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New Directions in Broadband Policy: Is Net Neutrality Necessary or Advisable?

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Transcript of the Proceedings

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P R O C E E D I N G S*

MR. MAY: We are very fortunate to have Michael Powell moderate this panel. Michael is a senior advisor with Providence Equity, and a former commissioner and chairman of the Federal Communications Commission. I am going to dispense with relating the panel members' long biographies as they are in the "New Directions in Communications Policy" conference program. And I now turn it over to Michael.

MR. POWELL: Thank you very much, Randy. Good morning to everyone. For over a decade now we have witnessed an extraordinary evolution in this thing called "broadband," and the discussions have grown about its significance and public policy treatment.

We have seemingly gone from a techno-ecstatic, euphoric period, in which everything seemed possible, to a time where real issues of substitution for the traditional network have become important.

And what clearly has emerged is that the broadband question is about both wireline and wireless, with enormous and extraordinary potential for economic productivity, education reform, and healthcare. There are

* This transcript has been edited for purposes of correcting obvious syntax, grammar, and punctuation errors, and eliminating redundancy. None of the meaning was changed in doing so. The editing assistance of Wendell Bartnick is gratefully acknowledged.

no problems, challenges, or solutions that do not incorporate the significance of broadband or technology.

And so, we are going to grapple with some of those issues today. We have an esteemed panel to help us with that. I will introduce them very briefly, before I ask each of them to give a relatively short opening presentation.

I want to start with two individuals who bring some intellectual rigor and scholarship to the panel. The average IQ is improved immeasurably by their presence here.

(Laughter.)

We have James Speta, who hails from the Big 10 – a Northwestern University Wildcat, and we are happy to have him with us.

We also have Christopher Yoo, who is from the University of Pennsylvania School of Law, noticeably less fiercely known as The Quakers. They hope to sweep Yale and Brown this year, and we wish you luck with that.

(Laughter.)

We also have representatives from the industry. We have Bob Quinn from AT&T, home of the iconic iPhone and encourager of mothers everywhere to beat up their children for wasting rollover minutes.

(Laughter.)

We have Tom Sugrue from T-Mobile, host of the open-platform Google Android. He is the chief alien here in Washington, and T-Mobile has created discord everywhere by prompting people to fight over whether they are in your "fav five" or not. But we're happy to have Tom here.

(Laughter.)

And we have Tom Tauke of Verizon, land of FiOS and an unruly mob that apparently follows everyone who has a Verizon phone around. If commercials are to be believed, Verizon employs fifty percent of the currently employed labor force.

(Laughter.)

And we have Joe Waz, who is just simply "Comcastic", so we will leave it at that.

(Laughter.)

MR. POWELL: Welcome to you all. I would like to invite each of you to give a brief opening statement. Let us start with Bob.

MR. QUINN: Thank you very much. Considering the challenges that our country faces today, as Chairman Powell aptly noted, a commitment to broadband is an essential way for the United States to address them.

Broadband deployment in the United States is going to be an economic driver for the 21st century. It is

going to create jobs. It is going to enormously reduce the carbon footprint that we all have. It will also reduce the damage that we do to our environment by enabling people to communicate without having to travel to see one another. Finally, it is going to bring health care and education and jobs closer to people.

At AT&T, we believe that broadband is a means to connect all Americans with one another, which is going to greatly help us conquer the challenges that have been described for us *ad nauseam* in the last six months.

For that to happen, we believe that the government needs to adopt policies and programs that encourage the enhancement of infrastructure. Many people have detailed the reasons we need more broadband. Cisco stated that the Internet traffic in 2012 is going to be seventy-five times greater than the Internet traffic that we saw in 2002. In 2012, twenty-eight exabits, which is the equivalent of seven billion DVDs, will flow over the Internet each month.

In our own network, we estimate that in 2018 the IP traffic will be 5,600 percent greater than what it is today, just 10 years down the road. Why is it growing so fast? Well, we have a greater number of Internet users getting on the network every day. The platforms of various

technologies are merging onto single IP platforms. And we have seen an evolving pattern change in the way people use the Internet, as we move to more sophisticated, quality-sensitive applications, like real-time video.

What are we, at AT&T, doing to meet those challenges? In 2008, we invested over $20.3 billion in our wireline and wireless network infrastructure. Last year, we deployed a new Internet backbone. We essentially rebuilt the backbone that was at the heart of the SBC/AT&T merger, a mere three years and a couple of months later. We have the largest deployment of forty gigabyte connectivity in the world. We are in the process of bringing 5,000 jobs back from overseas by the end of next year.

Adding bandwidth, however, is not going to be enough to achieve these goals. We cannot build our way out of this. We need cutting edge network management techniques to handle this explosion of data transfer. Providing these bandwidth capabilities is essential to bringing this country out of the economic doldrums that we find ourselves in today.

We need to avoid extensive new regulations in the name of net neutrality because they create disincentives to invest and impede the evolution of these networks, at a

time when we really need more incentives and more investment in our network infrastructure.

That is not to say, at AT&T, that we are opponents of the principles that underlie the arguments around net neutrality. We support an open Internet, and we support competitive choice. We understand that the Internet is personal and essential to people, that it is the medium for free expression, communication, creativity, education, and innovation. And we commit to maintain that openness.

We are not going to be a gatekeeper, and we are not going to use our position as an Internet provider to act anti-competitively to harm or limit competition. And I think we have more areas of agreement with our old opponents than areas of disagreement when we talk about net neutrality.

We must find a way to balance the desire for an open and neutral Internet with a network owner and operator's desire to have the tools that enable them to efficiently manage the network to ensure that everyone has a robust and affordable Internet experience. An open Internet does not equal an Internet devoid of security, privacy protections, or the ability to enable all

applications – including those that are more sensitive to latency and jitter.

At AT&T, we believe that the FCC's existing framework works. The FCC expressed four principles, which, after the Comcast/BitTorrent decision, incorporate a prohibition on unreasonable discrimination against a particular application. We have a case-by-case framework that allows flexible but significant oversight that accommodates the yin and the yang of openness and a secure and efficiently managed Internet.

Rather than spend the next several years going down the rabbit hole of micromanaging the hypothetical abuses that we thought about in the net neutrality debate a couple of years ago, we believe that the United States government needs to focus on the policies that matter. We should accept the fact that we have a framework that works, and move on to the really important policy objectives that will enable us to meet the challenges we face today by expanding and strengthening our broadband infrastructure. Thank you.

MR. POWELL: Thank you very much. James?

MR. SPETA: Thank you, Michael, and thank you, Randy, for organizing the "New Directions in Communications Policy" conference.

My essay in FSF "New Directions" book is centered on the fear that the FCC has already announced a new direction in communications policy. For me, and I think for many who follow Internet regulation, the Comcast order strongly suggested three new directions in communications policy. I found these three directions particularly jarring because they altered the more or less consistent tone of non-regulation of Internet services.

First, the FCC's action implicitly questioned the degree of competition in Internet access services. The Comcast order advanced a foreclosure theory supported, at least implicitly, by a view that Comcast had market power in video and Internet access services. But that view is certainly not the way the FCC has talked about these markets in the past.

Now, I think the Supreme Court probably misread the FCC's record when it declared in yesterday's price squeeze opinion that the FCC has found these markets to be highly competitive. But the FCC has clearly always been optimistic in the past about the degree of competition that will develop in these markets.

Second, in that opinion the FCC advanced a very broad theory of its own regulatory authority over Internet services. And most notably, at least for me, the FCC

asserted a theory that its regulatory authority over Internet services allowed it to impose exactly the same form of economic regulation that had long characterized common carrier utility services. To be sure, it did not do that. But there is nothing in the opinion that limits the scope of the FCC's regulatory authority.

Third, and I think inevitably, the Comcast order carries the tone of an invigorated FCC supervision of Internet services, and particularly suggesting we will see the FCC imposing broad and specific rules of practice on Internet carriers.

Of course, the Comcast order is only a single case, and the FCC and many commentators have long favored a case-by-case approach to deal with Internet competition problems. However, the FCC opinion adopts a rule of practice that is much broader than was required to decide the case. It also articulates a very strong presumption about particular network management techniques without, to be frank, the development of the factual or economic record necessary to support such a broad rule.

So, in my essay, I compare the FCC's previous statements about the state of the Internet access market and its theory of regulation, versus what the FCC says in the Comcast order. I worry that given the FCC’s lack of

overall strategic planning for Internet access regulation over the past few years, we already have a new direction, one that I do not particularly like.

Discussion and analysis of the possibilities of Internet access and Internet regulation is required to respond to the seeming shift in course that the Comcast order signals. The Comcast order is not the only reason to do this. We are solidly in the broadband age, with fifty percent of residences now having subscribed to broadband Internet access.

I hope that the new FCC, together with the Federal Trade Commission and the Department of Commerce, will now engage in strategic planning for Internet regulation. I would prefer to see the formation of something like the antitrust modernization commission that concluded its work in the last year, populated with academic and industry experts, to tackle three questions.

I think the modernization commission should first look at the technological feasibilities in the broadband market. The commission should convene a series of workshops to analyze the state of the market by looking at current deployment statistics and discussing future technical scenarios. Within this past year, some new initiatives finally have begun to better understand the

actual on-the-ground broadband market. But the degree to which this analysis was overdue cannot be exaggerated.

Second, the modernization commission should perform economic analysis of the market. Although I am a law professor, I think the second series of workshops should build on the technical information to discuss the extent to which various market segments currently are or will likely become competitive. The policy makers must become more knowledgeable on these economic matters. Although the seeming heart of the Comcast order is an economic argument, the order does not cite a single economist, economics article, or economic theory.

As a third step, the modernization commission, on its own or in conjunction with other regulators, should convene a series of workshops to discuss different regulatory models. Currently, this discussion is happening in the academy and in the industry. I am calling for engagement between and with the policy makers on these matters.

When he was the chairman, Michael frequently spoke about the meta-structures of regulation. It is that sort of discussion for which I am calling. In recent years, the discussion has returned to specific regulatory issues, and away from self-conscious contemplation of

regulatory models. I suppose this is understandable, especially given the failure of the attempt to rewrite the Communications Act in 2005 and 2006. Nevertheless, the need for these discussions is great. Thank you.

MR. POWELL: Excellent, thank you. Tom?

MR. SUGRUE: Thank you, Michael. I want to talk about open access in a broadband environment from the perspective of a wireless carrier, as T-Mobile is a pure wireless player in the U.S. My advice to regulators and to government is consistent with at least the bottom line of what Bob said about going lightly in this area.

Regulation can do more harm than good. There is a lot going on in the openness area, and I say this as a representative of a carrier that likes to think we have the openness crown among wireless carriers, with our roll-out of the G1 phone, our partnership with Google, and the Android open platform.

But it is a competitive market, and wireless carriers compete for consumers based on many factors, including how we are going to implement openness. When I say we are the most open, I am sure my friends from Verizon, AT&T, and Sprint would be willing to jump up and say, "No, you have it all wrong. We have a better approach to openness." And that is what competition is all about.

It is really just playing out now. We have one mobile device that operates on the open access Android system. A year from now, if we have this conference, there will be many more from T-Mobile and also from other carriers. Verizon will be further along implementing its open access system, and AT&T is doing a number of interesting things in addition to the iconic iPhone. With all of this activity, this is probably the worst time to write detailed rules creating a set of rights, obligations, and prohibitions, saying, "This is how you do it, this is what openness means."

Government action is fine if it limits its decisions to setting flexible principles. I think everything we do is consistent with principles. Some of those principles, by the way, came from a speech Michael gave when he was chairman. They are a great set of principles, and we follow them. But we implement them our way, and we like to have the flexibility to adapt as time goes on.

I also want to mention that we do not need the FCC to watch what companies do, because the blogosphere tracks what we do practically on a real-time basis. For example, there was one application that was downloaded to some G1s from the Android page. The application helped

users manage their calendar, and some people claimed it was erasing all the calendar entries. The application was pulled off the download site. The application developer was upset, saying there was no problem. It got straightened out. But all of a sudden, the blog was full of stuff saying, "Well, you know, I don't know about this Android thing. Apple has a much better system. It just won't let you put anything up there, you know?"

(Laughter.)

Network management concerns are real. They are not something Internet service providers have just made up. And that is particularly true in the wireless area. The spectrum is a scarce resource. T-Mobile probably knows that better than anyone, as we are the most spectrally-constrained carrier. We are still rolling out new services, using our new AWS-1 spectrum that we fought hard to get and keep over the last two years.

I can give you one example of how the network, the handset, and applications interact. In New York City we had a terrible spectrum problem. We had a joint venture with a predecessor of AT&T, Cingular. For various reasons, Cingular was being dissolved which resulted in us going down to twenty megahertz in New York. Well, twenty megahertz is not much spectrum for a dense market like New

York. We had acquired more spectrum in the AWS1 band, but the government was still using it, and we clearly were going to go through a period of time serving our densest market with our smallest spectrum portfolio.

As a result, we implemented a technology called AMR. It is sort of an advanced form of GSM. But the technology depends on being implemented in both the network and the handsets. So, for the two years leading up to the drawdown to 20 megahertz, we were seeding the New York market with AMR handsets, so that when we cut over we were getting a 2-to-1 ratio, a pay-off, in terms of spectral efficiency.

Our ability to seed the market with our devices was critical to our ability to increase that spectral efficiency. The handsets and the network worked together in a wireless environment in a way that does not occur, necessarily, in a wireline environment.

The bottom line is that there will be plenty of time to begin regulating if the government really sees problems. But stay your hand. Let the competitive market play out, and some interesting things will happen.

MR. POWELL: Thank you, Tom. Tom Tauke?

MR. TAUKE: First, I would like to add some perspective to this discussion. Just a few years ago at a

conference like this, we would have been trying to explain what "broadband" is. We would have been encouraging people to use it and explaining its uses and importance for the country. We do not have to do that anymore.

And, in fact, over the last several years, there has been an explosion in broadband. This resulted from an huge increase in the investment in broadband, the most massive investment in constant dollars in any infrastructure in the history of the nation — and it has been private dollars that have done it. The number of geographic areas to which broadband has been deployed has increased dramatically, along with a massive increase in the adoption rates. And this has resulted in an explosion of services and applications that are available to consumers. The trend is not changing, so there is much good news.

Two issues face us now in the midst of this explosion of broadband. The first is the question of deployment. We have areas that still do not have broadband, and some of them are very expensive to reach. Government can play an appropriate role to ensure that areas where companies have no economic incentive to deploy broadband get some support for that deployment to occur.

A year ago, we would have been talking about mapping, and trying to get legislation through Congress to have a mapping program for the nation. It passed at the end of the last congressional session.

Then we would have been focusing on getting a capital deployment fund, and we probably would have thought, "Geez, if you get a couple of hundred million, this would be a great start." Well, now we have over $7 billion in the capital deployment fund from the stimulus package.

The question now is how we are going to use that money. The program, frankly, is not well shaped yet. This is not a criticism, it is just reality. The agencies have to do a lot of work to fill in the blanks, as is usually the case after Congress passes legislation.

States and others have to develop plans and programs that will work. I think it is important for all of us to try to encourage the states to play a large role, to step in and make sure that the stimulus money is used appropriately to actually meet the needs of unserved areas.

The second big challenge, it seems to me, is to determine how broadband will be regulated. In essence, this is, in part, the net neutrality argument. The title of this panel is, "Is Net Neutrality Necessary or

Advisable?" Well, if you define it, I will answer the question.

(Laughter.)

One issue is how that term is defined. But let me just make an observation about this. When we talk about net neutrality, our mind is focused on how we manage scarcity of capacity. We do not have enough bandwidth for everything, so we are trying to figure out how to manage it appropriately. Supporters of regulation think that if government does not do it, the private sector will mess it up.

I would like to change the mindset a little bit. Our public policy should be to create abundance. We have the technology now to create abundance, and it is happening. Fiber is being deployed, cable companies are expanding the capacity in their networks, and wireless networks are expanding capacity, and with the deployment of Long Term Evolution (LTE), there will be a lot more.

The second observation I would make is this. We have been thinking about hypothetical problems now for three years. I still do not know that there is a problem out there that anybody is citing which should compel us to have government action to come in and solve it.

I think industry can do a better job than it is now, but we can work together and with government officials to have a mechanism that allows the market to grow, expand, and innovate without having the burden of regulation. We can still ensure that consumers get free and open access to a robust Internet.

MR. POWELL: Thank you. Joe?

MR. WAZ: Thanks, Michael. It was in 1997 that Comcast and other cable companies started bringing the first high-speed Internet – broadband Internet – to residences in the United States. And it was in 1997 that we started having our first debates about how this new capacity, this new capability, was going to be regulated. The debate back then was open access in the context of wireline technology.

We spent about five years debating, chiefly with AOL, the chief proponent at the time of open access regulation, over whether all broadband networks should be opened up to multiple ISPs. Well, we got to the end of that story, and we have had, as Tom mentioned, this incredible explosion in broadband capacity in the United States.

And so, for the last five years we have debated the next iteration of how to regulate broadband, which is

in the name of something called net neutrality. My hope is that it really is a new day in Washington, and that we really are heading in some new directions in communications policy. I have to say that the Obama administration's first measure related to broadband has fundamentally changed the conversation about the role of government, and it is very heartening. It does give me hope.

We really do need to focus on the things that the stimulus bill focuses us on. First, we must determine where broadband is and is not. We must get the state maps done, so that we can really understand where the need is. Second, we must decide how to fund last mile, middle mile, and long haul to those parts of the country where it is simply not economic to do so.

Third, we must focus on how to promote broadband adoption — fortunately, we have about $250 million behind it — to get the benefits to all Americans. We must break down the technological, cultural, and legal barriers that prevent taking maximum advantage of the broadband opportunity that all those private sector investments, and now the funding through the broadband stimulus program, will bring to us.

The FCC has been tasked with creating a national broadband plan. I think the legislation does a terrific

job of framing the solution as something that clearly must be multi-disciplinary. All government agencies and departments must discuss deployment of broadband and the real opportunities that it makes available.

There are many examples of barriers preventing use of the full capabilities of broadband. For example, Medicare still does not reimburse remote diagnosis, treatment, and medical monitoring. Also, our education system is split over 50 states and multiple sub-jurisdictions which stands in the way of implementing effective online education.

These are the sorts of things that require new holistic thinking and getting out of the Title 47 box. I hope we avoid applying traditional regulatory silos to new technologies, something the new administration and the new FCC can do. We can go from the primary focus of how to regulate broadband to a new focus on how to maximize broadband opportunity.

MR. POWELL: Thank you, Joe. Chris?

MR. YOO: The natural focus of the panel is, "Is network neutrality necessary or advisable?" I guess I take the appropriate question somewhat differently.

In the world after the Comcast order, and after the election of a President who endorsed net neutrality as

a principle while a member of the U.S. Senate, and as a Presidential candidate, I think the question is not, "Is it necessarily advisable," the question is, "How is it going to be done?"

And so, I devoted my essay in the FSF "New Directions in Communications Policy" book to begin analyzing some of the principles. The FCC, if it continues on its current course, announced a case-by-case approach. There is a lot of merit to a case-by-case approach, but the difficulty is that it is now a black box. We only have one data point, and that data point focused on a handful of things the FCC would prefer carriers not do, but it lacked detail on what they should do going forward.

My analysis tries to predict how this affects innovation, consumers, and competition. I want to highlight a couple of points that I think really need to be taken into account in a case-by-case analysis, if we are going to have effective broadband policy.

The overarching point I would like to make is that a remarkable amount of the debate is framed by what I think of as a 1998 conception of the Internet. At that time, the Internet was remarkably uniform and homogeneous in a lot of different ways.

Telephone companies dominated the 1998 Internet. Now, we have a whole host of last-mile technologies. Just at this table we have two wireline players taking different approaches. Verizon is investing $24 billion in the fattest pipe we have ever seen. Everyone I know who has taken up FiOS thinks it is a brilliant product. No one has disputed that. Wall Street hammered Verizon for years, saying, "This is a $24 billion mistake." And now, much to its shock, Wall Street has changed its mind and said, "Hey, they've hit every number that they've projected, and maybe this isn't such a bad idea, after all."

We have AT&T, which looked at the same gamble, and chose to deploy a system using an architecture that takes more advantage of the existing legacy loop. This deployment has a smaller cost, but at lower bandwidth. So, AT&T made a different gamble. It is one that we want private players to make. Neither regulators nor academics should be handicapping financial business models. We should be allowing different players to pursue different objectives, and let the best model or models win.

Interestingly, AT&T's solution poses some different challenges, because it has more limited bandwidth. It has adopted a policy, condoned by the FCC in the AT&T/Bell South merger approval order, of reserving

bandwidth for their proprietary video services. Without the ability to do so, it cannot become an effective video competitor.

Is this policy profoundly non-neutral? It discriminates on the basis of applications, and it discriminates on the basis of proprietary content. But I think the choice is an essential part of AT&T's unique technology, and one of the steps it needs to take to make its business model effective.

Cable has a slightly different problem: the technology has bigger bandwidth than the video solution, but is subject to local congestion. And those companies are going to have to adopt a number of network management solutions that are tailored to the unique problems that they face.

Wireless companies have the double whammy. They are extremely constrained in bandwidth, and they are subject to local congestion. Also, their core business product, voice, shares bandwidth with their higher-level service offerings. They have a whole elaborate set of network management principles that often require, as Tompointed out, a much tighter integration among applications, devices, and network than any other player has to pursue.

There are different solutions being pursued by other wireless players that will off-load more functions to the different portions of the network, instead of off-loading more into the device. Again, I do not believe that a regulator or academic should be handicapping which of those solutions to the wireless problem should prevail. Our job is to get out of the way, especially because I do not think anyone knows at this point exactly which solutions are going to succeed. If you knew, you would not be sitting here today; instead, you would be investing and not worrying about any of this.

We also see a huge variety in what consumers want. As consumers increasingly vary, we expect the market supply to become increasingly varied to meet them. This will cause a huge heterogeneity in business relationships. For example, we are accustomed to talking about interconnection in terms of in-transit and tier-one ISPs. Now, we are in a world where non-tier players are doing business with each other in a practice called secondary peering. We are seeing business relationships, like paid peering and partial transit, develop that are saving consumers money, because the players are reducing the real cost to the system.

What these new business arrangements mean is that determining how much a particular content provider pays depends on: a) the topology of the network, and b) the business relationships they have with the companies with whom they interconnect. Those sorts of give-and-take are natural, healthy, and actually create innovative solutions to the congestion problems. We need to make sure that any case-by-case approach takes that into account.

We see a maturation of the industry resulting in "intensive" competition. We no longer see a race for free customers, and the industry can no longer take advantage of legacy technologies. The capital investments have gone up. When companies participate in intensive competition, as opposed to extensive competition, the strategies change and companies must vary to get more out of existing customers, rather than just reaching new customers.

Lastly, engineers are starting to figure out that if you cannot manage your networks, the only way you can guarantee a certain level of service is by creating excess capacity. If you cannot manage a network, you are essentially increasing the capital cost of build-out. Some engineering models say up to sixty percent more capacity is required to offset the lack of network management capabilities.

This will affect the rural build-out, and the build-out in underserved areas all over the country. The result is that wireless players in rural areas openly state, "I throttle video. If I don't I cannot provide service because there is just so much bandwidth that's consumed." So, there is a competitive dimension that matters.

If we can look to any one corpus as our baseline, I have laid out some principles. The one ready source is the antitrust principles. When these principles apply, a case-by-case analysis called "the rule of reason" is used. It allows people to experiment with different business models, and waits for a proven anti-competitive problem. It puts the burden of proof on the person challenging a practice, so people are free to experiment with different solutions.

In addition, as we wait for the additional detail on the FCC's case-by-case analysis, I think that if we are going to look anywhere, things like the considerations I talk about above are helpful.

MR. POWELL: Thank you, Chris, and thanks to the panel for your excellent introductions to a great topic.

There are a few areas I would like to cover in our discussion this morning. I would like to talk about

the stimulus package, and your interpretation of the most significant legislation in this space we have seen in a long time. I would also like to talk a little bit about the economic crisis, and how it will affect our broadband policy objectives. Finally, I would like to discuss content and applications.

But, let us begin with a focused discussion on this issue of net neutrality. So much of the debate is premised on certain kinds of instinctual assumptions that I want to challenge. Bob started out making a reference to this point: people assume that openness is always good, and practices that could be interpreted as discriminatory or prioritization are somehow inherently bad. I would like the panel to expound upon the idea of consumer welfare benefits that come from being able to manage a network in a way that might lead to the kinds of things that could be snared in an overreaching network neutrality model. In particular, please describe any analogies to other kinds of critical goods and services where we have become much more comfortable with these concepts.

MR. WAZ: Since Comcast was the test case, I will start by pointing out the direction that we took in our initial network management practice: try to manage congestion at peak periods with the least impact on

consumer expectations. The judgment, which we thought was reasonable at the time, was to focus on finding a limited number of applications which: 1) are not latency-sensitive, 2) have the most impact on the network, and 3) narrow management of them would ensure that all other users, particularly users of latency-sensitive services, like VoIP, would have a good experience.

The reasonableness of that judgment was challenged. At that point, we went to the Internet community and said, "Help us to figure out a better way to do it." From those discussions, we planned and committed to implement the fair share mechanism we have now. In its order, the FCC expected us to continue with that implementation, and we have. The mechanism focuses on specific consumer volume broadband usage during peak periods. For fifteen-minute periods, volume restrictions on a consumer's consumption are driven by the fact that the consumer is using more bandwidth than his neighbor, rather than that he is using a particular application at any given time.

Recently, Acting Chairman Copps has begun to discuss trying to find yet another mechanism which will focus very specifically on time-sensitive applications. He wants to try to draw a bright line between how to manage

latency-sensitive services and those services that are not. The FCC has taken a page from our book by conferring with the broader Internet community as it determines which way to go on this.

As the net neutrality conversation goes forward, we need to focus on more than just the right regulatory model. We must develop the right self-regulatory models and find the right ways to work within the Internet community to build consensus and solve problems before they become regulatory issues. For example, before you implement something, we suggest talking to IETF, the Internet Engineering Task Force, which is truly a collaborative body and a place where you can have a conversation with the Internet community.

I think we can make this whole scheme work better by finding more opportunities for before-the-fact collaboration. This is not to say that you should go to an entity and say, "Please bless this, or I will not do it." But you at least should take an opportunity to sit down with applications providers, engineers, and academics, and say, "All right, this is what we have in mind. Is there a better way?" We were able to improve our fair share system through exactly that kind of collaboration and conversation.

MR. POWELL: Chris, and then James.

MR. YOO: There are a number of examples where network management is good, such as in wireless and secondary peering. One of my favorite examples of how management yields real benefits goes back to the old days of NSFNET in the mid-1980s, when we first had this problem. The big change was the development of the PC around 1984. People, instead of just using terminals to tap into NSFNET in real-time, began using modems and transferring files. File transfers caused the Internet to come to a crawl in ways that no one anticipated.

As a result, the NSFNET, not from some sinister motive, did something very natural by giving real-time terminal sessions priority over file transfer sessions. Since people expected a file transfer to take several minutes, a minute delay was not a big deal. That is a very natural example.

There is a premise in the chairman's question on which I would push back. I do not necessarily believe that one set of network management principles will be better for consumers, because consumers want different things. I have been pushing a notion for a long time called "network diversity" to represent that everyone wants something different out of the same network. You can build one

network based on one set of principles. But as consumer wants diversify, you expect different players to adapt their offerings to meet those wants.

For example, we have the open Internet. That is one model. Many of you saw the New York Times article saying the Internet is about privacy and security now. This is Dave Clark's longstanding principle about trust-to-trust, we need a certain amount of verification, and the anonymity of the Internet does not support that. A second class of consumers likely values that model highly.

Quality of service has been an issue for computer scientists for decades and may require another Internet model. For graphics-intensive, real-time computer game users that prioritization becomes very, very important. What you may see is a world in which different players offer different solutions so that the Internet no longer runs on one principle.

Now, the complaint would be, “That is not the Internet.” But what I would say in response to the Chairman's question is, "But it yields benefits for consumers." If user wants vary, we should expect increasingly varied solutions out of the network itself.

MR. SPETA: Just briefly, the consumer-specific benefits of traffic management, or security and spam

prevention, are pretty easy to talk about. One of the harder questions is to what extent price discrimination is necessary to recover the capital cost investments. I never see in the network neutrality debate a focus on that question — we are just talking about the Internet channel, right?

Nobody who has deployed an infrastructure has ever deployed it in a way that did not rely on price discrimination to recover the assets. The triple-play providers are price discriminating, maybe not on their Internet channel, but perhaps on their video channel. So when you make a network management decision, you decide how much of your network you are devoting to what service.

I think consumers can benefit from price discrimination. However, not every consumer will benefit from price discrimination. For example, if I asked what the people sitting on my flight next to me to Chicago this afternoon paid for their seat, they would likely all have different answers. That is a model of infrastructure recapture involving price discrimination that we are all incredibly comfortable with.

MR. POWELL: Tom, then Bob.

MR. SUGRUE: Well, I have two examples. One relates to the calendar application I discussed earlier.

It had just a little glitch, but one can imagine examples where applications were actually sort of malevolent, and maybe designed that way. In fairness, even the advocates of strong open access say, "That's not what we mean." Of course, reasonable controls to protect people against malware and spyware, et cetera, et cetera, are okay with them. I do not want to create a straw man, but that is out there. We must have some ability to say, "No, we're not going to allow access to this, at least through our platform."

In terms of just volume and bandwidth, as I said, wireless carriers have less bandwidth than wireline carriers. It is just inherent in the technology. Every generational leap we make, they leap a little further, and I think that will probably stay the same for a while. Wireline may have more bandwidth, but wireless has mobility. You cannot drag your FiOS around with you in your car, so you put the wireless device in your pocket. We each offer a little something different.

We have a total usage soft limit of 10 gigabits a month, for example, for the G1. And if you hit that limit, we have the right to put you down to edge speed. Edge speed is our “two-and-a-half” G. It is about 100 kilobits a second. This is the same speed the first generation of

the iPhone had for a year, until AT&T launched its 3G network. It is very workable, and you can do things on it.

We give notice of this, because it could affect very intense users. But I think you have to have some reasonable management, because otherwise a user can crash the network. Or a heavy user could seize a cell sector and knock everyone else off, or at least degrade their throughput to a degree that they are not getting the quality of service they expect.

MR. QUINN: I want to get to something to which Joe alluded when he talked about some of the challenges they faced in the Comcast proceeding.

One of the things to which he alluded is the fact that the character of people's use of the Internet has changed. When Comcast rolled out its Internet broadband product in 1996, people expected that you were going to send queries to servers, and the content was going to come in one direction. That assumption no longer holds.

In the future, we are going to get into applications like real-time video communications that are going to require some level of management on the transmission to ensure that you have a quality communication going back and forth. These are the exact kinds of applications that are going to be highly sensitive

to latency and jitter. Management is going to absolutely be required.

The second point that I would make is frequently lost on a lot of people. End users are not only the folks that are sitting at home. We sell Internet connectivity to commercial enterprises that enables them to communicate with the people who are buying their services. And they are end users to us, as well. And they want managed products to provide a certain level of customer service.

And I think, as we evolve in terms of convergence where perhaps the model by which people buy video today changes, there will be a demand for managed services versus the best efforts principle that the Internet network was originally based upon.

What we cannot end up with is what we ended up with in the BellSouth merger, which was a complete ban on prioritization, even if both the end user and provider were going to consent to it. We have a part of the net neutrality community that wants a complete and total ban on it. And that cannot be the right policy solution.

MR. POWELL: Tom Tauke, I want to start with you. Tom Sugrue said something in his opening statement about competing over openness, which struck me as unusual in this

debate, because the assumption has been that providers' only motivation would be to close networks.

Over the last year we have seen real drives toward the open model, much more significantly than we have seen efforts toward a closed model. And Verizon, particularly, announced a fairly significant shift in its thinking on wireless. What is your view of the economic virtues of openness, the consumer-benefitting aspects of openness that might decrease the anxiety of moving to closed networks?

MR. TAUKE: Several years ago, we had the debate that Joe mentioned about ISPs and whether you should have one ISP like Roadrunner, or you should have multiple ISPs. Those of us in our part of the sector said, "You know, the openness for ISPs is going to win out." And, economically, it did.

We are going through this same process on the wireless side now. And why is openness winning out? It makes money, bluntly speaking. Our open development initiative provides a whole host of new products and services from outside developers that would not be there if we relied on Verizon Wireless itself to come up with them.

By opening the network to players who develop new applications and devices, we anticipate a substantial new

source of revenue over the next several years. This revenue comes from applications that perform mundane tasks, like monitoring storage tank levels, to very complex and unique services to some sets of consumers.

I think the bottom line is that our view is to build the best network. That is our area of expertise. Our area of expertise is not developing applications that provide new arrays of services. Instead, we want to have people use our network to provide these applications and services. This additional traffic on the network is going to result in more revenue for us. But it also means that you have services that attract customers to you. We love the idea of people coming to Verizon Wireless because they see new services developed by others.

So, whether it is the iPhone and all the new applications being developed by outside players, or whether it is our open applications store, the applications drive revenue for carriers and others. It is a way to attract more customers. So that is why openness is happening, and why there is competition among the carriers for openness.

MR. POWELL: Chris, and then Tom.

MR. YOO: A policy analyst would say that there is an optimal level of openness. Rarely do you want any

single solution in all different circumstances. In a world like this, that optimal level is unclear.

We can learn from some classic battles. The first battle fought between Apple and IBM PC. IBM PC had an open API architecture for outside application developers; Apple did not. Apple got killed. Apple came back with the iPhone that, originally, had a closed architecture, and Apple had tremendous success with it. Interestingly, Apple has started to open it up to outside applications now.

The other example I love reminding people about is the AOL/Time Warner merger of 2001, where everyone said: "Closed architecture is going to kill the Internet." It was not the death of the Internet; it was essentially the death of AOL/Time Warner.

It is very hard for us to predict the appropriate openness level. Consumer response can determine that level, not just regulators. If you want another dramatic demonstration of the power of consumer response, look at Facebook's retreat on its terms of service change. When Facebook claimed that it had an indefinite copyright license on anything posted, consumers complained. Within a week, Facebook backed off.

So, I think that there is a tremendous natural force towards openness, anyway. But just because openness may be the virtue in one case does not necessarily indicate the need for regulation.

MR. POWELL: Tom?

MR. SUGRUE: Just two quick points. And I agree with just about everything both Tom and Chris said.

Our senior management was disappointed that open access became a sort of a *cause celebre* over the last year in the wireless world, and not just because our management worried about what regulation might be imposed on us. Instead, we thought we could spring our openness thing on the industry and really drive a lot of business toward our product and away from the more closed models that our major competitors had at that time.

You may say, "Well, it was good government that pushed these other guys there." Well, we were moving to do that on our own, and we lost a little bang for our buck because we appeared to do it in response to regulation. Well, that is how a competitive market works. We tried to do something that people would value and something at that time we felt our competitors had gotten wrong.

My second point is to say that we must work out exactly what openness means and how it is implemented.

What is great about a competitive market is that consumers tell you what they want by moving in one direction or another. If a company tried to close off the Internet, it would likely fail. We had something called T-Zones, first generation web access. It worked fine for a while, but not for the long term. And if that is all we had now, we would be in big trouble. The market will tell you where to go.

On the other hand, our marketing people have done customer surveys and found that openness does not show up in the top 10. Consumers want a good product, one that works correctly, one that performs a certain function, the right price point, reliability, and good customer service. Openness may sneak in when a customer says he wants to be able to use the Internet for different things. It is an element that feeds into the equation, but it is not really the Holy Grail for which everything else must be sacrificed. And government policy should not think that way either.

MR. POWELL: Joe, let me ask you about a different version of the non-discrimination concept. If you are both an owner of content and an owner of infrastructure, or you have a business model that has a dependency on the monetization of content, then are you not

motivated to provide preferential treatment to your services over your competitors'?

And this comes up particularly in cable. If I have a voodoo movie service box with IP, Apple TV, or Hulu that wants to come through on your lines to provide an alternative to your on-demand video services, are you not motivated to have a model that would prevent that?

MR. WAZ: In a competitive marketplace, consumers will get what they want, one way or another. And if we did block content, our competitors would jump on it and provide the opposite. I think you saw the same thing play out in the wireless space.

Look, we exist to meet the needs of consumers, and we are huge fans of video over the Internet. You have probably read in the last few weeks that we are looking for ways to bring more value-added content to the Internet. We are working with content providers, because it is in their interest to be able to have a sustainable business model that takes in all forms of distribution and mobility.

The marketplace dynamics in wireline are similar to what Tom described about wireless. We all need to be moving toward ways to meet consumer demand, which for now is having things across more platforms.

There was a discrimination eruption involving ESPN 360 in the blogs a couple of weeks ago. It got me to thinking about how the FCC might implement an unreasonable discrimination test, or incorporate it into its four principles as a fifth principle.

ESPN 360 is owned by ESPN which comes to ISPs like Tom and me, and says, "We would like for you to pay us to make this content available to your consumers. You must pay for it, or they won't have access to it."

So, right now, Verizon is paying ESPN for that content and providing it over FiOS. If you go to Comcast and go to ESPN 360, you will find the content is not available. I tried to figure out which of us is discriminating, Tom or me.

(Laughter.)

MR. TAUKE: It must be you. It is your turn.

(Laughter.)

MR. WAZ: Comcast owns the Versus network, and we provide a lot of sports content on it. And surely we will be providing more and more online. Say I turn to Tom and say, "Tom, I want the same amount of money from you for Versus online that ESPN 360 is getting," and Tom says, "No." Is he discriminating against me? On the other hand, since I do not carry ESPN 360, but I do provide access to

all the free sports content online which might include Versus, am I discriminating against ESPN 360 because I do not happen to pay for it? Am I favoring my free content that I happen to own?

I would flag this as one key example of how the simple concept of discrimination could be awfully confusing in practice. We really do not know how business models are evolving on the Internet, and we need the flexibility to figure out what those models are.

MR. POWELL: Both case-by-case adjudication and rulemakings have virtues in the abstract. Case-by-case analysis would allow the rule to be more factually premised, as the FCC would have a real set of circumstances in front of it. However, it is also a venue much more prone to abuse, and gets much less input from a broader public. It tends to be restricted to the parties primarily involved, which creates an anxiety that a generalized rule is being created around the circumstances of a single company.

I particularly want to ask about the pros and cons of this type of analysis, from your perspective, with the caveat that the Commission has already formulated its four principles. It seems to be willing to admit that there is an exception called "reasonable management network

practices," but if you know what that means, good luck. It seems like a firing squad of sorts where the FCC is saying, "Just go out there and manage your network, and when you trip on it, or somebody sues you, we will let you know whether it is good enough."

Do you guys have thoughts from an administrative law perspective?

MR. SPETA: My administrative law perspective on this is that the adjudication model makes sense if adjudications are done differently than they were done the last time [in Comcast]. I would like to see proceedings that use administrative law judges. I would like to see more formality and rigor, though not formal adjudication.

The issue of what is "reasonable network management" calls for an engaged approach where the FCC's technical people, who are very good, engage the self-organizing bodies in the industry in a much more proactive way.

Phil Weiser at Colorado has been doing some interesting stuff on self-regulatory organizations; and I think that as a result, we are going to see more engagement from groups like the IETF. I hope that engagement includes policy makers, as well, which will mitigate the problem of broad surprises that happen in small cases.

MR. YOO: I do not think it is a legal question; it is a question of policy. The Supreme Court is very clear that agencies can proceed by case-by-case adjudication, and that decision is almost entirely within their discretion.

There is a huge debate over which is the best mode. I am not that worried about participation in a case-by-case process, because of the FCC's liberal standing requirements at the administrative level. As you know, you can pretty much participate in anything you want.

There are downsides to rulemaking. The rulemaking process is frequently criticized as ossified, because of the revolution in administrative law over the last 30 years. The benefit, supposedly, of case-by-case adjudication is you get disputes that arise in a concrete factual context that often sheds greater light on the nature and the importance of the controversy. The Supreme Court says when the issues are new, and the implications are ambiguous, it begs for case-by-case, because it is very, very hard to foresee what is going to happen. My guess is that there is no global answer.

I did want to discuss what Joe said about non-discrimination. I think ESPN 360 should be framed this way. It is one of three tiers of service ESPN offers. You

get the free ESPN content. There is also something called ESPN Insider, which subscribers can pay for directly. And then this is basically the online television content stream.

It makes tremendous sense to me, because ESPN is basically saying, "Look, if we can get more revenue by deploying this, fine. But we're not going to just cannibalize our online version. And if we're not going to get the payoff from this, we're not going to put more resources into it to deploy it."

We also have to understand that the kind of bargaining power exerted in the ESPN 360 negotiating process is inevitable if we have an Internet based on independent autonomous systems negotiating arms-length interconnection agreements of various kinds. Someone is going to have the big hammer sometimes and others will not.

We will see variations in what people charge each other. We are going to see variations in terms of service. That is embedded in the whole market approach. Otherwise, we will go back to something we call a "PTT", and run on the European model. We can see how well it is working for France in all these different aspects.

MR. POWELL: Let me use that as to segue to a discussion of the broadband stimulus. Jim had mentioned in

his opening comments that the FCC asserted an extraordinary amount of regulatory authority over the Internet. And lo and behold, through the distribution of dollars, another government agency is suddenly conferred with fairly substantial regulatory authority in this space. Under the broadband stimulus, the NTIA is going to distribute some $4.7 billion of grants. I assure you, everyone is moving their offices from 12th Street, S.W., toward the Commerce Department.

The stimulus bill also contains a non-discrimination provision, which really does not add or subtract from the current FCC policy statement, but certainly reinforces it. I do not even know how that provision will be implemented at the NTIA, the way the agency is currently organized.

I would like you to comment on this potential shift in regulatory power from the FCC, which came up with no real additional authority from the stimulus, to NTIA which has real dollars behind it.

Will having potentially different non-discrimination standards confuse the net neutrality debate? Will it be a way to extend net neutrality principles to other industries like wireless, where companies may take

funds from this program? What will happen when companies have to accept the principles to get access to this money?

MR. QUINN: We are certainly going to have a conversation in conjunction with the FCC to figure out exactly what those provisions mean, whether non-discrimination is embedded in the FCC's four principles. Based on the Comcast order, we have always taken the view that we are talking about the four principles.

So depending on how the NTIA defines non-discrimination in conjunction with the FCC, I do not know that the stimulus language is necessarily going to confuse the net neutrality issue. But that definition will certainly impact whether or not we apply for any of those dollars. We are going to see how those words are going to be enforced before we step up to the plate and bid.

I think you will find something similar to what happened in the 700 megahertz auction. In that auction the value of the spectrum with no requirements was significantly higher than the value of the spectrum with requirements on it.

MR. POWELL: Well, I want to get more input on this, maybe Tom Tauke. Let me throw out something that makes it even more intense.

The NTIA has to distribute this money at a breathtaking speed. Because there is no current head of NTIA to define non-discrimination, will the FCC definition be used just because of the reality of having to administer the new standard in such a short time?

MR. TAUKE: Let me start by saying the glass is half full. I think the stimulus package includes funding for mapping which is good, and it creates a capital fund, which I believe is important for the deployment of broadband in unserved areas that are not economically feasible.

The administration has a great responsibility to try to make sense of this package. Is the thrust of the package to stimulate investment in broadband promptly, or is the thrust of the package to do something else?

If the thrust of the package is to stimulate broadband deployment and get jobs, then the administration will adopt policies that encourage carriers who actually have existing plans to apply for the money and deploy.

However, if they have a different objective, they may need to write a lot of rules. They will attempt to create, in a sense, a new sector, or new players who will follow this new set of rules. That will not result in a

lot of jobs, certainly not immediately. But it could be viewed as a legitimate policy objective.

So, I think the bottom line is that the administration has an opportunity to get broadband deployed and to create jobs. And the extent to which they seize that opportunity will determine the NTIA's rules.

I also want to mention that because the two agencies involved do not traditionally have the capacity to administer this level of a program with this much money, they are faced with some difficult challenges. So there is a lot of work to do to get an infrastructure in place.

The best thing the administration could do is get the states to come forward with their plans, because a lot of states have been working on broadband deployment plans for unserved areas. They should accept some accountability for the expenditure of the funds.

MR. POWELL: Tom?

MR. SUGRUE: I am not sure I agree with the last point about the states, because we tend not to be in the same spot as Verizon in dealing in detail with the states. I agree with everything else Tom said, which is why we argued very strenuously that the stimulus should not have any open access, net neutrality, or non-discrimination statements. If the overriding principle is to stimulate

the economy and build jobs, and everyone said that, then the stimulus should not be a substitute for the real overall broadband policy.

You know, it is important to realize that the FCC will finish writing the national plan a year from now, after most of the money is committed. So this stimulus money clearly must be something else. Right?

I hope we can stay with the current definition/principles, but I think we will continue to have this open access discussion. We hoped they would keep everything the same in the stimulus, but they did not quite take that advice. So they put a non-discrimination statement in, which, by the way, we think is better than the original House bill that proposed a 45-day rulemaking period for the FCC to write a bunch of rules.

So, we are reasonably optimistic, but our strong advice would be to tread lightly with defining terms and implementing new standards. Importantly, the NTIA has a very limited capability to act without a Secretary, and the deputy head is recused on this. The last thing we need, with everything the agency must to do there, is for it to start trying to write extensive rules in the form of grant conditions. Our conversations with the public interest

community indicate they agree with that path for this purpose.

MR. POWELL: You know, we should add that the same department and office has to do DTV for the next four to six months. Anybody want that job in this room, or...

(Laughter.)

MR. POWELL: One last question, then I invite the audience to come to the microphones.

There is some $250 million to somehow, vaguely, promote the adoption of the Internet. I do think it is an area that is underappreciated. We tend to collapse subscribership with availability in our discussions, even though broadband is available in a lot of places where it is not adopted. You could assume that is based on affordability, but I think the reasons are actually more complex. Why do families choose or choose not to subscribe to broadband with their discretionary family IT budget, which is pretty heavy-laden already with wireless cell phone services, television, and various other things?

Does anybody have thoughts about how to encourage adoption, and what might be some good uses of those funds, or if you know of programs that are doing this particularly well?

MR. YOO: The full stimulus provision targets telemedicine, distance learning, and broadband deployment. And I think latent in that statement is an idea that it is not just about wiring the world, or even about adoption. It is about applications. And that is ultimately what is driving it through.

If you look at the bandwidth that all the players at this table are building, the constraint on the system is usually the server. And it is only going to run as fast as your slowest link. You have to build the backhaul in the network, and you have the server problem. And that is where most of the congestion happens at peak times.

And so what strikes me is that there is actually money in the fund, not just for adoption, but to stimulate new uses for the Internet. This ultimately will be the driver that gets consumers to subscribe and is actually even more important than lowering barriers to subscribership.

MR. SPETA: I was just going to say one of the things that impressed me about Korean broadband policy is the way in which government programs moved services to the Net in a way that drove people there.

In Chicago, there are some interesting things going on in schools that are moving more and more services

to the Net. And with this Netbook revolution - I am glad I am not a CFO of a laptop maker these days - getting this technology in the home is really getting more cost effective.

MR. POWELL: Joe?

MR. WAZ: There is great data from a variety of sources — Pew, the Knight Foundation, and others — about what stands in the way of the forty-five percent of people who have not adopted broadband. Availability is low on that list. Cost is sometimes the issue, and I am sure we are going to have a big conversation about the appropriate role of subsidy going forward. Hopefully that is part of the national broadband plan that the FCC will be working on.

The fact that twenty-five percent of households have not yet acquired a PC or other Internet power device is a huge factor. And I think the biggest factor that Pew generally identifies is, "There is nothing in it for me." I think a lot of seniors still feel that way. I also think a lot of folks for whom English is not a primary language feel that way. These are some of the areas where we can make some real headway, through effective use of this quarter of a billion dollars in adoption-related money.

Internet safety is also a big factor. There is a lot of cultural resistance in certain ethnic families about, "What am I bringing into my home, and what am I exposing my children to?" So I think Internet safety and digital literacy can be an important part of promoting adoption. ESL is going to play an important part.

Organizations have a huge opportunity here. One of my favorites, One Economy, is doing a terrific amount of work to promote digital literacy, and to get kids to go out and be proselytizers in their community for getting folks online. I think it is terrific.

The legislation also contains $200 million for public computing centers. I have heard a number of stories about small towns where there are three computers in the public library in constant use, predominantly by the immigrant populations in the town. The towns need to expand capacity. I walked into the Boulder, Colorado public library a couple of weeks ago, and there were more people in the Internet cluster waiting for their 20 minutes of use than there were in the rest of the library.

So, I think public computing can play an important role too. In parallel, the role of librarians is crucial in promoting digital literacy to get people more comfortable.

MR. POWELL: Yes, there has been a real surge in library use just for Internet access. I think it is also important to note something that many people probably do not think about. The other day, I met a young man who was applying for jobs. All of the applications for the companies he wanted to apply for only offered online application processing, including McDonald's. If you cannot apply online, you cannot work. Tom?

MR. TAUKE: I endorse everything Joe said. I do think the library is one option. There are a lot of community organizations out there that are providing these services for the reasons that you just mentioned.

But I think the other thing that I wanted to add is wireless. Last night I was in New York City at a benefit for at-risk, high school youth. I was on a bus filled with these kids. It was dark, and I believe every one of them had their wireless devices open.

So, they have the devices, they just do not happen to be wireline devices. And if we can figure out how to use that as an entry point for a lot of these kids, I think there is something there that can be very useful.

MR. POWELL: So, do we have any questions from the crowd?

AUDIENCE PARTICIPANT: Tom Tauke, you are advocating a heavy state role in the distribution of the stimulus funding. Are you concerned that they will go in and apply for funds to build their own wireless or wireline networks?

MR. TAUKE: Well, I am from Iowa, which was the first state to do this, and it has been a terrible problem for the legislature.

No, I do not really have a great concern about that. A lot of states have done work on mapping to try to find out where their unserved areas are. States know where the issues are and how the money could be wisely expended. It seems to me that they are ahead of the curve, certainly ahead of the NTIA. So why not tap into that expertise? There is nothing that I read in the statute that prevents them from coming forward with a plan and then trying to get that plan funded by NTIA.

That process seems to be more administratively efficient and effective than if every private carrier, governmental entity, and local organization came in seeking funds. So that is why I encourage the states to participate, if they have plans and feel capable of administering a program.

MR. SUGRUE: One improvement in the stimulus bill was that instead of requiring a public/private partnership for any grants, it allows private companies to independently apply for funds.

We are not sure if we are going to apply for those funds, because we are not sure what the conditions will be, but I think states, local communities, and public safety agencies will apply for it. It will look like free money out there.

However, I am not sure how T-Mobile will compete with the local sheriff's department for a broadband grant. It is a strange system to implement politically.

MR. POWELL: Yes, ma'am?

AUDIENCE PARTICIPANT: Why do you think Congress did not explicitly deal with satellite broadband as an option?

MR. POWELL: Bob?

MR. QUINN: I will jump in. We [AT&T] have a partnership with satellite broadband providers to cover the areas of our footprint where we do not have a wireline broadband product. Today, I think satellite provides us with a method to bring connectivity where there is no business case to provide service. However, given the existing technology, satellite will not be able to deliver

the kind of applications that the Internet is really transforming toward. People are creating content at their location, and there are latency limitations of satellite for which we do not have a solution.

MR. POWELL: I want to thank the panelists for an outstanding panel and thank the audience too.

(Applause.)

MR. MAY: I want to thank Michael Powell for chairing this panel and doing an excellent job as moderator.

(Applause.)

MR. MAY: It was a terrific panel. Some of you were not here earlier when I referred to the book that is being published with the papers from scholars like Jim Speta and Chris Yoo. It's a terrific book with 10 essays called "New Directions in Communications Policy." And so I just want to bring that to your attention.