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POLICY FORUM

BROADBAND AND THE MARKETS:
PERSPECTIVES FROM THE INVESTMENT COMMUNITY

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Moderator:

Adam Thierer, Cato Institute

With:

Doug Ashton, Bear Stearns;

Blake Bath, Lehman Brothers;

Scott Cleland, Precursor Group; and

Erik Olbeter, Schwab Capital Markets

The Cato Institute

F.A. Hayek Auditorium

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P R O C E E D I N G S

MR. THIERER: Good morning everyone and welcome to the Cato Institute for this morning's panel discussion, entitled "Broadband and the Markets: Perspectives from the Investment Community." My name is Adam Thierer. I serve as Director of Telecommunication Studies here at the Cato Institute.

Before I introduce our distinguished panel, let me just remind everyone that today's panel is being broadcast live on the Internet at our Web site, www.Cato.org. The event will also be archived on our Web site for future downloading.

I would also encourage all of you in the audience and those of you on the Web to visit the technology and telecommunication portion of our Web site at Cato.org/tech, where you will be able to review our research and writings on these issues and you will also be able to download free copies or subscribe to our newsletter, "Tech Knowledge," the Cato Institute's technology newsletter.

Finally, for those of you who are in the audience this morning, I probably don't need to remind you that we at Cato are constantly striving to prove that there is such a thing as a free lunch in this town; and we will be providing one directly after the end of today's proceedings.

For those of you listening on the Internet, we will be sending you your lunch free momentarily via Web Van or

HomeRuns.com. Wait a minute, strike that. They are out of business.

Anyway, let me now turn to our panel and introduce you to today's participants. I will do so in alphabetical order, starting with Doug Ashton. Doug is Managing Director at Bear Stearns and Company. Doug has been following the telecommunications equipment space for the past seven years at Bear Stearns, Jeffreys and Company, and Tucker Anthony.

Prior to that, Doug worked at the American Enterprise Institute. His focus areas in the equipment area, include telecommunications software and access related to technologies. Doug recently testified, by the way, in front of the House Energy and Commerce Committee on the Tauzin-Dingell bill.

Doug and I actually first met when he was with AEI. Doug has found a place in my heart because he was the first person to ever buy me a steak dinner at Capitol Grille when it opened, which I have never forgotten. And I guess this is now payback for Doug. By the way, if anybody wants to find a place in my heart, steak lunch is usually the way to do it.

Second is Blake Bath. Blake is Managing Director and Senior Equity Research Analyst for Lehman Brothers. He is the firm's lead analyst, covering wire line telecommunications services, a position he assumed in 1996. He concentrates on long distance providers, regional Bell operating companies and rural

local exchange carriers, and coordinates the firm's telecom research activities.

Prior to joining Lehman Brothers, Blake was the primary telecommunications analyst at Sanford Bernstein, from 1992 to 1996. He was an analyst in the Strategic Planning and Corporate Finance organizations at MCI Communications, from 1989 to 1992. I should also add that Blake's research has been consistently recognized by many firms and media outlets as among the best in the field. And he is consistently ranked as one of the top 10 analysts in this area year after year.

Third, we have Scott Cleland. Scott is the founder and CEO of the Precursor Group. He is a nationally recognized industry expert and speaker on the intersection of investment and regulation. He has testified as an expert witness before all the relevant telecom congressional subcommittees and is one of the most frequently quoted analysts in this field.

Previously, Mr. Cleland was the Managing Director of the Precursor Group at Legg Mason. Scott also was a Partner at the Washington Research Group of Charles Schwab and Company, where he was part of the 1996 Institutional Investor All-America Research Team for Washington Research. In addition, Scott has served as Deputy United States Coordinator for International Communications Policy at the U.S. State Department, and Senior

Policy Advisor for Legislative Affairs for Secretary of State James Baker.

Finally, we have Erik Olbeter. Erik serves as Senior Internet Analyst at Schwab Capital Markets, where he focuses on network technologies and communications industries. Prior to joining Schwab Washington Research Group, Erik served as Director of the Advanced Telecom and Information Technology Program at the Economic Strategy Institute, a think tank here in Washington, D.C. He has also served as a Senior Consultant with International Telecom Consultants of Mexico City.

If you want to know the quick way to Erik's heart, it is through a bottle of fine tequila. He and I share a vice for fine Don Julio and other fine tequilas. So, you can always know the way to get him on your side is with a good bottle of tequila.

Now, that is our panel. But before getting started, let me say a word about today's format. Instead of having each panelist stand up and give a typical sort of 15- to 20-minute presentation, Washington style, I have instead opted for a far less formal layout for today's panel. Right from the start, I am going to be asking questions and playing devil's advocate, to encourage a more active and interesting discussion. I will be asking questions about the current state of the broadband market, the specific legislative and regulatory proposals that are being considered, the interaction, or lack thereof, between Washington

and Wall Street, and the impact of all of the above on markets and specific sectors of this industry.

Not only will I be asking questions from the start, but I will be roving through the audience looking for puzzled or angry faces who might want to interject a word or a good question about something the panel has said. Think of it as Jerry Springer without the cat fights; although I've come to believe that think tank cat fights can have their advantages, after witnessing the debacle at AEI a few weeks ago between Tom Hazlett and Jim Glassman and realizing all the press attention you can get. So, if any of our panelists feel the need to pull hair, throw chairs, accuse fellow panelists of cheating on their wives, that is fine. Who am I to stop you?

Anyway, just kidding. We want to encourage a lively discussion today. So, if you think of good questions to pose, please wave me down and I will try to get to you during today's proceedings.

Let me get started by kicking it off with just a very broad question, but one that is going to require a little bit of elaboration by our panelists. That is about the current state of the broadband marketplace. And I will ask a very simple question to start, which is: Is the current market for broadband deployment working? Do we have enough broadband deployment in

America? And, if not, as I assume most panelists will say, why not?

Is it because (a) government policies are hindering the development and deployment of broadband services and how so? Or is it because (b) the demand is just not there and the costs remain too high? In other words, is this more of a marketplace failure and not a regulatory one?

Let's kick that off with Doug.

MR. ASHTON: I think it is a little bit of both. To answer the question, where is it and is it working, it is not working. The industry is basically stalled, in our view, at the access bottleneck. It is actually kind of ironic that our tech sector is in such difficult times right before what could be the biggest expenditure cycle you could get, which would be modernizing the cable networks, the RBOCs' networks, and instituting some form of broadband wireless, 2.5 G or 3 G.

We are basically stalled at the access level and taking care of broadband access in kind of the easiest ways possible. Most DSL is offered very close, say, to the central office switches and the like. But the masses, there are some major issues on getting the broadband infrastructure out to the masses.

In our view, some of those answers are going to have to be found in policy and policy change. So, the real issue is, how do we jump start access modernization when the rate of return

that a lot of the carriers see from going down that path doesn't appear to be good? And it is a very risky situation, because not only is the rate of return an issue, but, really, trying to figure out what ultimately consumers want is also another issue, what they are willing to pay, et cetera.

We have a lot of things that are kind of going wrong here as we try to institute this next big cycle. And we are basically stuck in front of it. We have hypothesized in our writings and the like that without policy change, it is pretty hard to see how you will get any kind of real access modernization at least over the next three to five years.

MR. THIERER: Sticking with alphabetical order, let's hear from Blake next. What do you say to this, regulatory failure, market failure, both or neither?

MR. BATH: I always love it when the equipment analysts talk about how the services companies aren't spending enough. The major theme of our research over the last year or so has been the degree of over-capitalization of the telecom markets.

I think the fact of the matter is that broadband deployment is alive and well. If you look at broadband from a broader perspective, broadband to business customers has gone from less than 2 percent penetrated in 1990 to about 55 percent today; 55 percent of all business customers have access to T-1 rates of speed to their desktop, or faster, which is pretty

amazing. On the consumer side, we are at 7 percent market penetration rates and over 50 percent availability.

I would agree with Doug to an extent, that it could be certainly better. If you look at just the consumer broadband market, which I presume is somewhat the focus of the question, clearly cable is in the lead today. Cable's customer base is greater than two times the rate of the RBOC's.

Cable, and not coincidentally, more than doubled, in fact almost tripled, its capital spending levels basically immediately after the Telecom Act and the deregulation of the cable industry. Clearly, cable has additional revenue streams that it is able to address beyond just the high-speed Internet access market. But I do think it is no surprise that cable, which is a lot less regulated, if in fact not totally deregulated, has much higher penetration than the RBOC's have.

I used to work at MCI and I used to view the RBOC's as the bad guys. But now I look at their deployment and the aggressiveness with which they are offering broadband, and I have to be somewhat sympathetic. They are putting 50-plus billion dollars in capital at risk and are being asked to jump through an awful lot of regulatory hoops in doing so. If I were them, I, too, would be taking a measured approach.

MR. THIERER: Scott, we have heard a fairly pessimistic approach about the broadband market from Doug, and now Blake is

saying, well, it is not as bad as we think, there is a bright side of this. What gives? What do you think about the marketplace?

MR. CLELAND: I think what you need to do is look at the market in three segments. There is the big business segment, where broadband is almost 100 percent deployed. Any of the big businesses that want it can get it or have gotten it in most urban areas.

Then, if you look at small business, that is where the real problem is, in my perspective; probably 10 to 20 percent deployment at best. What we have is what I call a broadband paradox, in the sense that the small businesses -- and why small business matters is that it is probably, if I have my numbers right, 85 percent of all firms, 40 percent of employment and about a third of the economic output of the country. And if you are a small business and you tend to demand broadband or you need broadband, you happen to be geographically located the furthest from it.

For example, if you are a printing company, you need low rent. You need a lot of space. You also need bandwidth badly. If you have low rent and a lot of space, you are not near anybody's central office. So, there is a lot of that. Farming is that way. Construction is that way. Engineering is that way.

The small businesses that most need broadband are going to be the furthest from it, either from the cable or telephone plant.

Then you have the residential market. Our numbers, right around now, we think it is approaching 8.5-9 percent penetration. Cable is at about 71 percent, roughly. DSL is about 27 percent.

So, to get to your other question, I think it is a combined monster problem of some serious wrong regulation and a serious market problem in the sense that the economics of the local loop are abysmal relative to other sectors. So, I imagine we will get to that more.

MR. THIERER: Erik, you did a study before joining Schwab, where you talked a lot about these issues, regulatory, market failure. What gives? What do you think this market looks like right now?

MR. OLBETER: Well, I agree with a lot of what Blake has said about there really being very little regulatory influence at this point on the access part. The study that I did was sort of looking at a lot of the long distance provisions of the Section 271 prohibitions and the problems that that caused. And I do think that still creates a significant disincentive for some investment.

I think that right now you can divide the world up in a lot of ways, and we can debate for a long time whether or not

deployment is going as well as it should. I have seen a lot of studies that have tried to measure broadband deployment versus other technologies, the VCR and telephone capability. The reality of it is that probably right now the Bells and the cable guys are investing about as fast as they can, reasonably, into the markets.

I think a more instructive question for this debate is really focusing on, are there regulatory disincentives to investment? I think that overall we would all agree that the Telecom Act was a tradeoff. Essentially, the tradeoff was for competition, and that has some impact on the growth of investments and how those investments are made.

Now, while I don't think that currently regulation is a tremendous barrier to growth -- and, again, we see that right about 50 percent of the market has DSL available -- as you start to go farther and farther into deployment of access facilities, and you start to talk about the suburbs and then you start to talk about rural areas, or you are talking about under-served areas, that is where I think the regulatory problems really become acute.

I think that is really where in the future we can sort of hit a wall; where broadband deployment sort of stops at these neighborhoods and because (a) the rate of return on these investments currently are perceived to be, or literally, take

four years before it starts being EBITDA positive, and because the rural areas have such different economics and it is a lot harder to make significant bucks off of it, that we really could hit a wall. And that is the kind of perspective that we are coming from.

MR. ASHTON: There is one point that is very important to make in the sector, and in a lot of discussions it is hard to break that out but it has been broken out a couple of times here and I just want to reiterate it, which is you really have to think about telecommunications services in very distinct markets. You can do it large business, small business, residential, or you can look at it single-site businesses, multi-site businesses, residential. But the build-outs, the services, the pricing, competition, all the issues that go into making a business model out of carrying a network are very different in each of those segments. Some of overbuilt. Some are underbuilt.

The two that probably come closest in my mind, and you could argue otherwise I suppose, but the small business market and the residential market are very often serviced off the same networks, the same switches, and the same digital loop carriers, whatever it might be. At the end of most suburban streets are businesses. And a collection of streets reach more of a shopping center, and there are businesses in the shopping center. These kind of users are serviced off the same type of network.

The large business, the city, D.C. or Boston or whatever, that is a whole different situation. There are lots of small businesses in those cities, too. And they have better access to broadband pipes than people do in those markets. So, those delineations are very important. And as Scott showed, the demographics are also important in how they play out related to where people are located. That is a major difference between us and other countries.

In Germany, for instance, I think 75 percent of the people in Germany are located within 6,000 feet of a CO. That means they can be DSL-empowered very easily. This country just happens to be spread out. So, empowering people for broadband is a totally different ball game. And it is going to be much more difficult because we have addressed those kind of, okay, everybody, we are not very demand-dense, and all these kinds of things. And we have dealt with that over time. And now it is preclusive, in part, to broadband infrastructure.

MR. THIERER: So, is it a case of niche market failure here, where you have specific markets? We hear a lot about rural broadband versus urban, residential versus business. That is more the case than what I think Doug is saying. We have a problem here in America, a unique one, maybe partially based upon geography. Is it the service provider serving those areas?

Blake, what gives? Are we seeing maybe there are problems in certain markets more than others? That seems to obviously be the case. Who is doing the best job, or what are the biggest problems we face?

MR. BATH: I guess, from my perspective, it all comes down to capital recovery. That was an issue that did not get a lot of focus over the last three or four years amidst very easy capital in the capital markets. But now, given the capital markets' tightness and a greater appreciation for the riskiness of these investments, it is going to come down to, if you are a phone company, where are you getting the best capital recovery and the quickest pay back.

Clearly, the reason you have seen deployment of broader band network to businesses is because you can recover the capital quicker. And clearly, the reason that the cable companies really stepped up their investment in 1997 and beyond was they were not regulated, they weren't forced to open up their networks. There were multiple revenue streams that they could address. They could price the services however they wanted.

I think you will see much more aggressive capital deployment by the RBOC's and the large telephone companies, who spend 70 to 80 percent of the capital in the industry; the less regulation you have, the greater the freedom to price service and deploy the networks without forced access being forced.

MR. THIERER: Well, Scott or Erik, what do you think about the point Blake just made? Do either of you want to comment on that?

MR. CLELAND: Well, I respectfully disagree with what Erik had said before about a tradeoff on the Telecom Act. I agree with Erik, it was a tradeoff between competition and investment. But the way that it was implemented, it was implemented in a way where you were supposed to try and balance those two things. Because if you read the purpose of the Telecom Act, it was supposed to promote competition to lower prices and increase innovation for consumers, and encourage the deployment of broadband technologies. And that "and" was kind of forgotten.

How it got so out of balance is that the FCC chose to use uneconomic and -- I use the word -- "imaginary" pricing in order to try and encourage competition. The TELRIC pricing methodology, when you take off the layers and you look at it, it was an imaginary pricing methodology. They wanted somebody to choose the price of a network that hadn't been built. It was the lowest price. It would have been the best available. So, it was essentially a regulator going like this with a dart board and saying, that is the price we want it to be, and there was no basis in economic reality, and then no basis, on what Blake was saying, of an ability to recover capital.

So, the problem I talk about here is what I call a reverse patent. In the United States we have a patent law which allows the people that innovate, the people that spend money, to actually reap the benefits of their investment. And the way this was implemented, it was a reverse patent; in the sense that the person, the Bell that was going to invest the money, would not be able to enjoy the return. Essentially, when they put a dollar in the ground, 50 cents on the dollar is what a competitor could rent it at. It was like, how dumb is that?

If you are trying to promote deployment, if you are trying to encourage investment, why would you want the only people that could make money off of that investment to be those that don't make the investment? So, that at the core is one of the biggest problems in the Telecom Act: it was implemented to hyperstimulate resale competition and, in doing that, it profoundly discouraged any incentive for facilities-based competition. Because why would you want to take the risk of going in and putting in plant if you could actually rent it a whole lot cheaper?

MR. THIERER: Scott, I don't want to let this opportunity pass without playing devil's advocate here. The Telecom Act was concerned about expanding service options to consumers. It was also concerned about building a competitive marketplace, getting more competitors.

An exact quote we hear Reed Hundt say all the time is, "You can't have competition without competitors." Now, what is the more important policy goal? Is it a plethora of competitors in each market or is it an expansion of broadband? Sometimes it seems like there might be a tradeoff, that we cannot have a number of competitors in certain markets. We might just have to allow deregulation and one guy does a good chunk of it.

MR. CLELAND: With all due respect to former Chairman Hundt, that is the way that he defined the Telecom Act. If you read it carefully and if you follow the colloquy on the debate, the Telecom Act was an experiment. It was creating the opportunity for competition. It was opening markets for competition. There were votes on market share tests. They were voted down. It was an experiment.

People got all excited about it. Expectations were way out of control. But there wasn't any guarantee of competition. And the former Chairman took it upon himself to say that we are going to deliver it and we are going to reverse engineer this and price it so that we do get a set number of competitors.

MR. THIERER: Blake is itching to say something.

MR. BATH: If I could just follow on to Scott's comments about the Telecom Act. As we all know in this town, you have to work with a lot of forces and you never get the perfect bill. But if you think about what that Act did and the genesis

of the Act, telecom bills got brought up in every Congress, beginning in 1986 or 1988. If you think about the state of the telecom market through 1995, only in 1995 did data and wireless become 10 percent of the telecom business. Today they are a third. Five years from now, data and wireless are going to be two-thirds of the market.

I think the telecom bill was very much backward-looking and very much a product of the various industry constituencies at the time, which were the voice-based RBOC's and long distance companies. So, the big debates at the time were, how do we get the RBOC's into long distance and long distance into the local market, as opposed to thinking about, as Scott pointed out, how do you really foster broadband deployment?

The reality of what investors and customers and others are now finding out, deploying broadband wired and wireless networks is an incredibly capital intensive exercise. You are putting an awful lot of existing and new capital at risk. So, the notion that you add additional risk elements of how to market, of how your investment is going to be opened up to others or given up to others, really adds a degree of uncertainty that is paralyzing, to an extent, some of the investment that might be made.

MR. THIERER: Erik, did you want to follow up there?

MR. OLBETER: Yes, just real quickly. I don't think I'm ready to throw chairs yet, Scott. But I think we actually probably agree more than we disagree. Clearly, the Telecom Act was a forward-looking document. No one would price at TELRIC for new network components. Clearly, they were not thinking ahead. And, quite frankly, in 1996, not many of us were thinking about the full implications of broadband networks.

I guess the question is, at what point did it become a tremendous problem, and where in fact are we going to see the lack of broadband rollout? I don't think, quite frankly in my view, that the Bell rollout to the big businesses has been halted or hindered by the Telecom Act. I just don't think it is. They are going to make that investment. The money is there. The rates of return are there. That is something they need to do.

Now we are starting to get into the rollout of more advanced services. You are talking about needing to roll fiber to the curb; you are talking about much more capital-intensive efforts. And, quite frankly, when you are talking about suburban areas, when you are talking about a lot of the residential, as well as the small business, all of a sudden now the impact of the Act, I think, is going to be truly felt.

We are sort of reaching a point now where, when you look at deploying for rural areas -- and we have run the internal

rate of return analysis -- when you are talking about a rural area, where you have a Sonnet Ring in place, and all of a sudden a Baby Bell needs to throw in a 125,000 ATM switch for a CO that has maybe 1,000 lines, when you are talking about reconditioning that, that extra expense all of a sudden means a lot if you're deploying stuff. And, quite frankly, our overall analysis shows you are actually not going to start being cash-flow positive until about six years after the initial investment. That is huge. That is an enormous disincentive.

But is that to say that we won't have incentive in Manhattan? No. We will continue to have incentive there. But, really, I think it is more of a problem when you start going beyond that and spreading out where we are starting to see the impacts on that.

MR. THIERER: But again, just to follow up before I open up to some questions here, if I am Mr. Hundt I say, but the incentive comes from having new competitors, new companies enter the marketplace; in some of these markets where it appears that there is only one major provider, the best incentive would be to have two or three additional providers.

Now, the question there is facilities-based versus resale, things like that. But let me really put you guys on the spot here. If there is only one big player in town who can do this, should they be free to do it or maybe should the old rules

continue to apply? Scott, you look like you are itching to say something.

MR. CLELAND: Yes, I have been saying this now ever since the Telecom Act and I testified before Congress on it. I believe that monopoly economics still exist in the local phone market and that technology, unlike many people thought, the technology changed everything. There has been a cult of technology, from fixed wireless that has yet to work profitably, cable telephony, the Iridium fiasco. We can run down the technologies. There were huge, huge over-promising and under-delivering.

I am not saying that it will always be a natural monopoly. What I am saying is we have yet to see a technology that is at a price point that transforms the local phone network. So, Congress, at the egging on of a lot of industry, thought that a grand experiment was ready. But in the local group the problem -- and I have been saying this for years -- they thought they would apply an MCI economic model, where MCI could compete against AT&T, and they got the economics totally wrong, in the sense that long distance competition was capital efficient and the elasticities were incredibly powerful.

In local, it was the exact opposite. The elasticities are dismal; they are .2. And the capital is so inefficient, it

is off the scale. So, economics rule; technology doesn't rule. That is the big mistake of the Telecom Act.

MR. THIERER: Okay, we have a couple of questions. I ask you to please identify yourself and try to keep it relevant to what we are discussing at that time.

MR. HARKAVY: I am Elliot Harkavy with EGH & Associates. I do strategic and operations consulting. Like Mr. Bath, I used to work at MCI. And I was actually firsthand in the negotiations with the RBOC's.

But leaving Mr. Cleland's point alone for a second, what you are saying about broadband is a lot of the good theory stuff. I have been a customer of Verizon DSL for two years and I have also helped a couple of other people get live on it. I'll tell you the real problem is, one, Verizon does not have their act together from a process point of view; not an investment point of view. If anything goes wrong you have inside wiring pointing fingers at outside wiring, pointing fingers at network, pointing fingers at tech support, pointing fingers at billing.

After three weeks of that, when I started to go online, it turned out I was the one who had to look at the modem box and discover they gave me a box with two network jacks and no phone jack. And when I alerted them to that, they actually recalled 1,000 modems.

MR. THIERER: What was your question?

MR. HARKAVY: I want to share a couple of very quick stories and I want to get their reaction in terms of having their act together. I am also helping a client right now get theirs up. They are using a CLEC. It has been 14 months since they ordered it; 13 months and three weeks of which were them pointing fingers at Verizon and Verizon pointing fingers back.

I finally called Mr. Coleman's office at Verizon. I called Mr. Skylar's office at Earthlink. I got two senior-level people. They are finally, instead of pointing fingers at each other, discovering that they had some bad cards in place, they have had some bad wiring in place. But this was the type of thing that, because they could point fingers all over the place rather than actually react to something or have any consistent policies and procedures to look at things, Verizon could effectively block any alternative carrier.

Also, at my central office, you go there at 11:30 at night and you will see the CLEC's lining up in front of the central office, on Hampden Road and Wisconsin Avenue, because that is the only time Verizon will let people into the co-los to actually do some work. Please tell me how this is affecting competition and how this is affecting rollout.

MR. BATH: Let me try and address that. I think it is certainly different RBOC by RBOC. I would say Verizon has been one of the least focused on the DSL opportunity and, as a

consequence, I think all of the customer care issues that you talk about, certainly you are not the only customer that is having those experiences. I think many, many, many are. But, I think it does highlight the difference between the consumer market and the business market.

In the business market, those issues crop up all the time. You just don't see it as a customer because you have an MIS staff and a dedicated telecom person who is dealing with all that stuff and who is paying Verizon every time there is a truck roll or this and that. I think that is point one.

Point two is how much more would the customer -- I guess you are saying it is a small business customer -- how much more would that customer pay for high-speed access? Obviously, there is a high value to the service, but because of the way Verizon has to sell the loops, they can only charge a certain amount. Now, maybe that customer would be willing to pay 120, 130 or 150 bucks a month to get that services. If they are paying that much more, I can guarantee you Verizon would step up their efforts to improve customer service and improve tech support.

Again, I think as Scott said, it is all going to come down to economics. The RBOC's, by our estimates, on their DSL deployment have lost over \$4 billion in cash flow annually, in 2000 and 2001. In 1999 it was about \$2.5 billion. People talk

about four years to be EBITDA positive. I don't know where those numbers are coming from. It takes a while. This is a lot of investment.

Clearly, there is a market demand out there. But businesses are quite different from consumers in terms of their willingness to pay; or, I should say, the arbitrage between what Verizon can offer the price on a retail basis versus reselling their network on, and in terms of the customer care experience, there is a lot more going on in terms of business customers than there is on the consumer side.

MR. THIERER: Doug, do you want to jump in?

MR. ASHTON: There is a couple of technology issues here, too, that have to be understood. DSL as a technology may have been around for a long time and a lot of people like to highlight that. I know the RBOC's sat on this stuff for a long time. The fact of the matter is that there wasn't a lot of demand for it until the Internet took off and the browser was invented and all that stuff happened in the early 1990's. And like with a lot of technologies, they needed upstarts to push the envelope on a new service. And then they watch and see how it takes hold in the market. Then if it starts to take hold, they start to get interested.

That is what big companies are supposed to do. If you are running a large company, that is what you do. You let other

people test the market on new technologies because you have the capital to ultimately go right past them if it is something that actually ends up with a lot of demand and has good economics to it.

But DSL technology is going through a lot of changes. There are a lot of issues that start in the central office, to testing, to the back office systems that have to be equipped to take orders and activate the network and provision the services. This stuff can't happen overnight. A few DSL upstarts made everybody believe it could. They went after the easy customers, which were easy to provision off of DSLAM's and CO's, et cetera. The real cost of DSL, they are coming down over time based on technology and the like. But that has to work itself through the vendor market and technology development.

The old adage is that it cost somewhere around -- and I might not have this right, but I think Blake or Scott can help me with this -- I think an average truck roll costs something like \$450. So, if you are paying \$40 a month, you are paying \$480 a year. Well, one truck roll is basically eating up the revenues on your service. That doesn't account for the equipment and all the changes they have to make in their systems and everything else. And two truck rolls means you have a two-year payback. And three truck rolls means you have a three-year payback.

So, it is kind of like maybe they shouldn't be running so aggressively until they actually get this down to a system, an automated system, of offering a service that ultimately makes it economical, which ultimately can drive it out. And that is really talking about DSLAM-based DSL. We are not talking about changing out all the digital loop carriers, of which there are 100,000 of them, to DSL enable those to anybody so that anybody serviced by a DLC can get DSL service.

I think what happened was, after about 12 months of DSL and Covad and Northpoint and the rest of these companies pushing the envelope, a lot of the realities of DSL finally came out. And all of a sudden it was like, hey, maybe this service won't be as profitable as we thought it was going to be.

MR. BATH: The only other thing I would say is I think there are tremendous analogies between wireless and DSL. If you think about the last big service the RBOC's really rolled out, it was wireless. If you think about the early economics of that, the service quality of that, I mean people were paying \$1,000 a month for a big brick phone and a couple of dozen minutes. It did have the benefit of not being a regulated service. And it is one of these markets where you add two competitors. You did have to spend a lot of capital. As you were able to gauge market demand, the scale of economics clearly started to improve as you moved down the penetration curve.

Unfortunately, with respect to DSL, you are only able to charge a certain amount, really, because of the ability to resell the network by competitors.

MR. THIERER: I am going to raise a couple of specifics about Tauzin-Dingell and legislative proposals. We have a number of questions back here, though. Again, please identify yourself.

MS. ASHDOWN: I am Sue Ashdown. I am the Director of the American Internet Service Provider Association, and also an Internet service provider.

We had the experience where we had a DSL competitor go down. And customers of ours, small business customers who were getting SDSL, who could no longer get it. They had to go back to a dialup solution because the phone company now, not having any competition, was not interested in providing a DSL product of its own. So, Adam, I thought your question was really interesting. And I don't know that I felt that it was really answered. Is it important? Does Wall Street think that it is important to have competitive DSL companies spurring rollout of DSL by the Bells?

Second of all, when you get to Tauzin-Dingell, that is one of the solutions that has been proposed. Of course, from our perspective, we are afraid that that really takes away the DSL competition that has allowed us to roll out DSL to our customers. Does Wall Street really think that given the poor chances that have been assessed by a lot of the press, Hollings' negative

remarks about the bill, the contentious nature of it in the House, does Wall Street really think that that bill has a chance?

MR. THIERER: Sue is stealing all my thunder here for my next question.

MR. ASHTON: I am just going to jump in and say this is the funny thing for me. Somebody is offering you a service and they go out of business; and we are upset that the RBOC's don't come in and bring the same service to you. They are in it to make money. Maybe it is the service itself that is not economical that some company was financed to go sell. Obviously, you are probably not the only customer. The service itself doesn't appear to be justifying a business model for somebody else, so why is it strange that the RBOC doesn't run in and try to replace that service itself?

MS. ASHDOWN: I just want to follow up with that. One of the ways that I look at it is that there is a figure that I never hear anybody talk about. And that is the fact that in the DSL marketplace, independent studies have shown that the Bells command 80 percent market share in DSL. Is that not enough to prove (a) that the regulations may be working very well to their advantage right now, and (b) that it is economical for them?

MR. THIERER: Does anybody want to try to answer that?

MR. BATH: I would. Eighty percent of the DSL market is the incorrect definition of the market.

MR. THIERER: Right. I was going to say are we defining the market right, or the relevant market here, is the question. Are we talking DSL, cable, or satellite? Who is included in that? That is part of the answer to that.

Does anybody else have a question? We have another question here. John?

QUESTION: A couple of quick comments. One, the relevant market clearly includes cable modems that have about 70 percent of the market. Number two, the figures you heard earlier on cash flow will tell you, they may have been better off with 40 percent of the market than 80 percent. Third, on wireless, wireless did not have Reed Hundt messing it up. And that is why competition worked a lot better there.

Lastly, on sitting on DSL, the comment made earlier, not true. Bell Atlantic rolled out DSL for video in the summer of 1993. At the same time, about one or two months later, they won a court case about the right to offer content over those lines. On the other side of that was the National Cable Television Association and the FCC. That represented the content side with 70 percent of the business. So, they didn't sit on it.

What happened was that all the video trials, cable, Time Warner's full service network, all the video trials by telephone and cable went up the chute by the time the Telecom Act had passed. And it took the Internet and the prospect of

broadband to revive it. But nobody that I know of sat on anything. They are rolling this technology out despite losing money, because otherwise they fear, and understandably, that cable will have 100 percent of the market. And if they wait until the rules change to start rolling it out, if they do change, it will be too late.

MR. THIERER: Does anybody want to comment on that?

MR. OLBETER: I actually just want to agree with what that gentleman said. First, to answer your question: Does competition matter? Absolutely. When I talk to my clients and I ask them what are the forces driving Bell investment, it is a regulatory environment no less than cable. They are constantly telling us, well, if they don't do it, the cable guys will. That is clearly having an impact.

When I ask them how much of an impact -- and generally, when I ask people on the street who know more about this than I do -- what kind of competitive impact is DSL having on the deployment on actually the investment rates, I get very mixed answers, quite frankly. And I think the general sentiment is very mixed as to whether or not DSL really poses sort of a long-term threat. Probably in the niche markets and probably in the business market it does.

But really, I think, one of the drivers for everyone's investments, whether it be cable or the Baby Bells, is really the

two. I mean, what is the other one doing? Where are they investing? And they have invested on the same path and in a lot of the same areas probably because of just a game theory, where you want to be where your competitor is. You don't want to lose any existing revenue to them. But, increasingly, I think that that is going to be the real big fight moving forward.

MR. THIERER: We have a couple of other questions over here. Did you want to say something, Scott?

MR. CLELAND: Yes, I would just piggyback on that. When you talk to shareholders and you talk to investors, competition is a lousy investment theme. It is an awful investment theme. Because competition erodes profits and competition slows growth.

Now, if you can choose to invest in only the winners, essentially; if new competitors are going to be the only winners and the incumbent is going to be a loser, then you have a fixed gain, and that is great. You can win. But net-net, introducing competition and enforcing competition, what it is good for is it is good for consumers. It is good for choice. It sometimes stimulates competition.

It is not good for investors. Our clients hate it. They are always looking for the least competitive markets, markets where there are huge barriers to entry. And I would argue that broadband, DSL, and cable modems, that is not

competition. A duopoly is not competition. There are huge barriers to entry. Satellite is still a very feeble entrant to this. Fixed wireless has yet to show up at the game.

And if you look at a competitive marketplace, what you would expect to see is prices going down. And anybody that has looked at the DSL and the cable modem market know that prices are going up 10 to 25 percent. That is not a competitive market. That is a market that investors like -- a market that is not very competitive, where prices are going up and returns have a chance of going up.

MR. THIERER: Erik, I am going to give you your follow-up, but, Scott, aren't some of these markets contestable? I always make this point when I am giving presentations. I have two satellite dishes and two cell phones. I am ripping wires out of my home. I have this corny phrase, my wife and I, "wire-free by 2003." We hate wires. No more cable. We have one Verizon line only because our satellite dish requires us, if we want to be interactive and order movies, we have to have that line in our home. That can go soon, as well.

This sounds like a fairly competitive market in a strange way. Now, not every home has these options, but I have two satellite dishes, two cell phones. That is my last mile in a sense. What do you say to that? You just said that a duopoly is

not competition, satellite is nowhere on the map. I have gone to that option.

MR. CLELAND: And you are very rare. And you are not going to get the service that you would through a cable modem. You have chosen to go wireless. You have chosen to sub-optimize your high-speed access. Satellite is outstanding for one-way broadcast. When you try and retrofit it to do two-way broadband, it doesn't work. You have a huge latency problem on the return path. If you wanted to get broadband switching in the sky, you would have to make that satellite bigger than the Space Station. It is not economic.

And why satellite economics don't work for broadband is very simple: economics rule. The more switching you want to do up in the sky, the bigger the rocket it is going to take to put up, the more power it takes, and the cost goes up. So, satellite as a broadband competitor, is going to be a feeble competitor because it is not the same service. It is going to have a latency problem.

MR. THIERER: Okay. If there are any satellite people here, just let me know and you can go off on a rant on Scott.

Erik?

MR. OLBETER: Well, actually, I agree with everything you said on satellites and I think I disagree with almost everything previously, respectfully. I think part of it is the

universe that you are coming from. Here we have mostly people dealing with Telecom equipment and services. When you talk to people who are either in the Internet space, where very few of them are left, as well as entertainment companies, they care about competition. They like competition. They want to see this rolled out as much as possible.

They really want to see broadband, and view broadband, as absolutely crucial to the next evolution of their model, whether it be AOL-Time Warner, on the AOL side, or even on the entertainment side of that company, as well as Yahoo. You can go down the list. There is a huge recognition that we need broadband.

I don't sense that there is a lot of people very comfortable with just this idea that, well, the cable guys don't matter, their investment doesn't. I think actually they matter a tremendous amount in rolling this out and encouraging deployment.

I guess the question is, clearly, getting back to the original theme, that there are disincentives for a huge investor, and the investor with the most capital out there to actually make this happen -- mainly the Baby Bells -- and what do you do once you sort of hit that wall? Clearly, we should have done a lot of deployment. In the future, the deployment doesn't look that great. I think that is a continued concern.

MR. THIERER: We have a question here.

MR. ROSS: I am Patrick Ross with Communications Daily and Washington Internet Daily. I want to thank Scott there for mentioning consumers. Because we have heard a lot about infrastructure and equipment and capital return.

I want to ask a question not as a reporter but as a consumer, as somebody who had DSL for a year and has since dropped it, when I was looking at my bills of cable and telephone and long distance and wireless. What I want to ask is, we know why businesses gain from high speed and why the penetration is occurring there; obviously, you get a return on your investment and you are more productive. I used to write for CNET. There is no way that operation could exist without broadband. We couldn't be posting news stories real time.

As a consumer, I liked the "always on." I liked the fact that I didn't have a separate phone line. But what was I getting for my \$50 a month? Slightly faster returns, but it is not like there is content there. Content is what drove cable penetration across the country, with TBS and HBO and ESPN. Where is the content? Where is the drive to make consumers take broadband? We already have penetration in urban areas, but we are still at 7-8 percent total penetration. People aren't taking it. It is too expensive and the price is going up.

MR. ASHTON: Let me address a couple of things on that, because this brings up a point I always try to make, which is,

once you get past the regulatory issues -- because if you live in a global market -- we have a global slowdown in telecom. This isn't just a U.S. thing. I am sure everybody here realizes that. Well, if you look at other parts of the world, they are regulated differently. So, what is their problem?

If the problem is our regulation, then what is their problem? Well, they have other problems that we also have on top of our regulatory problem, like the universal problem in this business, which is voice is dying as a service that can generate growth, and profitable growth, and we have nothing to replace it. As Scott noted in his Barron's interview, which was the first time I actually saw it in print, data doesn't make anybody a lot of money. And where it does, it doesn't create a value chain where everybody in the value chain makes money.

So, we have a service issue which is a demand issue. Which is, if I build this infrastructure and I spend all this money up front, what can I offer over it that you will pay money for and for which I can generate a return? And this industry does not have the answer to this. If you don't know what service you want to deliver, because we are not sure what you want or are willing to pay for it, then we don't know how to optimize the network to deliver it.

I mean, do we put in DSL so it can support video, or do we do it so it can support Internet access? It is a big

difference in the infrastructure and the technology you buy. So, this is a very simple problem that this industry has, but it is a very hard one to solve. It gets back to an Internet thing. Which is, I never listen to the Internet folks because they still don't understand income statements and they don't understand profits and revenues. The fact is, if you think about the Internet and Internet services versus telephone services, they are very different.

Let's take, for example, voice-mail and CallerID, two very profitable services that have pretty decent penetration rates. Those services are supplied with technology that is totally within the carrier's network. It is on the switch or it is in a peripheral. The carrier owns it, controls it, all those kind of things. They bill you for it and they make all the money. And they don't share a thing.

Internet access is like a taxi service, where I get a flat rate every month and I take you to everybody else's place of business and you do business with them. And the more I take you, I don't get any more money for it. And wireless is going to figure this out first. They are getting there, and WRAP is a start. We have got to figure out a way to marry content with the service provider so they get a stake in the real money, as you describe, in content. That is where the money is.

If the service provider doesn't have a stake in that, then what kind of game are they going to play? They are going to play a losing game for an extended period of time, because the payback on this investment is going to take years and years and years. So, it is a business model issue. It is not just regulatory. It is business model issues, and this sector has not solved them.

MR. THIERER: We have two questions here. This gentleman has been waiting the longest.

MR. GODFREY: I am John Godfrey, with Sony.

I have two questions for Mr. Cleland. The first is historical. If the FCC did set the resale prices, the TELRIC imaginary prices, too low, did the resellers thrive in that market, and how are they doing today? That is just something that probably everybody else in the room knows besides me.

Then the second question: Is there a price at which a regulator could direct that broadband deployers resell access that would give enough incentive for investment and yet also allow some competitors to be in the market or is that just an impossible dream?

MR. CLELAND: To answer your first question, at first the resellers did thrive. The two biggest were AT&T and MCI WorldCom, which the unbundled element platform was essentially the reseller model. So, they did simulate at first. Teligent,

it took off for a while and people were excited about it because it was driving revenues. Because it was reselling stuff. It wasn't using its fixed wireless. So, it was the resale stimulation.

If you talk to the Teligent people, they say, look, we made a mistake. We listened to investors and we listened to regulators that pushed us into a resale model, and we got in over our heads and we couldn't recover. That is a company example, where reselling was the beginning and the end of their demise. It never got them to focus on fixed wireless.

MR. THIERER: There was this question about reselling broadband, naming the right price. Does anybody want to handle that? Is that something that competent regulators can do, if we apply the economics?

MR. CLELAND: No way. What we learned from the TELRIC thing is that these markets are incredibly complex. There are all sorts of subsidy and regulatory distortions. It is just profoundly distorted. Essentially, what the FCC decided, they said, why do we need this competition thing? Why do we need these market forces? Why do we need supply and demand? It takes too long and it is too messy. Let's pick the number, and this is the number it should be. And they picked wrong.

MR. ASHTON: That is a key issue. Because everything that everybody said today has pointed out one thing: This is a

capital-intensive business, and it gets more capital intensive the farther down the network hierarchy you go, meaning closer to the edge. So, if you want to spur competition, you can do it successfully, like we did in the large business markets; because there were subsidies and things that were distorting pricing and you could enter there and everybody was very demand-dense and all that good stuff, and it happened.

But if we try to push it to the edge -- and that is where it is capital intensive -- well, hence, we have a problem. So, the solution has got to be in trying to figure out a way to make it less capital intensive, which points back to the resale model; which Wall Street just isn't buying into. And Blake would probably know better than I, but I think by the end of the CLEC cycle, the facilities-based model had totally taken hold and the resale model didn't. I think there are answers, if people can figure it out. I am not one of those kinds of people. I just watch.

But if somebody could figure out a methodology for building a resale model back into this sector, I think it could be very effective. And I think the FCC was headed down that path with some of the separate subsidiary rules. I am not saying support them or not, but you investigate those -- is there a way we could create a new layer of service providers based on a resale model where, yes, they are at a disadvantage to the

RBOC's, but maybe they could bundle other services in that would create some kind of marketable bundled package or something? Somebody should be trying to figure out policy-wise how we could make that happen.

MR. THIERER: We are going to get into policy and Tauzin-Dingell in just a minute. We have a gentleman who has been waiting with a question back here for some time.

MR. BROWN: I am Ken Brown with the Alexis de Tocqueville Institution.

I want to just change the subject a little bit, but it is still telecom. Let's say I was a hypothetical carrier and this Tauzin-Dingell legislation either affected me positively or negatively by allowing competition to prevail and competition to get stronger, et cetera. So, what I decided to do was, I said, well, I am spending enough money on lobbyists, why don't I come up with a strategy that pushes this bill because, regardless of whether the bill passes or not, Wall Street, Bear Stearns, and Precursor, Lehman, and Schwab, they are all following this stuff, and maybe my competitors that are depending on these finance analysts rating a competitor's stock well or rating the possibility of investment well, maybe they will get disinterested following the legislation to continue financing these competitors. So, whether the legislation passes or not, my competitor goes out of business.

Now, obviously this is hypothetical, but Mr. Glassman and Mr. Hazlett got into it last week a little bit. Mr. Hazlett, I think, pretty much roasted Mr. Glassman on this point. He was the first that started this study, where he was saying that Verizon actually had a strategy to kind of keep moving Tauzin-Dingell forward, and the RBOC's had strategies to keep moving Tauzin-Dingell forward regardless because Wall Street folks would pay attention to it and say, well, this is going to either pass or fail, but either way it is going to discourage people from investing in these competitors.

So, I guess my question is, without being too expository, you're certainly here because at least your employers think that regulatory policy is important. You are not here just as pundits. You are following this stuff. You are following whether or not this legislation is going to pass. You are getting involved in it because you feel like it affects your investors. It does affect your bottom line, your ability to make money, and to raise capital for these companies. What I want to know is, do you think (a) we are seeing Wall Street strategies? In other words, we are seeing companies advocate legislation, advocate policies, regardless of the initial aim, but a secondary aim, to affect what you guys think.

And (b) do you think a strategy like that is currently working?

MR. BATH: The answer is simple: No and no.

MR. BROWN: In other words, do you think that the fact that you are here, that you are very, very interested in what is going on here, is evidence that it does matter and it does affect whether or not these companies get --

MR. THIERER: Let me actually preface this. Not everybody knows maybe what the Glassman-Lehr study said. We will get into Tauzin-Dingell here shortly. The Glassman-Lehr study essentially said it was an event study. They tried to do a correlation between unique press announcements and events surrounding the Tauzin-Dingell bill, which partially deregulates the broadband market. And people say it favors the Bells.

So, here was this event study saying there was a direct correlation between the stock prices of various CLEC's and these event announcements that we saw having to do with Tauzin-Dingell. Now, this is what the little debacle over at AEI was all about. But what do you guys think about that notion generally, about stocks and announcements here on Capitol Hill? Are markets watching that closely?

MR. OLBETER: If markets were watching closely, both Scott and I would be much, much wealthier. The answer is no. I think generally what shareholders look for is general trends. Obviously, there are certain things that move stocks more than others. With Microsoft, if there is a decision to break it up,

okay, you will see the stock move, and you will see it move in anticipation. But the idea that you can correlate on a day-by-day basis, and (a) presumes that the market didn't know beforehand that something was coming; (b) there is a lag effect -- I think in general investors want to know where are things going overall, are we going to see more deregulation, or are we not? But they don't follow the day-to-day stuff. I mean, very, very few of them do.

MR. THIERER: Blake, how about this? You pick up the paper and it says Tauzin-Dingell introduced, and Commerce Committee likely to pass it with overwhelming support. Now, that didn't happen, but do you read that and say I am going to adjust my investment decisions today?

MR. BATH: Yes. I think investors clearly pay more for deregulated businesses than they do for heavily regulated businesses. But I think the prevailing view on Wall Street is Tauzin-Dingell doesn't have a chance in hell. I don't know what the other panelists would say, but among my clients they have completely tuned it out. They know the Senate dynamics. They know the policy, the behind-the-scenes lobbying activities that are going on. So, they have pretty much tuned it out.

MR. ASHTON: I think there is one interesting thing to think about, though, and it goes back to the telecom bill. And I think Scott probably could peg that earlier, but my understanding

is that a bill had been thrown around for two decades or something and then it finally passed. We are in the business of predicting and trying to find ways to show that we are right after we do so. And one of the things you can do is support Tauzin-Dingell and say it is going to pass. It might not pass for five years, but something will happen.

It is our philosophy, in covering the equipment sector, which is the only reason we care about the bill, because we think it would spur investment -- so, we don't comment on whether it is optimal or not, but it is definitely a positive if it were to pass for equipment stocks -- and I think you are going to start to see the major equipment companies get behind something. Because they know where the money is. It is very rare that you go to a company anymore that doesn't say their target market is the RBOC's or the cable companies.

So, I think you are going to start to see that bill pick up as the markets languish and people start looking for the next excuse. Ultimately it will come around to policy, and then ultimately there will be some policy changes. And whether it is that bill or something else, I don't know. But I think definitely the opinion on Wall Street, I agree with Blake, is that the bill doesn't have a chance in passing.

What we try to tell people is that that doesn't necessarily mean it is not important. Because once it is on the

table, both sides make their threats as to, well, this is what will happen if it passes and this is what will happen if it doesn't. And the RBOC's have been pretty clear about the need for this bill to spur investment on their behalf. So, they will probably react in some way accordingly.

So, I think ultimately something is going to happen because it has to, if you are going to get the tech market back. And I think the tech market is pretty important to everybody.

MR. THIERER: This is a good chain of reasoning. I want to keep on this. Go ahead, Scott.

MR. CLELAND: It is very easy. The telecom legislation is not going to pass into law in this Congress. But the House is going to pass this bill easily in the next couple of months.

It is very important; I agree with Doug. Everybody is missing the point in framing this about whether legislation passes or not. That is not what is going on. What is going on is the change of administration, the change of the House chairmanship of the Commerce Committee. What is going on is a debate of whether telecom policy remains status quo or whether it changes.

What is going on is a massive debate about whether we repeat the mistakes we made in voice competition in data competition. That is what this is all about. For five years nothing has changed with the Telecom Act implementation. Now,

why we hear ads ad nauseam on Tauzin-Dingell is because there is a fight over whether or not we change a policy that has led to very little success.

MR. THIERER: Let's assume for a minute, though, that there is a different constitution of Congress. We have Mr. McCain still in power and he introduces the bill he had last year that was very similar to Tauzin-Dingell, very deregulatory in nature. And there is a chance that something like Tauzin-Dingell can move through the entire Congress and land on the President's desk.

The critics say this is the end of competitive broadband; that this is the first step toward Bell re-monopolization of the marketplace; that it is the end of the CLEC's, it is their death knell. It is gloom and doom. I mean, I just don't think I have seen enough ads on this issue that have told me this.

(Laughter.)

MR. THIERER: This is all we hear. What about that? Let's ignore the legislative or political dynamics for just one moment and think this bill has a chance to move and pass by early fall. What does it mean to markets? What does it mean to specific sectors?

MR. CLELAND: What the debate is all about is whether the government gets out of the way or not. And why this issue is

not going to die, I agree with Doug, is because the government is in the way in a big way. The question will be will they step out of the way in order to try and help the tech sector or telecom spending. Because current policy, the current trajectory, isn't doing it. It is actually causing some of the problems we have.

MR. THIERER: Okay. And if anybody wants to jump in there, go ahead. I am just wondering, you hear so much gloom and doom. Let's assume that government gets out of the way and the Bells can go into the broadband marketplace unhindered.

MR. ASHTON: I don't understand why the bill has been pitched the way it has been. It surprised me, and maybe I don't follow it as close as Scott does. I don't understand why this perception is that it is so negative for CLEC's. If you are a facilities-based carrier targeting the large business market, what does the unbundling exemption matter to you? One is that it is a small percentage of overall CLEC lines, I think. Two is investors only want to invest in facilities-based carriers anyway. So, why is this end of the world?

I don't really get it. To me, I think it is a cop-out. Actually, in testifying in support of the bill for the equipment sector, I was a little naive in understanding how the CLEC's were talking about the bill. I had not really thought about it as being so bad for them. I missed that.

MR. THIERER: Okay. I am going to play devil's advocate here. This is back door re-monopolization of this industry. We are undoing the Telecom Act, the intent of Congress. We intended for there to be competition and resale and unbundling and interconnection. That was all part of it. And what applied for voice should apply to data. If it doesn't, then at some point, if convergence is reality, it all doesn't make a difference. The Bells just get into data and then data becomes one big bundle, voice, data, Internet and everything else. What about that? I mean, this is it.

MR. CLELAND: Let's get back to a physics lesson. Electromagnetic technologies -- that is the telephone, that is cable, that is wireless -- can be physically unbundled. We have the physics to tap radio spectrum signals. Therefore, it is physically easy to unbundle electromagnetic networks.

The problem is that data networks tend to be more fiber based, and our physicists haven't figured out how to bend light, how to tap light. So, right now, optical technologies, or what tend to be data technologies, are not easily unbundled. When you have a data network, what you want to do is have an access regime. An access regime is completely different than an unbundling regime, which is a physical architecture issue. What you need in data networks is access to that network at a lot of different points.

You don't need to unbundle this part of light or this part of a mirror. It doesn't make sense.

MR. THIERER: Is there somebody in the crowd who wants to take a contrarian position on that one and say something different? Let me know.

MR. ASHTON: Let me comment on one thing, too, here. Because I got this question at the hearing which was, well, isn't a bit a bit, and it doesn't matter if it is voice, data or video or whatever? And the answer that came from one of the Bell Companies was, yes, you are right, a bit is a bit. And I'm thinking, a bit is not a bit. Because a bit is associated with a service that is totally different than the other service. So, yes, technically in the network, the network doesn't really notice what it is. Although there, you could even argue that, as well.

But what does it matter about the networks? It is the end service that is important and how we regulate that type of service. Because, in the end, technology will keep trumping policy if the policy is based on the network as opposed to the service.

MR. THIERER: Let me throw a twist in here, as well, because Tauzin-Dingell isn't the only thing out there. We have other proposals that are being dropped.

Conyers and Cannon have introduced legislation that would increase DOJ oversight and antitrust authority. This was a very hot debate during the time leading up to the Telecom Act: what kind of a role would the DOJ have and the anti-trust officials and anti-trust laws. That, with Mr. Hollings assuming the chairmanship of the Senate Commerce Committee again, is now once again a reality that this is something we are going to be seriously debating. Now, whether or not it will pass is a different story. But who knows what a legislative vehicle coming out of the Senate could look like.

And say the House, going back to legislative realities, passes something like Tauzin-Dingell, but Mr. Hollings passes something that looks like the old 1822 days of 1994, when we saw bills that were very progress-regulatory, with a number of procedural safeguards, separate subsidiaries, antitrust oversight.

Now let's us talk about the ugly reality of conferencing those sorts of vehicles. How do markets read increased antitrust authority in this sector? Is what I am saying even possible? What do you guys think about that?

MR. BATH: I think it is possible, given the folks who are coming into power. I guess I would say the market would certainly interpret that very negatively. I think what the markets are hoping for is consolidation and better returns. I

think what the markets are hoping for is that wireless goes from seven players down to three or four, so you have more effective economics with respect to 2.5 and 3 G deployment.

I think what the markets are hoping for is the death of many CLEC's and DLEC's who had very targeted niche strategies amongst easy capital times. And what the markets are hoping for is improving the profitability and less regulation in this sector, not more regulation.

MR. THIERER: Right. So, the markets are interested in not only not seeing increased antitrust oversight, but antitrust relaxation. Now, are we going to get that? Are we going to get it from the Bush administration? Does anybody want to put some odds on that? We have seen a lot of antitrust intervention and micromanaging and tinkering with the merger review process.

MR. BATH: I think you are going to get it because a lot of the big guys -- I mean, AT&T wants to be sold. WorldCom wants to be sold. Sprint wants to be sold. That is a big change from two to four years ago, where those guys were acquirers.

The thing that has really changed, to me, in the last couple of years is the long distance guys, the backbone providers, the Internet access and backbone, long distance data guys, they recognize the game is over. The game has changed to where there are lots of separate markets and this is all a voice

business, to this is a data and wireless future where what matters is having that last mile of connectivity.

If you are AT&T or WorldCom, you hang on to the enterprise customer base. And maybe that can outweigh some of the dynamics of the power of the last mile for a while. But I think if you just look at the actual steps the companies are taking, whether it is AT&T's quadvestiture, where at the time we said -- and it is becoming clearer and clearer that this is the case -- they put the company up for sale in pieces; whether it is WorldCom's separation, and they are trying to make it easier to sell themselves; Sprint is going to do the same thing. People want relaxation.

We are having a natural process, I think, of changing industry structure because of the economics of the different technologies, wireless and broadband, where once you put that amount of capital in place in the last mile, you are going to want as much revenue as you can.

MR. THIERER: So, I guess I don't even need to ask my next question, which is: What about all these proposals we are all of a sudden hearing from some folks in the long distance camp and the CLEC's about a second round of divestitures for telecom, breaking the Bells up again, wholesale versus retail? Michael Armstrong has been suggesting this on the pages of the Wall

Street Journal. You have a couple of folks on the Hill toying around with this idea. We have not seen legislation drop.

I don't know. And I am not a market guy, but it seems to me that this is pretty radical stuff and the markets are going to have a strong read on this.

MR. CLELAND: I used to be a head counter on the Hill, counting votes. And if you want to understand the House, you have to understand that 434 out of 435 Members have Bell jobs in their districts. And the Bells don't want another divestiture happening. It could happen through a court-ordered breakup, but it is not getting through the U.S. Congress. It isn't getting through the U.S. House. It is as close to a political non-starter as could exist. Merits aside -- we are not talking about the merits or anything. We are just talking about raw political read. It is a non-starter.

MR. ASHTON: The merits are very interesting to it. But I agree, if it is a non-starter, it is a non-starter. I actually thought that that had a chance of really re-igniting this business. You can sit back and get farfetched with things. As long as it is not that kind of separation that came with the last divestiture.

MR. THIERER: Are you talking about a voluntary divestiture or mandatory divestiture?

MR. ASHTON: I am talking about what type of divestiture. Do you leave these companies under the same stock, for instance, or do you separate them like we did in the early 1980's? If you we are to take the more Draconian road, I mean, I might as well retire; because the equipment sector will be done for years because nothing is going to get sold and no network investment is going to take place while these guys are trying to separate themselves.

That is probably the worst thing that could happen for the tech market, and therefore I don't think it is doable. The less onerous view of it is actually, I think, deserving of people's attention that are good at figuring this stuff out, because it really could ignite a different type of market. And if we don't figure these questions out pretty soon, it is kind of like letting the RBOC's merge and looking back now and saying, oh, well, was that the right thing to do?

Or cutting Sprint and MCI apart, was that the right thing to do? And pretty soon it is going to be too late to do anything because there are not going to be that many players out there of any size. And then how do you restart things?

MR. THIERER: Have the markets taken a look at all about what has been happening at the State level with regards to these sorts of things? And not just divestiture, but also let's bring one other legislative or regulatory approach up here --

increasing fines. This is all the rage these days on Capitol Hill. Let's beef up fines for "violating the Telecom Act."

Now, that is open to a lot of interpretation, but this is serious business. You even have Commissioner Powell at the FCC supporting some variation of this. You have the head of the Telecom Subcommittee in the House supporting a bill. This might be a reality. Now, how does the market read it when all of a sudden the fines for supposed violations of the Telecom Act are more than quadrupled, maybe up 50 percent or 100 percent? I don't know. I mean, the numbers are all over the place.

Does anybody have a read on that? Other people say, oh, these fines are nothing. The Bells will pay them and move on, it's done.

MR. CLELAND: Fines are apple pie. It is very good politics. It is a smart policy. The question is: Is it something that you want to be successful at? It is kind of like the barking dog catching the car. Do you want to fine a Bell into submission? Let's get back to talking about consumers. The reality is that the Bells, who the fines are targeted at, serve 250 million Americans.

Now, you cannot, but policymakers love to do it, they try and separate shareholder interest from consumer interest. They are like conjoined twins. They cannot be separated. They share a heart and they share a lung. If you punish shareholders

a whole lot, you will punish the consumers. If you punish shareholders a lot, what you are basically saying is, let's not invest in the business. Let's have huge cuts in order to reduce customer service. Let's really show that Bell leadership that we are serious.

It is kind of like taking your hands to somebody to get through to them and really squeezing hard. And at some point, it becomes counterproductive. It is not a very good strategy when it is taken to this extension.

MR. ASHTON: And it presupposes that the problem with certain competing carrier segments is based on Bell non-cooperation. It is not that simple. The problems are all over the place and they are there for lots of different reasons.

Okay, so we fine them into submission. So, now they make it easier to interconnect and do all these other things. So what? Does that help? All of a sudden, does James Glassman do another faulty event study and say, "The stocks went up after this"?

It is not a foregone conclusion that that would happen.

MR. THIERER: We have some other questions. Anybody?

MR. MCCAIN: Jim McCain, with AT&T.

While you raised it a couple of times, no one yet has addressed on the panel what happens to the demise of the CLEC industry from a public policy perspective, if Tauzin-Dingell does

pass. Because I think most observers would agree that that is what would happen.

Secondly, if you could address why do you think it is the Bells, when they go to Wall Street, talk about how well DSL deployment is going, but in Washington it is a totally different story?

MR. THIERER: Anybody?

MR. CLELAND: The CLEC's are dying on their own without any help from the Hill.

MR. THIERER: But won't Tauzin-Dingell just facilitate that? And isn't that a bad thing? Don't we want some competitors here?

MR. ASHTON: Maybe it will facilitate a restructuring of that group, which might be good for it. Maybe it will force them to get the healthy facilities and put together combinations of entities that are survivable for the long term. Maybe that is what that sector needs, as opposed to this slow death that does nobody any good. Maybe what we need is some kind of jump-start where, okay, this is what is going to happen and we are going to have survivors or not. Because I don't necessarily believe that none of the CLEC's can survive in that environment.

I actually have gone a little bit back and forth, because everybody is kind of telling me that that is the case. I still don't entirely believe it. You can still put together a

good business model in telecom. You have to structure your capital right and target markets that are underserved, and all these kind of things. But this bill is not necessarily preclusive. And I actually think it really only matters for the residential and small business market. I think it has no impact on the large business market.

MR. THIERER: Bob Crandall of Brookings just had a nice study for Criterion Economics, talking about the correlation between the CLEC stocks that are doing the best and the fact that they are investing in facilities-based infrastructure for the most part, showing that there is a business model, but it involves more than resale. It seems to me that there is a lot to that. You have to diversify outside of the regulatory paradigm and understand that there is something more that needs to be done.

We had another question here. This gentlemen right here was waiting.

MR. ZINMAN: Jack Zinman, with the Common Carrier Bureau of the FCC. Please hold the booing and hissing until the end of the question.

Since the passage of the Act we have had some successes and admittedly some failures, some of which have been chronicled here today. I would ask you to take off your financial hat for a second and put on your regulatory hat. If you were Chairman of

the FCC for a week or a month, what would be number one on your agenda list to promote broadband deployment?

MR. BATH: I actually think the FCC, in general, over the last five-plus years, has done a terrific job in implementing what have been the laws that have been put in front of them. I don't just say that because you are here. I believe it. I have lots of friends who work at the FCC.

I think in terms of the steps that Powell, et al., could take, I think a lot of them are being taken amidst the politics that exist here in Washington. I think for broadband deployment, a big element of that is going to be wireless. A big issue there is obviously spectrum caps and freeing up as much spectrum as possible.

I think, secondarily, on the wire line side, it is not regulated. It is leaving cable as it is. I think one of the better things that could happen to the RBOC's DSL deployment is if cable continues to whip their tails in the marketplace. I think eventually people start to understand that this is a market. The high-speed data market to the consumer is a market where the deregulated competitor is doing a lot better than the guy who is regulated.

I think you would see a lot more, both investment in network as well as investment in the soft stuff, like loop databases and customer service organizations and partnerships

with computer companies, et cetera, if there was less regulation and greater potential for good capital recovery.

MR. THIERER: Anybody else? The FCC, you are czar for the day.

MR. ASHTON: They would give the spectrum away.

MR. OLBETER: Yes, that's a big one.

MR. THIERER: Spectrum reform.

MR. HECHT: My name is Lawrence Hecht. You can check out what I do at InternetPublicPolicy.com.

I was very interested in your talk about convergence. My question is, how do the regulations at the FCC drive investment in different sectors, whether they are wireless, wireline, content or data?

MR. BATH: Totally. I think hugely. If you think about cable, cable as a group was investing 6-plus billion dollars in their networks in the 1994 to 1996 heavy handed period of regulation. And when the Telecom Act was signed, annual capital investment went up to \$15, \$16, \$17 billion per year.

Look at long distance. Part of the reason we have over-capacity and over-capitalization in the long distance sector right now, I mean there are minimal barriers to entry there. There are certainly no regulatory barriers other than those keeping the bad guys, the RBOC's, out. But that is where there has been enormous investment, both in long distance voice and

data networks, and wireless, obviously, as well. So, I think the less regulation, the more freedom that is given, that is where you get investment.

MR. HECHT: What happens to the markets if there is a change in policy and the FCC or Congress views the different industries as the same, as data being the same as voice?

MR. BATH: I personally think that is a very healthy thing. If you take my earlier comments about the evolution of the telecom business -- and I think this eludes people sometimes -- this was a voice business. When I worked in it at MCI, even through the early nineties, voice was 90 percent of the business; data and wireless were 5 percent a piece in 1995. If you think about any kind of telecom bill that could get enacted and implemented, you are looking at 2004 to 2005. By that time two-thirds of the market is going to be data and wireless.

Everyone would agree there is healthy competition in wireless. Everyone, I think, would agree there is healthy competition in data. And based on the evolution of IP technology and the ability to offer voice services over these broadband networks, that is just, I think, a recognition of the technology evolution that is going on.

MR. THIERER: We have a question here. If anybody in back has one, make sure you hold your hand up.

MS. FITZMAURICE: I'm Sena Fitzmaurice, from the Wetzler Group.

There is a lot of speculation that if the Bells are not able to get Tauzin-Dingell, what will be their next step. There is some discussion as to whether they will try and have regulation imposed on cable -- regulatory parity, some are calling it now -- unbundling or some other regulation. Would you comment on what that might do to the markets and broadband rollout?

MR. BATH: I think that is an easy one. I think they are contemplating that as their next regulatory strategy because I think the consumer high-speed data market is a strategically important market. And when the cable industry was regulated they spent a lot less and were a lot less aggressive. Certainly you would want cable investors. Remember, cable companies are still highly levered. And to an extent, depending on the capital markets, they would certainly get a lot less capital if their business was regulated than if it was deregulated.

MR. OLBETER: Logically, if you make the argument that the regulations in the Telecom Act are slowing investment by the Bells, that it is a disincentive, then it is difficult to sort of make the case that all of a sudden imposing similar rules on the cable guys will all of a sudden be different. It won't. It is likely to not only slow growth by the cable guys and their

investment, but then you are also likely, in my view, to see sort of a slowing of investment by the Baby Bells. Clearly, they go hand in hand.

MR. ASHTON: That would be just slightly less worse than breaking the RBOC's apart from an equipment perspective. Again, you just walk away. And we are kind of headed on that slippery slope anyway. I am sure you all know what is happening in telecom equipment and tech these days.

This regulatory uncertainty is getting to be a problem. Because if you are running a business and you are not really sure what the rules are going to be, it is hard to invest a lot of money. And this has to be cleaned up. If this is going to drag on and on and on, then you might as well just assume that the issues are going to drag on and on and on for the stock market.

MR. THIERER: Doug, let me stop you there and ask another question. Because I think a lot of people can agree with that point, regulatory uncertainty is a bad thing. It is finding the certainty or coming to agreement on uncertainty that is the problem. But one thing there seems to be a lot of agreement on -- and this is specifically similarly addressed to a lot of equipment providers -- is something about broadband tax credits. We are hearing a lot about this today in Washington. It seems to be about the only broadband related bill that has almost

unanimous support in Congress. Everybody is jumping on this thing. It seems like the one vehicle that can pass.

And one of the things you often hear about this bill is that it would really help jump start not only broadband deployment, but give a little boost to maybe the equipment market and stocks across the board. What did you say to something like that?

MR. ASHTON: It probably gets universal acceptance because it won't do much. So, it won't upset anybody. What it can do, and I don't have the math, but what you are looking at -- and let's take the Bell perspective -- you have to go through everybody individually -- they are looking for a rate of return on their dollars. A tax credit will help push that rate of return higher.

Will it get it over the edge to spur deployment of services? Probably not. It will help get us there. So, if it is the first step and we get it, that is good. But we need more after it. And we can't assume that a tax credit would just all of a sudden open the floodgates and we are back and running again. My fear about just the tax credit policy is that we do it and then we think we have solved the problem and we walk away, and then we don't address policy.

It is like what some people said about the tax cut. The problem with the tax cut is that it has already been done, so

we don't have that to turn to to re-ignite the economy. Now, that is not my area of study, but that is the same argument that I am concerned about with tax credits.

MR. THIERER: Now, Erik, I have read your report, and you have given this bill high odds of passage relative to the other things out there. Is it going to mean anything?

MR. OLBETER: I think the answer is "it depends, but probably not." I think in its current form, if you passed it, the 10 percent threshold for the tax credit is too low. And the definition of broadband service, quite frankly, is probably too high for most rural areas they are talking about. I have actually run some of the numbers, just trying to look at what the IRR is. And it is one of these things where it has a very marginal impact.

But, quite frankly, the problems are much bigger than 10 percent or 20 percent. And I think at the time, when you really start saying, all right, what are we trying to do here? We really want to make a tremendous difference in the rollout. So, we'll probably get up to like 70 percent or so, currently, and we want to include that last 30 percent. Well, you're talking about shortening loops. You're talking about some of these things in conditioning that need to be done. Even like South Dakota? I mean, my God. This is very expensive stuff.

And 10 percent is not going to do it. And 20 percent probably isn't going to do it.

MR. THIERER: Well, is there a percentage that would? What would make a difference? But at some point, of course, we reach the political breaking point, and they won't go over 50 probably. What would make a difference? Is there a number? When you run the numbers on this, does anything make a difference?

MR. OLBETER: I've just put 10 and 20 in, and come to the conclusion that, if you're talking in an area where -- particularly if you look at the Bells, and you say, all right, I've got to throw the ATM switch in there, I've got to recondition, I've got to shorten loops, I don't think for them it makes a lick of difference at 20 percent.

When you start going to some of the independents, like a Citizen, for example, or even some of the smaller ones that are offering, okay, that might make a difference. But, quite frankly, the broadband service right now that they're rolling out and that is most accepted is at 1.5 megs. And this goes back to the comment we had earlier; people are demanding G-dot-light. This is very slow stuff, relatively. This is not 1.5.

So, the question is, you give me 10 percent, I roll out a service, and do people even want it? That's really an open question.

MR. THIERER: Scott, did you want to say anything?

MR. CLELAND: Yes. I think broadband legislation, Tauzin-Dingell is the dominant debate right now. But broadband deployment nationally is going to be an issue for years, until it is resolved. The current broadband deployment skews investment and economic growth big time. What we essentially are going to have is broadband job flight.

To the extent that communities or areas don't have broadband, they're going to grow slower, they're going to have a lot less job opportunities, a lot less people are going to be investing in those communities, and you're going to have kind of the reverse flight -- people have been moving out of the cities to suburbs and out to rural areas, and this will be a force to bring people back into cities, in order to reach broadband.

So, the political implications of broadband deployment are just beginning to be felt. That is why people are putting their toe in the water on tax credits and why they're talking about Tauzin-Dingell as the cheapest way, essentially, it's an off-budget way to stimulate investment. It's basically saying, look, we're not going to require you to do X, Y and Z; therefore, it's going to be cheaper for you to deploy.

We are in the early stages of figuring out what we want to do as a nation for broadband deployment. It's not going away.

We're at 9 percent now. It's going to be a decade or so before it is rolled out, at the current rate, to the average American.

MR. THIERER: That is a really interesting point. We have not even mentioned how we now have a debate about the municipalization of broadband in some communities. Some communities are getting very angry about the fact that it is so slow in coming to the rural areas, they are actually taking over, building new systems entirely. There are court fights over this. But more on that in a minute.

MR. ASHTON: It is just a matter of who is subsidizing it. It is missing the issue, to a large extent, with the different places, moving the pie around, instead of trying to deal with the economics of the service in the first place.

MR. THIERER: Right.

Sir, did you have a question back here?

MR. ANDERSON: I am Mark Anderson, Cable & Wireless.

Do you see any market impact or competition in the sector from companies like Yipes? They seem to have an innovative business plan, metropolitan Ethernet, a very short provisioning cycle, and dial-up, bandwidth on demand. Do you see any impact there, or no access to capital? Why aren't they being heard from?

MR. BATH: I think they are being heard from. Those folks are some of the few areas that are getting capital. The

whole gigabit/Ethernet opportunity is getting funding. Right now, I guess the only issue with it is that it is viewed as a niche service. Do big businesses or specific Internet-focused companies, is all they want a big fat pipe to the Internet and screw any other data services?

I think the reality is maybe there is a small sliver of the market that wants that, but I think the broader corporate enterprise market wants the broader suite of data services. It has a lot of legacy data services and applications issues to deal with. But I think those folks do have a pretty interesting business model and I think they will get funded.

MR. THIERER: We have about five or 10 minutes. I am going to cut off a little early. Our panelists have been very patient. I know this gentleman has been waiting with a question.

MR. ROEMER: I am Brian Roemer. I work on spectrum allocation policy.

When asked what you would do as FCC Chairman for a day, two of you, almost in unison, said, "Give away the spectrum." My question is: To whom and on what basis? Afterwards, what would you say to (a) the taxpayer who right now thinks they own the spectrum, and (b) the appropriator on the Hill who also thinks that he or she owns the spectrum and is using those revenues many times over at this point?

MR. ASHTON: I think what we should do is say to you that we think this is a good idea; how do we give that away and to whom? Because you would have to answer that for us. We think it is a good idea. I think it is a good idea for this reason: One, it would spur other countries to act the same way and that would lower the burden on companies in investing. Remember, I am an equipment analyst, so I want to just see technology bought, even if you are going to put it in the garage.

(Laughter.)

MR. ASHTON: So, I think the wireless business model is going to be tough from here. It was a great one at first. We gave mobility to voice. Okay. And people liked voice. So, that was a good idea. It wasn't as high risk in hindsight as I guess people thought it was at first. And you can certainly withstand average revenues per user coming down and those kinds of things.

So, it has been a great service. But now, to extend it into these new services like wireless Internet and gaming and all these things, I think they are too uncertain to place a huge capital burden on the carriers just to get in the game. And if you look at the wireless space, I mean there are just not going to be that many new entrants any which way you cut it. So, if you could evenly divide it some way between the existing entrants -- I mean, there is what, four or five -- three, four or five in

almost every area -- if somehow you could come up with that, I think you would spur a huge amount of investment.

You would basically allow the wireless sector to take the risk that it is having trouble taking right now. Then, in the end, I think the government would end up with a better take than they will get on the spectrum in the first place.

MR. BATH: This is America. Let's sell the spectrum. Let's sell it to the highest bidder. The idea that you can give the spectrum away, I think is ludicrous. We learned our mistakes with trying to designate a certain amount of spectrum goes to this party and that party. We ended up with years of regulation. Let's sell the spectrum.

MR. ASHTON: How is capital more efficiently held by the government? If you look at it, there are only five, four or three guys in any market that are going to make use of this stuff. So, we have a sector here that is on its butt and in a lot of trouble. Look at the wireless equipment stocks. Nobody is anticipating a lot of investment. Unfortunately, I don't know what the policy answer to this is, but certainly the European service providers who bid on wireless made some major mistakes.

MR. THIERER: This is the point I was going to add about let's take a look at what markets have done both here and internationally.

Erik, do you want to jump in?

MR. OLBETER: Yes. Actually, I will sort of back away from my initial statement. Having an auction is the most efficient way to get the spectrum in the hands of people who are going to use it. I think the concern, really, in looking at Europe and some of the things that have happened -- and I do not hold myself out to be a spectrum auctions expert -- but clearly there is a significant amount of concern that you can gain the spectrum essentially to make your competitors pay a much higher price than they would normally.

It is sort of the idea that you have to be in the game. It doesn't matter how much it costs, you have to be there. Because if you are not there and the other guy is, okay, you are SOL. So, then, what they do is you boost the price. You end up paying \$100 billion, and you are just begging for forgiveness. And if we have another situation like that here, I agree, I think that all of a sudden you will see the rollout that you were hoping to get incredibly slowed. I think it is an issue more of process rather than the general theory of should we go back to just picking names out of a hat.

MR. THIERER: Yes, some have accused the folks in Europe of being guilty of the "if you build it, they will come" mentality with 3 G. And now a lot of stocks are taking a hit over there. Now we are having this debate about 3 G in America, and there is this question of, how will it play out?

We have a couple more questions that I want to get to. This gentleman right here.

MR. STEINMITER: I am Larry Steinmiter.

It seems to me that you are kind of extrapolating from existing models and, if you will, structures in the way the telecommunications structure is built. If you build broadband and you find a way to get broadband around the country, you are going to open up a lot of opportunities for access points from wireless at much higher frequencies as opposed to what you do now, where you have to operate at the lower frequencies to get the range to kind of get in and support it.

So, it seems to me that there is a coupling here between the present model, if you will, and how you have built your regulations to support the current infrastructure and the relationship between narrow band and narrow band wireless. And when you build a very pervasive broadband structure, all of a sudden you are going to allow wireless to go up into whole new broadband frequency regimes. Would anybody care to comment on that? I am sure the equipment manufacturers would like that.

MR. THIERER: Is anybody a spectrum engineer here?

MR. CLELAND: The problem there is that essentially you have a legacy model, you have imbedded investment and you have inertia. You have essentially interests that protect the system as it is right now. And as we see in the Tauzin-Dingell fight,

when anybody tries to change the needle in a different direction in a significant way, there is a huge fight.

At the FCC, for little policy issues, there are huge fights. It is much easier to protect the status quo than it is to change it. What you are saying from an engineering standpoint makes sense. From a political, operational and migratory sense, it is near impossible.

MR. THIERER: One more, and then we are going to wrap it up.

MR. HERSHEY: I am Bob Hershey. I am a consulting engineer.

They had talked earlier about some of the new technologies coming up, such as getting more lines through fiber and voice over TCP/IP and things like that, as increasing the speed of penetration of broadband. I wonder to what extent that will be taking effect versus the economics and the regulatory stuff we discussed so far.

MR. THIERER: That is kind of a technical one.

MR. ASHTON: I think one of the problems is that we lost a lot of our envelope pushers in this marketplace. That has really hurt a lot of the new age type technologies, and the market has not even remotely recovered from that. If you look at the RBOC's, for instance, their Project Pronto plans and the others that have similar plans are very ATM based, not IP based.

And so the whole IP revolution and networks are going IP and those kind of things, you can't really make that case anymore when you look at the value chain end to end.

So, those are certainly issues that have to be resolved. And over time, I think technology will still move forward. It will just move forward maybe not as fast as it was going, but maybe it will be more efficient when 10 companies are not all working on the same thing, when we have one that is working on it, or two or three. So, without envelope pushers, everything slows down. And then we are back to relying on big companies to do things that obsolete their networks faster. And that is a very bad thing for technology.

MR. THIERER: Well, guys, do you have any wrap-up comments?

(No response.)

MR. THIERER: I want to thank you all for being so patient. It has been very enlightening. It has been very hot up here. Everybody join me in a round of applause for our panelists.

(Applause.)

MR. THIERER: And we will have lunch upstairs in our Wintergarden Auditorium right up front.

(Whereupon, the Cato Institute Policy Forum was concluded.)