmed to $39.99/mo., from $49.99/mo., including ISP service, free equipment and installation.

Telco Residential DSL Price Plans*

Provider	Price/Mo.
Bell Atlantic	$64.99
BellSouth	$59.99
GTE	$53.00
SBC	$39.95
US WEST	$47.90

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* Prices include ISP charges;
* Prices as of 2/14/00

Combined, the regional Bells ended 1999 with 36.5 million DSL-ready lines, which represents nearly a quarter of the 171 million phone lines in the U.S. The number of DSL-ready lines for each major telco is summarized below:

Telco DSL Buildout Stats

Company	Total Lines	DSL-enabled Lines	Penetration
SBC	60,682,000	10,000,000	16.4%
U S WEST	17,009,000	6,500,000	38.2%
GTE	26,068,000	6,000,000	23.0%
BellSouth	24,477,000	7,000,000	28.5%
Bell Atlantic	42,971,000	7,000,000	16.2%
Total	**171,207,000**	**36,500,000**	**24.4%**

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The regional Bells posted the following subscriber tallies:

Telco DSL Subs. 1999

Company	1999 Subs
SBC	169,000
U S WEST	110,000
GTE	57,000
BellSouth	30,000
Bell Atlantic	30,000
Other	15,940
Total:	**420,940**

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This year, DSL's growth will only continue, to an estimated 2.4 million customers by year-end. To get there, DSL providers need to install 38,000/week, or 5x their 1999 weekly run rates. It's a steep goal, but nonetheless plausible, for the following reasons:

1. Without DSL, telcos are lacking a bundled service option. DSL is the most viable method for the regional Bell companies to counter cable's forthcoming service bundles, with voice, data and video.

2. Telcos are talented marketers, and they've started that engine. The leaders, SBC and U S West, are already blitzing with mass marketing efforts in their active markets.

3. Self-provisioning is already in motion. Many telcos already offer the path of least resistance to consumers who want a high-speed connection: An equipment kit shipped to homes, with no technician visit required.

4. PCs already ship with built-in DSL modems. Compaq started shipping high-end PCs with built in DSL modems in 1999; more PC manufacturers will enter the DSL scene this year.

5. Free DSL Service is available in some markets. Broadband Digital Group, based in Orange County, CA, emerged in early 2000 with a plan to offer DSL to consumers for free. BDG said it planned to support its DSL service solely by advertising, giving customers a personalized "Winfire" browser that appears as a small navigational bar on users' computer screens. While online, advertisers and marketers can deliver messages to the FreeDSL subs. Plans are to go live April 1; as of 2/16/00, BDG reported 400,000 registered users who wanted free DSL. Testing is underway to 500 subscribers in Atlanta, Boston, Chicago, Los Angeles, and Seattle.

DSL PRIMER

A technology introduced in the early 1990s to help telcos get into digital video, DSL went dormant in the mid-'90s and re-emerged in the late '90s with a new, more potent twist: The way for telcos to shuttle high-speed Internet access to residential and business customers over existing copper wires. Were it not for cable's aggressive subscribership gains, however, DSL may have remained dormant.

DSL links consumers and businesses to the Internet at speeds between 200 kilobits-per-second (kbps) and 8 Megabits per second (Mbps), depending on equipment used and distance from the central office (CO). Because telcos need to compete with cable modem prices, DSL subscriptions generally come at a fraction of the price of T-1 and ISDN lines – which, ironically, run at slower speeds and can cost upwards of $1,500/mo.

To install DSL, telco technicians visit each central office (a secure building housing telephone distribution and networking gear) and install a digital subscriber line access multiplexer (DSLAM). The DSLAM lets phone traffic travel over existing, copper phones lines to DSL modems at the customer end. Because the DSL signal dissipates as it travels over the copper line, customers living more than 18,000 feet (3 ½ miles) from the CO are susceptible to signal attenuation and will receive DSL at a limited speed. The further the distance, the slower the DSL service. Service providers continue to identify workarounds to extend the service.

Some telcos installed network equipment, called "digital loop carriers," within their networks. DSL currently does not work in plant that includes digital loop carriers, or DLCs. To determine which local loops support DSL, the phone company must remove the load coals and bridge taps from the lines. It is often difficult for a telcos companies to know which customers can receive DSL service and which can't, making advertising and marketing difficult.

DSL SERVICE PROVIDER TRENDS

Southwestern Bell Communications

One of the most progressive Bell companies is Southwestern Bell Communications. Spurred on by cable's rapid modem deployment in California, SBC:

- Announced in early '99 that it would expand its ADSL rollout in the Pacific Bell region to include 255 DSL-equipped central offices, covering 70% of California's customers.
- Aligned with AOL in March of '99, to co-market DSL as a premium upgrade for AOL subscribers within SBC's California markets. Pricing: $20/mo. for DSL speed, on top of $21.95/mo. for AOL.
- Turned up the heat in October '99, with its $6 bil. "Project Pronto," which paints SBC as "the largest single provider of advanced broadband services in America." SBC's target footprint: 77 million U.S. homes, or 80% of SBC's Ameritech, Nevada Bell, PacBell, SNET and SWBell customers. To meet its goal, SBC needs to equip 25 million DSL lines in three years.

At year-end '99, SBC lagged in its Project Pronto rollout. The company ended '99 31,000 customers short of its 200k sub goal. The telco said it had outfitted DSL equipment in 650 central offices, counting 10 million DSL-enabled lines.

In February '00, SBC expanded its DSL service beyond its 13-state territory by joining with Telefonos de Mexico to invest $150 million in Northeastern DSL provider Network Access Solutions. Through the alliance SBC will be able to provide DSL in 30 markets outside its territory, including Boston, Miami and Seattle.

US WEST

US WEST initiated commercial DSL service in 1998, and aggressively moved into more than 50 cities in its territory with its 1 Mbps service. The carrier finished '98 with 20,000 customers, more than any other Bell company.

At year-end '99 US WEST reported more than 110,000 DSL subs, an 88,000 customer increase over 1998. The company has installed equipment in 244 central offices and reports that 10% of qualified households subscribe to its DSL service.

Although SBC leads the regional Bell companies in DSL subs, US WEST leads in self-installs. The company reports that about 93% of its customers self-install their DSL equipment, preventing costly and time-consuming truck rolls.

OTHER TELCO DSL PROGRESS

Another DSL performer is GTE, which started its DSL rollout in 1998 in four states, and ended that year with DSL service deployments in 30 states.

GTE's DSL subscriber numbers shot up 326% from about 14,000 in 3Q '99 to more than 57,000 at YE '99. GTE attributes its deployment success to a competitively priced offering –the company waived one-time installation and equipment fees to new subs, saving potential customers about $99-$340 in start-up costs. It also offers one of the least expensive DSL offerings.

GTE also teamed with DLECs Covad, NorthPoint and Jato to resell its service beyond GTE's coverage area, giving the phone company the ability to offer a nationwide network to customers.

Bell Atlantic, playing catch up, still wants to make good on its promise of having one of the most aggressive DSL rollouts in the industry. The carrier ended '99 with 30,000 DSL customers, saying that 7 million households in its territory are qualified to receive DSL service. The company blamed its low subscriber count on its focus on network deployment, and pledges to make up for its losses in 2000.

Bell Atlantic has outfitted about 700 central offices with equipment and targets 1,000 equipped COs by the end of March, 2000. Also by the end of 1Q '00, Bell Atlantic expects to hit a 10 million qualified lines milestone. The company is currently installing about 2,000 DSL customers/week and plans to ramp up to 1,000/day (5,000/week) by the end of March.

BellSouth remains the most elusive regional Bell company regarding its DSL buildout. We estimate BellSouth has about 30,000 DSL subs, significantly lower than its projected year-

end '99 goal of 100,000. However, the company does offer its "FastAccess" DSL service in 30 cities and plans to have 11,500,000 DSL-qualified lines by year-end '00.

BellSouth also hopes to attract more subscribers with a discounted modem offering. Customers who purchase a $100 DSL modem will receive 30 days of free DSL service and free installation. The service starts at about $59.99/mo.

DLECS: FOCUS ON BUSINESSES

Three primary national DLECs burst onto the DSL scene in early '99, making lots of attention with their initial public stock offerings. NorthPoint, Covad and Rhythms Communications spent most of '99 building out their national networks, each equipping more than 1,000 central offices with their DSLAMs. Because of their buildout focus, however, these three DLECs have been lacking in actual DSL subscribers – a normal condition for any startup. We expect that to change significantly in '00, as they build their reseller partnerships, develop self-installation plans, and increase their advertising and marketing campaigns.

Garnering the most subscribers is Covad Communications, which ended '99 with 57,000 subscribers 1,100 equipped central offices. Covad services are currently available across the United States in 62 of the top Metropolitan Statistical Areas (MSAs) and are expected to be available in 100 MSAs by the end of 2000. At that time, Covad's network will reach more than 40% of all US homes and 45% of all US businesses.

At year-end '99, NorthPoint reported a subscriber base of 23,500, up from 11,800 at the end of 3Q '99. NorthPoint also reported 1,027 equipped central offices, with service up in 32 major metro areas. Plans for this year call for an expansion to 60 markets, passing 50% of all homes and businesses in the U.S., or 110 MSAs.

Rhythms NetConnections ended '99 with 12,500 subscribers, an 86% increase over its 3Q subscriber count. However, Rhythms clearly spent 1999 on network readiness, ending the year with 1,225 equipped central offices. Rhythms plans to provide service in 70 markets, covering more than 100 metropolitan statistical areas (MSAs) by the end of 2000. The company currently has deployed service in 43 markets covering 74 MSAs.

RURAL AMERICA: NEW FOCUS FOR DSL

While the incumbent telcos and national DLECs fight for big-city broadband subscribers, a new breed of DSL carriers is looming large for rural America. Their target: small and medium businesses in small cities around the country.

Denver-based Jato Communications was one of the first DLECs to articulate its Tier II and Tier III marketing strategy. Jato plans to tap the 800,000 businesses and 8 million homes in its initial 14-state reach, but will expand to 100 markets nationwide this year. The company has wholesale arrangements with ISPs and currently businesses comprise much of its revenue. During the past three months, Jato has attracted investments from Microsoft and Global Crossing.

Another player with a similar business plan is Vancouver, WA-based New Edge Networks. The upstart company—with backing from venture capital firms like Accel Partners, Greylock and Crosspoint Ventures—has secured $77.8 million in funding for its DSL buildout plans.

New Edge currently offers DSL in its hometown of Vancouver and will soon rollout service in Portland, OR. ISPs will resell the service and the company signed reciprocal service agreements with NorthPoint and Covad, ensuring that customers will have service in as many cities as possible.

Other "regional DLECs" with similar business plans include:
* Choice One Communications, which plans to launch service in about 20 cities by the end of June. It currently has just 206 DSL subs in nine markets and has equipment in 141 central offices.
* BlueStar Communications, which plans to offer DSL service to small towns in the Southeast. The company currently has 1.2K subs in 25 markets, with co-located gear in 84 central offices.

FIXED WIRELESS

The wireless industry has struggled for years to develop an Internet access technology. Now, the sector may be poised to gain some traction. We estimate fixed wireless networks grew at an industry average of nearly 150% in 1999. Actual residential subscribership remained very low, at about 9,000 residential customers by year-end. The large number of variables make projections tricky; our best estimate is that as many as 150,000 U.S. homes could subscribe to fixed wireless broadband methods by the end of this year.

Fixed wireless is rapidly becoming a hot commodity, if mostly for businesses. Primarily, it gives businesses a high-speed detour around the local loop. In addition, most fixed wireless operators can install equipment and provide customers with high-speed access within hours, especially if the network hub is already in place. In contrast, ordering a T1 or DSL service often takes weeks or months.

LMDS: BUSINESS-CENTRIC

Operating in the 28 GHz to 38 GHz spectrum range, wireless CLECs such as Winstar, Teligent, Advanced Radio Telecom and NextLink use local multipoint distribution technology to transmit high-speed data primarily for business customers.

LMDS companies use tiny antennas aimed at base stations to avoid costly network buildouts that require stringing cable or fiber beneath city streets. Because they bypass the local telco, these companies avoid paying costly fees.

The challenge for LMDS players is often rooftop access for the antennas. Rooftop access is becoming a battleground for wireless CLECs, as building and apartment landlords turn away telecom providers or charge steep access fees. At stake is the ability to reach millions of customers in an estimated 750,000 office buildings, plus hundreds of thousands of apartment building residents.

LMDS Profiles:

- Winstar counts as about 23,300 core customers and reports an average revenue per customer of more than $1,500/mo. In 1999, Winstar Communications expanded its

broadband network to reach 60 markets. The company has access to more than 8,000 buildings, adding access rights to 1,500 buildings in 4Q' 99 alone. In addition, the company added 85,000 lines in 4Q, bringing its total number of lines to 618,000. Winstar also has deployed point-to-multipoint service in six markets and plans to deploy several more markets in 2000.

- Teligent, backed by The Associated Group, ended 1999 with 15,000 customers in the U.S., more than double the number of subs it had in 3Q '99. The company installed nearly 90,000 lines during 4Q, bringing its total number of lines to 166,000. In addition, Teligent gained access to more than 7,500 buildings through leases and options. Teligent has installed "last mile" broadband network equipment in more than 3,000 buildings, of those 2,500 buildings have passed Teligent's certification procedure, making them officially "on-net."

- NextLink Communications, founded by wireless maven Craig McCaw in 1994, started offering fiber-optic service in 1996. Now the company is poised to add fixed wireless,too -- the company holds more LMDS spectrum than any other company. This, combined with its fiber-optic network, will give Nextlink coverage of 95% of the top 30 U.S. markets. Last December, the company launched commercial LMDS service in Dallas and Los Angeles as part of its '00 25-city rollout. The company launched commercial broadband services in Sacramento, CA, St. Louis, Boston and Phoenix in 4Q, bringing its total route miles (the number of miles of company owned or leased fiber) to 4,300k. **Unlike the other LMDS players, NextLink also has a DSL agenda.** The company on Jan. 10 acquired Internet data company Concentric for $2.9 bil. Concentric, which also focuses on the small and medium-size business market, has filed for CLEC status in all 50 states and provides virtual private networking and ISP service. Concentric also sells DSL through its strategic partners, NorthPoint and Covad.

- With investments from Qwest Communications and Lucent, Advanced Radio Telecom is capitalized to grow. The company started tests of a new high-speed bi-directional "ring" technology (buildings are connected to a ring and then to a fiber-optic network) in fall '99 in San Jose and plans to rollout the service in nine additional markets by June '00. ART also is rapidly expanding its building-access rights. The company sports access to 4,400 buildings, adding more than 800 through a deal with RREEF Funds, an institutional real estate company.

MMDS: SPRINT, MCI FOCUS ON HOMES

Another branch in the fixed wireless tree is multichannel multipoint distribution services, or MMDS. Operating in the 2.5 GHz spectrum, MMDS got new life last year with two critical events:

1. The FCC's decision to allow two-way digital signals in the MMDS spectrum, and
2. The enormous financial validation of the flagging sector, when Sprint Corp. and MCI Worldcom separately snapped up several large MMDS properties.

Sprint spent $1.7 bil. to buy People's Choice TV, American Telecasting, Wireless Holdings and WBS America which together blanket about 30-plus percent of the U.S. population.

Meanwhile, MCI Worldcom bought CAI Wireless Systems, Wireless One and PrimeOne, covering more than 60% of the U.S. for $1.1 bil.

Later this year when Sprint and MCI WorldCom's merger is final, these purchases will be combined, creating a major emerging broadband wireless force:

The Sprint/MCI MMDS Footprint

	Price	Total Homes
MCI	($mil.)	-----(000)-----
CAI Wireless	$990.4	24,640
Wireless One	445.4	11,200
PrimeOne	300.0	6,000
SPRINT		
American Tele.	$408.9	10,069
People's Choice	404.4	10,159
Wireless Holdings	210.0	6,955
WBSA	108.0	2,902
Total:	**$2,867.1**	**71,925**

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With its newly acquired MMDS spectrum, Sprint converts the former analog MMDS channels—each carrying 6MHz video signals—into 99 digital data streams, each blasting data at 10Mbps. Sprint then can send up to 1Gpbs of capacity from a single transmitter.

The bandwidth is shared by all active devices resident within the cell. Sprint spurts the signals at about 10 Mbps from a central antenna, in the 2.1 GHz and 2.5GHz-2.7 GHz spectral range.

At home, a 10-inch receiver dish collects the signals and distributes them to a digital set-top or cable modem. Upstream transmissions run at about 1 Mbps, using common QPSK modulation.

Sprint quietly revamped and relaunched its MMDS properties in 1999 and 2000, in Phoenix, Detroit, San Francisco, Denver and the Silicon Valley. **Total count: 6,000 data subs.**

Sprint plans to launch four more markets in May and another three per month until its system is complete--about 90 U.S. markets by 2003.

Unlike its LMDS counterparts, MMDS is primarily being used to target the residential market. However, with multiple 10Mbps downstream channels, many players believe their service also will be attractive to small and medium-size businesses.

Sprint's pricing is slightly higher than cable and residential DSL service. Pricing starts at $54.95/mo., which includes a $10/mo. modem fee. Modems cost about $250 and the $10 fee is waived if a modem is purchased.

Meanwhile, MCI WorldCom on March 8 (2000) launched MMDS trials in Jackson, MS; Baton Rouge, LA; and Memphis, TN. MCI is targeting both business and residential customers in the three trial cities. MCI's "WarpOne" service, which is targeted to business users, provides Internet and Web-hosting with scalable bandwidth.

For residential customers, MCI offers "Warp 310," an Internet access service with bi-directional speeds of 310 Kbps. Initially, Warp 310 will be offered to apartment dwellers via a wireless LAN. However, MCI says Warp 310 will soon move into residential neighborhoods. The price: $39.95/mo. for unlimited usage.

By late 2001, the merged MCI WorldCom and Sprint plant to offer MMDS service to customers in more than 100 cities, accelerating the technologies deployment in rural areas and markets traditional underserved by cable and DSL.

AT&T'S "PROJECT ANGEL"

AT&T is beginning to emerge as another fixed wireless player with "Project Angel" – a fixed wireless program using small antennas to transmit four voice lines and provide a 512 Kbps always-on data link.

Project Angel received a breath of new life in December, when AT&T announced a new tracking stock, planned for sometime this spring. The wireless tracker is slated to fund AT&T's mobile voice and data products, fixed wireless and international expansion.

AT&T plans to launch fixed wireless in markets where its cable services are not available and where it does not have cable agreements—nearly one-half of the U.S.

That puts AT&T's service in competition with cable-modem offerings, DSL providers and Sprint and MCI's MMDS plan.

AT&T is currently running tests of its fixed-wireless service in Dallas, where customers receive voice and high-speed Internet access. Neighborhoods in Fort Worth are expected to get the service soon with a rollout in at least two other major markets this year. Full-scale rollout will begin in 2001.

SATELLITE

Two new players entered the broadband arena in early 2000 – iSky and Gelat-- both planning to serve high-speed data services from the sky. The two join Hughes, which is already out with its DirectPC satellite-to-home data service.

1. iSky

Denver-based iSky's focus are the millions of homes untouched by cable and DSL broadband. The venture-backed company plans to offer speedy, two-way Internet access via a pair of Ka-band satellites hovering above the continental U.S. It wants to begin offering the 1.5Mbps service in the closing months of '01.

Pricing will be competitive with cable and DSL offerings, at around $40/mo., on top of receivers/dishes that will run consumers about $400.

iSky believes by the time it begins signing up customers, it will find a fertile market: 35 million households unserved by another high-speed connection.

2. Gilat/Echostar

EchoStar Communications signed a deal Feb. 24, 2000 with newcomer Gilat-to-Home, to begin offering a two-way broadband data service to consumer PCs over a dish slightly larger and pricier than existing DBS models. The plus: A two-way path, not a telco dial-up return.

Gilat-to-Home, a division of Israel-based Gilat, entered the scene earlier in February (2000) with a plan to repackage proven VSAT technology for a consumer offering. Using transponder space on current and future GE Americom satellites, Gilat-to-Home will test the service in the early months of 2000, before bringing it to market in the second half of this year.

3. DirectPC

Hughes Network Systems continues with its "DirectPC" service, a $19.95/mo. service that sends data at rates up to 400 Kbps downstream and uses a telco dialup return path. Last June, the service attracted a $1.5 bil. investment from America Online, an alliance designed to accelerate subscriber growth while extending AOL's AOL TV reach via DirecTV. Hughes has not reported subscribership rates for its DirectPC service.

OTHER NEW TERRESTRIAL HSD

In addition to the tapestry of high-speed data services available to U.S. consumers from the cable, telco, satellite and fixed wireless sectors are at least two new offerings from the terrestrial broadcast camp.

1. GeoCast

In October, 1999, a Menlo Park, CA-based outfit called GeoCast emerged with plans to rollout what it calls a "crossover architecture" that marries leftover digital TV spectrum (after individual broadcasters have filled the pipeline with TV broadcasts, for example) together in a market, for a terrestrial high-speed data offering.

By December, Geocast had landed Thomson Multimedia to make RCA-branded receivers. How it works: Geocast affiliates insert Geocast's data feed into the unused overhead in their digital broadcast feed to viewers. The content is tagged with codes that describe its type and category; the consumer receives the feed from a device hooked to an antenna (Geocast calls it "TiVo for the PC").

Funded by VCs including Mayfield Fund, Kleiner Perkins Caufield & Byers, Institutional Venture Partners and Liberty Media, Geocast estimates its market reach at 30 mil. U.S. homes. The service is slated to launch in late 2000.

2. iBLAST

More recently (3/7/00), an Los Angeles-based consortium of 12 broadcasters came out with word of a similar plan that assigns a dedicated portion of the digital spectrum (assigned to local TV stations) to high-speed data services.

iBLAST expects to offer not just Internet connectivity, but also music, video, games and software, and already counts exclusive agreements with 143 local stations in 102 markets – or more than 80% of the U.S. homes, and every top-25 market. The service launches in early 2001.

How it works: Stations contribute a portion of their digital spectrum and a guaranteed marketing agreement in exchange for equity in iBLAST and an ongoing revenue split for the service.

IV. CONSUMERS HAVE A CHOICE: BROADBAND OFFERINGS IN LARGE AND SMALL MARKETS

LARGE MARKETS

Market	Carriers	Type of Service	Price/mo.
New York City	Acecape	DSL	$49.95
	Bell Atlantic	DSL	$49.95
	BrainLINK	DSL	$59.95
	Bway.net	DSL	$69.99
	Covad	DSL	pricing from ISP
	DSLnetworks	DSL	not available
	firstgate.net	DSL	$125
	Internet Specialties West	DSL	not available
	iNYC.com	DSL	$59
	National Internet Source	DSL	$135
	NorthPoint	DSL	pricing from ISP
	Peconic Online Network	DSL	$59.95
	PSN Internet Service	DSL	$79
	RCN	cable modem	part of bundle
	RemoteIT.com	DSL	$59.95
	Rhythms	DSL	pricing from ISP
	Smart Guys	DSL	not available
	Teligent	fixed-wireless	part of bundle
	Time Warner	cable modem	$39.95
	Tribeca Internet	DSL	not available
	Winstar	fixed-wireless	part of bundle
Los Angeles	Covad	DSL	pricing from ISP
	Friendly User	DSL	$149
	Internet Specialties West	DSL	not available
	MediaOne	cable modem	$39.95
	National Internet Source	DSL	$135
	NorthPoint	DSL	pricing from ISP
	Pacific Bell	DSL	$39.95
	PSN Internet Service	DSL	$49.95
	Rhythms	DSL	pricing from ISP
	Smart Guys	DSL	not available
	Time Warner	cable modem	$39.95
	Teligent	fixed-wireless	part of bundle
	Winstar	fixed-wireless	part of bundle

(LARGE MARKETS, CONT.)

Market	Carriers	Type of Service	Price/mo.
Chicago	Ameritech	DSL	$39.95)
	Covad	DSL	pricing from ISP
	EarthCafe	DSL	$49.95
	Internet Specialties West	DSL	not available
	MediaOne	cable modem	$39.95
	National Internet Source	DSL	$135
	NorthPoint	DSL	pricing from ISP
	Prime Cable	cable modem	$39.95
	PSN Internet Service	DSL	$79
	RCN	cable modem	part of bundle
	Rhythms	DSL	pricing from ISP
	Smart Guys	DSL	not available
	Teligent	fixed-wireless	part of bundle
	urbancom.net	DSL	$49.95
	Winstar	fixed-wireless	part of bundle
Philadelphia	Adelphia	cable modem	$39.95)
	Bell Atlantic	DSL	$49.95
	BrainLINK	DSL	$59.95
	Covad	DSL	pricing from ISP
	Internet Specialties West	DSL	not available
	National Internet Source	DSL	$135
	NorthPoint	DSL	pricing from ISP
	PSN Internet Service	DSL	$59.95
	Rhythms	DSL	pricing from ISP
	Smart Guys	DSL	not available
	Teligent	fixed-wireless	part of bundle
San Francisco	AT&T Broadband	cable modem	$39.95
	Covad	DSL	pricing from ISP
	Internet Specialties West	DSL	not available
	Kendra Communications	DSL	$49.95
	Meer Net	DSL	$125
	National Internet Source	DSL	$135
	NorthPoint	DSL	pricing from ISP
	Pacific Bell	DSL	$39.95
	PSN Internet Service	DSL	$49.95
	Raw Bandwidth	DSL	$64
	Rhythms	DSL	pricing from ISP
	Smart Guys	DSL	not available
	Teligent	fixed-wireless	part of bundle
	Winstar	fixed-wireless	part of bundle
	WombatNet	DSL	$79

(LARGE MARKETS, CONT.)

Market	Carriers	Type of Service	Price/mo.
Boston	Bell Atlantic	DSL	$49.95
	BrainLINK	DSL	$59.95
	Covad	DSL	pricing from ISP
	Internet Specialties West	DSL	not available
	MediaOne	cable modem	$39.95
	National Internet Source	DSL	$135
	NorthPoint	DSL	pricing from ISP
	PSN Internet Service	DSL	$79
	RCN	cable modem	part of bundle
	Rhythms	DSL	pricing from ISP
	Teligent	fixed-wireless	part of bundle
	Winstar	fixed-wireless	part of bundle
Dallas	Covad	DSL	pricing from ISP
	Southwestern Bell	DSL	$39.95
	Rhythms	DSL	pricing from ISP
	NorthPoint	DSL	pricing from ISP
	Teligent	fixed-wireless	part of bundle
	Winstar	fixed-wireless	part of bundle
	DirectLink.Net	DSL	not available
	Internet Specialties West	DSL	not available
	National Internet Source	DSL	$135
	PSN Internet Service	DSL	$79
Washington, DC	Bell Atlantic	DSL	$49.95
	Covad	DSL	pricing from ISP
	Rhythms	DSL	pricing from ISP
	NorthPoint	DSL	pricing from ISP
	Teligent	fixed-wireless	part of bundle
	Winstar	fixed-wireless	part of bundle
	RCN	cable modem	part of bundle
	BrainLINK	DSL	$59.95
	Smart Guys	DSL	not available
	Internet Specialties West	DSL	not available
	National Internet Source	DSL	$135
	PSN Internet Service	DSL	$99
Detroit	Ameritech	DSL	$39.95
	Covad	DSL	pricing from ISP
	Rhythms	DSL	pricing from ISP
	NorthPoint	DSL	pricing from ISP
	Teligent	fixed-wireless	part of bundle
	MediaOne	cable modem	$39.95
	AT&T	cable modem	$39.95
	Comcast	cable modem	$39.95
	Internet Specialties West	DSL	not available
	National Internet Source	DSL	$135
	PSN Internet Service	DSL	$79

(LARGE MARKETS, CONT.)

Market	Carriers	Type of Service	Price/mo.
Atlanta	BellSouth	DSL	$59.95
	Covad	DSL	pricing from ISP
	Rhythms	DSL	pricing from ISP
	NorthPoint	DSL	pricing from ISP
	Teligent	fixed-wireless	part of bundle
	Winstar	fixed-wireless	part of bundle
	Comcast	cable modem	$39.95
	MediaOne	cable modem	$39.95
	Lyceum Internet	DSL	not available
	PSN Internet Service	DSL	$79
	Smart Guys	DSL	not available
	Internet Specialties West	DSL	not available
	National Internet Source	DSL	$135

SELECTED SMALL MARKETS WITH COMPETITIVE HSD

Market	Carriers	Type of Service	Price/mo.
Palm Beach, FL	Adelphia	cable modem	$39.95
	BellSouth	DSL	$59.95
Dublin, CA	AT&T	cable modem	$39.95
	Internet Specialties West	DSL	not available
	National Internet Source	DSL	not available
	Raw Bandwidth	DSL	$64
Plano, TX	AT&T	cable modem	$39.95
	DirectLink.Net	DSL	$57.95
	Southwestern Bell	DSL	$39.95
Madison, WI	Bresnan (Charter)	cable modem	not available
	CyberLink	DSL	not available
	NConnect Internet	DSL	$69
Fairbanks, AK	GCI	cable modem	$39.99
	MosquitoNet.com	fixed wireless	$85
	MosquitoNet.com	DSL	$85
Augusta, GA	BellSouth	DSL	$59.95
	Knology	cable modem	$49.95
Nashua, NH	MediaOne	cable modem	$39.95
	Metro2000	DSL	$105
Sparta, NJ	Bell Atlantic	DSL	$49.95
	Internet Specialties West	DSL	not available
	National Internet Source	DSL	not available
	Service Electric	cable modem	not available
	Tellurian Networks	DSL	not available
Spokane, WA	OlyWa.Net	DSL	$54.95
	Smart Guys	DSL	not available
	Sun Country Cable	cable modem	$49.90
	The Connect! Corporation	DSL	not available
	U S West	DSL	$47.90
Portland, ME	Metro2000	DSL	$105
	Time Warner	cable modem	$39.95

CONCLUSION

The facts speak better than words, as concluding thoughts to the overall state of broadband:

- 210% year-to-year subscription growth, from 1998 to 1999, for all broadband categories (cable, DSL and wireless). A potential for another 238% increase in broadband subscribers this year, from 1.8 million to 6.1 million.
- Over $200 bil. in public market funding, for service providers and equipment suppliers within the widening broadband sector
- A minimum of 10 broadband service choices per major metro market in the U.S. in the early months of March, 2000. DSL offers outpace cable modem offers by a wide margin.
- All that momentum before Sprint/MCI really flex their MMDS plan, or EchoStar and iSky jump in with satellite-based offerings, or GeoCast and iBLAST chime in with their TV broadcaster-centric model.

QUALIFICATIONS

KAGAN MEDIA APPRAISALS, INC.

Kagan Media Appraisals Inc. specializes in the analysis, valuation and appraisal of U.S. and international media and communications properties, companies and markets. Over the past 28 years, Mr. Kagan and his staff have appraised over $30 billion worth of media properties on contract assignment as well as serving in an expert witness capacity in numerous matters of litigation in the media industry. In addition, the Kagan Newsletters have analyzed public and private companies, on at least a quarterly basis, totaling hundreds of billions of dollars. Mr. Kagan and his analyst team have, for the past 31 years conducted seminars for corporate executives and public officials on communications and media topics.

The following summarizes the professional credentials of the key members of the team involved in the preparation of this report:

PROFESSIONAL CREDENTIALS

Leslie Ellis is Senior Broadband & Interactive Analyst for Paul Kagan Associates, Inc., and is responsible for the company's broadband division. Ms. Ellis has been tracking the development of cable television, interactive television and broadband technologies since 1990. She is Editor of the daily KAGANBROADBAND news/analysis fax, and Senior Analyst on 5 of the 40+ Kagan newsletters, including *CABLE TV TECHNOLOGY, INTERACTIVE TELEVISION INVESTOR, VOD INVESTOR, DIGITAL TELEVISION*, and *MARKETING NEW MEDIA*. In addition, Ms. Ellis serves as a consultant to Kagan Media Appraisals, where she specializes in the appraisal of technologies and interactive services. Ms. Ellis' broad knowledge of broadband technology and its players has made her a frequently quoted source in such national publications as *USA Today, Business Week* and *Forbes*, as well as an expert commentator on *National Public Radio* and *CNN Moneyline*. Ms. Ellis responsibilities also include organizing and moderating conferences for the nationally and internationally known Kagan Seminars Inc.

Prior to joining PKA in January 1999, Ms. Ellis was Senior Technology Editor for *Multichannel News*, a leading weekly newspaper covering the cable sector. While at *Multichannel News*, she started the newspaper's weekly "*Broadband Week*" section, running it as Editor from 1994-1998. Before that, Ms. Ellis was Managing Editor of *Communication Engineering & Design*, the leading engineering monthly covering the cable sector. She started her career in 1987 as Technology Administrator for Telecommunication Products Corp. Ms. Ellis holds a B.S.B.A. degree from Shippensburg University in Shippensburg, Pennsylvania.

Trevor Esch is managing editor of Paul Kagan Associates, Inc.'s daily *KaganBroadband* news analysis fax. Mr. Esch is also a contributor to PKA newsletters and runs its long-form research group in Denver. Prior to joining Paul Kagan Associates in 1999, Mr. Esch served as associate editor of *Wireless Week*, a Cahners Business Information publication covering the wireless telecommunications industry. He holds a master of science in mass communications/public relations from the University of Denver and a bachelor of science in mass communications from Baker University in Baldwin City, KS.

Sue Marek is a DSL and wireless sector analyst with Paul Kagan Associates, working in the company's broadband division. Ms. Marek joined PKA in 1999, and has been tracking the

wireless, telecom, satellite and DSL sectors since 1989. She contributes to the *KaganBroadband* news analysis daily, and to several of the PKA monthly reports, including *CABLE TV TECHNOLOGY, WIRELESS MARKET STATS* and *WIRELESS DATA & MESSAGING*. In 1995, Ms. Marek was a member of the management team that launched *Wireless Week*, a leading trade weekly that covers wireless telecom; she served as News Editor from launch until 1999. Prior to that, she was Managing Editor of *Convergence Magazine*, a monthly that covered the then-converging telecom sector. Ms. Marek began her career in 1989 Associate Editor of *Satellite Communications* magazine and *Cellular Marketing* magazine. She holds a bachelor's degree in journalism from the University of Colorado at Boulder.

Mr. RUSH. Mr. Chairman, consumers are now more sophisticated and are demanding better and faster Internet access. Consumers want to be able to download images, music, and stream videos at a faster pace. Hence, it is increasingly important that enhanced Internet access and broadband deployment be available to Internet users. Broadband is the technology that fuels the continued growth of the Internet. It is important that this technology be available to all Americans and I look forward to today's hearings on the creative uses of broadband technologies, especially as it relates to bridging the digital divide. I want to thank you and I yield back the balance of my time.

Mr. TAUZIN. I thank my friend.

The Chair now recognizes the gentleman from Oklahoma, Mr. Largent, for an opening statement.

Mr. LARGENT. Thank you, Mr. Chairman. We have heard a lot about competition this morning already in the opening testimonies of members of this committee and there is nobody that believes in competition more than I do. I believe in competition in broadband. We should have vigorous competition in broadband. But I also believe in competition in local exchanges. We should have vigorous competition in local exchanges, as well. I hope all of my friends on this committee will agree with that, that we need to see vigorous competition occurring in the local exchange business as well as in the broadband business that we are dealing with.

Mr. Chairman, I want to refer back to a word picture that you drew of a train leaving Thibodaux and Lafayette in your district and feeling as if Budrow [ph.] was being left behind in the digital divide. I want to thank you also for having this hearing because I think what this hearing is about is to find out if that distant broadband train whistle that we hear in the distance is actually of a departing train or an approaching train, whether the market itself is actually moving toward Lafayette and Thibodaux and where Budrow lives and——

Mr. TAUZIN. Would my friend yield?

Mr. LARGENT. Absolutely.

Mr. TAUZIN. I also want to make sure Budrow does not get run over by that train.

Mr. LARGENT. Just keep him off the tracks.

But Mr. Chairman, I want to say that I really believe that this subcommittee and the full committee sent a chilling message when it comes to competition just this last month when we rubber-stamped a bill to approve $1.25 billion in a satellite bill to provide DBS satellite coverage for rural communities. Again, I think it was an effort by this committee where we got ahead of the market, and my fear is in the legislation that we are discussing and as we hear testimony today about, that again we may be ahead of the market, that the market itself, perhaps, is headed to Thibodaux and headed to Lafayette and headed to other communities that are left behind in the so-called digital divide.

So I look forward to the testimony of the witnesses today and feel that I, along with the rest of this committee, will be enlightened as a result of the testimony. I yield back, Mr. Chairman.

[The prepared statement of Hon. Steve Largent follows:]

PREPARED STATEMENT OF HON. STEVE LARGENT, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF OKLAHOMA

Mr. Chairman, thank you for holding this morning's oversight hearing to examine the deployment of broadband technologies.

Four years ago I voted for the 1996 Telecommunications Act with the hope and expectation that it would foster competition, spur on the development of new technologies, give greater customer choice, and lowering consumer prices. I think it is safe to say that every member of this subcommittee, who was a Member of Congress at the time, voted in favor of the '96 Telecommunications Act with that same expectation.

Has the '96 act delivered on that promise? I believe it has.

Four years ago, if you had asked the average American what is broadband—you probably would have received a blank look. Today, the term "broadband" has become commonplace in our every day lexicon. Broadband is without question, a major driving force for our recent economic growth.

The '96 act has allowed consumers to choose from a multiple of technologies for broadband service. These technologies include: digital subscriber line, cable modem, wireless, as well as satellite delivery.

One of the primary reasons we are holding this oversight hearing is to determine if section 271 of the act has hindered the Bell operating companies from delivering broadband services. Curiously, it appears that some of the primary beneficiaries of the act. Despite what we may hear from some of the witnesses today, are the Bell companies and GTE.

Here's what wall street is say about their 1st quarter earnings.

"Bell Atlantic 1st quarter revenues grew 7% ahead of our 6% forecast, with data revenues growing 32%, ahead of the recent 25-26% rate in the prior four quarters. (Donaldson, Lufkin & Jenrette, (4/26/00)"

"For Bell South, data revenues contributed 12.5% of total revenues, we expect data to continue contributing significantly to revenue growth as Internet, ADSL, and wireless data become more important sources of growth (Credit Suisse First Boston, 4/28/00)."

"Data continues to represent the primary growth driver for GTE, representing over half of total growth. (Donaldson, Lufkin & Jenrette (4/28/00)."

SBC reached over 200,000 subscribers this quarter up 75% from its year-end levels and has now sold more than 300,000 lines. But even more impressive were the indications that install rates continue to ramp very quickly and the company is now installing at a rate of 3,000 per day which it plans to take to 4,000 to 5,000 per day by midyear. (Morgan Stanley Dean Witter 4/26/00)."

"Data results continue to be among the key drivers at the local exchange carriers, and US West remains a leader (Legg Mason Wood Walker (4/28/00).

I applaud them on their accomplishment.

Mr. Chairman, when it comes to looking at the possibility of reopening the '96 act—I suggest that we remember the old line, "if it ain't broke, don't fix it."

Full and fair competition, be it in financial services, trucking, airlines, electricity, telecommunications, and yes even football is embedded in the American spirit. That is why I was disappointed to read in yesterday's *New York Times* of Time Warner Cable's anticompetitive efforts in the Houston area to have its employees call SBC, order high-speed internet service, cancel the order if it was confirmed and report their results to an administrator in Time Warner's Houston office.

This type of corporate behavior is unacceptable.

Mr. Chairman, in closing, I believe the '96 Telecommunications Act has been a resounding success to all market participants involved: RBOCS, long distance carriers, CLECS, D-LECS, ISPS, satellite companies, as well as the American consumer. And I look forward to hearing from our witnesses.

Mr. TAUZIN. And Budrow thanks you for your concern.

The Chair now recognizes the gentlelady from California, Ms. Eshoo.

Ms. ESHOO. Thank you, Mr. Chairman, and good afternoon and welcome to our distinguished panelists.

In ancient Greece, telecommunications consisted mainly of Greek leaders giving speeches to crowds of citizens, and when it came to great political leaders, I do not think there is anyone that was greater than Pericles in terms of being a great communicator. I think that we can learn something from one of his famous speeches

and the advice that he gave because I think that it applies to what we are going to be discussing today. Today is a worthy discussion, but he said then, and I think it applies today, that "Time is the wisest counselor of all."

When we shaped the Telecommunications Act, we intended that legislation to deregulate a communications industry which we recognized was really choking off competition by its monopolistic practices that were out there in the marketplace. Since the law has passed, I think that we have witnessed a telecommunications revolution that is occurring with breathtaking speed. No sooner does one technology seem to offer more speed and capability when along comes another to offer data at a faster speed.

The Telecom Act has resulted in a larger menu of broadband delivery options and it has increased competition and I think that it has produced lower prices for the consumer. One of the best examples of this is seen in the development of the competitive local exchange carriers, or what we call CLECs. These companies, and it has already been mentioned as a very good example, Covad, are what I call the children of the Telecommunications Act. They provide DSL-based access to the Internet through local loops or their own high-speed fiber networks.

What happened once these companies were permitted to offer their services? The telephone companies that before had only offered the more expensive T1 lines began to rapidly expand their DSL service, the service they could have offered much earlier. The result was increased broadband services at a cheaper price, and I think that more successes are just around the corner. In California, there is a company called Next Level Communications offering VDSL that is faster than DSL and no more expensive for the consumer.

So, Mr. Chairman, I hope Congress will follow the wisdom of Pericles and let time be our advisor on this issue. I think that we need to be a bit more patient. I think that we should be refusing to be tempted to meddle in the marketplace while this revolution in telecommunications is really happening all around us. No clear or convincing evidence, in my view, has been offered that consumers are suffering. I think it is quite to the contrary. I think that consumers seem to be getting more choices and lower prices.

And I think that the evidence points to something else, namely, different segments of the industry competing to gain economic advantage over the other. The forum for that contest, I think, is in the marketplace, not in the legislature. In fact, the one way I think that we could deliver some harm to the consumer would be for Congress to try and insert itself in this.

But I really am looking forward to the case that people are going to make at the panel today. As I look across the room, I think that at least the majority of the people that are here have poured into my office, so they have yet another opportunity to present their case, and I thank you, Mr. Chairman, for continuing the discussion and debate. I think it is a worthy one, but I think that you are going to have to present a really convincing case to change my mind based on what I say today.

So thank you, and I will look forward to hearing you, and welcome to our former colleague, Susan Molinari. It is always nice to see you, Susan.

Mr. TAUZIN. I thank the gentlelady. I only would observe that Pericles himself ran out of time. I do not think he is with us anymore, but I thank the gentlelady.

Ms. ESHOO. It is the way life goes. It is the way God designed it, Mr. Chairman. There is an end to all of us.

Mr. TAUZIN. We are all on our way. The gentleman from Mississippi, Mr. Pickering, is recognized.

Mr. PICKERING. Thank you, Mr. Chairman. I want to commend you and congratulate you for having this hearing, also for your efforts of bringing this issue to the forefront. I believe with your efforts, you have kept the pressure on both industry and the FCC to move forward to a truly competitive policy.

I want to commend the ranking member, the gentleman from Massachusetts, for the history that he laid out of the role this committee has played in bringing us to a competitive telecommunications policy. I agree with his analysis of what has happened and how it brings us to the point and to the place we are today. The only question remaining goes back to 1967 and whether Al Gore was following the Internet or serving as the model for "Love Story" at that time.

But it is a remarkable place where we find ourselves with the explosion of the Internet and advanced services, and I think the question that we have before us today is do we go back to the past or do we go forward to the future? Do we compete and converge or do we protect and segregate? The entire intent and motive of the 1996 Telecommunications Act was to see the full convergence, voice, video, data. My concern is that with the proposals before us, that we are segregating again, as we used to do in the old telecom policy, between local and long and voice and cable and broadcasting and all those other things that we want to have a separate policy for data when our intent in the 1996 Act, and I think our intent today, is for full convergence so that we do not go back to the past, that we do go forward in the future.

It is an effort, though, that I think requires us to look at all the options before us. I think we should continue to pressure the FCC to move on 271s, to work with Texas and Florida and Georgia to open the local market and to provide the opportunities to bring new entrants into long distance. Yes, we should pressure and continue that pressure as much as we can.

Do we need to find a tax relief like we are passing today on repealing the Spanish-American tax so that it will free up capital for investment, for deployment? Do we need to find possibly other regulatory relief that will speed deployment to rural areas like Mississippi? Yes. But do we need to reopen the Telecommunications Act of 1996, the core elements? No, and I hope that we can go forward with this hearing and others in finding that right balance of continuing to go forward, of competition and convergence, but not going back to the old segregated policy of our telecommunications services. Find the full convergence.

I am also concerned a little bit of some of the proposals that would place new regulatory burdens on wireless companies and

wireless technologies and applications. To me, that is the place where we can find the greatest future opportunity for both competition but for deployment to rural areas and to bridge the gap and the digital divide.

So I look forward to the panel today. I look forward to working with the committee and with the chairman as we go forward on these very critical issues.

Mr. TAUZIN. Thank you, Mr. Pickering.

The Chair recognizes the gentleman from Ohio, Mr. Sawyer, for an opening statement.

Mr. SAWYER. Thank you very much, Mr. Chairman. We move from Pericles to Budrow. I am put in mind of the remarks that Vaclav Havel, the Czech playwright and political leader, made before this Congress now nearly a decade ago as he recalled the swiftness of change as it occurred in the fall of 1989 in Czechoslovakia when he reported to this Congress in his appearance before a joint session that change had come so suddenly that we did not have time even to be astonished.

We are in a similar condition today. The future of broadband is full of uncertainty and change as competing companies and industries along with lawmakers and regulators try to anticipate technological advances, market conditions, consumer preferences, and even cultural and societal trends. It is clear that Congress should work to ensure that broadband deployment is timely, that the industry competes fairly, and that service is provided to all sectors and geographical locations of American society.

With that, let me in closing just thank the chairman for this hearing. I look forward to our witnesses today and to observe that another Louisianan of a century and a half ago, the first really modern chess player, Paul Murphy, once observed that in chess, as is true in so many things in life, that a threat posed is often more powerful than that same threat played. Mr. Chairman, you have not lost the wisdom of that insight. I yield back the balance of my time.

Mr. TAUZIN. That is pretty good stuff there, Tom. I am impressed. Thank you.

The gentleman from Maryland, Mr. Ehrlich.

Mr. EHRLICH. Real briefly, I want to welcome Susan back, as well. I have a statement for the record, but just to put a bottom line real quickly with respect to new members of this committee, we are not here in 1996. We have had at least triple the visits of the folks in this room. I appreciate the chairman having now two hearings on this issue. The chairman himself has talked to me about this on numerous occasions, sometimes on the tennis court.

I just wanted to say, I do appreciate it, particularly for the folks who were not here, we understand the history. We can read. We appreciate the excellent lobbying on the issue. But there are still facts that we would like to get to the bottom of and that is what this hearing is all about today, so I will yield back on that note, Mr. Chairman.

Mr. TAUZIN. I thank my friend.

The gentleman from Tennessee, Mr. Gordon.

Mr. GORDON. Thank you. Let me just add my welcome to this stellar and large panel. I think it is time that we hear from you.

Alumnus Susan, we are glad that you are back. I have two Tennesseans, Roy Neel and Melvin Malone. We are glad to see you today.

Let me just briefly state, because we do need to hear from them, that this is a complicated and very important issue and it is important that we have these hearings and I hope that we will continue to have them. This is an issue that we are not going to develop consensus on. This is an issue that we are going to have to make some choices one way or the other and that is the reason that we need to be informed and that is the reason we need to have these hearings, and thank you.

Mr. TAUZIN. I thank the gentleman.

The gentleman from New York, Mr. Fossella.

Mr. FOSSELLA. Other than to say hello to my wonderful predecessor, Susan, let us go.

Mr. TAUZIN. I thank the gentleman.

Actually, before we get to Susan, we have another colleague. The Chair welcomes the first panel, the Honorable Bob Goodlatte from our sister committee, the Judiciary Committee, who himself has authored legislation, I believe with our friend Mr. Boucher, which has been referred to. Mr. Goodlatte, you are welcome, sir, and please present your testimony.

STATEMENT OF HON. BOB GOODLATTE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF VIRGINIA

Mr. GOODLATTE. Thank you very much, Mr. Chairman. I first want to thank you for holding this hearing and allowing me to participate and to also commend you for your leadership on this issue. I want to extend that commendation to the other side of the aisle, to the ranking member of the full committee, Mr. Dingell, and to my good friend and colleague, Congressman Boucher. All of us have been working in a common direction to achieve the goal that you are providing so much leadership on.

I also want to commend the chairman of the full committee, Congressman Bliley, and you and the many others who worked to pass the Telecommunications Reform Act because it has definitely been a major step in the direction of opening up competition and new ideas and the advancement of new technology in this country. I would say that in the 4 years since that legislation was passed, there has been more change in the area of telecommunications than in the 40 years prior to the passage of that legislation.

But it is that very change that has taken place that brings us back here today to address the need for further deregulation of this industry and why I am such a strong advocate of taking action on the Goodlatte-Boucher legislation that was mentioned by my colleague and on the legislation that you have introduced, which we certainly want to assist you in advancing.

That change is evident from what has taken place in the telephone industry during that time. At that time, 90 percent of the communications on telephones were voice and 10 percent was data. Today, it is closer to 60 percent data and significantly less than a majority voice. That change has taken place because of that legislation opening up the telephone lines to competition in the area of data.

America Online and 6,000 other Internet service providers are competing on the Bell Telephone Company's lines, providing services that the telephone companies also provide, and that competition, I think, needs to be recognized and acknowledged in encouraging the rollout of the next step, high-speed broadband Internet service, by allowing the telephone companies to compete in the market allowing for the long distance transmission of data.

For those who are concerned about the fact that we want to advance additional voice competition on the local telephone lines, I certainly agree with their objective, but we provide that continued incentive because there is still a nearly $100 billion market out there that the telephone companies will not be allowed to enter into until they meet the requirements of Section 271 of that legislation.

I am here because, unlike what many people think because of my involvement in Internet issues, I do not represent Northern Virginia. I represent a district very similar to yours. You have a lot more water than I do. I have a lot more mountains than you do. But basically, these are districts comprised of smaller cities and rural areas, and the fact of the matter is that according to studies that I have seen, these areas are going to have very limited choice, if any, in the availability of broadband Internet access and we need to take the necessary further steps to deregulate the telephone industry and allow them to get in and compete.

That is simply what this legislation is all about. That is simply what we are about in this effort. Allowing them to get into the long distance backbone market provides a greater profitability and, therefore, a greater incentive for them to build out their local DSL services. Now, it is true, they are going to, and are right now, building out DSL services all across the country. But the focus is going to be on the major urban areas and the suburban rings around those areas and it is going to leave out many smaller cities, many rural areas, and many inner cities in those urban areas. This change in the law will simply recognize the change in the marketplace and allow us to move forward in that direction.

I was pleased to hear the gentleman from Michigan, the ranking member, also give deference to the issue of open access, another important competitive area that we need to encourage the industry to pursue. And while that is not the principal focus of the hearing today, it is something that is very much related to assuring that everybody has the opportunity to compete, the smallest mom-and-pop businesses with the largest corporations in the world. Let us open it up to competition. That is what the Telecommunications Act started.

We are not against the progress made there. We are not against the efforts of those who want to bring about greater competition in the local exchanges. But that is something that can continue to move forward at the same time that we continue to further deregulate and open up competition in the country.

So I commend you for your leadership, Mr. Chairman, and thank you for holding this hearing.

Mr. TAUZIN. I thank the gentleman.

Mr. Goodlatte, let me ask you, are there any members who would like to ask any questions of you? Mr. Markey?

Mr. MARKEY. Thank you so much for your leadership on this issue. When you talk about the cable open access issue, is that still part of your legislation, mandating that the cable companies have to open up their systems to all ISPs in a nondiscriminatory way?

Mr. GOODLATTE. As we speak, Mr. Markey, it is still part of the legislation. We have had ongoing discussions and review of the fact that the marketplace has continued to change. We have been heartened by statements made by a number of the cable companies that they are moving in the direction of open access. It started with AT&T, which did not define what they meant. It then went to Time-Warner, which entered into a memorandum of understanding with their new partner, America Online, which became much more specific. And as that evolves and as there has been an effort at the local level, the State level, the Federal level, and through the courts to push open access, the voices of those who say, well, let us see what industry does before we mandate it is something that we are certainly listening to and we may very well offer an amendment to the legislation as it goes forward to have an additional breathing period to allow that to take place, but nonetheless, to express the intent that open access be the trend on the Internet and that if it does not take place, then we will come back and look at it at an appropriate time.

Mr. MARKEY. My sense is that, with the exception of AOL, of course, which is partnered with Time-Warner and, as a result, they do have full access, that the thousands of other ISPs do not, and there is no evidence that they do and there is no actual marketplace evidence that they are now being treated in a nondiscriminatory fashion, which seems to me to really call for legislation or regulatory policy changes.

Conversely, SBC and others have a backlog of requests for DSL installation which they are trying to catch up with, competing with the companies in that area. So in one area, there actually is vigorous competition, with the telephone companies trying to catch up, and in the other area, with the exception of AOL, the biggest company, of course, the thousands of other ISPs do not have nondiscriminatory access and it seems to me that is an area where we should be acting.

So it just seems to me in terms of the policy prescription here that the by far greater problem is in the area where the greatest and most important revolution is taking place, which is the software revolution, this ISP revolution, and that this broadband deployment revolution is working because of the paranoia that is being created and the fact that we do already have a 2-wire world, a 3-wire world in many parts of the country.

So I understand that you are saying that people are saying they are going to do the right thing, but I do not see it, at least in my district, in terms of allowing my ISPs to have nondiscriminatory access.

Mr. GOODLATTE. First of all, I thank you and share your strong support for open access. Second, I would tell you that Congressman Boucher and I both share your concern about how it evolves and our approach, even if we do amend the bill, is one of trust but verify and that we have a very short timeframe in which to see

that continued growth before we again call upon the Congress to act.

On the other hand, we have got to have the necessary momentum of support for that and I think that support is building, as we see in individual actions at every level of government all across the country, and I encourage those and will continue to look for every avenue to push open access.

Mr. MARKEY. Again, I would say, to conclude, Mr. Chairman, broadband deployment, hundreds of billions of dollars being spent, backlogs with every telephone company in America trying to keep up with demand, very high, in other words, deployment rate. ISP access to cable systems, very low. So in terms of the parts of this revolution that are being stifled, I think that, without question, we should look to where the major problem is and I wish that we could continue to move forward discussing them as an integrated subject, not just broadband but also the software revolution.

Mr. GOODLATTE. Well, we certainly have attempted to do that with our legislation. I thank you. I would also point out that let us not also look at the need to have competition in all sectors of this market, including building out the backbone of the Internet, which is what is intended by this legislation.

Mr. TAUZIN. I thank the gentleman.

The gentleman from Florida, Mr. Stearns.

Mr. STEARNS. Mr. Chairman, I just wanted to tell you a few comments. Mr. Goodlatte is perhaps one of the most knowledgeable men out of the 535 Members of Congress. He has worked hard, he and his staff. I think, as Mr. Sawyer mentioned about the chess expert, Mr. Murphy, a threat posed is oftentimes more effective than a play played. I mean, the fact that he has even taken the initiative to put these bills together has got all of us thinking about these and I think he is to be commended for this. I have been on several trips with him and his expertise is clearly demonstrated for all to see.

Bob, you had touched upon the similarities between perhaps your bill and Mr. Tauzin. I do not know if you want to just touch about the differences. I mean, cable was one area, but are there any other differences between yours and Tauzin's? If you would like to make the case today, it certainly is a good opportunity to do so.

Mr. GOODLATTE. Well, there are some modest differences in the deregulatory approaches that we take, but I would say that those are modest in comparison to the importance of the concept of deregulating and taking a more competitive approach here.

The principal approach is that we also address the open access issue in a broader sense. I know there is also deference given by Mr. Tauzin to the importance of open access. He and I have a somewhat different approach on how to do that, but we are coming closer and closer together as we move forward. So I am very supportive of his efforts in this regard.

Mr. STEARNS. Thank you, Mr. Chairman.

Mr. TAUZIN. The Chair recognizes himself briefly. Mr. Goodlatte, the incumbent local telephone company is an open platform, is it not?

Mr. GOODLATTE. It certainly is.

Mr. TAUZIN. If either one of our bills were to pass and the incumbent local telephone company could cross those LATA lines and offer broadband Internet services across the country, it would remain an open platform, would it not?

Mr. GOODLATTE. It would certainly do that.

Mr. TAUZIN. Under current law. And that means that all ISPs would have the opportunity of at least one platform as a carrier of last resort, is that not right?

Mr. GOODLATTE. It certainly would be.

Mr. TAUZIN. So that if any one of the other platforms, be they a cable platform or a wireless platform, refused an ISP carriage, that ISP could always go to the local telephone company under law and receive mandatory carriage, is that correct?

Mr. GOODLATTE. Well, that is true. I would make two points about that. One is that the technologies are different between cable and telephone systems and there is a great deal of concern about whether the DSL service that would take place can carry everything as effectively as a cable modem can carry. Therefore, the need to have open access on all types of platforms, I think, is important.

Mr. TAUZIN. In fact, some DSL systems, because they are dedicated lines, may be more capable than a cable system without the proper number of nodes in terms of maintaining the speed of delivery, is that right?

Mr. GOODLATTE. That is correct. That is true.

Mr. TAUZIN. So that there are differences in the technology that delivers the ISP's programs between the two cables or wires or whatever they are. But at least under the current conditions of the law, whether or not a cable or any other carrier which is basically deregulated has a right to either carry or not carry today, whether that is changed or not, there is under law today a requirement that the local telephone company carry, and if we have, as a Congress, if we have, in my opinion, the good sense to allow them to do so across America in competition with these other systems that may refuse carriage, at least the ISPs will always have a carrier of last resort to turn to, is that not correct?

Mr. GOODLATTE. Well, it is true, but it is also true that there are those, even in the telephone industry, who would love to have the same kind of circumstances that exist in the cable industry and the legislation that Congressman Boucher and I have introduced makes it clear that the open access requirement should apply to any technology, whether it is telephone, cable, wireless, satellite, whatever means you may get——

Mr. TAUZIN. Yes, but whether a telephone company would like to be relieved of that common carriage requirement today or not, they are still bound by it. So the legislation that you and I have offered would not relieve them of that obligation——

Mr. GOODLATTE. It would not.

Mr. TAUZIN. [continuing] to be a carrier of last resort, would it not?

Mr. GOODLATTE. It would not.

Mr. TAUZIN. Thank you.

Mr. GOODLATTE. And it is a very good objective.

Mr. TAUZIN. I might also add, just as a point of reference because we have had many conversations and we ought to put it on record, that while you and I differ on the question of mandating open carriage on the other systems, that we both support the concept of open carriage to every extent possible and I share with him my concern that as many systems as possible remain open and they not refuse carriage to competitive ISPs.

The Chair would yield to the gentleman from Virginia.

Mr. BOUCHER. Thank you very much, Mr. Chairman. I had not intended to participate in the open access discussion, but some of the things that have been said compel my entry at this point.

I agree entirely with the chairman's statement that the telephone platform is open, and whether our legislation passes or not, will remain open. But it does not necessarily always work effectively as a carrier of last resort because the Internet service provider needs to be able to follow his customer, and if his customer decides that the cable modem platform is faster than the local DSL service or, for other reasons, because of pricing, perhaps, more attractive than the DSL service, that customer is going to migrate away from the telephone company platform and become a cable modem customer, and if the ISP is foreclosed by the practice of that cable platform from following his customer, then that is a customer he has lost.

So we believe that open access on cable platforms and, for that matter, all of the Internet transport platforms, whether they are telephone-based or wireless or satellite-based, should follow this open access principle.

The second comment that I would make is that we are seeing some real progress, I think, in the cable industry generally acknowledging the appropriateness of open access policies. Time-Warner, which has 20 percent of the Nation's cable systems, has announced what I think is a very solid policy, that Time-Warner has said that it will impose no limits on the number of ISPs that can reach their customers over the Time-Warner platform. It will have nondiscriminatory terms and conditions among the ISPs that connect over that platform. It will allow them to connect at the cable head end, which is a very important commitment because that creates competition in the carriage of traffic from the cable head into the Internet backbone. That results in better pricing for the end user. And they also are willing to allow the ISPs to have a direct contractual relationship with their customer.

Now, these are four principles against which I would suggest that we measure the strength of the commitment that other cable systems make to open access. I think it is noteworthy that something like 80 percent of the cable systems in the country have now announced their intention to have open access policies, but Time-Warner alone has been specific in what open access means and these others have not been specific in terms of the strength of their commitment, so——

Mr. TAUZIN. Would the gentleman yield?

Mr. BOUCHER. I would be happy to yield, but before I do, let me just say that I think in order to measure the strength of that commitment that we need to retain the freedom to come back to this issue at the appropriate time, and if they have not taken the very

firm stand in support of open access that Time-Warner has taken, at that point consider passing legislation that truly would make open access the national policy.

I would be pleased to yield to the chairman.

Mr. GOODLATTE. I believe, if I might respond briefly, I believe that we are very much on the same page. I am sure the chairman is about to say that, but I think that is exactly the approach——

Mr. TAUZIN. Indeed, if the gentleman would yield, let me second the gentleman's comments and congratulate Time-Warner. I am not going to rap their knuckles this morning. Let me say that I agree with the gentleman from Virginia. Time-Warner's policy is exactly what we would hope all the cable systems adopt as a model policy for open access and open connection and direct contact with the customer. The principles enunciated by you are exactly right. I would hope other cable systems adopt them and I think Time-Warner has laid down exactly the right model for the others.

My only concern again, and we have shared this privately and we have shared publicly, is that I would much prefer those cable companies who have not yet adopted the Time-Warner model to do it without government having to instruct them on terms of entry and carriage and connection and all the things that we currently regulate the telephone companies to do, because, frankly, I think it is a first step in government management of the Internet which we are trying to avoid.

But we both agree that Time-Warner has set down the right model and if the other cable companies were to adopt it, I think we would all go away very quickly from any interest in legislating in the area. On the other hand, if open access is not commonly available, this issue will be here again at some point, and I thank the gentleman for his comments.

Mr. BOUCHER. Thank you, Mr. Chairman.

Mr. GOODLATTE. We are all watching and the proof is in the pudding.

Mr. TAUZIN. Let me just ask if any other member wishes to question? Then Mr. Markey for final comments.

Mr. MARKEY. I thank you, Mr. Chairman. In just 1 minute, I want to say this. Back in 1996 when we were passing the Telecommunications Act, the cable industry was saying high-speed Internet modems. That was their mantra. The Bell Companies' mantra was, the big enchilada is long distance, two separate dreams. If we heard big enchilada once, we heard it a thousand times, long distance.

So what we have now is the good news that Time-Warner is so paranoid in Texas about SBC finally getting it after 2 or 3 years of going to the Supreme Court with different cases, calling it a bill of attainder, which we did, although they were in our office for 4 years asking us to pass the 1996 Telecommunications Act. They are finally moving.

So what we now have is a great situation where SBC is moving because the marketplace is working finally, because they have now changed their model from long distance over to data, which the Bells did not get in 1996, I hate to say it. But they finally have got it now.

I think, as a result, if we just step back a little bit longer, this backlog of requests for DSL deployment in urban and suburban America will quickly be succeeded by requests for deployment in rural America, as well.

Mr. GOODLATTE. If I might respond, I agree with that observation except for the conclusion, and I think that the competition that has brought us to that point calls for us to not step back but to step forward and take this additional step to allow the Bells to do what they now realize they need to do and do it everywhere and allow them to compete in that portion of the marketplace, the data portion, where they are already receiving vast competition at the local level.

Every time somebody sends an e-mail on AOL or thousands of other Internet services, they are effectively competing on that local exchange or taking away what used to be a telephone call and making it now an e-mail. That competition exists. Let us award the telephone companies by allowing them into that portion of the long distance market that relates to data.

Mr. MARKEY. If I may, the good news is that the telephone companies are now deploying DSL. The good news is also that they are opening up their local loop for local competition and Bell Atlantic in New York is the first of them. So let us not in the effort to ensure that the first, which is already a success and moving quickly, is dealt with through legislation which ultimately then destroys the advances which we have been making in the opening up of the local loop to local telephone companies.

Mr. TAUZIN. The Chair thanks the gentleman, disagrees with his conclusion, of course. I would only point out that the illustration this morning of what happened in Texas was an illustration of a cable company finding out where the telephone company could not deploy, obviously to go into those areas first, when the intent of the act was to create competition where, in fact, they could both deploy. Something is basically wrong when the competitors only go in the area where the other guy cannot go, and that is what we are going to talk about today.

I thank Mr. Goodlatte a great deal for your contributions and the Chair will declare a recess until 1:15, a lunch break. We will come back at 1:15.

[Brief recess.]

Mr. TAUZIN. The hearing will please come back to order. Let me thank you very much for your patience. Susan, you of all people know how this works.

Ms. MOLINARI. I have been there.

Mr. TAUZIN. We have been running back and forth to votes. I want to thank you all for being here. We will take you in order, except I understand that Mr. Malone has a meeting of the Tennessee Regulatory Authority that we are going to have to try to help him make this afternoon, so we are going to start with our former colleague, the Honorable Susan Molinari, the Co-Chair of iAdvance here in Washington, DC.

Susan, again, welcome. I know that you are not unfamiliar with these halls and these meeting rooms, and I do not know how it feels being on the other side yet, but I know that you come with an awful lot of experience about how this process works.

You know that all your written statements are part of our record and that we ask that you try to follow the 5-minute rule. We have such a huge and austere panel today, we want to make sure everyone gets their word in and that we give members a chance when they arrive here to do some questions and answers with you. So please summarize, hit the high points of your message, and watch those little devices. They will try to warn you when you are almost up at 5 minutes, and when it gets to red, try to wrap up without my having to ask you to, if you can help it.

We will begin with Ms. Molinari.

STATEMENTS OF SUSAN MOLINARI, CO-CHAIR, iADVANCE; MELVIN J. MALONE, CHAIRMAN, TENNESSEE REGULATORY AUTHORITY, ON BEHALF OF THE NATIONAL ASSOCIATION OF REGULATORY UTILITY COMMISSIONERS; SCOTT C. CLELAND, MANAGING DIRECTOR, THE LEGG MASON PRECURSOR GROUP; JOHN WINDHAUSEN, JR., PRESIDENT, ASSOCIATION FOR LOCAL TELECOMMUNICATIONS SERVICES; DONALD VIAL, POLICY COMMITTEE MEMBER, ALLIANCE FOR PUBLIC TECHNOLOGY; ROY NEEL, PRESIDENT AND CHIEF EXECUTIVE OFFICER, UNITED STATES TELECOM ASSOCIATION; DAVID N. KUNKEL, VICE CHAIRMAN AND EXECUTIVE VICE PRESIDENT, PSINET, ON BEHALF OF THE COMMERCIAL INTERNET EXCHANGE ASSOCIATION; SHELTON JEFFERSON, CHIEF EXECUTIVE OFFICER, NETCOM; H. RUSSELL FRISBY, JR., PRESIDENT, COMPETITIVE TELECOMMUNICATIONS ASSOCIATION; AND JERRY ELLIG, PROFESSOR OF ECONOMICS, GEORGE MASON UNIVERSITY, ON BEHALF OF CITIZENS FOR A SOUND ECONOMY FOUNDATION

Ms. MOLINARI. Thank you, Mr. Chairman. I also ask that, in addition to my written statement, that we have two reports that we have provided that will also be entered into the record.

Mr. TAUZIN. Let me ask unanimous consent that any of you who want to submit reports or addendum to your written statements, they will be admitted into the record without objection. So ordered.

Ms. MOLINARI. Thank you, Mr. Chairman, and thank you for having me here this afternoon and thank you for the opportunity to testify, the commitment you have displayed to broadband deployment issues, and your hard work in securing more than 200 cosponsors for H.R. 2020. Thank you, Mr. Chairman, for your unrelenting efforts in this critical area.

Alan Greenspan has spoken in the recent past of "a deep-seated and still developing shift in our economic landscape. It is a transformation occasioned," he posits, "by an unexpected leap in technology." As is the case with most members of the Central Bank, Greenspan understates, for the economic data tells a remarkable story. Forresters estimates that there will be $2.7 trillion in B2B e-commerce by 2004. Internet-related applications will produce $1 trillion in savings for global businesses by 2002, $300 billion in estimated Internet revenue this year alone, and 1 million new jobs, phenomenal. Mr. Chairman, the Internet is changing the lives and transforming our world.

Unfortunately, as you all know, not every American is marching in the parade of Internet prosperity. As the Carter Commission

suggested about race in the 1960's, we increasingly are two technological Americas, separate and unequal. While access to computers and the Internet has soared, we have seen the troubling segregation of the information rich and the information poor.

According to the National Telecommunications and Information Association, urban dwellers are twice as likely to have Internet access as individuals at the same income level in rural areas. The implications of this disparity are profound. The absence of band width, opines Nicholas Negroponte, can be more isolating than the densest forest or the largest desert, and so can it.

As we worry about our rural communities falling behind, we also must take note about Europe and Asia leaping ahead. Consider the following. In Europe, as the December issue of Communication International states, the race is on to build the fattest, fastest, and most efficient network. With fewer regulations and a host of available technologies, the build-out in Europe represents a significant challenge. And in Asia, Goldman, Sachs contends that there will be 63 million Internet users by 2003, a more than threefold increase from today.

According to Fortune, companies like Microsoft are placing huge bets on Asia's broadband market, and they are not alone. Asia is developing its own broadband providers, like Taiwan's Giga Media, the first Asian company listed on the tech-heavy Nasdaq exchange.

Mr. Chairman, our technological challenges are both foreign and domestic and they are not imagined and they must be addressed. So how do we get there? How do we ensure that the small boy in South Central and the small business in South Carolina can touch the high-speed Internet world? How do we guarantee that the United States remains at the forefront of the e-economy?

The members of iAdvance believe, for our part, that Congress can start by allowing local telephone companies to build and operate 21st century Internet facilities without regard to lines on a 20th century map. The paramount barrier to investment in new broadband technologies for rural areas, as you know, are regulations that prohibit the RBOCs from owning Internet backbone facilities. Without these so-called interLATA data restrictions, more rural communities and inner city communities could be served. Similarly, our domestic telecommunications firms would have a heightened capacity to contend against international competition.

In conclusion, Mr. Chairman, for the next 45 to 50 minutes, you are going to hear arguments about why your efforts and those of the 200-plus members who are cosponsors of H.R. 2420 are off the mark or why they miss the mark. You will be treated to verbal competition among the competing economic interests represented on this panel. I would guess that the phrase "Section 271" will be taken in vain by some and held up as the route to Internet salvation by others.

You have two choices. On the one hand, you can let the battles that mark the almost decade-long debate that ended with the passage of the 1996 Telecom Act be heaped upon the challenge this subcommittee is trying to address today. If you do, you will be caught in the endless spiral of charges and countercharges, arguments and counterarguments. The Act is working. It is not working. New competitors are skimming the cream. Companies are not

cooperating. If you do, it will be years before Congress does something that makes sense for American consumers, American small business, and American communities, and years can mean generations in Internet time.

But there is a second choice, a digital road less traveled, if you will. You can say that the Internet is different, that making sure that every American community, every American home, and every American business has access to reliable, affordable, high-speed connections to the Internet is too important to be decided by yesterday's fights or yesterday's interpretations. If you continue to fight the old battles, battles that started in a world of analog signals, copper lines, and black rotary phones, you will be stalemated.

Put the old fights aside. Let them play out, and in time, they will. But the issues before the subcommittee need to be addressed in Internet time, today. The 21st century is not about analog signals, copper lines, and black rotary telephones. It is about fiber optics, bits and bytes and Internet appliances. We need more players, not fewer, in the Internet backbone market. We need more, not fewer, companies investing in high-speed Internet connections. We need more, not fewer, high-speed on ramps to the information superhighway. We can have more if we let companies that want to invest invest. We can have more if we let companies that want to compete compete.

Mr. Chairman, Congress is poised to open up trade with China, yet we still have rules on the books that stop four American companies from investing in the Internet backbone. China Telecom may be able to invest in Internet backbone in this country before Bell Atlantic, SBC, U.S. West, and Bell South. What is wrong with that picture? It is time for this subcommittee and this Congress to move in Internet time to get us where we need to be.

Mr. Chairman, we again thank you for your leadership and we look forward to working with you to make it possible for all Americans, no matter where they live and work, to enjoy the possibilities of the Internet age.

[The prepared statement of Susan Molinari follows:]

PREPARED STATEMENT OF SUSAN MOLINARI, CO-CHAIR, IADVANCE

Thank you, Mr.Chairman. On behalf of my co-Chair, Mike McCurry, and the members of iAdvance, I appreciate the opportunity to testify before the subcommittee today.

Mr. Chairman, a copy of my testimony along with two studies released by iAdvance and other background materials has been submitted to the subcommittee and I ask that that material be included in the hearing record. Thank you.

Mr. Chairman, our economy is in the midst of the greatest economic expansion in history. This boom has already created more than 1 million jobs and over $300 billion in estimated Internet revenue. By 2002, the Internet is expected to save global businesses over $1 trillion, resulting in lower cost goods and services in all industries—from health care to shoes.

The impact of information technology has been so dramatic that many economists now believe that the US economy can sustain this growth for years to come, if the Internet is allowed to grow. But this growth is in jeopardy because of bandwidth constraints and a lack of access to high-speed Internet backbone hubs.

iAdvance believes that the answer to this challenge is, in part, lifting outdated regulatory restrictions that prohibit local telephone companies from investing in broadband technologies. As we reported in our first study, "Breaking the Backbone," restrictions, which were never designed to apply to the Internet, have slowed the growth and diffusion of high-speed Internet backbone across the country.

iAdvance is a coalition of computer companies, public interest groups, high-tech organizations, Internet companies, telecommunications companies and other groups at the forefront of the new economy. We are a diverse group, but we have a common vision. Our members believe that investment, innovation and competition in the high-tech marketplace will keep our country and our communities connected and competitive in the rapidly expanding global economy.

Although it has been only four years since Congress passed the 1996 Telecommunications Act, the world has changed in ways that we could not have envisioned. Technological convergence has blurred the distinction between local and long distance telephone service. And wireless services are, for many, a realistic alternative for residential phone service; so much so that AT&T proclaims in its advertising that your wireless telephone is the only one you need.

Of the top 50 global technology and telecom companies today, four are wireless companies (NTT Mobile Communications, Vodafone Airtouch, Nokia and Ericsson) and eight are traditional local or long distance companies. Those four wireless companies have a market capitalization of one trillion dollars while the other companies are only worth a combined $670 billion.

The dramatic growth of the wireless industry is a result, in part, of the soft touch of government regulation. The FCC manages the spectrum, and sets broad requirements for technical standards and interconnection. But it does not micromanage how industry achieves these goals.

This stands in marked contrast to the high-speed Internet market. Here we strictly regulate everything from which companies can invest in Internet backbone to the prices charged for interconnection and wholesale services. It is micro management at its worst.

As a consequence, although the data carrying business has grown dramatically, it is still dominated by three major Tier 1 providers—MCI Worldcom, Sprint, and Cable and Wireless. AT&T is a close fourth. Although they control the market, or, perhaps, because they control the market, these companies are not deploying Internet backbone to meet growing demand, nor are they investing in Internet backbone facilities in rural America.

The Internet is often described as a network of networks. In reality it is a hierarchy of networks. The top tier providers offer the best service to each other and their best customers. The service a small business or residential customer receives depends almost entirely on where their Internet Service Provider connects in the hierarchy of networks. The further away from a Tier 1 provider you are, the poorer and slower your service will be.

While fiber optic cable is being rolled out at a record pace it is barely keeping up with overall bandwidth demand. "In the next five years we don't see any ability of service providers in the US to keep up with the demand," according to Mouli Ramani, director of strategic marketing at Nortel Networks.

High-speed service providers are increasingly choosing private high-capacity networks to deliver their services to subscriber-based audiences because of Internet limitations.

As yet, no broadband online entertainment companies have gone public and many, such as Digital Entertainment Network, have shed staff and re-focused their business models away from creating original broadband content.

Yahoo and Lycos have scaled back content and service plans for broadband users, citing the basic fact that for every broadband user there are 50 with basic access.

In March, The Wall Street Journal reported that because traffic wasoverwhelming the broadband networks of cable companies, the numbers of houses served by a single cable 'node' were being reduced from 10,000, as originally projected, to 500 or fewer. Many cable companies were being forced to monitor individual usage.

These developments are disturbing. At a time when the Internet is just beginning to realize its great potential as an economic and social tool, its growth is being stifled. Companies that might provide new broadband solutions for e-commerce, telemedicine, online education, and other applications for the future are holding back.

The shortage of Internet backbone and high-speed local facilities persists, in part, because government restrictions impede investment in new backbone facilities. Local phone companies are prohibited from carrying the high-speed data traffic beyond the communities they serve. The result is an Internet backbone that is too skeletal and backbone networks that are controlled by too few companies. It is these same companies that, not surprisingly, are the most vocal opponents of what we at iAdvance are trying to achieve.

The Internet also knows no geographic boundaries. Internet traffic has to travel from one end of town to the other and from one corner of the world to another. And sometimes is has to travel from one end of the country to another just to get across town.

Some of you may remember the old AT&T television commercials designed to assure consumers that the AT&T network was reliable and flexible. If you were calling from Philadelphia to New York on Mothers Day and the lines were crowded, there was no need to worry. Your call could be routed through Pittsburgh, or Chicago, or Denver. This is how the Internet works every second of every day. Data packets do not travel on a straight line between point A and point B. They travel on the route that is, at that moment in time, the least congested.

Traffic on the Internet doubles every 100 days and the infrastructure necessary to support that traffic is not keeping pace with growth. Many consumers cannot access the fastest broadband facilities, and the backbone networks that carry most net traffic are clogged at overcrowded hubs. A shortage of these hubs—places where users climb aboard the broadband network—can slow Internet traffic to a snail's pace, like that on Washington's beltway at rush hour.

Backbone access problems are particularly acute for rural America. A recent report issued by the Departments of Commerce and Agriculture concludes that "rural areas are currently lagging far behind urban areas in broadband availability." An urban Internet Service Provider offering broadband services to its customers will typically spend between $3,000 and $5,000 a month on local loop circuits to connect to an Internet hub. A rural ISP which desires to supply the same level of bandwidth cannot buy the same connections. And those who can are typically forced to cross a LATA boundary, which forces rural ISPs to spend between $41,000 and $45,000 a month.

Numerous studies from the Department of Commerce, Milken Institute, the Progressive Policy Institute, and iAdvance have concluded the same thing: some areas of the country and certain segments of the population are ill-positioned to take advantage and succeed in the Internet economy. These problems of a lack of broadband access and transport facilities are well documented. According to the Competitive Broadband Coalition, more than 53 million Americans in urban areas will have access to broadband technologies compared to less than one million in rural America. This means that urban Americans are 18 times more likely to be offered broadband services than rural Americans.

A recent posting on a news group that hosts a running discussion on access to broadband services highlights this problem. Let me quote:

> "Broadband is a myth. I live in an area where my normal connection rate is 26 kilobytes per second using the best 56k X2 V.90 modem available. There are no plans for the local cable company to bring in cable modem access nor does the phone company even consider offering ISP services. [Do] I live in an isolated rural community ? Wrong . . . I live in the 4th largest city in New Mexico. Broadband will bypass us and content heavy Web sites will continue to be too slow to even consider visiting. Any web developers who buy into the broadband myth will find themselves excluding a large part of the webizens and the market that could most use contact with the outside world."

That is from someone who lives in the 4th largest city in New Mexico. The problem is even more acute in rural communities which are touched by less than 10 percent of high-speed, redundant connections.

The major barrier to investment in new technology for rural areas are regulations that prohibit the regional Bell companies—companies that serve two-thirds of rural America—from owning Internet backbone facilities. Without interLATA data restrictions many more rural communities would be served. Moreover, the provision of local access is also heavily regulated. Regulated pricing, corporate structure and forced resale at regulated rates skew investment decisions. Without such restrictions, the regional Bell companies would have a greater incentive to invest in rural and local communities, their existing customer base.

Lifting the interLATA data restriction and other regulations is an important component of a strategy to bring affordable high-speed access to all of Americas small cities and towns, farms and mountain hollows. But it is not the only component. Wireless, satellite and microwave technologies will also be important part of the strategy. We will also rely upon those tools that were used to bring 20th Century technologies—basic telephone service, electricity, and other infrastructure—to rural communities. These include tools such as cooperative arrangements and publicly supported investments.

But Congress can start to address this widening gap today by allowing the regional Bell companies to build and operate 21st Century Internet facilities without regard to lines drawn on a map in the 20th Century.

While rural America falls further and further behind, the rest of the world has realized the importance of broadband and is taking steps to insure its development and deployment. There is growing evidence that the international community is

gaining on us in the development, deployment and use of the broadband Internet for commerce, education, health care, entertainment and other applications.

Across the globe, demand for broadband Internet services is growing and foreign companies and governments are moving to meet it. While here at home, we continue to foreclose the opportunity for new investment in broadband Internet services.

COMSYS, a British consulting group, reports that demand for broadband services in Europe and Asia will surpass the United States by 2010. The global broadband market will be worth $580 billion in 2010 and that households and small and medium sized businesses (SMEs), not big corporate customers, will account for most of the market. By that time, out of 100 million addressable SMEs in the world, only 14 percent will be in the U.S.

As reported in the December 1999 issue of Communications International, "[t]he race is on to build the fattest, fastest and most efficient broadband network in Europe." With fewer regulatory restrictions and a wide variety of technologies available, Europe's broadband build-out may leapfrog that of the U.S.

There are also many examples of broadband ventures that are already underway across Asia. Hoping to create a regional Internet hub, Singapore Telecom is investing $60 million in hosting centers throughout Asia. Just last month, Telekom Malaysia Bhd launched the country's first high bandwidth telecommunications exchange for Internet service providers. This will complement the country's Multimedia Super Corridor zone located outside the capital. In addition, Japan's NEC has recently been awarded an $800 million contract to supply an undersea cable system that will link Asia's major markets. With construction already underway, analysts expect that growing Internet traffic in the region will quickly fill the capacity on the network.

Goldman Sachs reports that by 2003 there will be 63 million Internet users in Asia, up from about 20 million today, generating $32 billion in e-commerce activity mainly through broadband services. According to Fortune, Microsoft has already recognized this opportunity in Asia and is investing in Asia's broadband market. At the same time, Asia is developing its own broadband content providers, exemplified by Taiwan's GigaMedia; Asia's first Nasdaq listed broadband company.

These broadband developments stretch from Europe to Asia and areas in between. By the end of this year, the Middle East will have its first ADSL network up and running. From England to Singapore, companies and governments are experimenting with new ideas and in the process creating high paying jobs. In the May 2000 edition of Red Herring, Howard Postley, director of digital media at PricewaterhouseCoopers, said Singapore is a hot test bed for new data networks because it is "keen on becoming a networked society."

In an era when international geo-political boundaries are no longer barriers to commerce and enterprise, lines drawn on a map of the US almost twenty years ago continue to define where companies may and may not build broadband networks. This hurts competition in this country, leaving too many Americans disconnected as the rest of the world takes leaps forward in broadband development.

If the domestic environment continues to foreclose opportunities for investment in broadband here at home, we may lose jobs and the technological edge that has made us the leading Internet nation in the world and given us the longest sustained period of economic growth in our history.

The Internet knows no borders or boundaries. The members of iAdvance believe that we should be doing everything we can to encourage, not discourage, investment in Internet backbone. We believe, with NIT's Nicholas Negroponte that, "the absence of bandwidth will be more isolating than the densest forest or largest desert."

The promise of a bandwidth rich society, one in which every home, every school, and every small business has a high speed, high bandwidth connection to the Internet is almost beyond our ability to imagine. The toys and tools we use on the Internet today will seem archaic when the Internet backbone is ubiquitous. The Internet will empower and enrich our lives in ways that we can only guess at today. Not only will commerce be redefined, but so to will learning, health care, entertainment, and how we interact on a daily basis with our friends, our family members and our community.

Some day we will look back with amazement at the policy issues we are discussing today. We will wonder what the fuss was all about. We want to get there, we want everyone to get there, sooner rather than later.

In the new millenium, then, it is essential for Congress to act in "Internet time" to meet the challenges of broadband deployment. The first order of business should be the removal of outdated regulations that stifle investment and innovation in the Internet backbone.

Thank you.

Mr. TAUZIN. Thank you, Ms. Molinari.

Our next witness will be Mr. Melvin Malone, Chairman of the Tennessee Regulatory Authority in Nashville, Tennessee. Mr. Malone?

STATEMENT OF MELVIN J. MALONE

Mr. MALONE. Mr. Chairman, members of the committee, I appreciate the privilege to appear before you today. I feel compelled to be here today because I am committed to supporting the provisions in the Telecommunications Act of 1996. I do so willingly and enthusiastically because I sincerely believe that contained within the text of this law, Congress created a blueprint by which competition could flourish, bringing with it the ubiquitous introduction of new technologies along with the promise of reduced rates and better service quality to the marketplace.

Congress showed tremendous leadership when it passed the 1996 Act, a landmark statute that challenged the existence of monopoly interest in favor of consumer choice and innovation. We must continue these efforts and not go back to where we were before the Act passed. So far, it has brought unprecedented prosperity and economic opportunity to all the States. Still, many critics of the Act have argued that we in the States have taken too long to bring competition and deregulation to local markets.

However, unraveling the Act does nothing to hasten the process of competition. Such action could not be more remote from Congress' intent to "promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies."

As Tennessee has commented earlier in its letters to each member of the Tennessee Congressional delegation, we are convinced that, if enacted, H.R. 2420 and H.R. 1686 would seriously undermine the key market opening requirements in the Act and thwart the deployment of broadband services to all regions. The Act's mandate to require the Bell Companies to demonstrably open their local markets to competition prior to receiving authority to provide data services authorized by H.R. 2420 and H.R. 1686 is the fundamental driving force behind the explosion of broadband services across Tennessee. Revoking through H.R. 2420 and H.R. 1686 the carefully crafted safeguards woven into the Act jeopardizes efforts currently underway in many States to close the existing gap between those that have access to advanced services and those that do not.

Our experience in Tennessee has demonstrated to us that the Act has been effective. These bills are unnecessary and would further perpetuate monopoly markets. Current telecommunications law does not prevent Bell Companies from providing broadband services to customers if such broadband services do not cross LATA boundaries. In fact, Bell Companies have already deployed broadband technology in their home markets and are actively marketing high-speed Internet access in many areas of Tennessee using broadband facilities.

Particularly, in Tennessee today, a multitude of new interests presented us with compelling business plans to help us roll out ad-

vanced services in rural and underserved communities. Allowing State commissions to fully implement the Act is the best way to ensure that consumers will get access to these services. H.R. 2420 and H.R. 1686 would directly undermine this effort. RBOCs will be able to provide interLATA services as soon as they have passed muster under Section 271.

In Tennessee, there are ten rural telephone companies offering broadband Internet access throughout the State. Additionally, there are 15 CLECs and at least six cable companies providing broadband technology. Not to be left out and certainly not surprisingly, Bell South is currently offering DSL service in nine urban counties that account for 20 percent of its total Tennessee service area.

According to the FCC, the inaccessibility of Internet access or access to the Internet backbone, however, is not causing the Nation's digital divide. In February 1999, the FCC concluded that Internet access was generally available throughout the Nation in both urban and rural areas. In Tennessee, every county, urban or rural, has access to at least two Internet service providers via a toll-free call with 40 percent of the State having access to four or more ISPs via a toll-free call.

Also delivering advanced service capabilities are a number of new companies that are purely broadband carriers. These companies have either been granted operating authority or have applications that are pending before us. Some of the companies that have come before us for regulatory approval to provide advanced services are Covad, Rhythms, DSL Net, Network Access Solutions, JATO, North point, New Edge, Bluestar, and the list goes on.

Interestingly enough, and in perfect disharmony with the view that non-urban areas will be left unserved absent relaxed regulation for the Bells, these companies provide or plan to provide broadband technology outside of Tennessee's major metropolitan areas in cities like Cleveland, Jackson, Martin, Paris, Sweetwater, Morristown, Johnson City, just to name a few. This list of smaller and rural service areas goes on.

In conclusion, I urge you to abandon this approach toward broadband deployment and instead support the continued growth of innovation stemming from the pro-competitive measures in the law that Congress worked so hard to pass in 1996. Competition will eventually eliminate the need for regulation of broadband services.

[The prepared statement of Melvin J. Malone follows:]

PREPARED STATEMENT OF MELVIN J. MALONE, CHAIRMAN, TENNESSEE REGULATORY AUTHORITY

I feel compelled to be here today because I am committed to supporting the provisions in the Telecommunications Act of 1996. I do so willingly and enthusiastically because I sincerely believe that contained within the text of this law, Congress created a blueprint by which competition could flourish—bringing with it the ubiquitous introduction of new technologies, along with the promise of reduced rates and better service quality, to the marketplace.

Congress showed tremendous leadership when it passed the 1996 Act—a landmark statute that challenged the existence of monopoly interests in favor of consumer choice and innovation. We must continue these efforts and not go back to where we were before the Act passed. So far, it has brought unprecedented prosperity and economic opportunity to all the states.

Still, many critics of the Act have argued that we in the states have taken too long to bring competition and deregulation to local markets. However, unraveling

the Act does nothing to hasten the process of competition. Such action could not be more remote from Congress' intent "[t]o promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies." (Preamble, Telecommunications Act of 1996).

As Tennessee has commented earlier in its letters to each member of the Tennessee Congressional delegation, we are convinced that if enacted, H.R. 2420 and H.R. 1686 would seriously undermine the key market opening requirements in the Act and thwart the deployment of broadband services to all regions. The Act's mandate to require the Bell companies to demonstrably open their local markets to competition prior to receiving authority to provide the data services authorized by H.R. 2420 and H.R. 1686, is the fundamental driving force behind the explosion of broadband services across Tennessee.

Revoking, through H.R. 2420 and H.R. 1686, the carefully crafted safeguards woven into the Act jeopardizes efforts currently underway in many states to close the existing gap between those that have access to advanced services and those that don't. Our experience in Tennessee has demonstrated to us that the Act has been effective. These bills are unnecessary and would further perpetuate monopoly markets. Current telecommunications law does not prevent Bell companies from providing broadband services to customers, if such broadband services do not cross LATA boundaries. In fact, Bell companies have already deployed broadband technology in their home markets and are actively marketing high speed Internet access in many areas of Tennessee utilizing broadband facilities.

In Tennessee today, a multitude of new entrants presented us with compelling business plans to help us roll out advanced services in rural and underserved communities. Allowing state commissions to fully implement the 1996 Act is the best way to ensure that consumers will get access to these new services. H.R. 2420/H.R. 1686 would directly undermine this effort. RBOCs will be able to provide interLATA services as soon as they have passed muster under section 271.

In Tennessee there are 10 rural telephone companies offering broadband Internet access throughout the state. Additionally, there are 15 CLECs and at least 6 cable companies providing broadband technology. Not to be left out, and certainly not surprisingly, BellSouth is currently offering DSL service in 9 urban counties that account for 20% of its total Tennessee service area. According to the FCC, the inaccessibility of Internet access, or access to the Internet backbone, however, is not causing the nation's digital divide. In February 1999, the FCC concluded that Internet access was generally available throughout the nation in both rural and urban areas. In Tennessee, every county, urban or rural, has access to at least two Internet service providers via a toll free call with 40% of the state having access to 4 or more ISPs via a toll free call.

Also delivering advanced service capabilities are a number of new companies that are purely broadband carriers. These companies have either been granted operating authority or have applications that are pending before us. Some of the companies that have come before us for regulatory approval to provide advanced services are Covad, Rythyms, DSL Net, Network Access Solutions, JATO, Northpoint, New Edge, Bluestar, and the list goes on. Interestingly enough and in perfect disharmony with the view that non-urban areas will be left unserved absent relaxed regulation for the Bells, these companies provide or plan to provide broadband technology outside of Tennessee's major metropolitan areas in cities like Cleveland, Jackson, Martin, Paris, Sweetwater, Morristown, and Johnson City just to name a few. The list of smaller and rural areas goes on.

Clearly competition is emerging throughout our state. Moreover, allowing the RBOC's interLATA relief for broadband services would not address the central issues contributing to the digital divide as we know it today. In my view, the problems contributing to the digital divide are complex, embracing social, economic, and technology sectors. The solutions to the digital divide can be found in the Act itself. Before addressing broadband access, Americans must have access to computers and affordable, quality telephone service. Competition is the most effective tool to deliver these and other services.

I urge you to leave the Act as it is written and do not interfere with the hard work of your state colleagues in their ongoing efforts to implement the goals of the Act. I would like to state for the record that it is Tennessee's belief that H.R. 2420/H.R. 1686, if enacted, will:

- *Endanger crucial pro-consumer policies.* H.R. 2420/H.R. 1686 put at risk the requirement that incumbent local telephone companies share their lines with competitive data local exchange carriers. This line sharing requirement is a landmark decision that is absolutely critical to providing advanced tele-

communications services to all Americans at affordable rates as required by Section 706 of the Act.

- *Give monopoly carriers free rein to enter long distance data markets without opening their markets to competitors.* One of the main inducements for the Bell companies to open their markets to competitors is entry to interLATA markets. If Congress weakens the long distance entry requirements of the Act with this proposed exception for data communications services, the Bell companies will largely lose that incentive to open their local markets to competition.
- Pre-empt state commission authority to regulate not only high-speed data services, *but also potentially interexchange voice telephone services carried over packet switched networks.*
- *Eliminate the Federal law that currently permits state utility commissions to enhance competition for local telephone services by requiring additional points of interconnection with the incumbent local telephone company network.*
- *Drastically reduce incentives for Bell companies to meet their obligations to open local markets.* Data traffic already comprises roughly half of all telecommunications traffic today. For several years local telephone companies have possessed digital subscriber line (DSL) technology. Only recently, and primarily in response to competitive pressure, have local telephone companies begun aggressively deploying DSL. Local competition is the fastest and most effective way for consumers to obtain broadband services at competitive prices. These bills undermine that competition.

In conclusion, I urge you to abandon this misguided approach toward broadband deployment and instead support the continued growth and innovation stemming from the pro-competitive measures in the law that Congress worked so hard to pass in 1996. Competition will eventually eliminate the need for regulation of broadband services.

Mr. TAUZIN. Thank you, Mr. Malone.

Mr. Cleland?

STATEMENT OF SCOTT C. CLELAND

Mr. CLELAND. Mr. Chairman, thank you for the honor of testifying. The views here are mine alone.

To begin, I would like to offer the subcommittee two overarching conclusions. First, that broadband deployment and the business market is robust and it is not a problem that should concern this committee. However, the broadband deployment in the residential or small business market is a substantial problem and should be a concern of this subcommittee. I call it the developing residential broadband gap.

The problem is simple economics. Capital efficiency is what ultimately drives infrastructure investment. Residences and small businesses are geographically dispersed and generate relatively low revenues, making deployment very capital inefficient and the deployment outlook cloudy. Then next, I would like to offer three reasons why I think this subcommittee should care about this issue.

First, the residential broadband infrastructure, another way to call it consumer band width, it could very well emerge as the Achilles heel of the new economy, of a video-enabled Internet, and consumer e-commerce growth. Now, with all the attention we have right now on trying to clear taxes and regulation out from the front of the Internet train and keeping the train fare cheap and free of access charges, many are missing the obvious, that the Internet train is hurtling forward on Internet time and it may abruptly run out of Internet track, consumer band width.

If consumers do not have enough band width, it does not matter how much video content supply is out there. It does not matter how much video content is demanded. It will not reach consumers. That is the disconnect that is the residential broadband problem.

Finally, I am going to very briefly try and run through what I see as the ten reasons that this gap exists. It is real. It is not going away.

No. 1, supply and demand. We can look in isolation at the deployment that has gone so far. In absolute terms, it is very impressive. In relative terms to what is needed to keep up with the video-oriented dot-coms out there and to keep up with the potential for video streaming, it is not even close to what demand is. For example, narrow band ISP sign-ups outpace broadband 8 to 1.

Second, in infrastructure incentive problems. The way the FCC chose to implement the Telecom Act, they created something called the unbundled element platform. It created a deeper discount than what the law had originally intended, and that was to spur resale competition. The unintended consequence of that is it massively devalues all infrastructure investment, whether it is incumbents or competitors, whether it is fiber, whether it is cable, whether it is fixed wireless. If you can lease it cheaper than you can build it, why build it in the first place? They pegged a price too low to stimulate competition. Actually, it will encumber competition.

Third, revenue efficiency is a problem in the gap. Now, we know that broadband is 20 to 100 times faster. It requires 20 to 100 times more spectrum than does narrowband voice or data. Do you think consumers are going to spend 20 to 100 times more for that product than the others? No. So the economics are a problem there.

Fourth, depreciation. This is an investment community that I write for that are concerned. Very ominously, infrastructure replacement cycles for many fiber and for many wireless technologies are outpacing their depreciation cycles. In very simple terms, what that means is investors are not likely to recoup their initial investment, let alone earn a return on their investment.

Fifth, the competition residential broadband gap. Our projects at The Precursor Group are that in the next 3 to 4 years, we project that about 20 percent of the country may have a choice of 3 to 4 different broadband facilities. About 30 percent of the country may have the choice of two broadband facilities. And half of the country is either going to have one or no choice, and we think that is an optimistic projection given the economics and the way these are being rolled out.

I flag for people, at the end of my testimony, we have a one-page summary of essentially where the deployment is in the residential market by technology. It is a very useful kind of summary.

Sixth, competitive churn. Chairman Tauzin was talking about this before. One point I would like to make is, there is negligible after-market churn between DSL and cable. Once somebody signs up to them, they do not switch. It is too big of a hassle. It takes too much time. So once DSL or once cable has them, they have got them. They are locked in.

Seventh, consumer choice, another issue that was talked about here. There is a big gap between the open choice of ISP on the telco and fixed wireless platform versus the closed cable platform. That is a gap.

Eighth, there is a technology gap. There is a wide gap in the viability of business models. In the investment community, you try and assess the relative viability of business models, and cable and

DSL have existing plant into most American homes so they are going to have a massive advantage over anybody that is starting from scratch. And so when we look at the mass market, you are going to see a duopoly. You are going to see cable and you are going to see DSL. To think that the other technologies are going to come, like the calvary, over the hill and rescue, it is just not realistic. The cost is billions. It is not going to happen.

Ninth, the gap is in home computers. Home computers, the home-installed base of personal computers, is not plug-and-play. It is not like dial-up where you can just do it easily for narrowband. There are no standards and there is very little interoperability.

Then last, my point is there is a big gap on home wiring, inside wiring. That is a veritable hornet's nest, and broadband, once it starts trying to link into multiple services in the home, is going to be very, very problematic.

So to sum it up, my main conclusion is while the business market is fine, the residential market has some very serious problems and residential broadband, the reality is not going to meet expectations. Thank you for the opportunity to testify.

[The prepared statement of Scott C. Cleland follows:]

PREPARED STATEMENT OF SCOTT C. CLELAND, MANAGING DIRECTOR, THE LEGG MASON PRECURSOR GROUP®

Mr. Chairman, thank you for the honor of testifying before your Subcommittee on "Deployment of Broadband Technologies." I am Scott Cleland, Managing Director of the Legg Mason Precursor Group®. The views expressed herein are mine alone. I request that my full written testimony be printed in its entirety in the hearing record.

By way of introduction, I am not a traditional Wall Street sell-side analyst who analyzes companies or recommends stocks. For Legg Mason, I run an investment research group that tracks regulatory, technological, and competitive developments in the communications, technology, and e-commerce sectors for large institutional investors. In that context, I offer the following insights and observations in hopes that they will be useful to the Subcommittee.

I. INTRODUCTION—BUSINESS MARKET NOT A PROBLEM, RESIDENTIAL MARKET IS

Almost any way one slices it, there is a stark contrast between the broadband deployment outlook for the large or urban business market versus the residential or small business market—in other words, there is a "developing residential broadband gap."

While the outlook for the large and urban business market is bright, the outlook for the residential and small business market is not. The core reason is economics, because ultimately, capital efficiency drives infrastructure deployment. Put another way, how much revenue can be generated by a given capital investment?

In the urban business market, where the customers are densely located and also generate relatively high revenues per customer, broadband deployment is more capital-efficient and likely will flourish. That market does not suffer a broadband deployment problem, so my discussion of that market will end here.

However, in the residential and small business market, where customers are geographically dispersed and generate relatively low revenues, broadband deployment is much less capital-efficient, consequently, it is tough to see how it will flourish. The rest of my testimony, then, will focus exclusively on the residential and small business market in which a broadband gap is developing.

II. WHY A RESIDENTIAL BROADBAND GAP MATTERS

It is increasingly apparent that the residential broadband infrastructure—consumer bandwidth—could emerge as the "Achilles' heel" of a video-enabled Internet, consumer e-commerce growth, and the New Economy. With all attention focused on clearing taxes and regulation from the front of the Internet "train," and keeping the "train fare" cheap, many are missing the obvious—that the Internet "train" hurtling forward on "Internet time" may abruptly run out of Internet "track" (i.e., consumer

bandwidth). If consumers don't have sufficient bandwidth, it doesn't matter how much video content supply there is, or how much consumer video content demand there is—it is not going to get delivered as consumers expect.

III. THE TEN DEVELOPING RESIDENTIAL BROADBAND GAPS

A. The Gap in Economics

1. The Broadband Supply & Demand Gap: While actual residential broadband deployment is making significant headway in absolute terms, when viewed in relative terms as a critical link in the growth of the business-to-consumer e-commerce system, it lags substantially behind demand.

Residential broadband deployment is not keeping up with the explosion of video-oriented "dot-coms" and video streamers, which will depend increasingly on the availability of dramatically more consumer bandwidth. (Video transmission can require upwards of 100-200 times more bandwidth or spectrum than narrowband voice or data.)

The eight million new narrowband dial-up customers added in the last six months of 1999 dwarf the roughly one million residential broadband customers added in the same period!

Many of the following facets of the developing "gap" strongly suggest that the supply of residential bandwidth is not going to keep up with the voracious bandwidth demands of burgeoning video-dependent applications.

2. The Broadband Incentive Gap: We believe the FCC's implementation of the 1996 Telecom Act's unbundled resale provision has the unintended consequence of being a major discouragement of broadband facilities deployment.

Believing that the Act's wholesale (avoided cost) resale methodology would generate an insufficient discount to spur local competition, the FCC reengineered the unbundled element resale methodology to effectively bypass the wholesale provision with a deeper discount.

By applying forward-looking pricing methodology (TELRIC) to the entire service by inventing an unbundled element platform (UNE-P), the FCC effectively bypassed the Telecom Act's intended 10%-20% effective wholesale discount with a manufactured 50% effective wholesale discount. This was the FCC's plan to accelerate resale competition.

However, the unintended consequence of the FCC's strategy has been to effectively devalue all infrastructure investment by everyone, incumbents and competitors alike, whether it is fiber, cable, or fixed wireless.

TELRIC pricing is an imaginary price created by regulatory economists. In this case, TELRIC assumes in advance a resale price based on what a hypothetical network using state-of-the-art technology would cost in a competitive market—before competition ever arrives.

By leap-frogging the actual stage of competition, and assuming a competitive price, the FCC has undercut the incentive to compete with an overbuild. Why overbuild if one can lease it more cheaply than one can build it? We strongly suspect that the success of the UNE-P resale will adversely affect the incentive for facility-based competition.

3. The Broadband Revenue Efficiency Gap: Few have contemplated the implications of how revenue-inefficient broadband may turn out to be. To begin with, bandwidth or available spectrum, whether it is wireline or wireless, is clearly a scarce resource in the last mile.

How does one maximize revenues with a scarce resource? By managing the scarce resource efficiently.

However, broadband physically consumes 20-100 times the scarce spectrum or bandwidth that narrowband voice or data currently consumes. Are consumers going to pay 20-100 times more for broadband than narrowband? No way.

Since broadband business models use bandwidth so inefficiently, there had better be additional revenue streams to compensate for this core inefficiency.

4. The Broadband Depreciation Gap: Few appreciate that infrastructure replacement cycles for many fiber and wireless deployments are quietly and ominously outpacing their depreciation cycles.

What this means is that the pace of the market in "Internet time" is so rapid that many infrastructure investors are not getting enough time as they had planned to recoup their initial investment, let alone to earn the expected full return on much of it.

For fiber, much of the early-stage fiber that was laid by the original telecom facility competitors in the 1990s for a narrowband world has proven significantly out of date only a few years later. Few realize that many of the new digs of the nation's

streets are not new competitors, but the original competitors redigging the same trenches because they did not anticipate current broadband demand.

For wireless, the explosive growth of wireless demand may be making original wireless infrastructure investment obsolete sooner than depreciation rates originally anticipated.

B. The Gap in Competition

5. The Broadband Competition Gap: We have seen this residential "competition gap" before. Competition in the residential broadband market is developing like facility telephone competition has. Most competitors build out to serve the same high-end customers, which meet two criteria: high average customer revenue and geographic density. Despite industry pledges to offer broadband universally, it probably won't happen because it will be uneconomic for anyone to compete against a "first-mover" in possibly one-half of the country. In the next three-to-four years, we project that up to 20% of the country may have a choice of three-to-four different broadband facilities, roughly 30% of the country may have the choice of two facilities, and one-half of the country may have only one or no broadband facility choice. We believe this projection is optimistic, given experience to date.

6. The Broadband Competitive "Churn" Gap: So far, residential broadband competition has effectively been a cable/telco duopoly contesting for initial sign-ups. There is negligible aftermarket competition or "churn" between broadband facilities because of the high cost and time hassle of switching. One analyst quipped that broadband churn is less than moving or death rates!

This means there is a substantial gap between the vertical market competitiveness of broadband and narrowband. There are substantially greater barriers to switching among broadband platforms compared with the modest impediments to switching ISPs on the narrowband platform.

7. The Broadband Consumer Choice Gap: There is a stark gap between the consumer choices available on the open telco/fixed wireless broadband platform versus the closed cable broadband platform.

Roughly 20% of the broadband access market currently uses DSL. The narrowband ISP market has developed under an open network with interconnection and interoperability obligations in addition to procompetitive, nondiscrimination policies. Consumers can choose their ISP freely.

Roughly 80% of the broadband access market currently uses cable. The cable broadband ISP market is developing under a closed network with no interconnection or interoperability obligations and no requirement not to discriminate. Consumers cannot choose their ISP freely if they want cable broadband.

C. The Gap in Technology:

8. The Broadband Technology Gap: There is also a wide gap in the business model viability of the different broadband technologies.

Cable: We expect cable to remain the primary residential broadband facility for the foreseeable future. Cable already has a national broadband infrastructure into the home, where consumers most need high bandwidth. It is relatively much cheaper and faster to add to cable a narrowband return path out of the home to make it two-way for data than it is to add bandwidth to the existing two-way telco plant or to construct a new broadband plant.

DSL: We expect DSL to remain the secondary broadband infrastructure for the foreseeable future. DSL rollout has been largely defensive to date, chasing cable into markets in which cable already enjoys "first-mover" advantage. And the telcos' pricing to date has been relatively expensive, a duopoly, not a market-leader approach.

Overbuilds: RCN, the only significant overbuilder, has been very clear about its "cream-skimming" model—targeting only the densest, high-end markets. That's because it is not viable economically to build elsewhere.

Fixed Wireless: Since fixed wireless deployment has been underwhelming to date in the much more lucrative business market, it is highly questionable if it will be a competitive force in the foreseeable future in a much less economically viable residential market. Moreover, the scale players (AT&T, WorldCom, Sprint) all plan to use fixed wireless as a "fill-in" offering in locations where they have neither cable nor DSL to offer.

Satellite: The technical and business model challenges of deploying two-way broadband satellite profitably remain substantially more difficult at all levels than the challenges that doomed the ill-fated Iridium narrowband business model.

9. The Broadband Personal Computer Gap: The currently installed base of American home computers is nowhere near broadband "plug and play," as the current narrowband dial-up market is. If a home personal computer is more than two years old or does not have Windows 98, it does not have the internal software drivers ca-

pable of handling broadband modems simply. Broadband "plug and play" is still a few years away for the mass-market.

10. The Broadband "Inside Wiring" Gap: Once one gets into the home, home networking is a veritable hornet's nest of issues. There are no home broadband standards, and there are major interoperability disconnects between broadband technologies. Broadband home networking is a completely different level of complexity beyond narrowband home networking. Moreover, while cable has the technological advantage over DSL now in bandwidth and modem deployment, DSL will have the technological advantage over cable in home networking. It is a much simpler set of problems for the telcos to resolve than for the cable companies. Home networking could turn out to be a hodgepodge mess for the foreseeable future.

In conclusion, all is not well in the residential broadband market. There are substantial economic, competitive, and technological impediments, which appear to be creating an increasing gap between residential broadband deployment expectations and reality.

Mr. Chairman, thank you again for the honor of testifying before your Subcommittee on this important subject.

Attached is a copy of our February 8, 2000, research piece, "The Developing Residential Broadband Gap." It includes a one-page overview of the deployment status and eventual availability of the main residential broadband technologies.

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LEGG MASON PRECURSOR RESEARCH®
"Helping Investors Anticipate Change"SM
Scott C. Cleland
February 8, 2000

The Developing Residential Broadband Gap

(Part II of Residential Broadband Outlook Series)

Summary: TPG spotlights a **major disconnect between perception and reality in the residential broadband market that could have far-reaching investment implications.** TPG believes investors will increasingly see the residential broadband infrastructure as the weak link in the evolution to a broadband video-enabled Internet, and as an **impediment to consumer e-commerce growth.** (Attached is an overview of the deployment status and eventual availability of the main residential broadband technologies.)

The Broadband Infrastructure Gap: Residential broadband deployment is not keeping up with the explosion of video-oriented "dot.coms" and video streamers, which will depend on dramatically greater bandwidth capacity. While residential broadband deployment has made significant progress, when viewed as a critical link in the growth of the business to consumer e-commerce system, it lags substantially. **The eight million new narrow-band dialup customers added in the last six months dwarf the roughly one million residential broadband customers added in the same period!** Moreover, the "cavalry" shows little evidence of coming to the rescue. AT&T, supposedly the main broadband deployment hope, currently has a cable modem penetration rate roughly 60% of the penetration rate of other top cable companies, all of which have considerably less scale and much weaker consumer brands. As for DSL, despite vastly greater resources and a better service reputation than cable, the telcos to date are signing up DSL customers at less than one-third the rate of cable. And residential fixed wireless has yet to show up. Both MCIWorldCom and Sprint apparently are withholding deployment as leverage to get regulators to approve their pending merger. To date, AT&T has used its fixed wireless effort primarily as leverage to get other cable companies to take AT&T telephony services. TPG strongly suspects that **the supply of residential bandwidth is not going to keep up with the voracious bandwidth demands of burgeoning video-dependent applications.**

The Broadband Competition Gap: Most still don't appreciate how weak the core economics are in overbuilding residential infrastructure. The extraordinarily low cost of capital over the past few years has effectively masked it. Nevertheless, local residential communications infrastructure remains highly capital-intensive and capital-inefficient given the low average value of a customer and their geographic dispersion. While the Internet may mean "the death of distance" in e-commerce, the Internet does not eliminate the cost of local facility construction or upgrades. We have seen this "competition gap" before. Competition in the residential broadband market is developing like facility telephone competition. Most all of the CLECs built out to serve the same high-end customers, which met two criteria: high average customer revenue and geographic density. Despite industry pledges to offer broadband universally, it probably won't happen because it will be uneconomic for anyone to compete against a "first mover" in possibly half of the country. **In the next three to four years, TPG projects that up to 20% of the country may have a choice of three to four different broadband facilities, roughly 30% of the country may have the choice of two, and half of the country may have only one or no broadband facility to choose from.** That is optimistic given experience to date. And, so far, competition has been limited to initial sign-ups. There is negligible after-market competition or "churn" between broadband facilities because of the high cost and time hassle of switching.

The Broadband Technology Gap: There is also a wide gap in the business model viability of the different broadband technologies. **Cable: TPG expects cable to remain the *primary* residential broadband facility for the foreseeable future.** Cable already has a national broadband infrastructure *into* the home where consumers most need high bandwidth. It is *relatively* much cheaper and faster to add to cable a narrowband return path out of the home to make it two-way *for data,* than it is to add bandwidth to the existing two-way telco plant or to construct a new broadband plant from scratch. TPG seriously questions the "catch-up ability" of the other broadband technologies to "first mover" cable. **DSL:** TPG expects DSL to remain the secondary broadband infrastructure for the foreseeable future. So far, DSL has been a serial "just wait until next quarter" story. DSL rollout has been defensive to date, largely chasing cable into markets where cable already enjoys "first mover" advantage. And the telcos' pricing to date has been relatively expensive, a duopoly, not a market leader approach. **Overbuilds:** RCN, the only significant over-builder, has been very clear about its "cream-skimming" model – targeting only the densest, high-end markets. That's because it is not viable economically to build from scratch elsewhere. **Fixed Wireless:** Since fixed wireless has been underwhelming to date in the much more lucrative business market, it is highly questionable if it will be a competitive force in the foreseeable future in the much less economically viable residential market. Moreover, the scale players, AT&T, MCIWorldCom and Sprint, all plan to use fixed wireless as a "fill-in" offering where they do not have either cable or DSL to offer. **Satellite:** The technical and business model challenges of deploying two-way broadband satellite profitably remain substantially more difficult at all levels than the challenges that doomed the ill-fated Iridium narrowband business model. * * * *

ADDITIONAL INFORMATION AVAILABLE ON REQUEST — The information contained in this report is based on sources believed to be reliable, but we do not guarantee its completeness or accuracy. This report is for information purposes only and is not intended to be an offer to buy or sell the securities referred to herein. Opinions expressed are subject to change without notice. Past performance is not indicative of future results. From time to time, Legg Mason Wood Walker, Inc. and/or its employees, including the analyst(s) who prepared this report, may have a position in the securities mentioned herein. "Precursor Research" is a registered trademark to Scott C. Cleland, licensed to Legg Mason Wood Walker, Inc. Member New York Stock Exchange/Member SIPC.

Precursor Watch®: Residential Broadband Deployment Outlook

Residential Provider	Two-Way Broadband?	Estimated Residential Subscribers 1H99	New 2H99	Total	Market Share	Estimated "Footprint" Growth 1999	2000	2001	2002	2003	Approximate Current Retail Pricing (Start-up / Monthly)	Download Speed	Upload Speed @Home
Wireline													
Cable Modem *Cable and AT&T*	Yes (most*)	950,000	750,000	1,700,000	84%						$75 ($0 - $150) $40	~2 mbps	128 kbps ~256-500 kbps
xDSL *ILEC, CLEC, IXC*	Yes (most*)	100,000	200,000	300,000	15%						$100 ($0 - $200) $50	~768± kbps	~128-256 kbps
Overbuilders *RCN (cable modem)*	Yes (most*)	13,000	9,000	22,000	1%						$0 ($0 - $300) $40	~1.5 mbps	~768 kbps
Electric Lines *Media Fusion? (Experimental)*	Yes	0	0	0	0%	(Questionable technical viability)					n/a	n/a	n/a
Terrestrial Wireless* **													
Digital TV *Broadcasters/Geocast (54-746 MHz)*	No	0	0	0	0%	(Questionable business model; not 2-way)					$300 $0	~2 mbps	~28-56 kbps
Wireless Loop *AT&T Project Angel (Trial) (1.8-2.1 GHz)*	Yes	0	0**	0 **	0%						$0 (in trial) $50	~500 kbps	~150 kbps
MMDS *Sprint, MCIWorldcom, etc. (2.1-2.7 GHz)*	Yes	10,000	0**	10,000	0%						$150 $40	~1 mbps	~256 kbps
LMDS *Winstar, Teligent, Nextlink, etc. (24, 28, & 38 GHz)*	Yes (long-term)	0	0**	0 **	0%	(Questionable for residential service)					n/a	n/a	n/a
3G Mobile Wireless *PCS (1.88-2.02; 2.11-2.20 GHz?)*	Yes	0	0	0	0%	(Supplement or competitor?)					n/a	~384+ mbps	~384+ mbps
Satellite													
Existing Systems *Hughes DirecPC (Ku band: 10-18 GHz)*	No	40,000	0**	40,000	0%	(Telco return; not 2-way)					$200 $50	~400 kbps	~28-56 kbps
Planned Systems *Skybridge/Spaceway, Teledesic (Ku 10-18/Ka 18-30 GHz)*	Yes	0	0	0	0%	(Questionable technical viability and business model)					n/a	n/a	n/a

***KEY*: Two-Way Broadband?:** FCC defines "broadband" as 200 kbps both ways. **Footprint:** Assuming ~100m U.S. households, circles depict estimated growth over time: ■ = deployed; □= potentially deployed long-term; □ = unlikely targeted for deployment. **Pricing/Speed:** We show price/speed packages for broadband *plus Internet service*, chosen from range of marketed--often conditioned--options likely to have broadest appeal; circles depict speed/size of "pipe." (*) @Home, SBC, GTE limit upload speed to 128 kpbs at prices listed above; some cable modems still use dial-up return. (**) Amount is currently negligible. (***) Some spectrum (e.g., UHF channels 60-69, ultrawideband, unlicensed spectrum) is either not yet available, niche use, or both.

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Mr. TAUZIN. Thank you very much, Mr. Cleland.

Now we welcome Mr. John Windhausen, President of the Association for Local Telecommunications Services here in Washington, DC. You are on, John.

STATEMENT OF JOHN WINDHAUSEN, JR.

Mr. WINDHAUSEN. Thank you, Mr. Chairman. As you said, I am John Windhausen, President of the Association for Local Telecommunications Services, also known as ALTS. ALTS is the leading trade association representing the facilities-based competitors to the local telephone companies. We represent the hundreds of companies that are entering the local telecom marketplace and we are building new networks. We are not the long distance companies. AT&T, MCI, and Sprint are not members of ALTS. Neither are the Bell Companies and GTE. We truly are the innovators, the entrepreneurs that Congress sought to foster when it passed the 1996 Telecommunications Act.

ALTS represents in particular Covad, Northpoint, and Rhythms Net Connections, perhaps the three leading providers of broadband DSL services in this country. Those three companies alone already are able to provide service to over 50 percent of American homes today, and that is just 3 years since this technology first started to be introduced. Already, 50 percent of American homes can get access to the service of these competitors.

But it is not just those three companies that are in this marketplace. New companies are entering this marketplace every single day. Bluestar, Trivergent, DSL Net, New Edge Networks, Digital Broadband Communications, these are all companies that have just started in the last year or two and they have plans to deploy service not in the large cities but in the smaller towns and cities across this country. In fact, one of those companies alone has plans to deploy service in over 500 markets around the country, some of those markets with less than 10,000 people in population.

So this whole entire industry is burgeoning and what I would like to do is bring your attention to a couple of charts that we have brought here at the end of the table just to give you a picture of what is happening across the industry.

As the charts demonstrate, this first chart demonstrates the growth in the amount of money that our sector of the industry is investing. Again, we are building new networks because we are deploying our own facilities, broadband facilities. Over $30 billion has been raised by our sector of the industry. Over $1 billion every single month is being invested by our companies in building new technologies.

Now, just to give you a comparison, I have heard that the cable industry is very proud of the fact that they have spent $30 billion, as well, in deploying new technologies, and that is wonderful, as well, but keep in mind the cable industry has perhaps five times the revenues that our small entrepreneurial CLECs generate today.

In addition—go to the next chart, please—we are investing much more of our capital into our networks than the Bell Companies are. What this chart shows is that we are spending over 50 percent—almost 60 percent of our revenues go right back into our networks,

as opposed to only about 25 percent of the revenue earned by the Bell Companies. So we are deploying our technologies as fast as we can.

In particular, with DSL—the next chart, please—this will give you an indication of where we are in comparison to the Bell Companies. As you can see, the leading provider of DSL services today is SBC Communications. Next, U.S. West. Third is Covad, a company that was founded just 3½ years ago.

This chart shows a couple of things. First, that it is the competitive carriers, such as Covad, Rhythms, and North Point, that are driving this deployment and the Bell Companies, the ones that are really concerned about doing it, they are doing it, as well, in response to the competition. SBC and U.S. West, they do not need changes in the laws to deploy DSL. They are doing so already today.

Now, that is the good news. The bad news is that we could be doing so much more if only we could really open up that local telephone network to competition as Congress required and demanded in the 1996 Telecommunications Act. Competitors continue to face over and over again problems with obtaining collocation in the central offices. We continue to have very severe problems getting loops provided to us as is required under the Act. Our experience is that it takes between 7 and 60 days to get service provided to us when really it should take the same amount of time as switching your long distance service. It should only take 3 to 5 days to switch your local company, but instead, it often takes over a month.

The polite term to describe what the Bell Companies do is that they engage in strategic incompetence. They simply do not devote the resources to deploying services and satisfying our requests for interconnection. But we also have many examples of fines and penalties that have been imposed on the Bell Companies because they simply do not perform. In the words of one of our other executives, the Bell Companies treat competitors just like they treat their customers, poorly.

Now, one last point. Line sharing is a very, very critical key to the deployment of broadband services to residential consumers. Scott just referred to the difficulties in deploying broadband services in residential areas. Well, I must point out to this committee that line sharing is perhaps the critical step that will allow broadband services to be deployed to residential consumers in an economic manner. However, H.R. 2420 would take away line sharing. It would remove that possibility and, in fact, would have the direct opposite effect of what this committee wants to achieve. As Mr. Dingell referenced earlier, if 90 percent of residential consumers are served by cable today, that substantial market share is only likely to be preserved by passing the bill H.R. 2420.

We need to stay the course. If I could summarize in my last statement, what we need most of all is enforcement of that 1996 Telecommunications Act, not changes to it. The best way to promote deployment of broadband services is to get that local market opened up as Congress required in 1996. Thank you.

[The prepared statement of John Windhausen, Jr. follows:]

TESTIMONY OF JOHN WINDHAUSEN, JR.
PRESIDENT
ASSOCIATION FOR LOCAL TELECOMMUNICATIONS SERVICES (ALTS)

Hearing before the House Telecommunications Subcommittee on
The Deployment of Broadband Technologies
May 25, 2000

Mr. Chairman, members of the Committee, my name is John Windhausen. I am the President of the Association for Local Telecommunications Services, known as ALTS. ALTS is the leading trade association representing facilities-based competitors for local telecommunications services. ALTS represents approximately 100 CLECs, competitive local exchange carriers, most of whom entered the local telephone market after the passage of the 1996 Telecommunications Act. These companies build and operate networks that provide broadband and other telecommunications services to customers in local markets throughout the United States. We are the new economy companies of the telecommunications industry – working to meet the enormous demand generated by the Internet and working to fill the "digital divide" for all Americans.

ALTS' focus is on the competitive local telecommunications market. Therefore, ALTS does NOT represent either the Bell Operating Companies or the major long distance companies, such as AT&T, MCIWorldCom or Sprint.

In short, ALTS represents exactly the kind of entrepreneurial new companies that Congress sought to foster when it passed the 1996 Telecom Act. Our companies would not exist today if Congress had not passed that Act, and for that we are enormously thankful to you, Mr. Chairman and all the Members of this Committee.

Mr. Chairman, you have asked me to testify concerning the deployment of broadband services, and I will do so shortly. But first, I wish to summarize ALTS' principal message:

Local telecommunications competitors have made enormous progress in rolling out advanced telecommunications to consumers across the country. Yet even more broadband services could be deployed if only the local telecommunications market were truly opened to competition. We are extremely frustrated that the telephone companies, cities, and building owners have not opened their doors to competition. **The biggest step Congress can take to promote broadband deployment is to enforce the 1996 Telecommunications Act and help to break open the local telecommunications market to greater competition.**

My testimony is divided into two parts. First, I will review the significant efforts made by competitors to deploy advanced services, and I will review the effect that the growth of competition is having on the incumbent telephone providers. Second, I will document

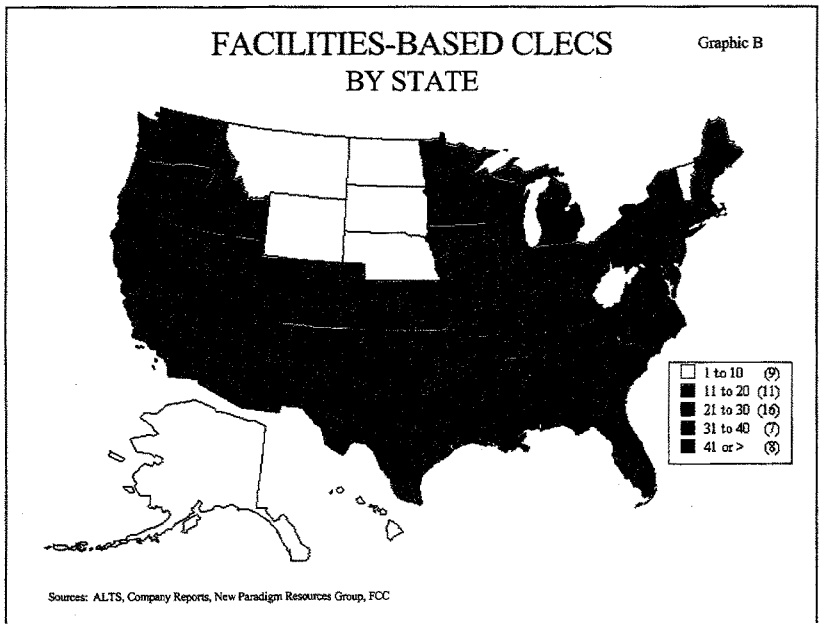
some of the significant difficulties that competitors face in providing advanced services across the country.

Deployment of Broadband Services

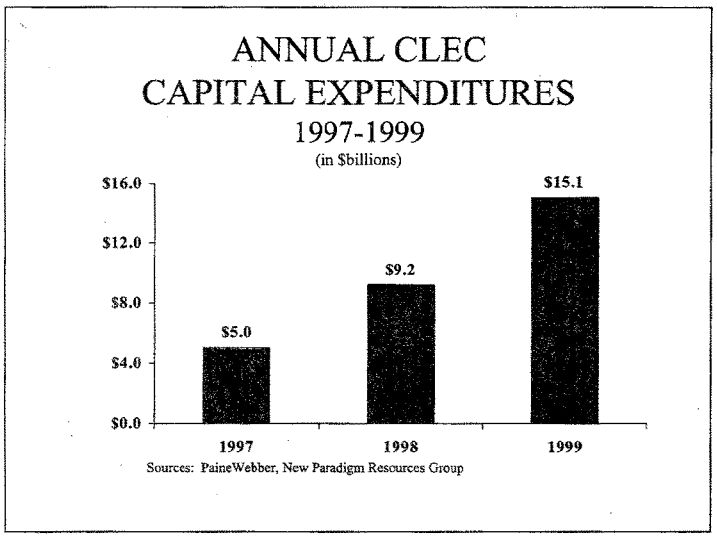
The 1996 Telecommunications Act has stimulated an enormous level of investment in new advanced, broadband services by competitors and incumbent telephone companies alike.

Let me turn first to the investments made by competitors.

Since 1996, the number of new entrants providing service in local markets has grown dramatically. CLECs are currently operating in every single state in the nation. Even some of the most rural states, such as Alaska, Montana and West Virginia, have at least one competitor. Perhaps even more striking is that the 'average' state already has 21 to 30 CLECs in operation. This is a strong sign that competitors intend to offer competitive service in urban, suburban and rural areas of the country.

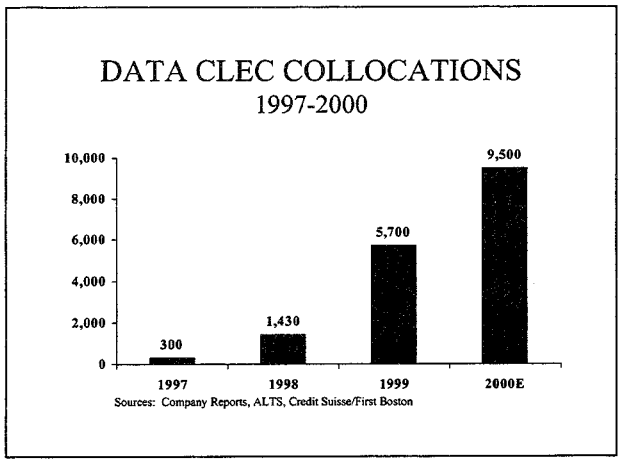


Investment in local communications markets has also skyrocketed since 1996. Competitors have invested over $30 billion in new networks and are now investing more than $1 billion every month.



The competitive telecom industry has provided crucial investment opportunities that have directly contributed to our nation's historic economic expansion. Recently released numbers by PriceWaterhouseCoopers show that 32%, or $11.8 billion of 1999 venture capital spending was directed to communications sector – an almost 300% increase in one year.

So-called Data CLECs, or DLECs are rapidly increasing the pace of seeking collocation arrangements with the incumbent local telephone companies. Collocating equipment in the telephone company central office is the first step toward providing broadband services to consumers. Once a DLEC places equipment in a telephone company central office, it may be able to serve all the customers whose lines connect to that central office. Most DLECs are seeking to deploy Digital Subscriber Line (DSL) technology, and high-speed internet access service that allows telephone consumers to obtain internect access at speeds that are 20 to 100 times faster than a typical modem.



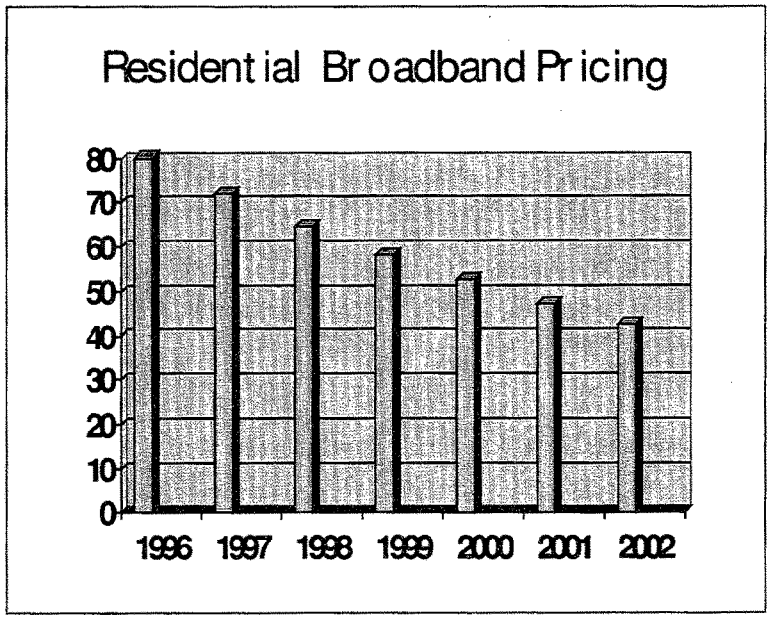
Competitive providers of DSL services have about 20% of the local broadband market today. Competitive DSL companies such as Covad, NorthPoint Communications, and RhythmsNetConnections are deploying DSL services to major markets nationwide. (see the carriers' maps at the back of this testimony.) In addition, newer companies such as NewEdgeNetworks, Trivergent, Bluestar, DSLNet and Digital Broadband Communications are rapidly deploying broadband services in medium and smaller cities across the country. In fact, at least one of these new DSL companies has plans to deploy DSL services in over 500 towns and cities in the U.S. over the net year or two. Some of these markets have less than 10,000 people.

Furthermore, fixed wireless companies such as Teligent, Winstar, NextLink and Advanced Radio Telecom are deploying extremely high-speed services to office

buildings and residential apartment buildings across the country. In short, these are the companies that will ultimately bridge the so-called "Digital Divide."

The 1996 Act energized the communications sector and our national economy. The Act has helped create new, **high-value** jobs in the communities where they invest and compete. The competitive industry has grown from virtually nothing to employ about 70,000 people today.

The net effect of all this investment and growth by the CLECs has been lower rates for consumers and impressive technological innovation. In particular, residential rates for broadband, or high-speed, Internet access declined 27% between 1996 and 1999. As competition intensifies, prices will drop even further.



Source: NxGen Data Research – *'DSL & Broadband Markets, 1999 – 2005'*

There is little doubt that the current DSL and other broadband technologies that are being deployed widely today are the direct result of competition in the marketplace. For example, although DSL technology was well known to the Bells and GTE, they let it sit on the shelf. It was not until competitors began to deploy DSL that the incumbents began offering this service on their networks. Indeed, in its 1999 Economic Report of the President, the Council of Economic Advisers found that:

> *"[t]he incumbents' decision finally to offer DSL service followed closely the emergence of competitive pressure from cable television networks delivering similar high-speed services, and the entry of new direct competitors attempting to use the local-competition provisions of the Telecommunications Act of 1996 to provide DSL over the incumbents' facilities."*

This new movement toward innovation was exactly what Congress intended in passing the 1996 Act.

Today, competitors offer a wide variety of DSL and broadband services to customers, and they continue to push the technology forward as even faster technologies are developed. While the Bells are generally deploying only one brand of DSL technology, data CLECs, or DLECs, are offer various 'flavors' of DSL so that consumers may choose the most appropriate and cost-effective service.

Company	**Downstream** *(kbps)*	**Upstream** *(kbps)*	**Services**
Bell Atlantic	640 – 7100	90 – 860	ADSL
BellSouth	1500	256	ADSL
GTE	256 – 1500	64 – 768	ADSL
SBC	384 – 1544	128- 384	ADSL
US West	256 – 7000	256 – 1000	ADSL, IDSL, VDSL
Covad	144 – 1500	128 – 1500	ADSL, SDSL
NorthPoint Comm.	144 – 1544	144 – 1544	IDSL, SDSL
Rhythms NetConnections	128 – 7100	128 – 7100	ADSL, IDSL, RADSL, SDSL

Source: DSLReports, Company Reports & Interviews

Clearly, without a robust marketplace, where competitors compete with the Bell companies and other CLECS in local markets, technology innovations would slow to a snail's pace.

RBOC Deployment

Not only have consumers received new services from competitors, as I stated earlier, the Bells, GTE, and other incumbents are responding to the competitor's challenge. They

have gone to Wall Street and announced to their shareholders and other investors that they will meet the competition, and they are widely deploying DSL services.

The following chart demonstrates that the RBOCs are deploying DSL services at various rates. It is quite interesting to note that the most rural of all the RBOCs, USWest, has been the most aggressive in deploying DSL services. (Recall that SBC is three and one half times larger than USWest, after SBC merged with Pacific Telesis, Ameritech and Southern New England Telephone.) In other words, it does not appear that the RBOCs need regulatory or policy changes to deploy DSL services; what they need is more competition.

SBC/Pac Bell 201,000 customers (301,000 announced, most not yet installed)

US West 167,000 customers (including 31,000 served with video in Phoenix)

Covad 93,000 customers

GTE 88,000 customers

Bell Atlantic 62,000 customers

BellSouth 49,000 customers

NorthPoint Communications 41,300 customers

Broadwing 24,000 customers

Rhythms NetConnections 20,000 customers

Overall DSL Deployment

Because of the rapid deployment by both competitors and the incumbent telephone companies, **over half of U.S. households are now capable of receiving DSL services.** This after only three years since the technology was brought to the marketplace.

Furthermore, according to one expert, DSL deployment will surpass cable modems as the leading mode of providing high-speed access in the year 2001.

To summarize, ALTS believes that the 1996 Act has brought about tremendous benefits for competition, and those benefits are increasingly becoming evident to telecommunications consumers. Let me review:

- Over 300 new companies have entered the local telecommunications market since 1996, and most of them are providing facilities-based service.
- CLECs are currently operating in every single state in the nation. Even some of the most rural states, such as Alaska, Montana and West Virginia, have at least one competitor. Perhaps even more striking is that the 'average' state already has 21 to 30 CLECs in operation.

- CLECs have created 70,000 new jobs since 1996.
- Investment in local communications markets has skyrocketed. Competitors have invested over $30 billion in new networks and are now investing more than $1 billion every month in building new telecom networks.
- Competitors are developing innovative technologies and are deploying them faster than the incumbents. For instance, while the incumbent telephone companies generally offer one "flavor" of DSL services, competitors offer a wide variety of DSL and broadband services to customers.
- Residential rates for broadband, or high-speed, Internet access declined 27% between 1996 and 1999. As competition intensifies, prices will drop even further.

Almost all of this competitive entry and investment is due to the passage of the 1996 Act. In particular, Sections 251 and 271 of the Communications Act require the RBOCs and GTE to open their networks to competitors. These are the extremely crucial statutory provisions that give the Federal Communications Commission and the state regulatory commissions the authority to open the local market to competition. Without enforcement of these key statutory requirements, most of the ALTS companies simply would not exist.

These two sections of the Act work very closely together, and both sections are necessary to the development of competition. Section 251 requires all incumbents to interconnect with competitors and provide them access to their network. Section 271 gives the Bell companies the incentive to open their networks by establishing a process by which the Bell Companies can provide long distance once they open their networks to competition as required by section 251. In short, section 251 is the "stick", while section 271is the "carrot."

The Difficulty of Opening the Local Market to Competition

While competitors have made enormous progress in the last four years, the story is not entirely positive. Local telephone markets cannot be characterized at this stage as truly competitive. Competitors have only about 5% to 7% of the local telecommunications market today.

Currently, local competition is developing faster than long distance competition in the 1970's and 1980's, but slower than internet access competition developed in the 1990's.

Why has local competition been slower to develop than internet acess competition? First, it takes time to build competitive local networks. It simply costs more to build a competing local telecom network than it costs to set up an internet access site.

Perhaps more important, however, is that the incumbent telephone companies have not opened their markets to competition. In fact, it appears that the incumbent telephone companies have implemented a three-part strategy to thwart competition.

First, they used the courts to stay enforcement of the Act. This initial strategy succeeded in creating tremendous uncertainty in the marketplace concerning such important matters as unbundling and colocation requirements.

Second, they have delayed opening their networks to competitors. They have been extremely slow to provision loops, and they have often created significant obstacles to allowing competitors to collocated equipment in the central office. The most common description of the behavior of the incumbents is that they engage in "strategic incompetenc." They simply refuse to devote the resources necessary to solve the basic provisioning problems that stall competitors. Another CLEC executive put it differently: he says "the RBOCs treat competitors the same way that they treat their customers – badly."

Third, the incumbents are reengineering the network to make it technically impossible for competitors to collocate their equipment.

Let me share some examples of misbehavior by the ILECs in the last few months alone:

- In March 2000, the FCC found that Bell Atlantic had used delay tactics in New York, where the FCC recently approved Bell Atlantic's application to provide long distance service. The FCC reports that, during January and February of this year, Bell Atlantic failed to process orders from local competitors in a proper manner. The company lost or mishandled electronically submitted orders which caused delay in or outright lack of order fulfillment. This in turn resulted in service delays to CLEC customers.

- The Bells and GTE have also used a variety of pricing maneuvers to thwart competition. For example, a typical loop charge to remove equipment from a line is under $200. By comparison, Bell Atlantic recently filed a tariff in New York, which included a charge of up to $750 per loop for removal of loop devices. SBC and BellSouth charge up to $2000 per loop for the same service. No competitor could possibly pay these exorbitant charges and recover them from end-user rates.

- Both California and Texas have recently imposed fines on SBC for failing to comply with requirements to open their network to competition. In both these cases, the state authorities found that SBC failed to provide loops to competitors in order to allow competitors to provide broadband services to consumers.

In short, we share the disappointment expressed by many members of Congress that competition for local telephone services and the deployment of broadband services is developing slowly. Nonetheless, we are encouraged by the fact that local telephone competition is developing more quickly than long distance competition.

Exempting the RBOCs from their obligation to open their local networks at this time, however, would be extremely harmful to broadband deployment. Of the 300 CLECs, only one or two are making a profit today. Almost all the companies are pouring their

funds into building out their networks as soon as they can. **If Congress changes the rules of the game in mid-stream, many of our companies will have difficulty raising the capital they need to deploy broadband services into rural and underserved areas.**

For these reasons, ALTS respectfully urges Congress not to amend the 1996 Act to exempt the RBOCs from their commitment to open the local market to competition. Such a change would be extremely counter-productive: it would delay the growth of broadband services and exacerbate the "digital divide."

If Congress wishes to take action to improve the deployment of broadband services, the best strategy would be to insist on strict enforcement of the 1996 Telecom Act. Broadband services will only be deployed more quickly if the local telephone companies open their markets to competition.

Conclusion

So the story I tell you today is a mixed one filled with promise and opportunity on the one hand, and remaining challenges on the other. The 1996 Telecommunications Act was truly a visionary and carefully balanced framework for transforming the telecommunications markets from monopoly to competition. We have made enormous progress, but have a long way to go. How the story ends depends on whether the Congress and the FCC stay the course and let the vision of the 1996 Telecommunications Act come to fruition. Those of us who want to compete and have the chance to build their businesses to serve customers ask you to take the wise course of action and stay the course. Let the markets continue to grow, mature and bear the fruit that competition brings – lower prices, constant innovation in technology and consumer choice.

Thank you.

Mr. TAUZIN. Thank you very much, sir.

Next will be Mr. Don Vial, Policy Committee Member of the Alliance for Public Technology here in Washington, DC.

STATEMENT OF DONALD VIAL

Mr. VIAL. Thank you for the opportunity to be here and to represent the Alliance for Public Technology. As you know, we are an organization that believes strongly in the life-enhancing, empowering characteristics of the new technology and our mission has been to do everything possible to provide the incentives to bring this technology to the communities that are marginalized by the operation of the marketplace and who are last to receive the benefits of this technology. My testimony also, I guess, is colored by the fact that I am a former regulator, having been a commissioner in California and its president during the 1980's when we unleashed the creativity and innovative capacity of market forces.

I think what we have all learned and what we all know is the regulatory process has had a very difficult time keeping in step with the market-driven technology advancements of the digital age. In fact, if you want to be realistic about it, the regulatory regimes are no match for the creativity and innovative capacity of the marketplace.

I say this because I think all of us who have been involved in the regulatory process have learned that technology is making mincemeat, I mean mincemeat, out of the regulatory strategies that have put technology in boxes for segmented bifurcated decisionmaking when, in fact, all of the big players, and many of the big players that are each other's throat before this committee in this area of mergers and acquisitions, are vying for market positions as full-service providers, all of them offering some technology in broadband.

So I think it is very timely for the Congress to take another look at the boxed-in strategies embedded in the 1996 Act, at least to clarify the intent for the Federal and State regulatory agencies required to carry out those mandates. With the focus on the deployment of broadband capacity and the rollout of data networks, a good place to begin is the current segmentation of authority to provide voice-grade services by local exchanges and interexchange carriers. Whatever the value has been of that segmentation in promoting competition in the local exchange, it is a total anomaly when extended to data networks fostered by the competing broadband technologies.

While positions have hardened around Section 271, reality is that distance as a regulatory concept is becoming increasingly meaningless, if not totally meaningless, in dealing with data networks. So APT agrees with many of the statements that have been made here that it really is time to look at what you meant in this 1996 Act in dealing with advanced technologies.

I think it is important to recognize that broadband technologies and data networks are ushering in a new era of bundling and convergence of competitive services, and if you look at the mergers that are taking place and the acquisitions, I think it is fair to say that they are driven in large part by the economies and scale and scope to be realized by being a full-service provider, and those

economies of scale and scope are eroded by regulatory processes that have been outdated, have been made irrelevant by technology. They detract from it.

Our concern is that these economies of scale and scope of being a full-service provider are the same economies of scale and scope that need to be captured to reach the low end of the market, that portion of the market that are not full beneficiaries, so that when you look and think about data networks and who is providing the services, look at the economies of scale and scope and how they are used in a market system in a competitive environment.

Yes, competition takes those economies of scale and scope under the unbundling process and rebundles them in accordance with the marketplace, usually to the high end. But you have also got to look at the carriers that have the residual responsibility to deal with the low end of the market, and it is very important that those economies in scale and scope and being a full-service provider be taken to the low end.

That is why APT has consistently advocated a combination of forbearance and proactive regulatory approaches to developing community-based market-sensitive vehicles, and I am talking about partnerships with the converged communications industry, that bring the communication needs and priorities of the underserved within the orbit of R&D investments for real market development and demand aggregation.

Our premise is that what we are doing today in promoting community technology centers, all the organizations at the community level in diffusing technologies are important in diffusion technology, but all of this has to be social capital that comes into the communities and that works with the competitors in bringing real investments into the community.

Those are the enduring solutions that we need, and I am working in Oakland and these areas. I would be happy to tell you how we are working with all the competitors that are at each other's throat in dealing with this essential problem, but I know that there is not time for it and I thank you for the opportunity to be here.

[The prepared statement of Donald Vial follows:]

PREPARED STATEMENT OF DONALD VIAL, ALLIANCE FOR PUBLIC TECHNOLOGY

My name is Donald Vial. I currently chair the California Foundation on the Environment and the Economy (CFEE), a 501(c)3 non-profit foundation engaged in consensus building activities in the public policy arena. I was as a member of the California Public Utilities Commission during the 1980s, serving as its President, when we unleashed in California the creativity and innovative capacity of market forces in the restructuring of our telecommunications and energy utilities. It is from this perspective, as a former regulator at the state level as well as past chairman and a current member of the Policy Committee of Alliance for Public Technology (APT), that I make my comments today.

APT represents almost 300 non-profit organizations and individuals that serve thousands of people, including low-income families, rural residents, consumers, minorities, senior citizens, people with disabilities, and small business owners whose lives could be greatly improved by access to advanced telecommunications networks. By making possible distance and life-long learning, telemedicine, and independent living for senior citizens and people with disabilities, these and other creative applications delivered over high-speed, broadband networks can most benefit the nation's least advantaged residents by helping them overcome the social, economic and political challenges they face.

The Alliance for Public Technology welcomes the opportunity to provide further comments on the deployment of advanced telecommunications services to all Americans.

APT believes advanced telecommunications technology is developing rapidly due to the utilization of the innovative and creative capacity of the marketplace. There is no way to predict how far and how fast these technological innovations will proceed, particularly as we enter the Internet 3 phase of development and applications. What is obvious is that the regulatory regimes of the Federal Communications Commission, and collateral action taken by the states, is no match for the creativity and innovative capacity of the marketplace. It is my view that the regulatory process has impeded the deployment of advanced services throughout America.

Nowhere is this more clear than in the current interpretation of the 1996 Telecommunications Act. It is time for Congress to recognize that broadband technologies and data networks are ushering in a new era of bundling and convergence of competitive services and product offerings. It is a forgone conclusion that without market-oriented public policy incentives, major sectors of our society will always be left in the dust of the digital age.

That is why APT has been advancing the need for the ubiquitous deployment of advanced telecommunications services throughout the nation. Most importantly, from APT's perspective, abandoning the current efforts to impose voice restrictions on data networks will enable regulators to focus more attention on implementing Section 706 of the Act. Clearing the deck of these obsolete requirements, in my view, will advance the consideration of new options for the use of regulatory forbearance and pro-active regulatory incentives to implement the ubiquity commitment of the nation in Section 706 to deploy "advanced telecommunications capability to all Americans".

The "digital divide" still exists in this nation and the *have nots* are losing the considerable rewards to be found in the new E-economy that is being driven by the development and deployment of advanced services. APT urges Congress to sharpen its focus on how the creativity and innovative capacity of the marketplace might be extended to communities marginalized by the very operation of market forces.

In recent weeks we have seen a heightened, bipartisan focus on closing the "digital divide." The continued regulatory regimes, which limit the incentives for the deployment of advanced services, threaten to undermine the creative and innovative potential of the marketplace in the development and deployment of advanced telecommunications and information technologies for all Americans. Relieved of compliance with regulatory restrictions, the deployment of broadband capability and upgraded networks needs to be focused more specifically on applications and content crafted to the needs, priorities, and cultures of underserved communities, both rural and urban.

In advocating the use of regulatory forbearance tools to foster the deployment of broadband infrastructure, APT has consistently advocated a combination of forbearance with pro-active regulatory approaches to developing community-based, market-sensitive vehicles (partnerships with the converged communications industry) that bring the communications needs and priorities of the underserved within the orbit of R&D investments for real market development and demand aggregation.

I am currently pursuing this concept of bridging the digital divide in an Oakland-based regional project, sponsored by the California Foundation on the Environment and the Economy, that enjoys broad support of telecommunications adversaries. Our premise is that "social capital" (dispensed as philanthropy, corporate "good will" grants or public programs to support technology diffusion through community technology centers, school, and libraries, etc.) can be and is effective in helping to diffuse the advanced technologies among those on the "wrong side" of the digital divide. *However,* in a vibrant market system, enduring solutions to the digital divide must have a market-driven investment base to be effective.

For APT the challenge remains on how to ensure that all consumers have affordable access to broadband services. APT believes that one necessary component to connect all of us is to look at avenues to open up more competition in the broadband marketplace. There can never be enough broadband to serve the increasing needs of our technology driven economy and society. To compete effectively in this market, companies cannot be constrained by the old regulatory distinctions between local and long distance and voice and data traffic. The broadband network and markets are not constrained by distance or geography.

For these reasons APT supports legislation designed to increase competition by lifting the long distance interLATA data restrictions on regional Bell operating companies. We agree with former Representative Jack Fields that members of the 104th Congress, in the drafting of the Telecommunications Act of 1996, did not intend that a legal or regulatory structure designed for an era of local and long distance voice

traffic, be employed to limit investment, competition and consumer choice in the emerging broadband era.

In conclusion, it appears evident that broadband capability and data networks are critical elements in the race of competitors to become full service providers. In large part, I view mergers and acquisitions are being driven by the economies of scale and scope attached to being a full-service provider of services integrating voice, video, data, graphics and Internet technologies. Those economies are diminished when we attempt to maintain inter-exchange restrictions on the data networks overrun by technology. Their elimination is a starting point to encourage the capturing of some of the economies of scale and scope in being a full service providers to address the growing problems of a society of "haves and have nots" in the digital age.

Thank you, Mr. Chairman and members of the Committee.

Mr. TAUZIN. Thank you very much, sir.

Now Mr. Roy Neel, President of USTA here in Washington, DC.

STATEMENT OF ROY NEEL

Mr. NEEL. Thank you, Mr. Chairman. There has been a great deal of self-congratulation over the last few months, last year, from policymakers and others who are saying, we are not going to regulate the Internet. We are going to keep hands off the Internet. The fact is, the hands are on the Internet.

The Internet is heavily regulated, if for no other reason than a large part of the engine of the information economy is not allowed to serve their customers with the kind of high-speed Internet access service, the Internet access and services across these arbitrary lines that could push this technology out to everyone wherever they live, whether it is rural Louisiana or Oklahoma or Florida or Ohio or Tennessee or wherever, because even though you have got a lot of these companies, these CLECs and others as well as these mega-companies, AT&T, Media One, MCI, Sprint, Worldcom—it is all kind of one name now—the fact is, they are not serving these rural areas.

Out of the 1,000 POPs or points of presence for these high-speed backbones around this country over the last few years, only 100, or one-tenth, of these are in anything other than urban areas. It is a fact. We are not talking about dial-up modem services, your just basic Internet access services. And we are not talking about a little capacity. We are talking about being able to push a whole lot of data down a pipe very fast so small businesses in little towns everywhere and for everyone can do that work in competition with large companies everywhere.

If you are a really big company, you can buy whatever you want from folks at this table or elsewhere, or if you are in an urban area, you can get whatever you want and there is a lot of competition. But if you are in a rural area, you cannot get it, and it does not matter how much DSL service there is in a little community. If you do not have the backbone to push all that stuff with everybody working at once into a pipe and move it to Denver and elsewhere, you have got a big problem on your hands.

The anecdotes abound. We have stories of auto dealers in Montana that drive all the way to Denver to download information data to move it to Kansas City or somewhere because they cannot move it across those LATA boundaries and none of these new competitors is going to serve them with those kinds of services.

We have got Land's End, their e-business out of Minnesota. They had to relocate to Madison from a small community because they

could not move the massive amounts of data required to service that business just a few miles across a LATA boundary and the competitors would not go in there and they will not go in there because the business economics of it do not work. It is a great business.

John Windhausen showed us a chart, a great chart, a great business deal where there are billions of dollars flowing into that industry. Those folks are not scared of 271 relief. In fact, when Bell Atlantic got relief in New York City, the CLEC stocks went up. There was nothing to be feared there. But they are not going to go out there in those areas that you are worried about that represent the digital divide, so you have got to decide what problem you want to solve.

The 1996 Act was not about making the CLECs rich or guaranteeing them a profit or allowing them to game the system. It was about making competitive opportunities available to everyone wherever they live and pushing out these new technologies to everyone wherever they live and leveling the playing field and backing the government out of this industry. The FCC did not get the message. It does not matter whether or not you envisioned data and the Internet when you were debating this, the 1996 Act, 4½, 5 years ago. It really does not matter. If the problem is there, you need to fix it.

The fact is, it is true that a bit is a bit, but the market is still in voice. The Bell Companies have every incentive to open those markets to get 271 relief for voice. H.R. 2420, your legislation with Mr. Dingell, does not affect voice traffic. It is very critical and it is very easy to police that. It does not affect voice traffic and the Bell Companies have every incentive to get those markets open and to keep them open in order to get 271 relief. It is a $100 billion-plus industry compared to a fraction of that for the wholesale data business right now. They have every incentive to open those markets.

The anecdotes go on and on, but one thing that the ACt did not envision was the kind of gaming that does need to be fixed. We have seen any number of cases where this has happened, but let me just quote Communications Daily, sort of the bible of what goes on, about a conference that just was held down in Orlando between the CLEC community and the ISP community. Now, I do not think that this panel envisioned this when they were writing the 1996 Act, and I will quote.

"One ISP leader complained that CLECs never shared much reciprocal compensation money, barely even offering her company discounted phone rates when they clearly profited from every call. Another one," and this is in open session, "another one apologetically talked of her annual battle to get her kickback until she decided to become a CLEC herself." The conference went on to show ISPs how to make that transition to CLEC status to ensure that they reap the profits from this system of arbitrage.

Now, I do not think you envision that. Now, that is one piece of this. But the point here I want to make is there is a problem. There is a digital divide. You have an obligation to fix it whether or not it was envisioned in the 1996 Act, and the way to do that is to deregulate these data services, let these companies flip the

switch. Two-hundred-seventy-five-thousand miles of fiber is embedded out there that can serve every rural customer in this country and you are not allowing them to do it.

All you have to do is pass this legislation and the Goodlatte-Boucher bills and make this happen. Thank you, Mr. Chairman.

[The prepared statement of Roy Neel follows:]

PREPARED STATEMENT OF ROY NEEL, PRESIDENT AND CEO, UNITED STATES TELECOM ASSOCIATION

Thank you Mr. Chairman for giving me the opportunity to testify on behalf of USTA regarding the deployment of broadband facilities and services throughout the United States. USTA represents over 1100 local telephone companies that are deploying advanced services despite significant regulatory obstacles that are being applied to data service.

The Chairman of the Federal Communications Commission describes the advanced services market as a "*no-opoly*". Since monopoly and bottleneck are the traditional justification for common carrier regulation, and the advanced services market is a "*no-opoly*", why then are the ILECS regulated in their offerings of advanced services? This does not pass the common sense test!

There are many legislative efforts under way to accelerate broadband deployment especially in rural areas. These bills take basically three approaches: First, there are bills that provide tax incentives to encourage deployment; second, there are bills that provide for universal telephone service funding mechanisms in order to subsidize the deployment of broadband services; and third, there are bills that provide for significant deregulation.

At the end of the day, I believe that the universal service and tax approaches may be necessary for some of our most remote areas. Nevertheless, before we take a subsidized or tax incentive approach, I agree with you Mr. Chairman, we need to deregulate. Deregulation will significantly accelerate broadband deployment in almost all areas. If you deregulate first, areas that cannot be served because of their remoteness and high cost can then be readily identified, so that additional measures such as tax incentives or universal service support can be applied with precision to those remote areas. We should not subject the offering of these new advanced services to the costly, complicated and intricate world of subsidies—an area the FCC is still trying to sort through with respect to traditional phone service—without first deregulating.

High Speed Internet Access—Buildout

Today, only 1.45% of Americans *has access to high-speed Internet access.* Given the economic and educational benefits that the Internet and high-speed Internet access provide, we need to improve this percentage. As we all know having high-speed Internet access capability allows people to telecommute, to shop online, communicate with friends and family, and to research any subject known to man. For both large and small businesses, having high-speed Internet access impacts where a business will locate because businesses use the Internet to order supplies, to check current prices, download bulky documents, communicate with customers and with coworkers within the same company and to track their inventory.

With business to business commerce (B2B) and business to customer commerce (B2C) expected to reach $6.8 trillion in 2004, a business cannot afford to be located in a town where they cannot get high-speed connections to the Internet. There is no question that in the 21st century, a business needs to have high-speed access to the Internet to stay competitive. If we do not ensure that every town and every business has high-speed access to the Internet, we are going to be picking winners and losers among towns and businesses.

Companies are already relocating because of their inability to get high-speed Internet access. One well known example of this is Lands End. Lands End was forced to move their e-commerce business from Dodgeville, Wisconsin, (population 4,213), to Madison, Wisconsin, which is 45 miles from Dodgeville because they could not get high-speed Internet access in Dodgeville. Lands End, like so many companies, needs high-speed access to stay competitive and keep in touch with their stores, customers, suppliers, etc. We must take action now to ensure that other rural towns do not lose lucrative businesses, jobs, and tax revenues because they do not have a high-speed access ramp to the Internet.

In January of 1997, the FCC concluded that over 90% of Americans were capable of accessing the Internet using dial-up access with a speed of 56 kilobits, *but only .4% had high-speed Internet access.* Here are some examples of accessing the Inter-

net with a standard modem speed of 56 kilobits as opposed to DSL high-speed Internet access:

> An encyclopedia that is 10,000 pages long or 160 megabytes would take 8 hours and 45 minutes using a standard modem as compared to 33 minutes using DSL. A half hour TV show with no commercials that is 60 megabytes would take 3 hours and 20 minutes using a standard modem but only 13 minutes using DSL.A two-hour movie that 1.2 Gigabytes would take well over 8 hours to download using a standard modem but only one hour using DSL.

Clearly, anyone who does not have high-speed Internet access in the near future will be left behind in this fast moving digital economy. Further, if legislative action is not taken this year, we will have a generation of technology haves and have nots.

Even though so few Americans have high-speed Internet access, the FCC has declined to use any of the deregulatory incentives included in Section 706 of the 1996 Telecommunications Act. I know full well that this was not what Congress had in mind when it enacted Section 706 as a part of the Telecommunications Act of 1996. Thus, since the FCC will not deregulate these services, Congress must take legislative action to encourage deployment of broadband networks.

Legislative Remedies

Mr. Chairman, we at USTA believe that the right approach to this issue is the one taken in your bill,HR 2420, as well as the similar approaches taken in the bills introduced by Senator McCain (S. 1043), Senator Brownback (S. 877), Congressman Goodlatte (HR 1686) and Congressman Boucher (HR 1685). I commend all of these Members who are taking action to ensure that all Americans get access to these advanced services. These are pro-consumer bills. All of these bills provide regulatory relief. If we do away with these costly and burdensome regulations, our companies can use those resources to more quickly buildout their high-speed infrastructure.

ILECS Are Deploying DSL Despite Regulatory Obstacles

Notwithstanding these regulatory obstacles, our companies are truly devoted to providing high speed Internet access to its customers throughout the nation—not slow dial up access that cannot exceed the very low access speed of 56 kilobits, under the best of circumstances. Our companies are committed to deploying high speed digital subscriber line service (DSL) to the maximum extent possible.

USTA represents nearly 800 small companies that provide telephone service throughout the country mainly in rural areas. Even though these companies cover only approximately 5% of the nation, they are a success story when it comes to deploying DSL. As of the end of last year, 151 companies were offering DSL and 93 additional companies were in the process of rolling out DSL. These companies cover 42 states and have close to two million access lines. Despite this success, however, these small companies need high cost support mechanisms that are sufficient to continue this rollout and to continue to effectively serve its customers.

Our 25 mid-size companies have also been quick to roll out DSL service to their customers. Nearly every month one of them announces a major capital expenditure program to hasten the deployment of DSL service. These companies also serve largely rural areas where the largest community may be around 20,00-50,000 population.

For example, Roseville Telephone Company, located in Roseville, California, with a population of 73,814 has made DSL available to nearly 95% of their XXX customers. CMF serves about 40,000 access lines. They provide DSL service today to nearly 40% of those customers and plan to make it available to another 40% by the end of this year.

Century Telephone Company, located in Monroe, Louisiana recently announced a major initiative to get DSL service to the vast majority of their 1.2 million customers. At the end of 1999, around 80% of their lines were DSL capable and DSL was available to 11%. By the end of this year, availability will rise to 40% and they have plans to continue at that pace through 2001, and 2002.

Cincinnati Bell, one of the larger mid-size companies, has made ADSL service available to 75% of the homes in its regions. These companies are not just serving high-end business markets—they're serving small businesses, hospitals and schools.

Our large local exchange carriers are also deploying high-speed Internet access in areas in which regulatory burdens do not make DSL cost prohibitive. Bell Atlantic, for instance, has 70,000 DSL customers and expects to have DSL available to 20 million lines (which is half of all their access lines) by the end of the year and has spent about $1 billion deploying DSL. Just this past week, Bell South together with the Governor of Georgia, announced a major, multiyear initiative that would provide access to high-speed services for 17 communities and hundreds of thousands of residents in rural parts of Georgia. This initiative is the largest statewide deployment of broadband capability ever and demonstrates that our companies are committed

to serving rural America. US West currently has 167,000 DSL and VDSL subscribers and has just announced that it will provide high-speed DSL Internet connections to small and mid-sized businesses in certain districts in California. SBC announced last year that they will spend $6 billion to ensure that 80% of their customers will have high-speed Internet access capability.

Notwithstanding these companies efforts to deploy DSL in select areas, these companies continue to be pervasively regulated not only for plain old telephone service but for these new advanced services. Without regulatory relief for these new, advanced services, our companies will not be able to get these services to all of its customers, particularly those in areas that are costly to serve.

Regulatory Parity

Onerous regulations that were intended for voice communications are being wrongly applied to the nascent data market. This burdensome regulation is so costly, however, that it acts as a disincentive to deploying high-speed infrastructure. Further, these regulations are not applied to other technologies such as cable modems that compete to provide high-speed Internet access. Below is a chart that sets forth how the ILECs are regulated in their offering of DSL as opposed to cable modem service.

DSL v. CABLE MODEM SERVICE

ILECs—CABLE OPERATORS

	DSL Service (an interstate telecommunications service)	Cable Modem Service (a cable service)
Common Carrier Duty	Every common carrier must furnish communications services upon request and establish physical connections § 201(a).	No Comparable Requirement
Discrimination and Preferences.	It shall be unlawful for any common carrier to make any unjust or unreasonable charges, practices or classification § 202(a).	No Comparable Requirement—Local franchise authority only regulates basic cable television rates and equipment; no rate regulation of cable modem service
Tariffs	Every common carrier must file with the FCC schedules showing all charges for services provided § 203(b).	No Comparable Requirement—Cable operator must file rates for basic tier and equipment with local franchise authority
Extension of Lines	No carrier shall construct a new line nor terminate an existing line without FCC approval § 214(a).	No Comparable Requirement—Local franchise authority negotiates build-out requirements with cable operator
Annual Reports	The FCC is authorized to require carriers to file annual reports.	No Comparable Requirement
Depreciation	The FCC may prescribe depreciation charges § 220(b).	No Comparable Requirement
Accounts	The FCC may prescribe the forms for any and all accounts and establish a uniform system of accounts § 220(a).	No Comparable Requirement
Subscriber List Information	A telecommunications carrier shall provide subscriber list information available on an unbundled and nondiscriminatory basis § 222(e).	No Comparable Requirement
Interconnection	Incumbent Local Exchange Carriers (ILECs) have a duty to interconnect with the facility and equipment of any requesting telecommunications carriers § 251(c)(1).	No Comparable Requirement
Resale	ILEC must offer its telecommunications services at wholesale rates 251(c)(4).	No Comparable Requirement—Leased access obligations—10-15% based on channel capacity
Number Portability	Local exchange carriers (LECs) must provide number portability to the extent technically feasible § 251(c)(2).	No Comparable Requirement
Dialing Parity	LEC must provide dialing parity to competing providers § 251(b)(3).	No Comparable Requirement
Reciprocal Compensation	LECs have the duty to establish reciprocal compensation arrangements § 251(b)(5).	No Comparable Requirement
Duty to Negotiate	ILECs have the duty to negotiate access to their networks with any requesting telecommunications carrier.	No Comparable Requirement

DSL v. CABLE MODEM SERVICE—Continued

ILECs—CABLE OPERATORS

	DSL Service (an interstate telecommunications service)	Cable Modem Service (a cable service)
Unbundled Access	ILECs have the duty to provide any requesting telecommunications carrier with nondiscriminatory access to network elements on an unbundled basis § 251(c)(3).	No Comparable Requirement
Collocation	ILECs have a duty to provide physical collocation of equipment necessary for interconnection or unbundled access § 251(c)(6).	No Comparable Requirement
Universal Service	All telecommunications carriers shall provide schools, libraries, and health care providers access to services at discounted rates § 254(h).	No Comparable Requirement
InterLATA	No Bell operating company may provide interLATA DSL services without prior FCC approval and competitive checklist compliance § 271.	No Comparable Requirement
Separate Subsidiaries	InterLATA telecommunications and information services must be provided through a separate affiliate § 272(a)(2).	No Comparable Requirement
Electronic Publishing	BOCs may provide electronic publishing only through a separate affiliate § 274.	No Comparable Requirement
Alarm Monitoring	BOCs cannot provide alarm monitoring until 2001.	No Comparable Requirement
Computer III/ONA	BOC/GTE required to provide access and unbundling for ESPs (ISPs).	No Comparable Requirement

By subjecting DSL to these regulations, the government is regulating the Internet. Clearly this is not what Congress intends. Chairman Kennard testified that the two services, cable modem provided by cable operators and DSL provided by ILECs are functionally equivalent. Thus, DSL needs to be deregulated which will spur deployment and make the Internet cheaper, faster, and more accessible.

Digital Divides

When you read about digital divide studies, such as the Department of Commerce's *Falling Through the Net* (11/99) their primary focus is the "*digital divide*" between demographic groups. This is the first digital divide. This and similar studies are conducted by considering such factors as computer ownership and telephone penetration The second digital divide is urban/rural. My testimony today will point out still a third digital divide which occurs even within otherwise affluent urban/suburban areas. This third digital divide relates to high speed access to the Internet.

Today, high speed Internet access is made available on an economically reasonable basis three ways. First, there is fiber optic cable. This is being provided primarily by Competitive Local Exchange Carriers (CLECs). The second way is Digital Subscriber Line service (DSL). DSL is a service that incumbent telephone companies (ILECs) provide. Data Local Exchange Carriers (DLECs) also offer DSL service, but it is almost an entirely derivative service, as DLECs are able to provide their service only by collocating their equipment in the ILEC's central telephone office and by making use of the ILECs local telephone wires, which ILECs are required by law to provide to DLECs at very low rates. Third, cable operators provide a high-speed access to the Internet by means of their high capacity (broadband) cable wires. This is called cable modem service and is primarily a residential service.

What then is the third *Digital Divide*? The CLECs provision of high speed access is almost exclusively limited to business customers located in downtown business areas or in an edge city. (Please see maps attached to testimony.) In Washington, for instance, that means the K Street corridor and Tysons Corner. Cable operators are located and provide service to primarily residential customers. So, if you area business not located downtown or in an edge city, your only real possibility for high-speed Internet access is DSL, and unfortunately DSL is the only one of these three approaches subject to significant regulatory constraints and requirements. This possibility of DSL service only exists in some areas, even in urban areas, because pervasive regulation is retarding deployment. If you are either a business or residential

customer in a rural area where their exists limited Internet backbone facilities and little or no high speed access you are doubly burdened in your ability to obtain high speed Internet access, as you will have neither local nor long haul Internet access. If you are a residential customer and want a competitive option to cable modem service, DSL is your only choice, because the CLECs fiber is not coming your way right now. If you are business customer located in a downtown business district and you want a competitor to the CLEC service, DSL is your only option, because again cable modem service is primarily located in the residential areas. Again, obviously, we need to encourage the deployment of DSL instead of hampering it with unnecessary government regulation.

THERE IS A DIGITAL DIVIDE AND IT CONTINUES

So, my testimony today is that there are multiple digital divides. The digital divide exists at the local level for high speed Internet access and on the long distance level for Internet backbone. The primary reasons for this failure to close the high speed access digital divide and Internet backbone divide is *regulatory constraints* which add cost, time, effort and lack of flexibility to services being offered in a market that one considers to be a monopoly.

For the residential customer, high-speed Internet access is a way to avoid the "world-wide wait." To the business customer, high-speed access may be essential, even for many businesses that we ordinarily do not consider to be part of the new economy. If your businesses is located in the downtown area of a major city or in an edge city (e.g., Tysons Corner), you have a plethora of high speed access service providers and service options and more are coming all of the time. If you are a small or medium size business outside those limited geographic areas, your high-speed Internet access options are very limited—if they exist at all.

This is just not my view, but the investment community concurs. Scott Cleland of The Precursor Group said the following in his February 8, 2000 Research Report on this subject:

(1) "Most of all the CLECs built out to serve the same high-end customers, which met two criteria; high average customer revenue and geographic density. Despite industry pledges to offer broadband universally, it probably won't happen because it will be uneconomic...."
(2) "In the next three to four years, TPG projects that up to 20%of the country may have a choice of three to four different broadband facilities, roughly 30%of the country may have the choice of two and half of the country may have only on or no broadband facility to choose from."
(3) "TPG expects cable to remain the primary residential broadband facility for the foreseeable future."
(4) "TPG expects DSL to remain the secondary broadband infrastructure for the foreseeable future."

INTERNET BACK BONE—STILL ANOTHER DIGITAL DIVIDE

In many rural areas there is still another digital divide. This occurs when a region of this country is located a great distance from the Internet backbone. These regions are not located near an Internet POP (point of presence) sometimes also called an Internet hub. A POP or hub is a high speed ramp putting you on the Internet. No ramp—no high speed access.

These Internet POPs are like train stations using a rail analogy and the Internet backbone can be analogized to the rail network connecting the cites. If you are an ISP, you need to be able if you are an ISP to get to this POP (hub) in order to participate in the Internet and all of its e-functions. The greater the distance from a town to an Internet hub (POP), the more expensive the service, the constrained the speed of the service, and the more limited the service offerings. These towns can get on the slower, narrowband Internet, but cannot acquire high speed broadband connectivity at a reasonable price, if at all.

The backbone hubs necessary for providing the benefits of e-commerce, however, are to a large extent available only in the country's largest metropolitan areas. Smaller cities and non-metropolitan areas do not have the same access to these high-speed connection to a backbone hub, and while over one thousand hubs (POPs) have been put in place, less than one hundred are in non-metropolitan areas—do not have the same access to these high-speed connection points. In fact, 60.7 percent of all metropolitan areas do not have a connection to a Internet backbone hub (POP), and while over one thousand hubs have been put in place, less than one hundred are in non-metropolitan areas—and most of these are in university towns. The vast majority of Americans do not have direct access to the Internet backbone in their own communities.

Network economics and the nature of telecom markets give strong incentives to deploy networks in densely populated and high-income areas. In addition, regulations affecting investment, markets, and suppliers also impact backbone deployment. The prohibition against Regional Holding Companies (RHCs) offering data across interLATA (or local) boundaries exacerbates this disparity in overall number of backbone hubs per state.

Let me not fail to mention one additional thought: The Internet backbone is being increasingly concentrated in a few hands—evidence the merge of MCI WorldCom and Sprint. For competitive reasons, BOCs entry into this market will go a long way causing this concern to evaporate.

MYTHS ABOUT INTERLATA DATA RELIEF

(1) Internet relief will undo the reforms of the 1996 Telecommunications Act. **Not true.** As I pointed out earlier, the '96 Act did not consider the *Internet* in any detail other than with respect to schools, obscenity and regulatory relief for advanced services. The commercial Internet was still in its infancy. The '96 Act dealt with opening the local telephone market to competition. The new bills deal only with the Internet—leaving the current regulation of telephony intact. The '96 Act was intended in its common carrier provisions to open up the voice telephone market for competition and to provide the BOCs with a method to eliminate their MFJ line of business restrictions.

(2) Internet relief removes the Bells' incentive to satisfy section 271 of the Telecom Act, which requires the companies to open their local markets to competition before entering the long distance market. **Not true.** For the Bell companies to be competitive—they must be able to offer full bundles of services, including voice long distance. These bills do not change voice regulations. The BOCs cannot offer voice long distance until they get section 271 approval from the FCC. About 80 cents of every dollar for long distance service is for voice service—this presents quite a market incentive.

(3) Internet relief would permit immediate large-scale BOC entry into long distance. **Not true.** These bills apply to Internet traffic only. They do not affect voice long distance service. Further, they do not permit the BOCs to offer or sell voice long distance service, over the Internet or their regular network, until the FCC has approved their Section 271 application—after they have fully opened their local markets to competition.

(4) It's impossible to enforce a data versus voice distinction. **Not true.** Bits are bits, but services are easily distinguished from one another. Internet data relief does not relieve the Bells from any of the Section 271 checklist requirements for entering the voice long distance market. These requirements, designed for traditional voice service, are wrongly being applied to the Internet.

(5) Internet relief would allow incumbent telephone companies to provide much higher quality loops to themselves. **Not true.** These bills require that incumbent local telcos must either unbundle their services under Section 251 of the Act of they must provide competitors with the same conditioned loops they use themselves.

(6) There is no Digital Divide between urban and rural areas. (**There is a definite digital divide.** High-speed services are being deployed in densely populated areas near back-bone POPs. Smaller markets are being passed by.

(7) Internet Relief will cause CLEC financing to dry up. NOT TRUE.—Bell Atlantic received interLATA relief in New York and financing is still available for CLECs. They continue to grow.

CONCLUSION

So let me conclude by recapping what we consider to be the current factors limiting the future development of the Internet, especially for rural, residential and small and medium business customers. First, there is the fact that DSL is pervasively regulated and the other providers are not. Second, especially in rural areas, but also generally everywhere, the restriction on the BOCs which limits their ability to transmit data across LATA (local access and transport area) lines limits the opportunity to expand the Internet backbone. The 1996 Act provisions that were intended to ameliorate this situation have not prove effective and the interLATA relief contemplated by the 1996 Act has produced to date authority to cross LATA lines in only one state. These LATA lines are the product of the 1982 AT&T breakup, so they were clearly not drawn with the Internet in mind, but these 1982 lines are frustrating the development of the Internet, especially in rural areas. Third, there is no reason, for instance, why DSL which is an interstate telecommunications service should be regulated differently from Cable Modem Service, a cable service, but

it is! DSL is pervasively regulated as a telecommunications service, but cable modem service is virtually unregulated as a cable service.

Congress needs to address the digital divided issue this year. Clearly, we are beyond debating whether there really is a digital divide—with five bills introduced that address high speed Internet access and deployment to rural areas everyone acknowledges there is a problem. We support all Members that have taken the lead on this issue and strongly urge that any legislative solution deregulate the offering of DSL and provide InterLATA relief to the RBOCs for data.

Mr. TAUZIN. Thank you, Mr. Neel. I hated to slow you down, but your time was up. Thank you.

Mr. David Kunkel, Vice Chairman and Executive Vice President of PSINet. Mr. Kunkel?

STATEMENT OF DAVID N. KUNKEL

Mr. KUNKEL. Thank you, Mr. Chairman. In contradistinction to my colleague on my right, we are the competition and we do not agree.

As you said, Mr. Chairman, I am the Executive Vice President and Vice Chairman of PSINet headquartered across the river in Ashburn, Virginia. We are the first and the largest independent facilities-based ISP in the world that started in 1989, before much of, of course, what you were talking about this morning ever occurred. I am also testifying today on behalf of the Commercial Internet Exchange Association, CIX. That is the largest trade association of Internet service providers, of which we were the founding member and host of their equipment for years.

In our experience, the key to broadband deployment is opening up the local telecom markets to competition. To the extent that there is any problem in broadband deployment in this country, the problem lies with the local exchange, not in the highly competitive backbone market. That problem is caused by barriers to competition in the local market, barriers that amount to a bottleneck that are maintained by the monopoly ILECs.

The Bell Companies try to justify their desire for interLATA relief by claiming there is a backbone capacity shortage. Nothing could be further from the truth. The Internet backbone marketplace is a remarkable competitive success story and it continues to grow at exponential rates. PSINet alone maintains more than 275 points of presence in the United States that are connected by high-speed dedicated circuits, including over 10,000 miles of OC-48 and OC-192 fiber optic cable.

And PSINet is only one of the many ISPs in this highly competitive market. The market remains wide open to new entrants. Indeed, several significant competitors in this space, such as Level Three, Global Crossing, and Qwest, had negligible or non-existent market shares only a few years ago.

As you consider what the correct Federal policy is on broadband, we ask you whether you trust a monopoly to provide service more than you trust a robust open and competitive market, and this is the counterintuitive part, but I want to underscore this.

We submit that if you deregulate local telecom monopolies and eliminate incentives for them to crack open their markets, you will retard broadband deployment in this country significantly. You will also leave monopolies free to charge artificially high prices and to

price broadband service out of the reach of many of the consumers that you are concerned about.

The two monopoly deregulation bills pending before this subcommittee, H.R. 2420 and H.R. 1685, are well intentioned but they suffer from precisely these flaws. They would strike a potentially mortal blow to broadband competition in the local loop by allowing monopoly carriers to discriminate in pricing against the competitive local exchange carriers and ISPs. They would give the RBOCs that have not opened their local markets to competition the power to leverage their local monopolies to distort competition in this vibrant Internet backbone market.

The best means of accomplishing national broadband deployment is to stay the course set forth in the 1996 Telecom Act. The RBOCs should not be allowed to provide interLATA data service in areas where they have monopoly power until they comply with the Act by opening their local markets to competition, just as Bell Atlantic has done, although somewhat imperfectly, in New York.

Just as important, local telecom monopolies must be required to provide cost-base access to the network elements needed for competitors to offer broadband service over the local loop.

If we stay the course with the 1996 Act, the unprecedented growth of the Internet will continue. A truly competitive marketplace is, in fact, the best way to bring broadband services to all Americans.

Mr. Chairman, thank you for this opportunity to testify.

[The prepared statement of David Kunkel follows:]

PREPARED STATEMENT OF DAVID KUNKEL, VICE CHAIRMAN AND EXECUTIVE VICE PRESIDENT, PSINET INC.

Good Morning, Mr. Chairman, and thank you for the opportunity to appear before your Subcommittee as it examines the deployment of broadband communications. I am David Kunkel, Vice-Chairman and Executive Vice-President of PSINet. I am here to offer testimony on behalf of my company and on behalf of the largest trade association of Internet service providers ("ISPs"), the Commercial Internet eXchange Association, of which PSINet is a founding member.

PSINet was founded in 1989 and was the first commercial provider of Internet service in the United States. In those early days of planning and growth of PSINet, our company consciously optimized our network for Internet applications, rather than taking short cuts in developing our infrastructure. Our network was built for a future that would demand performance, speed, and reliability in Internet connectivity. We continue to be a leader in deploying high-speed, high-performance Internet services.

PSINet, headquartered in Ashburn, Virginia, is now the largest independent facilities-based ISP in the world, with operating units in 28 countries on 5 continents. We are not owned by any telephone company, and we compete in highly competitive marketplace for Internet backbone service and Internet applications. The PSINet network includes more than 275 points of presence ("PoPs") in the United States, and more than 800 PoPs worldwide, each designed and built specifically to handle Internet traffic from customers that employ a range of access methods. Submitted with this testimony is a route map showing PSINet's extensive backbone network in the United States and throughout the world.

The PSINet Carrier and ISP services unit offers consumer and business Internet services on a private label basis to a community of more than 6,000 U.S.-based ISPs, as well as some 500 large telecommunications providers. PSINet also offers a full line of services to business, government, and educational customers, including many of the Fortune 100 companies and various federal agencies.

PSINet engineers and executives have developed many of the most significant technical and product innovations in the Internet's history, and are at the forefront of broadband Internet backbone investment and deployment. PSINet has a major stake in delivering to its customers throughout this country high-quality, high-speed broadband communications capability. Where there is significant demand for Inter-

net backbone services, we stand ready to deploy PoPs, and are actively developing satellite and wireless delivery mechanisms in rural and other underserved areas.

The ISP segment of the Internet industry has grown magnificently—there are now more than 6,000 ISPs—and over 95% of Americans have a choice of at least four ISPs within their local calling area.

Mr. Chairman, broadband services are also being deployed rapidly. The market is working, as we see the development of different means of broadband deployment for different areas of the country. The fundamental factor in the competitive and rapid deployment of broadband services is the development of a competitive local telecommunications marketplace. With competitive telecommunications inputs, PSINet and other providers of broadband Internet services will be able to offer their services throughout the country at affordable prices. The best means of accomplishing national broadband deployment is to stay the course set forth in the Telecommunications Act of 1996 by continuing to require that the Bell Companies open their local networks to competition before they provide interLATA voice or data services, as Bell Atlantic has done in New York, and continuing to require that local telecommunications monopolies provide access to the network elements necessary for competition in local high-speed services.

I. THE INTERNET BACKBONE MARKETPLACE CONTINUES TO GROW AT AN UNPRECEDENTED PACE

The Internet backbone marketplace is a remarkable competitive success story, and continues exponential growth. After losing their litigation challenges to the Telecommunications Act of 1996, the Bell Companies and their lobby groups have attempted to justify their desire for interLATA relief on the basis of an alleged "backbone capacity shortage." As the FCC and independent analysis have consistently affirmed, nothing could be further from the truth.

PSINet alone maintains more than 275 points of presence ("PoPs") in the U.S. that are connected by high-speed dedicated lines, including over 10,000 miles of OC-48 and OC-192 backbone arrangements. These PoPs are displayed in the large map attached to my testimony. Our network backbone as it is currently being deployed will be capable of 3.2 Terabytes of capacity. As Exhibit B to this testimony shows, this year we are deploying fiber-optic bandwidth on several routes that cross our nation and are adding new PoPs in locations such as Scottsville, Virginia; Kernersville, North Carolina; and Clermont and Wolfolk, Florida. Simply stated, PSINet's network is designed to deliver enormous backbone capacity, as demanded by the customer. PSINet's national PoP deployment illustrates how Internet backbone providers are serving smaller communities with high-speed network access points, even if demand in that community may not yet be able to support a large DS-3 PoP. PSINet and other Internet backbone providers are doing their part—bringing high-speed Internet access to rural, as well as urban America. As the attached map shows, the PSINet network traverses the country.

Several features of PSINet's network advance the goal of rural broadband service. For example, PSINet allows other ISPs to peer (exchange traffic) with more than 100 PSINet PoPs in the U.S., for free. These direct connections to the Internet speed data traffic significantly by avoiding potential congestion points on the Internet. As PSINet's free peering arrangements illustrate, rural ISPs may access PSINet's backbone-quality services at numerous PSINet PoPs.

Keep in mind, as you think of our network, that PSINet is only one of many ISPs in the highly competitive Internet backbone market that provide backbone access and services to all Americans. Unlike the local telecommunications marketplace, the Internet backbone marketplace is wide open to new entrants. Indeed, several significant competitors in this market, such as Level 3, Global Crossing, and Qwest, had negligible or non-existent marketshare only a few years ago. Furthermore, other technologies than Bell Company wireline facilities, such as wireless and satellite delivery systems, offer tremendous potential to deliver additional high-capacity broadband service to high-cost areas of the country. It does not make sense to deregulate the telecom monopolies' provision of interLATA services to "solve a backbone shortage" because no such shortage exists (except in the minds of inventive lobbyists) and because the rapidly expanding, open Internet backbone market will respond to future market demand.

Moreover, the 1996 Telecommunications Act already provides a sensible framework for Bell Company deregulation in this area. Current law does not saddle Bell Companies with any regulations that they do not have the power to release themselves from. Instead it very sensibly provides that deregulation be preceded by specific and significant demonstrations from the Bell Companies that they have, in-

deed, opened their local monopolies to competition. The Congress should let the Bell Companies deregulate themselves, as current law provides.

II. PROPOSALS TO DEREGULATE MONOPOLY FACILITIES USED TO PROVIDE BROADBAND SERVICE WOULD SIGNIFICANTLY RETARD THE DEPLOYMENT OF BROADBAND SERVICES

In PSINet's experience, the key to broadband deployment is competition in local telecommunications markets. To the extent that there is "a problem" in broadband deployment in this country, the problem is in the local exchange, not the highly competitive backbone market. That problem is caused by the significant barriers for competitors seeking to enter local markets where they confront bottlenecks caused by monopoly incumbent Local Exchange Carriers (ILECs).

But competition is coming to the local exchange, thanks to pro-competitive rules set by the Congress and the FCC—especially now that the ILECs have stopped tying up the local competition provisions of the Telecommunications Act of 1996 in court. Competition from Competitive Local Exchange Carriers ("CLECs") and Data Local Exchange Carriers ("DLECs") and from cable broadband operators is finally pushing telephone monopolies to roll out DSL technologies that have been available since the mid-1990s. In our experience, where there is a CLEC or DLEC alternative to the telephone monopoly, broadband deployment over phone lines occurs more quickly, prices decrease significantly and consumers receive a wider array of service options and higher quality of service. This in turn spurs demand for PSINet's backbone services and other broadband applications. For this reason, we have a major stake in the success of local competition. PSINet finds that CLECs and DLECs try harder than their monopolist competitors and are very responsive partners with us in serving broadband customers.

As you think about what is the right federal policy on broadband, we ask you whether you trust a monopoly to provide service more than you trust a robust, open, competitive market. We submit that if you deregulate local telephone monopolies and eliminate incentives for them to meaningfully open their markets, you will retard broadband deployment in this country significantly. You will also leave monopolies free to charge monopoly prices and to price broadband service out of the reach of many consumers.

III. BROADBAND BILLS THAT DEREGULATE MONOPOLY FACILITIES WOULD HARM THE ISP MARKETPLACE

Two monopoly broadband deregulation bills, H.R. 2420 and H.R. 1685, are pending and have been referred to this subcommittee. I respect the sponsors of these bills and do not doubt that they have good intentions in promoting these bills. However, the approaches of both bills would set back broadband deployment and do serious harm to the vibrant ISP marketplace.

The bills would fundamentally reverse the 1996 Telecommunications Act just as it is beginning to work, and would be detrimental to consumers and to competition. First, both bills would eliminate the major incentive for the monopoly Bell Companies to open their local markets to competition. The bills would do this by exempting interLATA data services from the long distance checklist requirements of Section 271 of the Act. Ordinarily, monopolists have every incentive to use their control of bottleneck facilities (like the phone lines that connect every office in Congress to BellAtlantic's nearest central office) to delay competition as long as possible. Section 271 is important because it is the only effective tool to overcome this incentive to delay competition. By scrapping Section 271 for data services, the bills would directly set back the cause of competition. Moreover, voice traffic can readily be "packetized" or converted to data traffic. Therefore, it would be very difficult for regulators to contain this exemption to what is today considered data traffic.

Furthermore, ushering the BOCs into the interLATA data market before their local markets are open to competition would allow them to leverage their bottleneck control of the local marketplace—by either cross-subsidizing their backbone service or raising the costs to their competitors in the backbone market in a way that advantages the BOC's backbone service. Far from providing a needed boost to competition in the already highly competitive backbone market, these proposals risk distorting that market through anti-competitive conduct by monopolists.

Second, both bills would go much further than letting the Bells into the long distance data market. They would strike potentially mortal blows to the independent CLEC and DLEC industry, thereby ending the competition in local broadband service that is so important to the fast deployment of affordable broadband service. H.R. 2420 would empower local telecommunications monopolies to engage in price discrimination against telecommunications competitors. It would also eliminate FCC rules requiring monopoly carriers to unbundle several network elements that are

widely used to provide broadband services (through rules on line-sharing[1] and access to unused fiber and subloops). These rules currently allow competitive local broadband providers to access and use telecommunications monopolies' spare and unused network facilities, rather than requiring them to engage in overbuilding the network within prohibitively expensive, redundant facilities.

H.R. 1685 would scrap existing local competition regulation of broadband facilities based upon a series of monopoly certifications to state commissions. Those certifications would undoubtedly be subject to differing interpretations, and to hearings and litigation, while competition was being stifled. H.R. 1685 would also eliminate all federal and state price regulation of local broadband facilities if just a *single* small competitor was doing business in a local telephone exchange. Price regulation would also be eliminated if 70% of a monopolist's lines in a state were conditioned for broadband service.

Neither bill would counter the recent trend among GTE and the BOCs of selling off rural exchanges. Indeed, by rewarding monopoly carriers with deregulation if 70% of their lines in a state are conditioned for broadband service, H.R. 1685 would actually create a strong incentive for the BOCs and GTE to unload rural exchanges to which they have no desire to provide broadband service.

The end result would likely be to reserve access to monopoly telecommunications facilities and functionalities to monopoly carriers and to establish insurmountable barriers to competitive advanced services deployment by CLECs and DLECs.

This, in turn, would seriously damage competition in the expanding ISP market. ISPs resell telecommunications capacity provided by a telecommunications carrier while providing additional value-added services. If either bill became law, independent ISPs would lose the competitive alternative of obtaining broadband facilities from competitive, as well as monopoly, carriers. This is a serious matter because all the telecommunications monopolies also provide broadband ISP service in competition with independent ISPs, and have a significant incentive to leverage their control of the bottleneck to the customer to the advantage of their own ISP.

Although H.R. 2420 gives ISPs limited rights to interconnect and collocate with a broadband provider, it expressly prevents either the FCC or even state public utility commissions from regulating either the price or the quality of the service that ISPs would receive. As a result, independent ISPs would remain at the mercy of local monopoly broadband carriers to reach consumers.

Thus the bill would provide ISPs with only limited rights to interconnect to monopoly telecommunications company's essential facilities, at whatever prices the monopolies wish to charge. These costs invariably would be passed on to consumers in the form of higher Internet access rates. The ultimate effect would be to decrease consumer choice of ISPs and needlessly to raise prices for Internet access. Consumers would be left with a narrow option of ISPs who receive favorable pricing and service quality from the ILEC that controls access to the customer. The independent ISP market (i.e., those ISPs not affiliated with the ILECs) would be severely harmed. The inevitable result for consumers will be slower broadband deployment, higher prices and less consumer choice of ISPs.

CONCLUSION

PSINet commends the Chairman and the members of this subcommittee for their work and leadership on these issues. We share the desire to help deploy broadband services to all Americans in a timely manner. And we are convinced that the best services at the best prices will be available only in a competitive broadband services marketplace supported by pro-competitive regulation of monopoly facilities. A highly competitive backbone market already exists today. This competition will continue, and a competitive local broadband market will emerge, if Congress does not disturb the pro-competitive local competition framework of the 1996 Telecommunications Act. Thank you for the opportunity to express the views of PSINet. We look forward to continuing to discuss these important issues with the members of the Subcommittee.

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[1] Broadband line sharing permits CLECs and DLECs to sell high-speed (ADSL) services to consumers that also subscribe to the ILEC's voice telephone service, without requiring the installation or use of extra copper wires. Line sharing is technologically and economically efficient because it uses all of a copper phone line's transmission capabilities, and allows new competitors to focus all of their resources on fast deployment of high-speed Internet access services.

Dark Fiber

4Q2000 Deployment

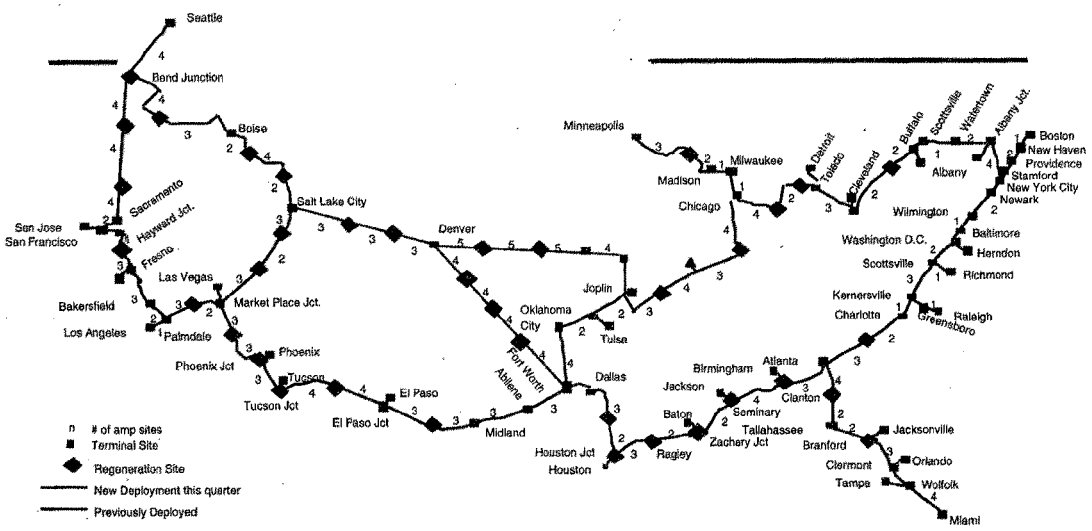

Exhibit B

PSINet Proprietary

Mr. TAUZIN. Thank you, Mr. Kunkel.

Now, Mr. Shelton Jefferson, CEO of Netcom in Brooklyn, New York. Mr. Jefferson?

STATEMENT OF SHELTON JEFFERSON

Mr. JEFFERSON. I would like to thank the committee for this opportunity to testify. I operate a small business called Netcom Technological Solutions. We design, build, and maintain computer networks, particularly Internets.

Netcom and other small businesses foster innovations in products and services that many times reach the American consumer first. It is the economic health of small companies such as Netcom that is key to continuing the current U.S. economic expansion.

My plea to Congress is a simple one. As a small businessman, I seek relief from the burdens of competitive disadvantage, lack of access, and lack of choice unintentionally caused by the 1996 Telecom Act. The Act is a great effort by Congress that is being taken advantage of by a few companies to the disadvantage of us all.

As an Internet service provider, I provide dial-up and dedicated Internet access services to my residential and business customers at affordable prices that meet their quality requirements. However, my company is locked out of providing broadband Internet services by a cable at any price. Not only my company, but 98 percent of all ISPs in America are locked out of a very cost-effective, high-quality broadband medium for the transmission of Internet services at any price.

The broadband option that I do have access to in some communities is DSL, a service that cannot match the speed or quality of cable and has mileage limitations of 3 miles. DSL operates at maximum speeds of seven megabits while cable can operate at speeds of 100 megabits.

In my opinion, DSL technology is not an effective competitive choice over cable Internet service. However, unlike the cable companies, Bell Atlantic is willing to allow me to private label their DSL service to my Internet customers. As a matter of fact, we have the opportunity to resell Internet service and/or purchase transit rights from nearly every carrier in America except cable.

Not only can we not get access to local cable broadband facilities, we must also pay inflated prices for transit to the Internet backbone, prices that are so high because of the concentration of ownership of the Internet backbone in the hands of a few long distance and cable companies.

While I think the RBOCs need to deploy a broadband capability that better competes with cable Internet, I understand the disincentive in current regulation that may be holding them back. Any RBOC who deploys a competitive Internet broadband product falls prey to Federal regulation that gives their competitors immediate below-cost access to the new advanced facilities.

As a businessman, it would be financially irresponsible to invest in facilities that I had to sell to my competitors at prices below my actual cost. It is common sense. The same, however, holds true for cable and long distance companies where they are equally constrained by regulation.

The big three long distance carriers have parlayed their massive market power into control over the Internet backbone. Their control over the backbone is relevant to me because I have to buy backbone transit to deliver connectivity to my customers. Backbone location and transit prices are always important, but they become critically important when we consider offering broadband. For broadband service, I need big pipes. I need backbone access at T3 speeds, 45 megabits. I need to be able to offer customers reliable connections of between 3 to 10 megabytes. We are talking about transmitting video, not data. That is the convergence or point that we are at.

The locations of backbone points of presence dictates where I can offer high-speed Internet service at affordable prices. Outside urban areas, the distance to reach a backbone point of presence is going to be fairly long and so the private line costs are going to be higher. You pay based on mileage.

As you would expect, every ISP prefers lower prices for private lines and for backbone transit, but what makes limited location choices and high transit prices so bad is knowing that constraints apply need not be so. The largest providers with abundant fiber out outside urban areas are the RBOCs. Their fiber routes cover every town, village, and corner inside their LATAs. They could quickly introduce new Internet points of presence and transit price competition, but they are forbidden from offering me these solutions. Therefore, I cannot pass along any of these choices, savings, and speed increases that my customers are demanding.

Regulations that prevent the private sector from offering remedies to higher prices and constraint supply are laws that need stern and frequent scrutiny. The 1996 Telecom Act contains no statements that suggest Congress wanted cable or long distance companies to concentrate ownership in Internet backbone and broadband services to the disadvantage of small businesses, such as my own.

Regarding my recommendations to this Congress, I say the real issue is whether there are enough affordable broadband Internet choices available to consumers in all urban areas, not just some urban areas, and available in all rural areas, not just some rural areas. The real answer is no. If the claims of those companies controlling Internet backbones and closed cable Internet systems are 100 percent correct, market forces will produce the desired results within a year and Congress needs to do nothing.

In a perfectly competitive world, this would be a reasonable expectation. In the real world, my experience as a small IST is that competition is being stifled and Congress should act in favor of more consumer choice and competitive pressure that pushes Internet backbone availability beyond affluent urban areas and into everyone's community now.

Thank you for your attention and the opportunity of addressing you.

[The prepared statement of Shelton Jefferson follows:]

PREPARED STATEMENT OF SHELTON JEFFERSON, CEO, NETCOM TECHNOLOGICAL SOLUTIONS

INTRODUCTION

My name is Shelton Jefferson. I am a Telecommunications System Integrator and Internet Service Provider. I operate a small business called Netcom that provides Internet service to residential and business consumers in the New York area.

Netcom and other small businesses are a major force in our domestic economy. Small companies such as Netcom foster innovations in products and services that many times reach the American consumer first. It is the economic health of small companies such as Netcom that is key to continuing the current US economic expansion.

My plea to Congress is a simple one. As a small businessman, I seek relief from the burdens of competitive disadvantage, lack of access and lack of choice unintentionally caused by the 1996 Telecom Act. The Act is a great effort by Congress that is being taken advantage of by a few to the disadvantage of us all.

The Issues from an Internet Service Provider's perspective.

As an Internet service provider, I provide dialup and dedicated Internet access services to my residential and business customers, at affordable prices that meet their quality requirements. I have repeatedly asked various cable operators for Internet carriage over their cable modem systems. In private I have been told not to waste my time and that "it won't happen". In public, I'm told the same story as you have heard—that in a few years it will be an option.

Specifically, my company is effectively locked out of providing broadband Internet service viafor cable—at any price. Not only my company but 98% of all ISP's in America are locked out of a very cost effective, high quality broadband medium for the transmission of Internet services—at any price.[1]

The broadband option that I do have access to in some communities is DSL, a service that as a broadband Internet service cannot match the speed or quality of cable and has mileage limitations of three miles. DSL operates at maximum speeds of 7 megabits while cable can operate at speeds of 100 megabits. In my opinion, DSL technology is not an effective competitive choice over cable Internet service. However, unlike the cable companies, Bell Atlantic is willing to allow me to private label their DSL service to my Internet service customers. As a matter of fact, we have the opportunity to resell Internet service from nearly every carrier in America, except cable.

Not only can we not get access to local cable broadband facilities; we must also pay inflated prices for transit to the Internet backbone, prices that are so high because of the concentration of ownership of Internet backbone in the hands of a few long distance and cable companies.

My ability to compete as a provider of broadband Internet access and broadband services Competition is stifled stifled by both law and regulation—regulations that I'm confident were not intended to prevent competition, but they do. and wSmall businesses peopleand American consumers are paying the price for this . correctable injustice.

While I think RBOCs need to deploy a broadband capability that better competes with cable Internet, I understand the disincentive in current regulation that may be holding them back. Any What is the incentive fRBOC who deploys velop a competitive Internet broadband product based on the speed and reliability of fiber optics, falls prey to Federal regulation that gives their competitors immediate, below-cost access to the new advanced facilities. As a businessman, it would be financially irresponsible to invest in facilities I had to sell to my competitors at prices below my actual costs. It's just common sense and prudent business behavior. The same holds true for cable and long distance companies—where they are equally constrained by regulation.if cable and long distance companies will have an immediate and absolute right to access their networks.

Long distance companies have enjoyed an exclusive right in interLATA voice and data services since 1984. The big 3 long distance carriers (soon to be big 2) parlayed their massive market power into control over the Internet backbones, some by building new capacity, and some by buying existing providers. Their control over Internet backbone is relevant to me because I have to buy backbone transit to deliver the connectivity my customers require.

[1] "Wholesale Carrier Services: U.S. Market Supply and Demand," Yankee Group, Data Communications, Vol. 14. Number 14, September 1999.

Backbone location and transit prices are always important, but they become critically important when we consider offering broadband. For broadband service, I need big pipes. I need backbone access at T3 speeds (45 megabytes). I need to be able to offer customers reliable connections of 10 megabytes or more.

The locations of backbone points of presence dictates where I can offer high speed Internet service at affordable prices. For example in New York State, there are no backbone points of presence along the southern tier of counties. If I want to offer service there, I'll need to find an affordable way to haul my customer's Internet traffic to a backbone point of presence. If I have to carry my customer's traffic a great distance to reach an Internet point of presence, my private line costs will overwhelm my small operating margin.

Outside urban areas, the distance to reach a backbone point of presence would be very long and so private line costs are very high. Even if I did arrange to haul traffic to a backbone point of presence, I must still negotiate transit prices that make broadband Internet viable. Netcom is not a member of the Internet backbone oligopoly that allows members the right to connect as "peers". So my costs as a small business are much higher than they should be. I pay based on my lack of membership not my usage.

As you would expect, every ISP prefers lower prices for private lines and backbone transit. But what makes limited location choices and high transit prices so bad is knowing that constrained supply need not be so. The largest providers with abundant fiber-routes outside urban areas are the RBOCs. Their fiber routes cover every town, village and corner inside each LATA. They could quickly introduce new Internet points of presence, transit price competition, and lower interLATA private line rates for Internet service, but they are forbidden from offering me these solutions; therefore, I cannot pass along any of the choices, savings and speed increases my customers are demanding.

WHAT DO LEGISLATORS INTEND?

Regulations that prevent the private sector from offering remedies to high prices and constrained supply are laws that need stern and frequent scrutiny. The 1996 Telecom Act contains no statements that suggest Congress wanted that eithercable or long distance companies wouldto concentrate ownership in Internet backbone and broadband services to the disadvantage of small businesses such as my own. On the contrary, and to the detriment of the general public.

Congress stated its intent—competition is to be encouraged and all Americans should have timely access to advanced Telecom services at affordable prices.

Noticeably, State and local legislators are worried about the limited broadband Internet choices consumers have, and the higher prices caused by lack of competition. For instance, cities such as Portland Oregon took action to remedy the blocked cable Internet access unaffiliated ISPs face. Right or wrong, the FCC bent over backwards to permit discrimination in cable Internet access. It intervened in the Portland case opposing the cable authority's local jurisdiction over cable Internet, while at the same time refusing to declare that cable Internet service is telecom. If cable Internet were telecom, providers could not discriminate in favor of their own affiliates. If cable Internet were cable, the local Cable authority could decide on open access as a franchise matter. Why is it that Internet service provided by cable companies is not telecom and Internet service provided by everyone else is closely regulated "telecom"? The FCC thwarted local government control that I believe congress clearly intended. How long will Congress allow this to go on?

Regardless of why the FCC is unwilling to discourage results that favor the cable industry, Congress should provide leadership for open access to cable Internet. If Congress cannot decide, then it should at minimum allow local authorities to regulate cable Internet as the Act intended. After all, it is local authorities that know the competitive climate in their locales best and more important it is local authorities that grant monopoly franchises to cable companies. Noticeably, NY Assemblyman, Albert Vann, Chairman of the Telecommunications Committee for the National Black Caucus of State Legislators called for nationwide State initiatives to ensure broadband access for all at affordable prices. Vann stated that

> "if Congress can't or won't act then the States must ensure that their individual public utility commissions and municipalities are armed with the information and power to promote fair and open competition for the public good.[2]

[2] Albert Vann, Chairman of New York State Assembly Committee on Corporations, Authorities and Commissions, (having legislative oversight of the State Public Service Commission.) Speaking to the National Convention of NBCSL, Baltimore Maryland, December 1999.

CONCERNS OF STATE AND LOCAL GOVERNMENT

State and local legislators are concerned about the higher prices caused by lack of competition and lack of consumer choice.[3]

As a result States such as Washington, have required a local cable franchise to provide open access to their network in return for the franchise. The FCC is concerned about a proliferation of individual, rules, regulation and requirements by State and local authorities.

Albert Vann, Chairman of Telecommunications Committee for the National Black Caucus of State Legislators has called for national State initiatives to ensure broadband access for all at affordable prices. Vann stated that "if Congress can't or won't act then the States must ensure that their individuals public utility commissions and municipalities are armed with the information and power to promote fair and open competition for the public good.[4]

RECOMMENDATION

Regarding my recommendations to this Congress, I say; the issue we need your help on does not amount to a choice between telephone versus cable. Nor is it a choice between local telephone companies and long distance companies. You may have heard the issue framed that way, but that is not true.

The real issue is whether there are enough affordable broadband Internet choices available to consumers in all urban areas—not just some urban areas—and available in all rural areas, not just some rural areas. The real answer is "no".

Netcom wants to make those choices possible, but we cannot due to unintended effects of law and regulation. We believe that delayed access to affordable choices in broadband Internet continues to burden some communities with economic scars that may take years to heal. The Digital Divide only gets larger without your help.

If the claims of those companies controlling Internet backbones and closed cable Internet systems are 100% correct, market forces will produce the desired results within a year and Congress need do nothing. In a perfectly competitive world this would be a reasonable expectation.

In the real world, my experience as a small ISP is that competition is being stifled and Congress should act in favor of more consumer choices and competitive pressure that pushes Internet backbone availability beyond affluent urban areas, and into everyone's community, now.

I implore Congress to pass legislation that will open broadband Internet markets to real competition. If Congress fails to act, small ISPs and non-cable based ISP's will be bankrupted or we will be consigned to provide inferior and or costly broadband Internet services. On behalf of Netcom and similarly situated businesses, I beg you to provide us with the access and price relief that we need. In return, I know that prices will be decreased, innovation will be encouraged and true competition will be brought to a vital sector of the American economy.

Thank you for your attention and I will be happy to provide you with any additional information requested.

Mr. TAUZIN. Thank you, Mr. Jefferson.

Mr. Frisby, you are in trouble a little bit. It is your turn, sir. President of the Competitive Telecommunications Association, Mr. Russell Frisby.

STATEMENT OF H. RUSSELL FRISBY, JR.

Mr. FRISBY. Thank you, Mr. Chairman, distinguished members of the committee. I am Russell Frisby, President of the Competitive Telecommunications Association. CompTel, as you may know, is the national industry association representing the full range of competitive exchange carriers of all kinds, whether they are ISPs, CLECs, or IXCs.

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[3] Section 253(b) of the 1996 Telecommunications Act specifically grants states the right to promote and legislate "on a competitively neutral basis and consistent with Section 254 (Universal service), requirements necessary to preserve and advance universal service, protect the public safety and welfare, ensure the continued quality of telecommunications services, and safeguard the rights of consumers."

[4] Albert Vann, Chairman of New York State Assembly Committee on Corporations, Authorities and Commissions, (having legislative oversight of the State Public Service Commission.) (Speaking to the National Convention of NBCSL, Baltimore Maryland, December 1999.

The goal of the Telecommunications Act was to create competition in the local telecom market. The challenge Congress faced when crafting the Act was how to engineer an incentive for the RBOCs to open up their local bottlenecks. Congress came up with the proper incentive, which was to allow the box to provide in-region long distance services once they met the 14-point checklist. This incentive is working.

Also, the Act is working because it has unleashed an entrepreneurial explosion. Competitors are investing over $1 billion a month in broadband connectivity alone. To deploy these technologies, our companies, however, must have RBOC cooperation so they may interconnect their facilities, particularly that vital last mile. Unfortunately, our members consistently tell us that even with the market-opening incentives, they are having trouble getting timely cooperation from the Bells.

For instance, when it comes to provisioning of DSL-capable loops, we find that the RBOCs are frequently able to provide their own customers with vital components within days, but it may take our members months to get the same type of loop.

It is important for the committee to remember one key fact. We would not be using the word "broadband" today were it not for the 1996 Act and the pro-competitive regulatory environment it created. It is the competitors, not the incumbents, who first brought broadband services to American customers. It was only after the entrepreneurs had blazed the way that the RBOCs followed, even though DSL was a rather old technology.

I am going to spend the remaining part of my time focusing on two charts. Those charts are going to show that the digital divide is being breached in rural areas by companies such as McLeod, Touch America, South Dakota Network, and in inner cities customers are receiving DSL service from companies such as Allied, Integrity, and Covad. I encourage all of you to read the report published last month by the National Telecommunications Information Agency and the U.S. Department of Agriculture.

Now, the first chart you see up here shows every locale in which a competitor has deployed a high-speed Internet POP. That is DS-3 or higher. In 1996, that chart would have been blank. Now we have a situation in which competitors have built over 1,000 high-speed Internet points of presence. They have actually built POPs in every LATA in the country except for two.

The second chart, if we could go to the second chart, shows the population effect. The population effect is that 95 percent of all Americans are within 50 miles of a high-speed POPs, and these POPs are not just located in densely populated areas but in cities such as Owatonna—and I apologize, I am from Maryland—Minnesota, Ocala, Florida, Joplin, Missouri.

Mr. Chairman, over the lunch break, we checked our records and we find that in Louisiana, there are 17 POPs. There are 4 in New Orleans, 4 in Shreveport, 3 in Baton Rouge, 1 is Slydell, 1 in Monroe, 2 in Lafayette, and 2 in Lake Charles, and those POPs are deployed by companies such as PSINet, Inter Media, KMC, McLeod, AT&T, Worldcom, and Sprint. So clearly, new entrants are equipped to offer these facilities and we are doing it. The ACt is

working and entrepreneurs are leading the way in bringing innovative new technologies to the doorstep of every American consumer.

In summation, I would like just to cover two points that were discussed earlier. First of all, with regard to Land's End, we would like to submit an article dated March 22 from the Wisconsin State Journal. Land's End is not moving from Dodgeville. It is opening a new facility in Stevens Point because the State, Portage County, and the city of Stevens Point have offered approximately $11 million of incentives.

Second, we recently, as was alluded earlier, recently held a conference in Orlando in which we brought ISPs and CLECs and IXEs together. The reason we brought them together is because there is a real convergence going on, and at our seminar when we talked about how to be a CLEC, what we found is a number of ASPs and ISPs are now becoming CLECs because that is the best way they can serve their customers. They are throwing up their hands. They are not getting the services that they need from the local operating company, so they have decided to go into business for themselves as CLECs.

I think that is what Congress envisioned when it passed the Act, that it could open a door so entrepreneurial companies could come in and serve their customers the best way they can. So we say, keep up the good work and stay the course. Thank you, Mr. Chairman.

[The prepared statement of H. Russell Frisby, Jr. follows:]

PREPARED STATEMENT OF H. RUSSELL FRISBY, JR., PRESIDENT, COMPETITIVE TELECOMMUNICATIONS ASSOCIATION

Good morning. Mr. Chairman and distinguished Members of the Committee, thank you for inviting me here today to discuss broadband deployment and the technological benefits being brought to *all American consumers* by robust competition in the telecommunications marketplace. I am Russell Frisby, President of the Competitive Telecommunications Association.

CompTel is the principal national industry association representing competitive local exchange carriers, interexchange carriers, Internet backbone providers as well as Internet service providers, integrated communications providers and related suppliers. Our members offer a wide variety of services both on a local and regional basis as well as across the globe.

Many of CompTel's members would not exist were it not for the Telecommunications Act of 1996. In the wake of the 1984 break-up of AT&T—which created competition in the long-distance market—the goal of the Telecommunications Act of 1996 was to create competition in the local telecom market. For over 100 years, these markets have been the sole domain of government-guaranteed monopolies. The challenge Congress faced when crafting the 1996 Act was how to engineer an incentive for the Regional Bell Operating Companies to open up their local bottlenecks and give up their monopolies. *The only incentive in the Act is simple: allow the BOCs into in-region long-distance services once they have met the 14-point competitive checklist under Section 271.* Meeting the checklist shows that a Bell is cooperating with competitive carriers to the point where the local market is irreversibly open. Without the in-region interLATA market-opening incentive, the rational economic behavior of an RBOC would be to maintain its grip on its monopoly.

And, by the way, *under the 1996 Act, Congress allowed the Bells to build out-of-region interLATA data networks any time they want to, but none has done so.*

The Act's incentives have unleashed an explosion of entrepreneurial brilliance never before seen in American economic history. Competitors, like CompTel's members, are investing over a billion dollars a month in "last mile" broadband connectivity alone, not to mention global data backbone facilities and innovative technologies such as wireless MMDS Internet access. To deploy these innovative technologies, our companies must have the BOCs' cooperation so that they may interconnect with their facilities, especially the vital "last mile" copper loop. Without fail, our members consistently tell us that *even with* the Act's market-opening incen-

tives in place, getting timely cooperation from the Bells is problematic, at best. For instance, when it comes to the provisioning of DSL-capable loops, the BOCs are frequently able to provide their own customers with these vital components within days. When it comes time for the same BOC to provide a competitor phone company with the same loop, it can take weeks or months. To date, only one RBOC has met the 14-point competitive checklist in one state: New York. *Now is not the time to repeal the rules and jeopardize the phenomenal growth of data services.*

It is important for this Committee to remember one key fact: *we would not be using the word "broadband" today were it not for the 1996 Act* and the pro-competition regulatory environment it created. *It was competitors, not the incumbents, who first brought broadband services to American consumers.* Only after entrepreneurs had blazed the broadband trail did the BOCs follow, even though they had developed DSL technologies more than a decade earlier.

The "Digital Divide" is being bridged in rural areas by companies such as McLeod USA, Touch America, South Dakota Network and Birch who are laying fiber across the heartland. Meanwhile, the BOCs and GTE are selling off their rural exchanges. Inner-city consumers are receiving DSL services from companies with names like Allied, Ntegrity and Covad. In many instances, the Bells and GTE are ignoring these areas, opting instead to target higher-end business customers. But don't take my word for it; I encourage each of you to read the report published last month by the National Telecommunications and Information Agency and the U.S. Department of Agriculture, which arrived at the same conclusion.

Additionally, competitors have built over 1,000 high-speed Internet points-of-presence, or POPs, *in all but two LATAs in America.* As a result, an analysis by the Competitive Broadband Coalition indicates that over *94% of all Americans are within 50 miles of a high-speed POP.* These POPs are not just in densely populated urban centers, but in areas such as: Owatonna, Minnesota; Ocala, Florida and Joplin, Missouri. The notion that new entrants are not equipped to offer these facilities is simply wrong. New entrants have set the standard.

The Bells have two avenues that they can take to enter the interLATA markets: 1) *start building outside of their home regions now*—just like the competitors are doing, and 2) comply with the 14-point checklist to be able to provide such services in their home regions. *The Committee should also remember that there is no distinction between voice and data.* It's all "ones and zeroes" in this digital world, and Congress's recognition of that fact is embodied in the Act.

In conclusion, the Telecommunications Act of 1996 is working as Congress envisioned over four years ago. Entrepreneurs are leading the way in bringing innovative new technologies to the doorstep of every American consumer. The Act is working because of the incentives it created for the monopolies to open up their networks to competitors. Let competition take hold. Don't amend the Act.

Thank you.

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March 22, 2000, Wednesday

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HEADLINE: Lands' End Plans New Quarters in Stevens Point, Wis., for Sales Unit

BYLINE: By Roger A. Gribble

BODY:

Lands' End said Tuesday it will build an $ 11 million facility in Stevens Point for its corporate sales division.

The 200,000-square-foot structure will have a phone center, management offices, embroidery design and production area, and warehouse space, the company said.

The facility will initially have about 100 full- and part-time employees, but employment is expected to swell to about 1,000 over the next five years, including seasonal workers, the company said.

Construction will begin this summer and be completed in late summer 2001 in time for that year's peak holiday selling season, the company said.

The state, Portage County and city of Stevens Point have offered financial incentives for the $ 11 million facility, but details are not yet final.

Beverly Holmes, a Lands' End spokeswoman, said the incentives include training money, tax credits and help in financing roads and utilities.

"We looked at three states (Wisconsin, Illinois and Nebraska) and decided to stay in Wisconsin," Holmes said.

"We picked Stevens Point because of the strong UW (UW-Stevens Point) presence there. We also felt our computer connection with the UW there would be a good fit," she said.

Holmes said the Stevens Point area also was selected because of its potential employment base.

"Every year we have 6,000 to 7,000 seasonal workers in Dodgeville, and we felt if we were to continue to meet future needs we needed to find more employees," she said.

Portage County's unemployment rate in January was 4.4 percent, while the state's seasonally adjusted unemployment rate in January was 2.8 percent, the lowest for a January in four decades.

Chuck Kell, Portage County Planning and Zoning Department director, said the Portage area is well-positioned to meet Lands' End's employment needs for the new facility.

"We dealt extensively with them on employment," he said. "We feel they'll be able to draw from Wausau, Waupaca, Marshfield, Wisconsin Rapids and Wautoma."

Kell said that when Lands' End employment grows to 1,000, "it'll be one of our larger employers, probably fourth or fifth largest."

Lands' End's corporate sales division provides companies with branded products for corporate incentives, rewards, gifts and group apparel through catalogs and the Internet. With fiscal year 2000 sales of $ 140 million, it is Lands' End's fastest growing specialty business.

Also Tuesday, Lands' End launched one of its first "online custom stores" for Saturn Corp. The store will be available via the Internet to Saturn owners its 400 dealers and through Saturn's intranet to its 8,000 employees.

The new building on about 70 acres in the Portage County Business Park on Interstate 39 will be a satellite center for Lands' End's Corporate Sales division, which has headquarters in Dodgeville.

David Dyer, Lands' End president and chief executive officer, said in a statement the company is excited to extend its presence in Wisconsin.

Besides its Dodgeville headquarters and other operations in that city, Lands' End has a phone center and warehouse in Reedsburg, a phone center in Cross Plains and retail outlets in several Wisconsin cities, including Madison.

Lands' End's shares closed Tuesday at $ 55.50, up $ 2.25 on the New York Stock Exchange.

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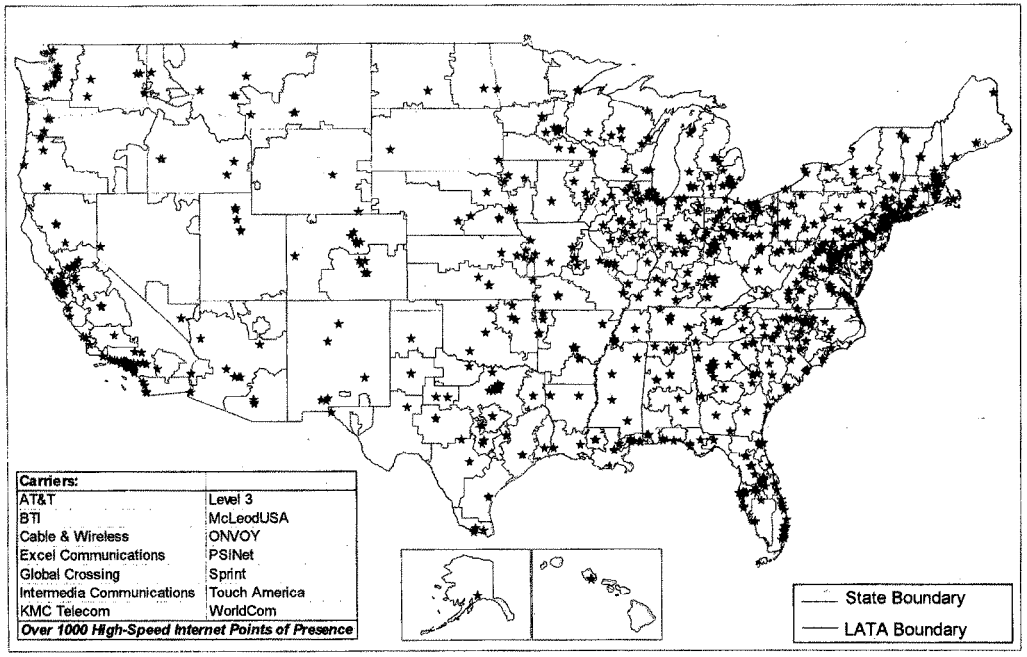
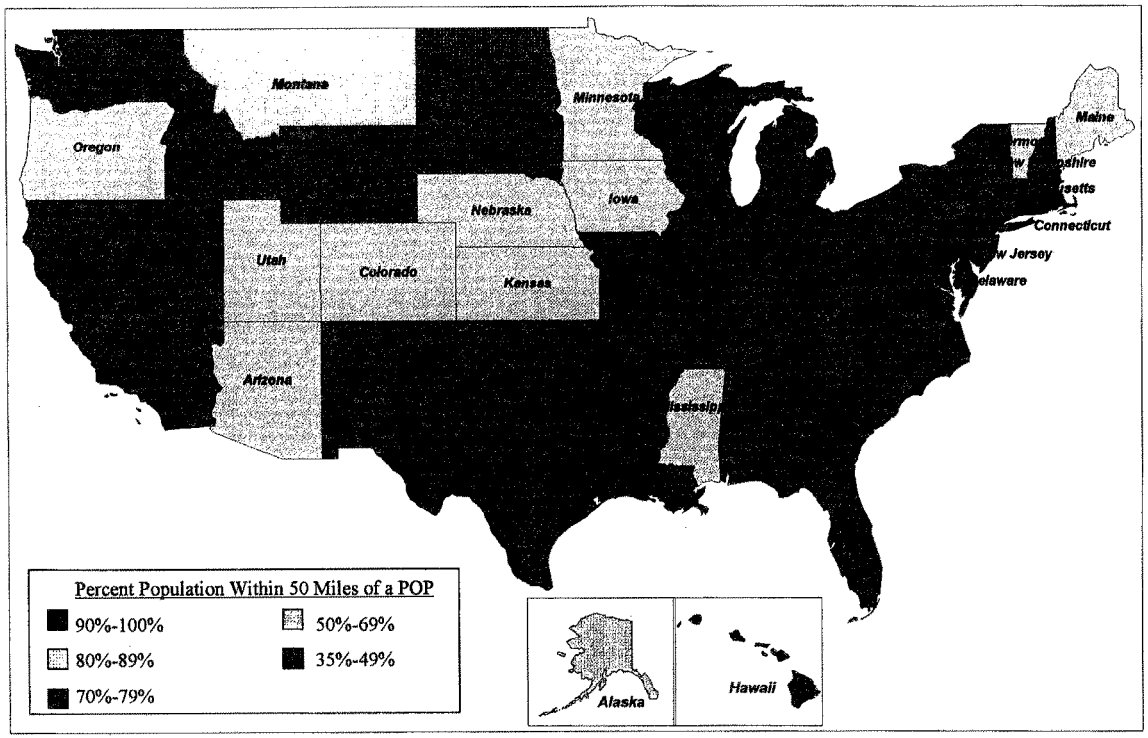
High Speed On-Ramps to the Internet

94.4% of Americans live within 50 miles of a High-Speed Internet Point of Presence



% of Population Within 50 Miles of a High-Speed Internet Point of Presence

Nationwide 94.4% Live Within 50 Miles



Mr. TAUZIN. Thank you, Mr. Frisby.

Finally, Jerry Ellig, Professor of Economics at George Mason University here in Arlington, Virginia. Mr. Ellig?

STATEMENT OF JERRY ELLIG

Mr. ELLIG. Thank you, Mr. Chairman. I am a research fellow at the Mercata Center at George Mason University. I am also a research fellow at Citizens for a Sound Economy Foundation and I am here today actually on behalf of CSE Foundation. The reason is to summarize a couple of studies that the foundation has published that I authored that look at several issues related to broadband markets and that are related to a lot of the topics we are talking about here today.

Just by way of background, Citizens for a Sound Economy Foundation is an educational foundation. We have 250,000 individual members and supporters nationwide. We have been in existence since 1984 and we have been doing work on telecommunications since 1987. I know, because I was the research director at the time when that project started.

So in Internet time, we have been doing this forever and we have consistently been trying to figure out what is the best way to get competition into these telecommunications industries, and we recognize that people of good will can sometimes disagree on that kind of thing, but let me give you our take on it, and I will only make two points, rather than the traditional three that speech coaches say you are supposed to make.

The first point is, if we look at a lot of the policy proposals out there when we talk about forced open access, forced unbundling, sale of unbundled network elements at various types of regulated rates, line sharing, and so forth, we need to realize that those types of policy solutions come from a model of a regulated monopoly industry where the only way to get competition is through those kind of mandates.

Broadband access is not that type of industry. Broadband access is quite competitive. We have had some more recent figures quoted here, but in 1999, the Yankee Group reports that there were 300,000 DSL subscribers, a little over a million cable subscribers getting broadband, 40,000 getting it through wireless. There are various figures that have come out that suggest that those figures are a lot higher now than they were in 1999, maybe double the number of folks on cable. The Yankee Group projects that by 2004, 70 percent of U.S. households are going to have access to DSL and cable, and it is usually going to be the same 70 percent will have access to both.

CSE Foundation also took a look at other technologies in a study that we published back in December and figured out that if productivity and costs in this industry in broadband access show the same behavior that they showed in other parts of the competitive telecommunications industry after the AT&T breakup, by 2004, we will probably have four technologies that are all available for between $20 and $40 a month. In addition to DSL and cable, wireless and satellite, as well.

The Federal Communications Commission was wise to recognize this when they decided not to impose forced access or forced

unbundling on cable. We wish they had been as wise when they looked at DSL and local telephone companies, and, of course, H.R. 2420 does look at that and say, wait a minute. This is competitive. It is not clear why we need forced unbundling in this kind of a competitive industry.

The second finding we came up with is it looks like there are going to be net benefits to consumers if you allow the Bell Companies to offer interLATA data services. We have to keep in mind that this is not a situation like long distance and local access where traditionally the local phone companies have had a monopoly on local access and so they may have very strong incentives to discriminate against competitors in the long distance business.

If, in fact, as our studies suggest, the broadband access market is competitive, then the local Bell Companies have much less of an incentive to discriminate against competitors who are also trying to provide Internet backbone or other types of services that would compete with the Bells' interLATA data services. That does not mean that they would never want to discriminate against a competitor, but when there is competition, discrimination against a competitor does not translate into harm to consumers. If a Bell Company discriminates for reasons that are anti-consumer, all they do is give the consumers a reason to switch to cable. So customers have options to protect themselves in the broadband market that they do not have in the local telephone market.

[The prepared statement of Jerry Ellig follows:]

PREPARED STATEMENT OF JERRY ELLIG, RESEARCH FELLOW, CITIZENS FOR A SOUND ECONOMY FOUNDATION

Mr. Chairman and Members of the Subcommittee, thank you for the opportunity to appear today to discuss broadband issues. My name is Jerry Ellig, and I am a research fellow at Citizens for a Sound Economy Foundation. I am also a senior research fellow at the Mercatus Center at George Mason University. I am appearing here today on behalf of Citizens for a Sound Economy Foundation to summarize two of our recent studies that are relevant to the ongoing debate over broadband policy.[1] (The studies are appended to this testimony.)

Citizens for a Sound Economy Foundation is a consumer education organization that promotes free market solutions to public policy problems. Our 250,000 members and supporters constantly remind us that decisions made in Washington, DC, are felt in places far away from here. Competition, consumer choice, and individual freedom have been CSE Foundation's watchwords since our founding in 1984. These principles have continually informed our research and educational activity on telecommunications, which began in 1987.

Our most recent pair of studies on the broadband market continue in this tradition. There are two key findings relevant to the topic of today's hearing:

1. Broadband is not a monopoly; consumers can rely on competition, rather than economic regulation, for protection.
2. Allowing the Bell companies to carry data across Local Access and Transport Area (LATA) lines will likely create net benefits for consumers.

Let me expand on each of these in greater detail.

[1] Jerry Ellig, "Broadband Forced Access: An Idea Whose Time Has Gone," CSE Foundation Issue Analysis No. 99 (December 16, 1999); Jerry Ellig, "Costs and Benefits of the Bells' InterLATA Data Prohibition," CSE Foundation Issue Analysis No. 104 (May 25, 2000).

1. BROADBAND IS NOT A MONOPOLY, AND SO CONSUMERS CAN RELY ON COMPETITION RATHER THAN ECONOMIC REGULATION FOR PROTECTION.

Large business customers already have a wide variety of broadband options. Therefore, most policy discussion involves the "residential" broadband market, which serves both residences and small businesses.[2]

Cable TV companies currently serve the majority of residential broadband customers. The Yankee Group estimated that there were 300,000 DSL subscribers in 1999, compared to 1.1 million cable modem subscribers. The Yankee Group also projects that 70 percent of U.S. households will have access to cable modems and DSL by 2004, and households with access to one will usually have access to the other.[3]

In addition to cable and DSL, other options exist as well:

- Hughes Network Systems' DirectPC offers high-speed download via satellite. Uplink is accomplished via phone lines.
- Multichannel Multipoint Distribution System (MMDS) transmits data via wireless spectrum.
- Local Multipoint Distribution Service (LMDS) also uses wireless spectrum. Unlike MMDS but like satellites, uplink occurs via phone lines.

Cable and DSL currently have a lead in subscribers, but there is no guarantee that they will dominate the broadband market in the future. Experience shows that competitive telecommunications markets produce continuous productivity improvement and price reduction as well as new technologies. CSE Foundation estimates that, with plausible assumptions about cost trends, the current cost gap between technologies will narrow considerably. As the accompanying table shows, five years from now, four out of five broadband technologies could be available for $20-40/month—less than most Americans pay for cable TV today.[4]

Cost of Residential Internet Access

Method	Speed for Home (KBPS)	Average Installation Cost	Customer Equipment Cost	Monthly Fees*	Total Monthly Cost, 1998	Projected Monthly Cost, 2003
Satellite	400	$50	$300	$30-50	$50.81	$25.68
Terrestrial Wireless—MMDS	1000	$100	$400	$50-70	$75.44	$38.06
Terrestrial Wireless—LMDS	1500	$200	$1000	$50	$87.06	$46.23
ADSL	1500	$100	$200	$50-60	$64.26	$31.96
Cable Modem	3000	$75-150	***0	$40	$43.58	$21.35

*Includes average monthly cost of basic hookup to the network plus Internet access fees, if any.
**Assumes use of primary phone line, so no installation cost for second phone line is included.
***Included in installation fees.
Source: Raw data arefrom Federal Communications Commission Broadband Report 1999, CC Docket No. 98-146 (January 28, 1999), Charts 2 and 3. Calculations are described in Jerry Ellig, "Broadband Forced Access: An Idea Whose Time Has Gone, " CSE Foundation Issue Analysis No. 99 (December 16. 1999).

In short, there are many different technological options, and multiple competitors are trying each. Some will succeed, and some will fail. But it is highly unlikely that a single firm will dominate the broadband market. With a market this far from monopoly, there is no justification for price regulation, mandated unbundling, or forced access to competitors' facilities. The Federal Communications Commission's refusal to impose forced access in cable, and H.R. 2420's prohibition on forced unbundling of local phone companies' advanced data networks, are both consistent with this conclusion.

2. ALLOWING THE BELL COMPANIES TO CARRY DATA ACROSS LOCAL ACCESS AND TRANSPORT AREA (LATA) LINES WILL LIKELY CREATE NET BENEFITS FOR CONSUMERS.

Faster Internet Speeds

It is a commonly-held belief that the relatively slow "last mile" of the telephone network is the only factor preventing many business and most household Internet users from enjoying fast data speeds. According to this theory, the "World Wide Wait" will disappear once all users have access to some type of broadband hookup.

[2] Federal Communications Commission, Broadband Report 1999, CC Docket No. 98-146 (January 28, 1999), para. 26.

[3] Federal Conununications Conunission Broadband Report 1999, para. 54; Yankee Group, "Cable Modems and DSL," Media and Entertaimnent Strategies Report Vol. 3, No. 18, p. 6.

[4] The average cable bill is about $40. See "Comments of the Progress and Freedom Foundation" in FCC CC Docket No.98-146 (Sept. 14, 1998) at http://www.pfforg/pffdocket.html.

Although the "last mile" is an obvious constraint, there are other points in the data transmission system that could also slow performance. They include telephone company central offices, which were not designed to handle the traffic volumes generated by lengthy Internet sessions; Internet backbone providers' points of presence, which are often connected to the backbone by T1 or other relatively slow transmission lines; and the backbone itself, whose speed can slow if too much data is sent at once. Growing demand for bandwidth could place pressure on some or all of these elements. Analysts at Morgan Stanley Dean Witter estimate that the number of consumers online will nearly double, from 30 million in 1999 to 58.5 million in 2004.

About half of them will use high-speed, broadband Internet connections, primarily cable modems or DSL. Similarly, businesses will continue upgrading to faster Internet connections via fiber optics, DSL, and fixed wireless.[5] The rest of the Internet will need to expand its capacity and speed in order to accommodate the increased demand for more and faster data transmission. As an executive from one startup backbone company noted, "The biggest problem for service providers that are providing high-speed access, whether over DSL or cable, is the difference between what customers expect in performance and what they get. The backbone-distribution bottlenecks only get worse when you add high-speed access, because people are pulling in more content at a faster rate than they did over dial-up lines."[6]

The Bell companies could mitigate data transmission bottlenecks by deploying more Internet backbone and building regional data networks.

Bell-owned Internet backbones would ease congestion and perhaps lower the cost of data transmission by increasing the amount of backbone available in the market. The Bells would start with a dense concentration of fiber optic cable already in place within LATAs—an asset that would let them enter the backbone market at a low incremental cost.

Regional data networks could bypass the telephone companies' central offices, backbone companies' points of presence, network access points, and leased lines. Such bypass would ease congestion and cut costs for many Internet Service Providers.

The Bell companies can offer DSL, but some industry observers believe that they could be more effective competitors in DSL if they had their own regional data networks and backbones that could be configured to support the DSL offerings.[7] Regulatory requirements that phone companies must sell "unbundled" elements of their DSL networks to competitors also deter the Bells from making the investments required to offer DSL.

Arguments Against Bell Entry Into InterLATA Data Markets

There are two principal arguments against allowing the Bell companies to engage in interLATA data transmission. One involves a potential threat to consumer welfare, and the other simply seeks to hold out entry into the data market as a "carrot" to induce the Bells to open their local telephone networks to competition.

Threat to Consumers is Illusory

A genuine threat to consumer welfare would occur if the Bell companies could use their control over the local phone lines to thwart competition in interLATA data transmission. This is the same type of reason that the Bells have been prohibited from offering long-distance phone service. Under that theory, a Bell company might degrade the quality or raise the cost of competitors' long-distance services by giving them connections to the local network or contract terms for interconnection that are inferior to those enjoyed by the Bell's own long-distance company.[8] Would a Bell en-

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[5] Jeffrey Camp, Stephen Flynn, et. al., "The Internet Data Services Report," Morgan Stanley Dean Witter (Aug. 11, 1999), pp. 17-19.

[6] Fred Watson, "Backbone Help on the Way, From Start-Ups Enron, Edgix," Broadband Week (February 7, 2000).

[7] An article on Sprint's broadband business noted, "Sprint is taking advantage of its high-speed IP (Internet protocol) backbone and its strategic positioning of local caching servers to facilitate delivery of content and applications at high speeds on an end-to-end basis . . . Bell companies, barred from the long-distance business, must rely on third parties for this kind of support, which most have been hesitant to do for cost concerns." Fred Dawson, "Sprint's ION in Va. Sees Consumer DSL Launch," *Broadband Week* (May 24, 1999).

[8] A Bell would have incentives to do this only if regulation constrained the price it could charge for local phone service. In that case, disadvantaging long-distance competitors would allow the Bell to charge a higher price for long-distance service, effectively reaping some of the monopoly profits that regulation of local service prevented it from capturing. If regulation does not constrain local service prices, then the Bell would be just as well off charging a monopoly price for local service and allowing all long-distance competitors to compete on an equal footing. See Robert Crandall, "Managed Competition in U.S. Telecommunications," AEI-Brookings Joint Center for Regulatory Studies Working Paper 99-1 (March 1999).

gage in discrimination to disadvantage Internet backbone firms and other competitors who carry data across LATA lines, in the hope that it would then capture some of their dissatisfied customers in its region?

Fortunately for consumers, the nature of Internet interconnection neutralizes the danger of discrimination. The largest Internet companies interconnect and exchange traffic under "peering" agreements that essentially obligate each party to accept all traffic from the others at no charge. Such agreements give the companies the opportunity to offer their customers access to all other customers using the Internet. A Bell-owned interLATA data network would surely include enough subscribers to be an attractive peering partner, and the Bell company would receive large benefits from peering. But the peering agreement would require the Bell company to interconnect and accept traffic on the same terms as the other companies. Therefore, the terms of the agreement would prevent a Bell from discriminating in a way that disadvantages other Internet firms and harms consumers. Since peering is the most economical way to achieve interconnection, the Bells would have a strong incentive to abide by the peering agreements.

If a Bell did not obtain peering and instead had to pay for interconnection with other backbone companies, it would still face incentives to offer high-quality interconnection to competitors. In this situation, the Bell is really providing the other Internet firms with two things: a cash payment, plus access to the Bell's local customers. A Bell that offered its competitors inferior access to its local customers would thus have to pay more for interconnection to compensate for the fact that discriminatory interconnection is less valuable to the competitors. Bells lack a similar incentive to avoid discriminatory interconnection for long-distance voice competitors, because federal policy mandates that long-distance companies pay regulated access charges to local phone companies.

Even without the incentives created by peering and interconnection agreements, the Bells have much less of an incentive to discriminate against data competitors than voice competitors. In either voice or data markets, the incentive to discriminate disappears if the local phone company lacks monopoly control over access to customers. Market share data show conclusively that the Bells do not dominate the broadband Internet access market in the same way that they dominate local phone service. Cable modem service is available to an estimated 25 percent of U.S. households now, and industry analysts project it will be available to half of all U.S. households by the end of 2001 and 70 percent by 2004.[9] Where this directly competitive alternative is widely available, the Bells can gain nothing through discriminatory interconnection. Discriminatory interconnection would simply induce customers to switch to cable or other technologies for Internet access.

The InterLATA Prohibition as a Carrot

A second, distinct argument for maintaining the interLATA data restriction is that it gives the Bells a much stronger incentive to open up local telephone markets to competition. The idea is not that interLATA data transmission by the Bells poses any threat to consumer welfare, but rather that permission to enter this market should be held out as a carrot to prompt the Bells to do other things that benefit consumers.

This "carrot" argument is creative but ignores the fact that the opportunity to offer long-distance service already gives the Bell companies a powerful incentive to open their local markets to competition. Removing the interLATA data prohibition would allow the Bell companies to compete in the wholesale Internet data transport market. Total revenues in this market were approximately $6 billion in 1999, compared to $105 billion for the retail long-distance market.[10] The opportunity to participate in the large, high-margin long-distance market remains a strong incentive, even if permission to compete in a much smaller market is granted.

The "carrot" argument also ignores the importance of bundling in today's consumer market, which gives the Bells a strong incentive to open their local markets to competition. This incentive is especially attractive to the extent that customers want a single source for all of their communications needs. In the recent spate of merger filings before the FCC, both Bell and nonBell companies have argued that

[9] Camp, Flynn, et. al., "Internet Data Services Report," p. 19; Yankee Group, "Cable Modems and DSL."

[10] Yankee Group, "Wholesale Carrier Services: U.S. Market Supply and Demand," Data Communications Series Vol. 14, No. 14 (September 1999), and Industry Analysis Division, Common Carrier Bureau, Federal Communications Commission, Trends in Telephone Service (March 2000), Table 11.2. The relevant comparison is between the wholesale data transport market and the retail long-distance market because the Bells are barred from the retail, interLATA long-distance market but permitted to offer retail Internet services, as long as those services do not cross LATA boundaries.

the ability to offer all communications services in one package, with a single point of accountability, confers a significant competitive advantage.[11] Even if a Bell can offer interLATA data services, its inability to offer long-distance phone service places the company at a competitive disadvantage with those customers who value one-stop shopping.

Unfortunately, the "carrot" argument boils down to a gamble that depriving consumers of interLATA data competition now will make competition in local phone service occur more quickly. This is the same type of logic that underlies policies against "predatory pricing:" make consumers pay higher prices now to prevent the threat of a monopoly later. It's also the logic underlying the use of international trade sanctions to open up foreign markets: make consumers pay more for imported goods and services now so that markets will be open to American exports later. Experience shows, however, that consumers usually end up losers when they are asked to give up vigorous competition today in exchange for a promise of other benefits at some future date.[12]

CONCLUSION

For residential and small business customers, the broadband access market is growing rapidly but still in its infancy. Two competing technologies—cable and DSL—already have strong footholds, but others could close the competitive gap over time. In such a competitive environment, neither price regulation nor forced unbundling is necessary to protect consumers.

However, it takes more than a fast last mile to ensure that consumers receive high-speed, affordable Internet service that actually delivers its full promise. To minimize the chance of bottlenecks developing in other parts of the system, public policy should leave all competitors free to enter the data transmission market, unless the entry of a particular competitor can be shown to harm consumers. Neither theory nor facts support the claim that Bell provision of interLATA data services can harm consumer welfare. Therefore, the costs of the prohibition on the Bells offering interLATA data services surely exceed the benefits.

Mr. TAUZIN. Thank you very much, Mr. Ellig.

The Chair recognizes himself for 5 minutes and other members in order.

Let me first of all help shed some light on this dispute as to how many POPs exist out there. It pretty much depends on what you define as a POP, does it not, Mr. Frisby?

Mr. FRISBY. Absolutely.

Mr. TAUZIN. In fact, PSI testified on the Senate side that it alone had more than 230 POPs, but many of those POPs were only T1 circuits, right, and those T1 circuits have the capacity, I think, of 1.5 megabits, is that right, Mr. Kunkel?

Mr. KUNKEL. Mr. Chairman, as I testified today, we have now 275 POPs at high-speed access, that we define as being T3 and above.

Mr. TAUZIN. Are those DS-3 and above?

Mr. KUNKEL. Yes, sir.

Mr. TAUZIN. Because Broad Watch Magazine, which shows the networks of 43 different backbones, considers a major backbone

[11] AT&T Proxy Statement/Prospectus on the Merger of AT&T and TCI (Jan. 8, 1999), pp. 31, 35; Federal Communications Commission, In re Applications of Pacific Telesis and SBC, para. 71; WorldCom-MCI Public Interest Showing (Oct. 1, 1997), Sec. III.B.1; Kahan Affidavit in SBC-Ameritech, "Description of the Transaction, Public Interest Showing, and Related Demonstrations" (July 28, 1999), p. 12.

[12] Predatory pricing, for example, is often alleged but rarely found in practice; a vigorous and widespread campaign against predatory pricing would likely impose costs on consumers with no offsetting benefit. U.S. Seventh Circuit Court of Appeals Judge Frank Easterbrook noted, "Studies of many industries find little evidence of profitable predatory practices in the United States or abroad. These studies are consistent with the result of litigation; courts routinely find that there has been no predation." See Frank H. Easterbrook, "Predatory Strategies and Counter-Strategies," U. of Chicago Law Review 48 (1981), pp. 313-14. International trade sanctions, meanwhile, are often costly to consumers, but they rarely achieve their intended purposes. See Jerry Ellig, "One More Time: How Free Trade Benefits Americans," CSE Foundation Issue Analysis (November 1999).

hub to be a connection of DS-3 or above only, not these T1 connects which have been identified as POPs in some of the testimonies, is that correct?

Mr. FRISBY. If I could clarify, Mr. Chairman——

Mr. TAUZIN. Mr. Frisby, yes?

Mr. FRISBY. This was information that was developed by the Competitive Broadband Coalition over the last week. Those were DS-3 and above. The problem I think we are running into, that this is very sensitive commercial information and until very recently, some of the companies have not been willing to fully disclose where all their POPs were.

Mr. TAUZIN. It is going to be important in terms of the way we understand all of your testimony that we all talk the same language, so if you can in whatever you submit to us in writing, if you can identify what are you talking about when you talk about one of your POPs and——

Mr. KUNKEL. We will be happy to, Mr. Chairman.

Mr. TAUZIN. Thank you. Second, Mr. Jefferson, you made the point, and I want to see Mr. Neel and you and perhaps Ms. Molinari or any one of you want to help me understand this thoroughly. You made the point that the four big Bell Companies are limited by law in special ways when it comes to data transmission, that we do have these LATA lines on the maps that apply to them. We do have the unbundling requirements of 251. We do have the prohibition against going over those LATA lines until they get 271 relief from the FCC.

You made the point, Mr. Jefferson, why are we so surprised that they have not rushed out to build broadband networks when they cannot fully use them and when their competitors can use them. It sometimes costs less than their own cost of extending those networks. I have asked someone to think about that. I am trying to get an analogy that I can understand at home. Is that a little bit like someone suggesting to me that I should buy a new car but that the understanding is that I cannot use it to go maybe further than a few blocks, but all my neighbors can use it and some of them can run taxi service on it if they want to, and why would I invest in that new car under those circumstances? Is that similar? Ms. Molinari?

Ms. MOLINARI. Mr. Chairman, the analogy that perhaps I can bring home to this group in my interpretation is, it would be as if you go out and you devise your campaign plan and you go hire a consultant and then you then do a market analysis and target your likely voters and then you are asked after you developed all that to share it with your competitors in a primary or general election. You would not be predisposed to move too quickly to expend those resources if you had to share it directly with your opponent, particularly if one hand was tied behind your back and therefore you could not participate in the debates.

Mr. TAUZIN. I mean, it is one thing for us to help deregulate the voice communication marketplace, which you had indicated is a $100 billion marketplace yet for the Bells to want to aspire to, by providing these kinds of restrictions and these requirements on competitive access to the lines that were laid and built for voice communications with monopoly products. It is another thing to say

now that those lines which might be available for all these new businesses in broadband services have to lay idle or other people can use them if you do go out and put a lot of money into them to expand those new services, to put a great deal, in fact, of new investments as we understand it takes to make this work, and then not to be able to fully utilize them yourself—you have to hand off the traffic to someone else—and also make them available to your competitors in this unbundled requirement of 251. That is a totally different proposition.

Mr. Cleland, you want to comment on that?

Mr. CLELAND. Yes. The metaphor I think you are looking for is essentially it is a reverse patent, where you invest and only your competitors get to earn a profit on it.

Mr. TAUZIN. So you get the patent. You get to own it, but others get to use it.

Mr. CLELAND. Right, and you do not.

Mr. TAUZIN. That is a cool idea. So we are supposed to be surprised that these systems are not being deployed and the Bells are not rushing out to provide them for other people to use them for their own customers? We are supposed to be shocked by that? Mr. Frisby?

Mr. FRISBY. Mr. Chairman, a couple of points. First of all, as was pointed out earlier, most of the DSL lines in this country are being provided already by the Bells. So they are deploying them and it is their largest, fastest growing area of profit.

What we are talking about is interLATA data transfer and there is a very easy solution. It happened in New York. Bell Atlantic complied with the checklist. The 271 application was granted. It can go forward in New York.

Mr. TAUZIN. Mr. Jefferson, are you satisfied with DSL? Are your customers happy with just DSL?

Mr. JEFFERSON. At this particular point, my customers would prefer to have 3 megabits, 10 megabits. We cannot get that out of DSL.

Mr. TAUZIN. Here is the problem for your customers, is it not. I mean, we heard a discussion from Mr. Neel about it. If one of your customers is going to be on a supply network and he does not have a fast enough connection, he is stuck with an old connection. He cannot get to the POP without buying a very expensive connection. He is at a disadvantage. He is a small business. He does not have the resources to go out and buy that T1 line himself and pay that $4,000 or $5,000 a month for that connection. Then pretty soon, he is left out of the loop, is he not, because the people that connect to him are at his speed, right?

Mr. JEFFERSON. Exactly, and usually what is going to happen, they are going to go to whomever can provide them at a competitive price——

Mr. TAUZIN. He has either got to move—they are either going to take the business to somebody else or you have to move your business to someplace where you can connect to the high speed, right?

Mr. JEFFERSON. Exactly.

Mr. TAUZIN. Is that not what is happening, Mr. Neel?

Mr. NEEL. Well, there are several things happening. There are companies that would have to move, the Land's End example I

mentioned. There are companies that will never locate in some of these areas because these are the interstate highways of the 21st century.

Mr. TAUZIN. And is it not sad, Mr. Neel that the fiber optics available to them for them to make the connection from that smallest town to the hub, that high-speed hub, that great ramp that will take them into the future, the fiber in the ground that they have already paid for in their phone rates and they cannot use it.

Mr. NEEL. It is bad throughout this country in rural areas. Let me give you an example. If Mr. Jefferson were in Cortez, Colorado, he would face the same problem that the big hospital does there. They serve parts of Colorado, Utah, and New Mexico, but to serve Farmington, New Mexico, which is 80 miles away, it has got to have a high-speed data connection. For the hospital to send that data from Farmington to Cortez, 80 miles, it has to travel 1,000 miles instead of the direct 80 miles because the provider, U.S. West, is not allowed to flip a switch and none of these CLECs are going to come in there and serve that hospital for that reason. There is no money there.

It is like John Dillinger. They asked him, "Why did you rob banks?" and he said, "That is because that is where the money is." And that is why they are going to go in those markets.

Mr. TAUZIN. Thank you.

Mr. FRISBY. So if you want to solve that problem——

Mr. TAUZIN. I do not want to leave, Mr. Frisby. My time is up, but I want to make one point. I am reading this report of this conference and the conference attendees made it very clear that they want to get these kickbacks when the ISP connects up to a CLEC that is taking reciprocal COP off of the Bell system and its customers. They want those kickbacks and they were learning at the conference how to become CLECs so they could get not just the kickback but the full reciprocal compensation, the full benefit of the scam, is that not right?

Mr. FRISBY. Well, unfortunately, I was not at that particular session and I have not seen the article, but I was——

Mr. TAUZIN. It is a pretty hot article. I just read it.

Mr. FRISBY. I was former chairman of the Maryland Public Service Commission when the whole issue came up and the issue was really one of reimbursement for costs and that there are costs in termination.

Mr. TAUZIN. Yes, there are some costs. We understand that. But when one of the members actually calls them what they really are, kickbacks, and then they are saying, that is not enough. We had a hard enough time getting our kickbacks. We want the whole thing, so we are going to become a CLEC to get it all.

Mr. Markey is recognized.

Mr. MARKEY. Thank you very much. Mr. Frisby, I thought I heard you mention McLeod.

Mr. FRISBY. Yes.

Mr. MARKEY. Now, McLeod is in Cedar Rapids, Iowa.

Mr. FRISBY. Yes, it is, Mr. Markey.

Mr. MARKEY. I have three stuffed cows in front of the Hilltop Steakhouse in the middle of my district and that is our relationship to the farm economy.

My father delivered milk door to door. We were at the retail end of it. So how does McLeod deploy this broadband in Cedar Rapids and all those remote parts of the country? Mr. Neel is saying they are not going to serve those remote hospitals, but is that not actually the business plan of McLeod, to go to all of those places where U.S. West is not right now, and are they not already out there and serving tens and perhaps hundreds of thousands of people with this broadband in rural America?

Mr. FRISBY. Absolutely. They are doing it the old fashioned way. They are building it and they are going to the market, they are going to the second, third, even fifth tier markets because that is where the opportunities are and they have this staging plan. What they have done is they have begun to go, first start by resale, but eventually in many of these situations, they are building out, they are laying the fiber, they are acquiring companies. They are doing it the old fashioned way.

Mr. MARKEY. Now, McLeod believes, does it not, that there is a very successful business plan which can be deployed which will provide Internet, cable, local, long distance service to rural Americans——

Mr. FRISBY. Absolutely.

Mr. MARKEY. [continuing] and their company is now capitalized at $10 billion and they project it to be $40 billion in another 3 or 4 years, making it a greater value than U.S. West.

Mr. FRISBY. Absolutely.

Mr. MARKEY. So how can a small company startup in 4 years and do such a marvelous job in deploying broadband in rural America when the largest company in that region has been unable to do so?

Mr. FRISBY. Well, I answered why the largest company cannot, but you have a strong management team, you have adequate financing and you have a market. In some areas, what has happened is McLeod now has something like 40 percent of all business lines in Iowa and that is because it goes in, it offers a service for value, and it is happening all throughout the Midwest.

Mr. MARKEY. So it does not compete on price, it competes on the value offered?

Mr. FRISBY. Value and price.

Mr. MARKEY. Yes, but mostly value.

Mr. FRISBY. Mostly value, yes.

Mr. MARKEY. Mr. Windhausen, you said earlier that 50 percent of the country now has access to a competing broadband service. Can you elaborate upon that a little bit?

Mr. WINDHAUSEN. Sure, and that is just from those three main companies. That is not including all the new companies that are getting in the market right now, today, to serve the second and third-tier markets. So we are going to be well past the 75 percent mark probably in another year from now.

There is another example, I think, which you may be familiar with in your home State of Massachusetts. Digital broadband communications recently competed for and won a contract with the State educational system to provide DSL services to every single town and locality in this whole State of Massachusetts and they won that contract after bidding against Bell Atlantic. They will

offer that price, the same price, to every single city, whether it is rural, urban, suburban, and every single town.

The advantage of their network deployment is once they are collocated in those central offices, then they will also have the facilities available to serve all the residential customers.

Mr. MARKEY. So every residential customer in Massachusetts, no matter where they may be in the rural part of our State, and people do not understand that 60 percent of our State is rural, will have access to it.

Mr. FRISBY. Will have access to it through the competitive deployment of this service.

Mr. MARKEY. Now, how many other States have put together plans the way Massachusetts has?

Mr. FRISBY. Well, I will tell you, a lot of them are looking at those plans based on the success of——

Mr. MARKEY. Are we first?

Mr. FRISBY. Massachusetts is the first that I'm aware of.

Mr. MARKEY. So if other States adopted our plan, they could very easily guarantee that same access for the rural——

Mr. FRISBY. That is exactly right.

Mr. MARKEY. So the States themselves have the ability to do that.

Mr. Kunkel, you heard Mr. Jefferson's problem here.

Mr. KUNKEL. Yes, sir. I was about to give him my card.

Mr. MARKEY. I thought that there was a certain appropriateness of the seating chart here, that the two of you were sitting right next to each other, and I was just wondering, listening to both your testimonies back to back, is there a way you might be able to help Mr. Jefferson?

Mr. KUNKEL. Absolutely.

Mr. MARKEY. How would you be able to help him?

Mr. KUNKEL. We have privately deployed OC-192 fiber, OC-48 fiber, I believe, in most of Mr. Jefferson's customer service territory and I would be happy to quote him prices for whatever service he thinks he needs where we can give it to him.

Mr. MARKEY. Mr. Jefferson, were you aware that Mr. Kunkel is actually in your service area and could provide you with a competing broadband alternative?

Mr. JEFFERSON. I absolutely was. As a matter of fact, about 3 years ago, we had a contract to provide services to the National Black Caucus of State Legislators and each legislator needed to be near a point of presence in their hometown so that they could get access and this was the general contract.

One of the companies that we went to was, of course, PSI. They could not do it because they were not near the rural points of presence. UUNet could not do it. The only company that came fairly close at that particular time was AT&T. I have not looked at PSI——

Mr. MARKEY. When was that, how many years ago?

Mr. JEFFERSON. That was 3 years ago.

Mr. MARKEY. Three years ago. Mr. Kunkel, has this whole movement—it is pretty much only a 4-year-old movement, so are you now able to provide these services to Mr. Jefferson?

Mr. KUNKEL. I would be happy to engage Mr. Jefferson in a discussion. We have invested about $56 billion in our architectures in the last 3 years, Mr. Markey.

Mr. MARKEY. Great. That is great news. Excellent, because I think that is really the good news, is that the world has been radically changed over the last 3 years and I think when people come back and look at the alternatives now, they might find that there is a highly desirable alternative way in which you, Mr. Jefferson, and others might be able to go than looking at that traditional source that I think people had come to rely upon for 100 years.

Thank you, Mr. Chairman.

Mr. TAUZIN. Thank you, Mr. Markey.

The gentleman from Ohio, Mr. Oxley, is recognized.

Mr. OXLEY. Thank you, Mr. Chairman. Do not ask for a finder's fee.

Let me ask Mr. Neel, the argument abounds somewhat regularly that giving the RBOCs the 271 relief would lessen the RBOCs' desire to enter broadband and to comply with a checklist particularly. Is that a fair assessment?

Mr. NEEL. No, Mr. Oxley. I think it could not be further off base. The relief that is being sought in Chairman Tauzin and Mr. Dingell's bill would provide interLATA relief specifically for data, specifically for data. Now, the data market, as I said earlier, was just a fraction. The wholesale data market is just a fraction of the long haul market. The long distance voice market is well over $100 billion a year. That is a huge incentive to get into that market, and H.R. 2420 does not change anything about a Bell Company's requirements to get into that market.

They have to meet the checklist. They have every incentive to open and keep open those markets. They have interconnection requirements. There is every reason to continue that market opening process to get 271 relief for voice traffic. So getting the relief for data would in no way affect a Bell Company's requirements to get into the voice market, as you are suggesting.

Mr. OXLEY. Some would also argue that bits are bits and that if, indeed, this bill were to pass and you were to provide interLATA data relief, that you would also automatically get into voice. How would you argue against that?

Mr. NEEL. The only reason why you would want to get into it would be to sell it, right, to be able to recover your costs. You have got to market it and it is really easy to police the marketing and selling of voice services. The first time there would be an ad or a salesman route whispering behind a table, would you like to also buy your long distance voice traffic, then the company would be in direct violation of the current law.

So from a practical standpoint, even though bits are bits, there is no way you could sell it, no way you could market it, no way you could reap any kind of profits from it.

Mr. OXLEY. Mr. Windhausen, do you want to take a crack at that?

Mr. WINDHAUSEN. Yes, if I may. In our view, the effort to try to distinguish in the legislation between data traffic and voice traffic would be a giant step backwards. One of the big accomplishments of the 1996 Act was to start getting rid of these categories that we

had throughout our history of this is cable, this is broadcast, this is data, this is voice. Congress wisely recognized that it is all one network. It is the same copper wire that runs from your home to the central office switch that carries both voice and data traffic.

In fact, I have an article attached to my testimony, and I will just read one sentence from it. It is an article talking about the future of this network and it says, "The key to convergence, a converged network, that carries both data and packetized voice traffic and supports multiple applications." That is the future of this network. That is where the technology is driving.

For Congress to consider now legislating a different treatment for data traffic on the one hand and voice traffic, it is just not realistically—it does not work with the current market.

Mr. OXLEY. Before we go back to Mr. Neel, let me ask you, Mr. Windhausen, do you support the 271 relief process?

Mr. WINDHAUSEN. Absolutely.

Mr. OXLEY. And you supported the Bell Atlantic 271 approval?

Mr. WINDHAUSEN. We did not support the Bell Atlantic approval because, in our view, they had not done a good enough job at that time of providing DSL loops. Since that time, Bell Atlantic has made significant process in providing those DSL loops.

Mr. OXLEY. How about the SBC application in Texas?

Mr. WINDHAUSEN. No. The SBC application is a far different story from New York.

Mr. OXLEY. So you selectively support some 271 process and others you do not?

Mr. WINDHAUSEN. Well, we support the process totally, but we have different conclusions based on the facts, and the facts are in Texas, SBC has not done as good a job as Bell Atlantic did in New York. Once they do, then we will support SBC, as well.

Mr. OXLEY. Mr. Neel?

Mr. NEEL. Mr. Oxley, if all of this information is the same and convergence is the goal, why do we regulate all these services so dramatically differently? There is virtually no regulation on CLEC enterprises, ISPs, cable modems, but the services provided by the local exchange companies are heavily regulated. In my testimony, there are 25 or 30 heavy regulations that are not applied to anyone but the local exchange companies.

Chairman Kennard says we have really a no-opoly because the cable modem service and DSL services are essentially the same. But yet he and public policy maintain that those very services are to be heavily regulated when they are provided for one kind of carrier but not for the other one. So we have a severe discrepancy here in how these markets are regulated and that is going to massively restrain investment in those very markets.

Mr. OXLEY. My time has expired, Mr. Chairman. Thank you.

Mr. TAUZIN. I thank the gentleman.

The gentleman from Oklahoma, Mr. Largent, is recognized.

Mr. LARGENT. Thank you, Mr. Chairman. I want to say, first of all, that the testimony has been very enlightening. I have enjoyed it and learned a lot.

Mr. Neel, I had some questions for you. You mentioned this case with Land's End. They were originally located where?

Mr. NEEL. Well, their main headquarters is in Minnesota and they wanted to open a business, an e-business service in a smaller community in Minnesota.

Mr. LARGENT. Dodgeville? Dodgeville, Wisconsin, and they had to move to where?

Mr. NEEL. Madison.

Mr. LARGENT. Madison. And why did they have to do that?

Mr. NEEL. Well, because there was no one that could carry the massive amounts of traffic from the smaller community out into the country. They needed more than just a T1 line or dial-up modem services. They had to move a whole lot of data and there was no one that can carry it, and U.S. West, who is the carrier in Minnesota, is prohibited from carrying that service. So they had no choice but to relocate that enterprise, that part of their business, into Madison.

Mr. LARGENT. I mean, I would think a company like Mr. Kunkel's would be all over a customer who had large amounts of data that they wanted to move, that that would be highly profitable and there would be no problem whatsoever to get somebody to service that.

But my question was, and you made reference to this, because of these arbitrary LATA lines that they had to move from Dodgeville to Madison. There are two points that I would like to ask you about. First of all, it is my understanding that both of these territories are served by GTE, which is not restricted by interLATA restrictions.

Second, both Dodgeville and Madison are located within the same LATA. You do not have to cross a LATA line to go from Dodgeville to Madison. It has nothing to do with this particular situation in Wisconsin.

Mr. NEEL. Well, but Mr. Largent, the point is that they could not move—not from Dodgeville to Madison, the data—they could not move that information, all that data from Dodgeville to Denver, Seattle, and elsewhere because then you are carrying it across LATA boundaries because Land's End's e-business is a national—international enterprise.

Mr. CLELAND. If I could add one point to that, the reason why, Mr. Largent, that does not occur is it is not capital efficient. In the sense that there is one outlier business way out there, it costs a lot of money to lay competitive fiber out there and for one little customer, even if they are a big customer, it is a tremendous amount of upfront fixed costs and so it is just not economically efficient to build that way. That is the reason why the CLECs have all built to big buildings in urban, dense areas.

Mr. LARGENT. Yet we had testimony from Mr. Malone, who unfortunately had to leave, that says in February 1999, the FCC concluded that the Internet access was generally available throughout the Nation in both rural and urban areas, and in Tennessee, every county, urban and rural, has access to at least two Internet service providers via a toll-free call, with 40 percent of the State having access to four or more ISPs via a toll-free call.

Mr. CLELAND. Narrowband, not broadband.

Mr. LARGENT. Okay. I wanted to ask Mr. Windhausen, it is my understanding that you were counsel for Senator Hollings during the discussions, the conference on the 1996 Act?

Mr. WINDHAUSEN. Yes, sir.

Mr. LARGENT. Talk to me about the discussions at that time. Right now, what we have is that USTA, I assume—I will ask you, Mr. Neel. USTA in 1996 supported the 1996 Act?

Mr. NEEL. Yes, we did.

Mr. TAUZIN. Okay. My question to you, Mr. Windhausen, is that during these discussions, was data brought up? Was that a topic of discussion or was this like something that was totally unforseen?

Mr. WINDHAUSEN. No, it was—data discussions, they were a very big part of the deliberations and you can see that from several provisions of the Telecommunications Act and also from much of the debate on the floor of both the House and the Senate. I can mention a few examples.

Of course, there was Senator Exon's provision in the Senate and then a parallel provision in the House dealing with indecency over the Internet that was a big issue at that time. On the House side, there was a Cox-Wyden amendment that attempted to say that there shall be no regulation of the Internet and the word "Internet" was used in that provision. That ultimately was dropped out of the bill, was not included in the final bill. There was a Senator Kerry amendment to Section 271 which specifically exempt from the Section 271 process Internet services to schools.

And so it was very clear that Congress did consider the Internet at that time. It was an intention to open up local phone markets for both voice and data services and there is, I think, a very strong record once you look at it very closely in the floor statements and in the committee hearings that will support that.

Mr. LARGENT. Thank you. Mr. Chairman, if I could just say one other thing, it was Mr. Neel who quoted Dillinger when asked, "Why do you rob banks?" He said, "That is where the money is." It sure appears to me, Mr. Neel, that now we had the 1996 Act, which USTA supported. Now the discovery is all the money is in data and that is why the RBOCs want to get to it because that is where the money is.

Mr. NEEL. No, Mr. Largent, the money is not all in data. If you look at the—we have submitted this chart that——

Mr. LARGENT. What about the growth of long distance? It is in data overwhelmingly over voice, is it not?

Mr. NEEL. The traffic is moving toward data.

Mr. LARGENT. Exactly.

Mr. NEEL. If you are going to be a player, if the local exchange companies are going to be able to compete and serve everyone, they are going to have to offer a full bundle of services and they are the only ones kept out of that market right now.

Let me clarify one thing. USTA supported the 1996 Act because there was a very careful balancing of interests and we certainly never dreamed that the FCC would interpret it in the ways that it has, by extending a 14-point checklist to what some have characterized as a 600-point checklist.

So we supported the Act aggressively, but we have strongly objected to the way the FCC has interpreted that Act and that is pre-

cisely the reason that Congress needs to act now, to clean up the vagueness that existed in a law, the basis of which was 4½ to 5 years ago, which is a lifetime in the Internet economy.

Mr. TAUZIN. The gentleman's time has expired.

The gentleman from Florida, Mr. Stearns.

Mr. STEARNS. Thank you, Mr. Chairman. Let me just open by saying, Susan, how impressively you seem to be able to handle all these very difficult subjects. You are welcome in my office at any time to see me and help me understand these. I think some people said, people of good will can disagree, and I think that is where we are. I have friends on both sides. The fact that I have not gone on the bill would show you that I am trying to understand this. Obviously, when Mr. Tauzin lobbies you, that is about the best lobby you can find anywhere because he is very effective and very knowledgeable. But, obviously, it is nice to see you again and I think all our colleagues enjoy seeing you frequently, and so it is fun.

Let me see if I can ask questions which are sort of more broadly based. Mr. Neel, I think it was Mr. Frisby said that 90 percent of Americans are within 50 miles of having broadband.

Mr. NEEL. Or point of presence.

Mr. STEARNS. Pardon?

Mr. NEEL. Approximately 95 percent of all Americans are within 50 miles of a competitor's point of presence or POP.

Mr. STEARNS. I think I want to give you an opportunity to answer that, because what he is saying is there is no digital divide, so I want to give you an opportunity to answer that.

Mr. NEEL. Well, it would be a bit like telling some guy in the desert who is drowning there is a water fountain 50 miles away. If that water is not in front of you, it is not going to do you a whole lot of good.

Also, what kind of pipe do you need? I mean, if all you can get is even a T1 line with certain capacity and you want to operate a small business there to compete with Sears for some kind of mail order thing, that is not going to help you, either. These definitional problems are extremely important as to how much capacity. Sure, just about everyone can dial up and get Internet access——

Mr. STEARNS. Mr. Neel, let us ask him. When you make those claims, what type of broadband are you talking about? Are you talking about DSL, an ISTN line? Are you talking about an T1 line?

Mr. FRISBY. What we are talking about is proximity to a DS-3. Now, you are right. The question is the hop from the end user to the point of presence, but that is not an interstate issue in most cases. That is a local issue and it is a question of the local availability of DSL and what one of the reasons we are pushing so hard for H.R. 271 is it is our experience that absent the stick of 271, we cannot get the connections to—necessary connections in many instances—to make that hop.

Mr. STEARNS. Okay. Mr. Windhausen, LATAs are arbitrary lines that are set up designating where the Bells could and could not carry the traffic. Are now these arbitrary lines really something that makes it difficult for them? Why should these LATA restrictions also be imposed on data?

Mr. WINDHAUSEN. The purpose of the restrictions that were in the 1996 Act were to give the incentive to the phone companies to open up their networks to competition. The answer, when Roy complains that the Bell Companies have a hand tied behind their back by these LATA restrictions, they can untie that rope themselves. They have the means of freeing themselves and getting rid of these LATA restrictions.

Mr. STEARNS. You mean through the facility-based competition? Is that what you are saying?

Mr. WINDHAUSEN. If they would just provide us with the collocation that we need and the loops that we need. We are actually the ones who have not just one hand tied behind our back, we often have both hands tied behind our back because we cannot get the essential facilities we need to serve consumers.

Mr. STEARNS. Because the RBOCs will not help you?

Mr. WINDHAUSEN. Because the RBOCs will not do what they are told to do.

Mr. STEARNS. Are you the one that used the term "strategic enrollment"? Did you use that word?

Mr. WINDHAUSEN. Strategic incompetence.

Mr. STEARNS. Strategic what?

Mr. WINDHAUSEN. Strategic incompetence.

Mr. STEARNS. Incompetence, okay. You said incompetent.

What do you say, Mr. Neel, when they say telecommunication had a facility-based competition. Now, when Bell South is in my area, they say yes, but the FCC changed it. It is no longer 14 points or 13 points. It has escalated, and the long distance people will say, well, why do you not just comply with the facility-based competition? Why do you not do it? Just tell us why, for example, it is not getting done, because they have done it in New York. Will not this whole question be moot if all the RBOCs went ahead and complied and we get it over with?

Mr. NEEL. Well, Mr. Stearns, the Bell Companies are complying. They are spending billions to open their markets. The law specifically requires the kinds of interconnection and also the kind of arbitration proceedings where a competitor can come in and fight it out in a State commission and get a final decision.

But let us remember one thing. There is intense competition in urban areas, intense competition, which is where the money really is. Where there are markets, where CLECs are going into, the long distance carriers, and they are picking off local business customers primarily—they really do not care much about residential customers. They are picking off high volume, profitable business customers. There is intense competition.

Frankly, that alone should force the FCC to declare these markets open in these States and allow the Bell Companies to compete and extend these services into rural areas where these CLECs are not going to go.

Mr. STEARNS. Thank you, Mr. Chairman.

Mr. TAUZIN. I think the gentleman.

We do have votes on the floor and we are going to have to wrap. I want to wrap by simply doing something that I think is important for the record.

Mr. Windhausen, you have mentioned that we should not be regulating differently. They are going to be the same thing. It is all merging. I want to go through a bunch of duties and ask you whether they applied to DSL service and whether they apply to cable modem service.

Common carrier duty? Yes to DSL, no to cable.

Prohibition against discriminatory treatment? Yes to the telephone companies and DSL. No to cable.

Requirement to file tariffs? Yes, no.

FCC approval to extend lines? Yes, no, cable.

Annual reports? Yes to the telephone companies. No to cable.

Prescribed appreciation charges? Yes to DSL, no to cable.

Prescribed uniform system of accounts and accounting forms? Yes to telephone companies and DSL. No to the cable modems.

Duty to provide subscriber list information? Yes and no.

Duty to provide interconnects? Yes to the DSL telephone companies. No to cable.

Duty to offer resale? Yes, no.

Duty to provide number portability? Duty to provide dialing parity? Duty to establish reciprocal compensation? Duty to negotiate access to networks? Duty to provide unbundled access? Duty to grant physical collocation? Duty to support universal service? Duty to provide interLATA DSL services?

Requirement to use separate subsidiaries for interLATA communications. Requirement to use separate affiliates for electronic publishing. Prohibition against a lower monitoring until 2001. A duty to unbundle for their ISPs.

The answer to every one of those requirements on the DSL is yes, and the answer on cable and modems is no. It is a one-page list of disparate regulatory treatment, one heavily regulated, one not.

I want to make one final comment and then I will wrap. Yes, I see the day coming, Mr. Windhausen, when, indeed, this Internet community is going to fully merge in a digital age with this regulated telephone industry. And when it comes together and telephony becomes part, if voice becomes a real and vital part of broadband Internet services, you will have merged with one of the most regulated entities on earth and the Internet, the Internet will have been infected with some of the worst and most powerful regulators in American history, those who serve on the FCC who call themselves the most powerful communications people on earth and who, in that wonderful book I cited to you that I hope you borrow from me—claim that they can interpret these laws any way they want. They can interpret them any way they want. And you will have inherited that same regulatory authority over the Internet.

Would it not be wonderful if before that full merger occurs, if instead of merging with this awfully, deeply, completely regulated entity, you are merging with instead a fully deregulated, competitive form of business. When telephony on the Internet is treated no more differently as you would like to see it treated, than you have described in your testimony.

Getting there is the trick. I understand that. And I understand that all of you have different perspectives on how best to achieve that open competitive marketplace. Some of you support our pro-

posal and some of you do not for that reason. But getting there is imperative.

Mr. Cleland, the point you make in your testimony about churn is the one I want to leave on everybody's thoughts today. The one who gets there first may be the only one who serves the customer, and if we do not have two competitors trying to get there at the same time, if we do not have two competitors fully capable of trying to get there at the same tim,e if we restrict some and only allow one in, we are going to have a world where, indeed, consumers are served by one competitor alone because the churn rate is, as you said, like death. It is motionless. You get hooked up to one provider and you stick with them, and you know what? I have been there before. I have been there before when Americans were stuck with one provider, and I remember what happened here.

My friends, we are calling upon us to reregulate cable, 1992, and my friends will be calling upon us to reregulate again, and I desperately want to avoid that. So I urge you to think this through with me. I know you have got different points of view and I know there are a lot of dollars involved here.

Mr. STEARNS. Mr. Chairman?

Mr. TAUZIN. But getting from here to there is going to be critical.

Mr. Stearns?

Mr. STEARNS. I think the solution could be for the RBOCs to buy cable companies.

Mr. TAUZIN. Maybe. But I suspect it may be that the cable companies are buying the RBOCs before it is over with.

Gentlemen and ladies, thank you so much. As Mr. Stearns has pointed out—you have heard this from a number of members, Mr. Markey made the comment, too—this has been a remarkably well balanced and very informative panel, and for that we thank you.

The hearing stands adjourned.

[Whereupon, at 3:16 p.m., the subcommittee was adjourned.]

[Additional material submitted for the record follows:]

PREPARED STATEMENT OF THE ASSOCIATION OF COMMUNICATIONS ENTERPRISES

Mr. Chairman and Subcommittee Members, my name is Ernest B. Kelly, and I am president of the Association of Communications Enterprises (ASCENT). On behalf of the organization's more than 700 members, we appreciate the opportunity to offer our remarks on the advancement and deployment of broadband technologies.

ASCENT, incidentally, was formerly the Telecommunications Resellers Association (TRA). We are the preeminent trade organization representing the interests of entrepreneurial communication firms. Founded in 1992 and headquartered in Washington, D.C., ASCENT's mandate is to encourage and help facilitate the opening of communications markets worldwide to full and fair competition while also proactively advancing the business interests of its member companies. ASCENT represents companies involved in the provisioning of domestic and international long distance, local network, wireless, Internet, data and advanced services.

We applaud the efforts made by this panel to ensure that all Americans are given access to the current benefits and future potential of the Internet. We too are interested in seeing that broadband services are deployed as quickly as is possible. It is critical to note that ASCENT members, the vast majority of which are competitive communications service providers, have been on the forefront of advancing technological change at a rate never before seen. They are raising billions of dollars in capital to invest in the necessary infrastructure for these new and exciting services. And, almost on a daily basis, are offering these services in new geographic areas, including third and fourth tier markets and rural areas. I think it is fair to say that none of us would have expected us to be have come this far, this fast in just 4 years since the passage of the Telecom Act.

As a nation of technology dependent consumers we have become impatient with a 56-kilobit per second pace for sending and receiving information over the Internet. We demand and expect instantaneous answers to complex mathematical equations, to real-time valuations of our stock portfolios and information to help us with our children's homework. This expectation of instantaneous access to information has lead to our failure in some instances to appreciate the pace at which the great enabler of this instant information—high speed internet access—has been deployed across the country. Many others loose sight of the fact that the very deployment and benefits of high speed internet access are a direct result of the pro-competitive provisions of the 1996 Telecommunications Act, which unleashed a wave of new and innovative service providers. Unfortunately, this useful purpose is being confused with the efforts by the Bell Operating Companies to wiggle out from under these responsibilities under the 96 Act.

While we understand the intent behind H.R. 2420, the Internet Freedom and Broadband Deployment Act of 1999, and H.R. 1686, the Internet Freedom Act, we do not believe they would promote either Internet freedom or broadband deployment. Indeed, the only beneficiaries of the legislation's "freedom" would be the four remaining Regional Bell Operating Companies, because they would be freed of their statutory obligation of opening their local markets to competition as set forth in the Telecommunications Act of 1996. On the other hand, the legislation provides anything but "freedom" for consumers and competitive service providers. In fact, the bills would deny consumers the freedom of choice in service providers and deny competitors the freedom to compete for those consumers as promised by the 1996 Act.

H.R. 2420 and H.R. 1685, if enacted, would be especially harmful to our member companies. their employees and their customers. The ability of our member companies to effectively execute their business plans, secure additional funding and deliver new services to consumers is based upon the premise that the Bells will open their local markets to fall and fair competition *before* they are allowed to enter the interLATA services market. This was promised to our members, indeed to all Americans, by the 1996 Telecom Act. These measures would renege on that promise.

There are three fundamental questions that should be addressed regarding any legislation seeking to offer Regional Bell Operating Companies (RBOCs) exemption from interLATA data service restrictions. First, does there currently exist a statute that would effectively provide for the relief purportedly being sought by new legislation? Second, are new emerging competitive service providers deploying such broadband services? Finally, are the RBOCs themselves deploying broadband high speed Internet access to their customers?

Even the most cursory analysis of the facts will lead to a resounding YES to each of these queries and the conclusion that any new legislation concerning broadband deployment is unnecessary. What is needed is time and patience. The plain fact is the 1996 Act states in unambiguous terms that compliance with the 14-point checklist contained in section 271 will result in the relief from interLATA restrictions the BOCs seek. This essential *quid pro quo* process can and will work, and it would be completely counterproductive to override the process in place by enacting the legislation before us today.

We urge the members of this Committee to uphold the 1996 Telecommunications Act and to "stay the course" on behalf of competition and American consumers. By allowing the 1996 Act to continue to deliver the promise of competition, enterprising communications providers like those that belong to ASCENT will continue bringing high speed internet access and choice in service providers to consumers across the country.