

THE BROOKINGS INSTITUTION

IMPROVING BROADBAND AND MOBILE COMMUNICATIONS

Washington, D.C.

Monday, September 21, 2009

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**Welcome and Introduction:**

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**Panel Presentations:**

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"The Washington Post"

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

MR. WEST: Good morning. I'm Darrell West, Vice President and Director of Governance Studies at Brookings, and I am pleased to welcome you to this forum on Improving Broadband and Mobile Communications.

Infrastructure has been a key to economic development throughout American history. In the 19th century the railroad knitted together a young nation and speeded communications from one part of the country to another. In the mid-20th century the Interstate Highway System had a profound impact on transportation and economic development. Now our infrastructure centers on digital, broadband and wireless communications. Digital communications makes it possible for people, businesses and government to stay connected, innovate and create jobs.

To help us think about the future of broadband and wireless, we are honored to welcome Julius Genachowski, the Chairman of the Federal Communications Commission. As all of you know, Mr. Genachowski was nominated as FCC Chairman by President Obama and sworn in to office this past June. The Chairman has two decades of experience in public service and the private sector. He spent 10 years working in the technology industry, he co-founded LaunchBox Digital and Rock Creek Ventures. From 1997 to 2005, he was a senior executive at Interactive Corporation. Prior to that he served as Chief Counsel to FCC

Chairman Reed Hundt who I believe is actually with us here today. Thank you, Mister Chairman. And also as Special Counsel to FCC General Counsel William Kennard.

Mr. Genachowski is well known for his entrepreneurial spirit, his innovative use of technology and his data-driven approach to policymaking. During the campaign he chaired Candidate Obama's Technology, Media and Telecommunications Policy Working Group, and reports from the campaign trail also describe him as a tough competitor on the Obama basketball team.

This morning the Chairman will deliver his thoughts on broadband and wireless. Following that we will ask that you remain in your seats because we will present a panel moderated by Cecilia Kang of the *Washington Post*. In addition, Brookings has launched a new blog on its website at [brookings.edu](http://brookings.edu), and this afternoon I will be posting my reactions to this event and I invite any of you who are interested to share your thoughts as well.

Now it gives me great pleasure to welcome Julius Genachowski to the Brookings Institution.

MR. GENACHOWSKI: Thank you. It's a little hard to believe that my basketball playing ends up in my thumbnail bio. Thank you, Darrell and thank you, Brookings, for hosting me in this discussion about the future of broadband and the Internet.

We've just finished a summer of big-ticket commemorations, celebrating the fortieth anniversary of the Apollo landing and of Woodstock. 1969 was a good year to be a kid in New York with Joe Namath calling the Super Bowl, and the next season that ended up with the legendary Willis Reed in game seven. I grew up a long fly ball from Shea Stadium and soaked up every minute of the Miracle Mets' season. Maybe that's why I tend to believe in miracles.

But perhaps the most momentous birthday from that famous summer of 1969, in its way a miracle, went by just a couple of weeks ago without little mention. Just over 40 years ago a handful of engineers in a UCLA lab connected two computers with a 15-foot gray cable and transferred little pieces of data back and forth. It was the first successful test of the ARPANET, the U.S. government-funded project that became the Internet, the most transformational communications breakthrough since the printing press. Today we can't imagine what our lives would be like without the Internet, any more than we can imagine life without running water or the light bulb. Millions of us depend upon it every day at home, at work, in school, everywhere in between. The Internet has unleashed the creative genius of countless entrepreneurs and has enabled the creation of jobs and the launch of small businesses and the expansion of large ones all across America. That's why Congress and the President have charged the FCC with developing a National Broadband Plan to ensure that every American has access to open and robust

broadband. The fact is that we face great challenges as a nation right now, health care, education, energy, public safety. While broadband Internet alone won't provide a complete solution to any of those problems, it can and must play a critical role in solving each one.

Why has the Internet proved to be such a powerful engine for creativity, innovation and economic growth? A big part of the answer traces back to one key decision by the Internet's original architects, to make the Internet an open system. Historian John Naughton describes the Internet as an attempt to answer the following question: How do you design a network that is future-proof, that can support the applications that today's inventors have not yet dreamed of? The solution was to devise a network or networks that would not be biased in favor of any particular application. The Internet's creators didn't want the network architecture or any single entity to pick winners and losers because it might choose the wrong ones. Instead, the Internet's open architecture pushes decision making and intelligence to the edge of the network, to end users, to the cloud, to businesses of every size and every sector of the economy, to creators and speakers across the country and across the globe. In the words of Tim Berners- Lee, "The Internet is a blank canvas allowing anyone to contribute and to innovate without permission."

It's easy to look at today's Internet giants and the tremendous benefits they have supplied to our economy and our culture and forget that many were small businesses just a few years ago, founded

on little more than a good idea and a no-frills connection to the Internet. Mark Andreessen was a graduate student when he created Mosaic which led to Netscape, the first commercially successful Web browser; Mark Zuckerberg was a college student in 2004 when he started Facebook which just announced the addition of its three-hundred-millionth member. It's hard to say because it's so big. Pierre Omidyar originally launched eBay on his own personal Website. Today more than 600,000 Americans earn part of their living by operating small businesses on eBay's auction platform bringing jobs and opportunities to Danvers, Massachusetts, Durham, North Carolina, Lincoln, Nebraska, and many communities in both rural and urban America. This is the power of the Internet, distributed innovation and ubiquitous entrepreneurship, the potential for jobs and opportunity everywhere there is broadband.

And let us not forget that the open Internet enables much more than commerce. It is also an unprecedented platform for speech, democratic engagement and a culture that prizes new ways of approaching old problems. In 2000, Jimmy Wales started a project to create a free online encyclopedia. He originally commissioned experts to write the entries, but the project only succeeded after moving to volunteers to write them collaboratively. The result, of course is Wikipedia, one of the top-ten most-visited Websites in the world today and one of the most comprehensive aggregations of human knowledge in our history. The potential of collaboration in social media continue to grow. It is changing

and accelerating innovation, and we've seen new media tools like Twitter and YouTube used by democratic movements around the globe.

Even more, the Internet is beginning to transform health care, education and energy usage for the better. Health-related applications distributed over a widely connected Internet can help bring down health care costs and improve medical services. Four out of five Americans who are online have access to medical information over the Internet, and most of those say the information affected their decision making. Nearly 4 million college students took at least one online course in 2007. The Internet can potentially connect kids anywhere to the best information and best teachers everywhere. And the Internet is helping enable smart grid technologies which promise to reduce carbon dioxide emissions by hundreds of millions of metric tons.

At the same time, we've also seen great strides in the center of the network. Most Americans' early exposure to the Internet was through analog modems which allowed a trickle of data through the phone lines to support early electronic bulletin boards and basic email. Over the last two decades thanks to substantial investment and technological ingenuity, companies devised ways to retrofit networks initially designed for phones and one-way video to support two-way broadband data streams connecting homes and businesses across the country. And a revolution in wireless technologies using licensed and unlicensed spectrum and the creation of path-breaking devices like the Blackberry

and the iPhone have enabled millions of us to carry the Internet in our pockets and our purses. The lesson of each of these stories and innumerable others like them is that we cannot know what tomorrow holds on the Internet except that it will be unexpected, that the genius of American innovators is unlimited and that the fewer obstacles those innovators face in bringing their work to the world the greater our opportunity as citizens and as a nation.

Notwithstanding its unparalleled record of success, today the free and open Internet faces emerging and substantial challenges. We've already seen some clear examples of deviations from the Internet's historic openness. We've witnessed certain broadband providers unilaterally block access to VoIP applications, phone calls delivered over data networks and implement technical measures that degrade the performance of peer-to-peer software distributing lawful content. We have even seen at least one service provider deny users access to political content. And as many members of the Internet community and key congressional leaders have noted, there are compelling reasons to be concerned about the future of openness.

One reason has to do with limited competition among service providers. As American consumers make the shift from dialup to broadband, their choice of providers has narrowed substantially. I don't intend that remark as a policy conclusion or as a criticism, it is simply a

fact about today's marketplace that we must acknowledge and incorporate into our policymaking.

A second reason involves the economic incentives of broadband providers. The great majority of companies that operate our nation's broadband pipes rely upon revenue from selling phone service, cable TV subscriptions or both. These services increasingly compete with voice and video products provided over the Internet. The net result is that broadband providers' rational bottom-line interests may diverge from the board interests of consumers in competition and choice.

The third reason involves the explosion of traffic on the Internet. With the growing popularity of high bandwidth applications, Internet traffic is roughly doubling every 2 years. Technologies for managing broadband networks have become more sophisticated and widely deployed, but these technologies are just tools. They cannot by themselves determine the right answers to difficult policy questions and they raise their own set of new questions. In acknowledging the existence of challenging competitive economic and technological realities for today's Internet, I want to underscore that this debate as I see it isn't about white hats or black hats among companies in and around the network, rather, there are inevitable tensions built into our system, important and difficult questions that we have an obligation to ask and to answer correctly for our country.

When I worked in the private sector I was fortunate to work with some of the greatest innovators of our time. That taught me some lessons about the importance of innovation and investment. It also taught me the importance of developing clear goals and then being focused and practical in achieving them, making sure to have the best input and ideas from the broadest group possible. I am convinced that there are few goals more essential on the communications landscape than preserving and maintaining an open and robust Internet. I also know that achieving this goal will take an approach that is smart about technology, smart about law and policy, smart about the experiences of ordinary consumers, and smart about the lessons of history. The rise of serious challenges to the free and open internet puts us at a crossroads. We can see the internet's doors shut to entrepreneurs, the spirit of innovation stifled, a full and free flow of information compromised, or we could take steps to preserve internet openness, helping ensure a future of opportunity, innovation and a vibrant marketplace of ideas.

I understand the internet is a dynamic network and that technology continues to grow and evolve. I recognize that if we were to create unduly detailed rules that attempt to address every possible assault on openness, such rules would become outdated quickly.

But the fact that the internet is evolving rapidly does not mean we can or should abandon the underlying values fostered by an open network or the important goal of setting rules of the road to protect

the free and open internet. Saying nothing and doing nothing would impose its own form of unacceptable cost. It would deprive innovators, investors and the public of confidence that a free and open internet we depend upon today will still be here tomorrow, it would deny the benefits of predictable rules of the road to all players in the internet ecosystem, and it would be a dangerous retreat from the core principal of openness, the freedom to innovate without permission that has been a hallmark of the internet since its inception and has made it so stunningly successful as a platform for innovation, opportunity and prosperity.

In view of these challenges and opportunities and because it is vital that the internet continue to be an engine of innovation, economic growth, competition, and democratic engagement, I believe the Federal Communications Commission must be a smart cop on the beat, preserving a free and open internet.

This is how I propose we move forward. To date, the FCC has addressed these issues by announcing four internet principals that guide our case by case enforcement of the communications laws. These principals can be summarized as follows: network operators cannot prevent users from accessing the lawful internet content applications and services of their choice, nor can they prohibit users from attaching non-harmful devices to the network. These principals were initially articulated by Chairman Michael Powell in 2004 as the four freedoms based on work that was done under Chairman Reid Hunt in the late 1990's, and later

endorsed in the unanimous 2005 policy statement issued by the Commission under Chairman Kevin Martin, and with the forceful support of Commissioner Michael Cobb, who, of course, remains on the Commission today.

In the years since 2005, the internet has continued to evolve, and the FCC has issued a number of important decisions involving openness. Today I propose that the FCC adopt the existing principals as Commission rules, along with two additional principals that reflect the evolution of the internet and that are essential to ensuring its continued openness.

The fifth principal is one of non-discrimination, stating that broadband providers cannot discriminate against particular internet content or applications. This means they cannot block or degrade lawful traffic over their networks or pick winners by favoring some content or applications over others in the connection to subscriber's homes, nor can they disfavor an internet service just because it competes with a similar service offered by that broadband provider. The internet must continue to allow users to decide what content and what applications succeed. This principal will not prevent broadband providers from reasonably managing their networks. During periods of network congestion, for example, it may be appropriate for providers to ensure that very heavy users do not crowd out everyone else.

And this principal will not constrain efforts to ensure a safe, secure and spam free internet experience or to enforce the law. It is vital that a legal conduct be curtailed on the internet. As I said in my Senate confirmation hearing, open internet principals apply only to lawful content services and applications, not to activities like unlawful distribution of copyrighted works, which has serious economic consequences. The enforcement of copyright and other laws and the obligations of network openness can and must coexist.

I also recognize that there may be benefits to innovation and investment of broadband providers offering managed services in limited circumstances. These services are different from traditional broadband internet access, and some have argued they should be analyzed under a different framework. I believe such services can supplement, but must not supplant free and open internet access, and that we must ensure that ample band width exists for all internet users and innovators. In the rulemaking process I will discuss in a moment, we were carefully consider how to approach the question of managed services in a way that maximizes the innovation and investment necessary for a robust and thriving internet.

I will propose that the FCC evaluate alleged violations of the non-discrimination principal as they arise on a case by case basis, recognizing that the internet is an extraordinarily complex and dynamic system. This approach within the framework I am proposing today will

allow the Commission to make reasoned, fact based determinations based on the internet before it, not based on the internet of years passed or guesses about how the internet will evolve.

The sixth principal is a transparency principal, stating that providers of internet access must be transparent about their network management practices. Why does the FCC need to adopt this principal? The internet evolved through open standards; it was conceived as a tool whose user manual would be free and available to all. But new network management practices and technologies challenged this original understanding. Today broadband providers have the technical ability to change how the internet works for millions of users with profound consequences for those users and content application and service providers around the world.

To take one example, last year the FCC ruled on the blocking of peer to peer transmissions by a cable broadband provider. The blocking was initially implemented with no notice to subscribers of the public, it was discovered only after an engineer and hobbyist living in Oregon realized that his attempts to share public domain recordings of old barbershop quartet songs over a home internet connection were being frustrated.

It was not until he brought the problem to the attention of the media and internet community, which then brought it to the attention of the

FCC that the improper network management practice became known and was stopped.

We cannot afford to rely on happenstance for consumers, businesses and policy-makers to learn about changes to the basic functioning of the internet. Greater transparency will give consumers the confidence of knowing that they're getting the service they paid for, enable innovators to make their offerings work effectively over the internet, and allow policy-makers to ensure that broadband providers are preserving the internet as a level playing field. It will also help facilitate discussion among all the participants in the internet ecosystem, which can reduce the need for government involvement and network management disagreements.

To be clear, the transparency principal will not require broadband providers to disclose personal information about subscribers or information that might compromise the security of the network, and there will be a mechanism to protect competitively sensitive data.

In considering the openness of the internet, it is also important to recognize that our choice of technologies and devices for accessing the internet continues to expand at a dizzying pace. New mobile and satellite broadband networks are getting faster every day. And extraordinary devices like smart phones and wireless data cards are making it easier to stay connected while on the go. And I note the beginnings of a trend toward openness among several participants in the mobile marketplace.

Even though each form of internet access has unique technical characteristics, they are all different roads to the same place. It is essential that the internet itself remain open however users reach it. The principals I've been speaking about apply to the internet however access, and I will ask my fellow Commissioners at the FCC to join me in confirming this.

Of course, how the principals apply may differ depending on the access platform or technology. The rulemaking process will enable the Commission to analyze fully the implications of the principals for a mobile network architecture and practices and how as a practical matter they can be fairly and appropriately implemented.

As we tackle these complex questions involving different technologies used for internet access, let me be clear that we will be focused on formulating policies that will maximize innovation and investment, consumer choice, and greater competition.

I've talked about what we need to do, now I'd like to talk about how we should do it. I will soon circulate to my fellow FCC Commissioners proposed rules prepared by Commission staff embodying the principals I've discussed and I will ask for their support in issuing a notice of proposed rulemaking. This notice will provide the public with a detailed explanation of what we propose to do and why. Equally importantly, the notice will ask for input and feedback on the proposed rules and their application such as how to determine whether network

management practices are reasonable and what information broadband providers should disclose about their network management practices and in what form.

And as I indicated earlier, I will propose a series of detailed questions on how the internet openness principals should apply to mobile broadband.

While my goals are clear, to ensure the internet remain a free and open platform that promotes innovation, investment, competition and user interest, our path to implementing them is not predetermined. I will ensure that the rulemaking process will be fair, transparent, fact based, data driven. Anyone will be able to participate in this process, and I hope everyone will.

We will hold a number of public workshops, and, of course, use the internet and other new media tools to facilitate participation. Today we've launched a new web site, [www.openinternet.gov](http://www.openinternet.gov), to kick off discussion of the issues I've been talking about. We encourage everyone to visit the site and contribute to the process.

Some have argued that the FCC should not take affirmative steps to protect the internet's openness. Let me be clear about what this is about and what it isn't. The fundamental goal of what I've outlined today is preserving the openness and freedom of the internet. We have an obligation to ensure that the internet is an enduring engine for U.S. economic growth and a foundation for democracy in the 21<sup>st</sup> century. We

have an obligation to ensure that the internet remains a vast landscape of innovation and opportunity.

This is not about government regulation of the internet, it's about fair rules of the road for companies that control access to the internet. We will do as much as we need to do and no more to ensure that the internet remains an unfettered platform for competition, creativity and entrepreneurial activity.

This is not about protecting the internet against imaginary dangers. We're seeing the breaks and cracks emerge, and they threaten to change the internet's fundamental architecture of openness. This would shrink opportunities for innovators, content creators and small businesses around the country, and limit the full and free expression the internet promises. This is about preserving and maintaining something profoundly successful and ensuring that it's not distorted or undermined. If we wait too long to preserve a free and open internet, it will be too late. Some will seek to invoke innovation and investment as reasons not to adopt open internet rules, but history's lesson is clear: ensuring a robust and open internet is the best thing we can do to promote innovation and investment. And while there are some who see every policy decision as either pro business or pro consumer, I reject that approach; it's not the right way to see technologies role in America. And open internet will benefit both consumers and businesses.

The principals that will protect the open internet are an essential step to maximizing investment and innovation in the network, on the edge of it, in the cloud, by establishing rules of the road that incentivize competition, empower entrepreneurs, and grow the economic pie to the benefit of all.

I believe we share a common purpose; we want the internet to continue flourishing as a platform for innovation and communication, with continued investment and increasing deployment of broadband to all Americans. I believe my fellow Commissioners share this purpose, and I look forward to working collaboratively with them in this endeavor. In closing, we are here because 40 years ago a bunch of researchers in a lab changed the way computers interact, and as a result, changed the world. We are here because those internet pioneers had unique insights about the power of open networks to transform lives for the better, and they did something about it.

Our work now is to preserve the brilliance of what they contributed to our country and the world, it's to make sure that, in the 21<sup>st</sup> century, the garage, the basement, and the dorm room remain places where innovators cannot only dream, but bring their dreams to life, and that's something none of us can be neutral about. Thank you.

MR. WEST: Okay. I'd like to ask our panelists to come forward. We'll take just a minute to get the microphones set up and then Cecelia Kang will moderate our discussion.

MS. KANG: Hello, thank you for joining us today. I'd like to introduce our four panelists. We are joined here today by Ben Scott, who's on my right, the end. He is the Policy Director at Free Press. He oversees all governmental outreach at Free Press and regularly testifies before Congress. Prior to his – prior to working at Free Press, he was a fellow for then Representative Bernie Sanders, and he is currently in his final stages of his doctoral degree in communications at the University of Illinois.

Also to my right is Josh Silverman; he is the President and CEO of Skype. Josh Silverman oversees the company's direction and strategy and is ultimately responsible for its performance. He joined Skype from shopping.com, where he served as CEO following Ebay's acquisition of Skype. He was also the co-founder and CEO of Evite. He worked at ABAC Labs, and was a senior consultant of Booz Allen Hamilton, and he started his career as a staffer for then Senator Joe Bradley. To my left, my immediate left is David Young. He's responsible for all items before the FCC, for Verizon Communications. He deals with broadband emergent issues. And prior to joining Verizon, he was responsible – their regulatory group, he was responsible for developing the company's policy on internet and technology issues.

He spent six years working at Verizon's Research and Development Group, on many advanced technologies including VRIP, voice data net architectures and audio, video, and image compressions. He is an engineer by trade. He is a member of IEEE and IEEE Communications Society, and he holds a bachelor's degree in electrical engineering from Stevens Institute of Technology.

On my far left is Darrell West. He's the Vice President and Director of Governance Studies at the Brookings Institution. Previously, he was the John Hazen White Professor of Political Science and Public Policy and Director of the Todman Center for Public Policy at Brown University. He specializes in campaigns and elections, political advertising, mass media, public opinion, technology, policy, and electronic government. We'll start the conversation today with a question to Josh Silverman. Openness policies are something that Skype has pushed for at the FCC for some time. What is the reaction to the news of today, and what does the MPR do – MPRM – what does an MPRM of these extra principals do for a company like Skype?

MR. SILVERMAN: Thank you very much, Cecilia, and thank you, all of you, for inviting me to participate today. It's fun for me to be back. I actually am a graduate of the Todman Center for Public Policy at Brown University and studied with then Professor West many years ago, and started my career working for Bill Bradley doing health care policy.

So being in Washington today is especially reminiscent on a number of fronts.

But, of course, we're here today to talk about what we believe is an extremely welcomed development in telecommunications policy in America. What we're seeing is really for the first time in quite some time communications policy being recognized as innovation policy in America. And in particular, what Chairman Genachowski has laid out we think is incredibly important as a step forward in recognizing a balanced approach to innovation, supporting innovation both for access providers, so people can get access to the internet, but also for application providers, people who make content or software. I represent Skype. Skype is a software provider, we make only software, but it's software that does amazing things. Download Skype onto any PC and it allows you to communicate with anyone else around the world for free or very cheap.

It's pretty popular. We have over 400 million users around the world. To put that in perspective, we add about 300,000 new users each day. So we think we've had an impact on the world from, you know, a team, as Chairman Genachowski laid out, that was originally six people located in Northern Europe.

The principals that Chairman Genachowski have laid out we think are important in moving the innovation policy of America forward in a couple of key ways. The first is, as I talked about, this idea of a balanced approach between access and applications.

What do I mean by that? For too long I think the focus has been on how do we make sure that access providers can continue to deliver broadband access to more and more people. But why does someone want broadband access to the home? Let me give a specific example. The next generation of televisions coming to market in 2010 are largely going to be internet connected TV's. But I don't need another 100 television stations. When my flat panel TV is also the video conference center of the home, suddenly it becomes exciting. And if you take any flat panel TV, add Skype software to it, you suddenly have a video conferencing center. So there's a virtuous cycle that happens between the applications and the access, and without both of them being supported, neither moves forward.

Now, this isn't new. Look at the chip industry, right. In the 1980's, Intel could have said, hey, 386 or 486, that's as fast a processor as we can make, so let's not develop any new software because we've reached the technical limitations of the chip. Of course, that's not what they said.

And 3D gaming and ever more robust statistical packages and all sorts of great consumer applications came out on the software side, which pushed Intel to develop the next generations of chips with Pentium and Core Duo and on and on, which, therefore, allowed better and better applications. It's exactly the same thing in the internet space. It is with an open and free internet that we develop wonderful new applications like

Skype, like Facebook, like Twitter, that we couldn't have imagined even two or three years ago that caused people to want to pay for better, faster, more reliable internet. And it's only when that virtuous cycle is allowed to thrive that we all succeed. The second thing I want to talk about is wireless and wire line. We know that there's been a lot of debate among the FCC as to whether wireless should be included or not and we're encouraged to see positive movements in that direction. Let me be clear about our view. There is only one internet.

MS. KANG: As a quick follow-up to that, Josh, you're talking about applications and the ability to switch the cycle, the ability for applications to – can you talk a little bit about the carriers and the cost that this might impose on carriers?

A lot of the carriers, big and small, have raised concerns that net neutrality rules would decrease investment, and in the end, beat the higher cost for consumers. As an international web applications company, you partners with carriers around the world; what has been your experience when you see investment in networks, when you partner with them, and with or without open rules of the road?

MR. SILVERMAN: So, you know, Skype is a very global company, as I said, we have over 400 million users in almost every country in the world, and what we see is, there are other places in the world who have much more open policies. We have a partnership with a mobile operator called 3 in the UK that has been very successful, where

they've actually gone and created an entire product line built around Skype. They market a phone called the Skype phone, where when you buy this phone, all of your calling on Skype is free and unlimited. And other carriers have said, oh, that's crazy, why on earth would you want to do that, you're going to cannibalize your own revenues and this is going to be disastrous. In fact, it's been a huge success for 3.

What they're finding is, lots of people are switching to the 3 network in order to get this application, and they're actually using the internet more, they're using data services more as a result.

So I think the most important thing is that 3 is actually earning a higher revenue per customer with its Skype products than it does with its non-Skype products, because people become more reliant on the device when they learn to use it for more and more things. That's exactly what we expect to happen, you know, as we get more open in the United States, as well. I do want to talk about wireless for a second because I think it's important, the potential distinction between wireless and wire line. In the future, not just in the future, but today, the internet is the internet. For many people, their first experience with the internet is going to be the mobile internet.

So from the communications industry, there may be a tendency to see an evolution where you started with an old hard line phone, and went to a wi-fi phone, and then it went to a, you know, wireless phone around the house, and then went to, you know, remember the first generation of

cell phones that were big and bulky, and those shrunk, and some day we got the Star Tack, and then we added a camera to it, and the internet is just the next feature on that phone.

We don't see the world that way at all, we see the world where we had a terminal computer that became a PC that became a laptop that got wi-fi connected and now, today, fits in your pocket. And if you look at the new generation of smart phones, all they are are personal computers that happen to be pocket sized and wirelessly connected. And the exact same expectations you have of your PC, you're going to have of your mobile phone. In fact, that's exactly what Darrell West's research is showing. And so that's where we think the world is today, not is going to go, we think the world is, that peoples expectations are, that they're mobile devices they can use exactly like their PCs, and we're encouraged to see movements in that direction from the Chairman, as well.

MS. KANG: Thank you, Josh. David, what is Verizon's reaction to the announcement today? And Verizon has been a company that's actually experienced on sort of a trial basis, not a trial basis, but you do have a case study for dealing with spectrum that is with openish commissions, the C block of the 700 megahertz option. Can you talk a little bit about what lessons you learned from developing that spectrum and with the openish commissions, if that has been difficult in terms of investing, or if it hasn't, and generally your reaction to the two additional principals?

MR. YOUNG: Thanks, Cecilia. And I'd also like to say that it's a real pleasure to be here today and to be able to share some of my thoughts on these issues. We absolutely share the Chairman's goal of preserving the open internet. We see the value in the innovation and creativity that's been unleashed by the open internet and absolutely want to see that continue. We are investing billions of dollars and employing thousands of people to build what we believe are the most advanced broadband platforms for consumers, that are also platforms for innovation, not only by ourselves, but also by other companies on this panel with me even.

And so we clearly are putting our money where our mouth is in building these networks and opening them up for innovation. As many of you know, we did bid on and acquire the C block, which did have the openness requirement. And the reality is that our business interests converged with the requirements that were placed there in a way that we were able to live with.

And so beginning even before we acquired the spectrum, we began what's called an open development initiative, to basically open up our 3G wireless platform for outside innovation so that people could create new devices and new applications and bring them to our network rather than having them sold through Verizon as had traditionally been the way.

Even within our platform, though, we have phones that support a wide variety of applications developed by third parties, and

we've recently increased our efforts to reach out to the developer community to bring even more capabilities to these phones. And, of course, we have a wide variety of smart phones that allow people to download the news, whatever applications they want on their wireless connections.

But this platform for innovation also extends to the wire line side. So anybody who has FIOS in the room, you know that our TV's have – our set top boxes have a capability called widgets; these are small applications available on your television. The first ones were applications that we had developed.

We've now added Twitter and Facebook as new applications, and we have more coming along the way. And our goal is to create a widget bizarre that would allow third party applications to be accessible through our FIOS television platform. So openness and innovation are keys to our success and what we believe consumers want.

We heard about the internet and the genius behind the invention of the internet as an open platform. But the internet of 40 years ago is not the same internet as today. It's not even the same internet as five years ago. The internet, as a platform, has also been evolving consistently, and innovation has occurred within the network, and that innovation needs to continue, as well. So the internet is a work in progress and we really don't know what it's going to look like five years from now, but we do know it's going to need more capacity, we know that

it's going to need more security capabilities built into the network itself, an immune system, if you will, and we believe that new capabilities will be created by innovation in the network, and those new capabilities and innovations should not be precluded by regulation.

In talking about the proceeding at hand, I was very pleased to hear that the outcome is not predetermined. I think that the goal of making this fact and data driven is going to be critical because we need to look at the facts, we need to see what are the problems that need to be fixed, what are the examples that require a dramatic change in the regulatory policy dealing with the internet, a hands off policy that's really been in place since the internet was first commercialized back in '94.

I'm pleased to hear that the Chairman intends to do only as much as needed and no more. So these are all positive signs, and you know, we look forward to working with the Commission as they go through this endeavor.

MS. KANG: David, as far as the discrimination principals go, can you talk a little bit about how non-discrimination should or should not apply to wireless, in your mind? And in your mind, what is reasonable network management? The Chairman talked about public safety, spam, copyright, these things; is there anything else that you think falls under the bucket of reasonable network management and could you describe that a little bit?

MR. YOUNG: Sure; you know, wireless is a very, very different environment than wire line broadband. There are the spectrum constraints that obviously exist, but there are other issues, as well. The shared capacity delivered over that spectrum. The mobility factor is huge, the fact that demand can appear out of no where as users converge, and so it creates unique network management requirements that, quite frankly, don't exist on a high capacity wire line infrastructure line fiber to the home.

All of this is going to be worked out through the process. I don't know that I can offer any profound insights here other than to say there are important issues at stake and we intend to engage fully on them.

MS. KANG: Okay. I'm going to turn over to Ben, Ben Scott. What do you think, Ben, does the MPR do for the future of broadband; does it go far enough, these two additional principals, in your mind? Can you talk a little bit about wireless, as well?

MR. SCOTT: Does it go far enough? Well, that remains to be seen. I think that what we heard today is a very common sense approach to a reasonable framework for preserving an open internet. And somebody asked me as I was coming in this morning, do you think the Chairman is going to give a bold speech, and I said, yes, of course, he will. But then I thought about it and I said, well, he's probably going to give a pretty common sense speech. But in this town, doing things that are common sense is considered bold.

So in that sense, I would say the Chairman's approach is boldly applying common sense to public policy, which as we have seen across the political spectrum, is a risky business.

However, I am obviously delighted to see this proceeding going forward. I think it is a logical extension of policy decisions that have been made at this Commission by republican and democratic chairmen alike. It is certainly in keeping with the leadership and the views of the U.S. Congress on these questions. And, obviously, as a consumer representative, it is the elixir of consumer choice and competition that we have long been waiting to see firmly applied in the internet space. I often think about complicated policy issues and the technocratic language and what they express, and I think at the end of the day, I need to be able to explain this to my 19 year old niece who's a sophomore in college because it's her generation that will be enjoying or suffering from the fruits of our policy debates here.

And so I think that the takeaway for me, after hearing Josh's comments is, I can tell you, my 19 year old niece would like to have a Skype phone, I suspect many of you in the room would like one, as well, and the policy framework laid out by the Chairman is the way to go forward so you achieve that result in the marketplace, and that's all for the good.

And so I'm looking forward to this process. I think it is of huge benefit to the consumers that were sitting here today, it is very

encouraging to see all the cameras in the back of the room, to see how important this issue is, what a turning point we are at, and how we're going to go forward and we're going to set all this question once and for all, and we're going to deliver an open internet for the future of the U.S.

MS. KANG: Ben, you've pushed for open internet policy for some time, and if you look at the wireless space, there's been actually some examples of flourishing innovation. The iPhone alone has 65000 applications, many would argue that that's proof positive that the market is pretty competitive and that there's a lot of innovation going on. How would you respond to that?

MR. SCOTT: To me, the iPhone is a good example of investment at the edge, it's investment and devices and applications, so it's been obviously wildly popular. The iPhone has gotten in trouble only when it has begun foreclosing particular applications like Skype or Google Voice.

This is one of the cracks in the fissures that the Chairman pointed out in his speech that we're seeing up here in the market and that we want to address before things go too far in the wrong direction.

To me, the idea that network neutral-ables are – our anti-investment is totally backwards. Net neutrality is a pro-competitive, pro-investment policy, it is about encouraging investment at the edge in order to expand the number of applications and services that consumers want. We're seeing that in the wire line market, we're seeing it in the wireless

market. That then incentivizes the network operators to expand the capacity of networks, deliver services to more consumers because demand is going up. That is the cycle that has defined the entire history of the internet. It has been working beautifully, and I think that we'll continue to see it work well and we'll continue to see policies that promote more investment and an ever revolving circle of the virtuous cycle.

MS. KANG: Darrell West, you just published a report on what consumers want and expect from their mobile technology; can you talk a little bit about how today's events may or may not move the need a little on change for consumers and addressing what they want?

MR. WEST: Okay. Yesterday I discovered that this is going to be a big event when I was watching the NFL football game and there was a news flash that came on at the end of the game, and one of the top three stories they highlighted was the FCC, and I figured, you know, when you hit the football audience, that's the big time in America.

But in our report, we found that consumers want several different things; they want more applications at a cheap cost in a way that's accessible to everyone. And, for example, in a survey of cell phone users in the United States, 80 percent said they want to choose their own cell phone applications. Consumers like the flexibility, the openness, and the freedom of that situation, they appreciate all the innovation that is taking place. I mean we have almost 65,000 applications, wireless applications that are available today.

And speaking of somebody who did his dissertation many years ago on a manual typewriter, I could personally appreciate all of this new technology. But we also found, when asking cell phone users, only 26 percent said they actually have download applications to their cell phones. And when you ask them why they haven't downloaded the applications, 37 percent said they weren't interested, 16 percent cited the cost, 13 percent said it wasn't available on their particular device, and only one percent actually blamed the service provider restrictions.

Now, when I listened to the Chairman's address this morning, I thought there were two aspects that were interesting from a consumer standpoint; one is the problem of digital traffic jams that he was alluding to, because, you know, we know we're going to have rising levels of downloaded music, video, and games that will have an impact on network traffic, it may end up creating traffic jams for some users. What I thought was interesting about the Chairman's comments was, his proposal appears to allow network operators to imply what he called "reasonable network management techniques" to deal with viruses, spam, copyright issues, and so on, as long as they disclose how they go about managing the traffic.

I want to see more details on that particular provision, because I think all of it really comes down to implementation. I mean you

can imagine from a consumer standpoint how that could be really good or not so good depending on how it actually works.

The other thing that I think is looming is this issue of premium services over the internet. I actually think one of the most complicated issues facing the FCC involves pricing structures. Under the new rules, what is going to happen to firms that are offering downloaded music video or games that happen to be willing to pay internet providers more money to deliver their product more speedily.

Now, the Chairman's proposal appears to allow some type of premium service as long as the existing sites not paying the extra fee remain available to consumers. And again, I think that implementation is the \$64,000 question from the consumer standpoint. From a process standpoint, one of the things I really liked about the Chairman's proposal, and here I'm speaking of somebody who studies digital government and how the public sector is trying to use more technology to improve the system.

The FCC today unveiled a new web site, [openinternet.gov](http://openinternet.gov), and so before I came down here, I clicked onto that site just to see what was there. And what I like about the process that is going to unfold is, there are going to be new opportunities for consumers, businesses, advocate, you know, people on all sides of the issues to really give their input over the next couple months on this issue.

Openinternet.gov already is interactive. You can go to the web site. You know, if you love the Chairman's proposal or if you hate the Chairman's proposal, you can enter your comments. There are web casts that are available. In fact, I believe his speech was probably the inaugural web cast on that site.

There are social media applications. You can register to receive FCC updates. So I think in a lot of respects, the process is as important as what other ends up coming out of the end process. And then the last comment I'll just make quickly is, the Chairman was emphasizing a data driven approach, I think that is absolutely crucial, that we need – there's a lot of claims and counterclaims that give made in this area kind of across the political spectrum, we actually need to be making decisions that are informed by data, and I think if we do that, then we'll end up with a result that is beneficial to consumers and businesses.

MS. KANG: Darrell, you bring up, you call it the \$64,000 question that on premium services data, I'd like to hear your reaction to what Verizon's take is on premium services, if that falls under your mind, the category of reasonable management services.

SPEAKER: Well, so to Darrell's point, I think it's unclear exactly how the network is going to evolve and what new capabilities are going to be enabled. Reasonable network management are the practices that would enable those new capabilities, and so, clearly, we don't think anything should be done that would prevent doing something that would

create new opportunities both for consumers, as well as for content and service providers who might be able to benefit from those capabilities. So it's an important issue and one that is going to require a lot of attention in this process.

MS. KANG: At this point we're going to open up to questions from the audience. I'm sure there's a lot out there – questions. And I think we have some people, two people with microphones who will wander around – questions.

SPEAKER: My question is for David Young. You were asked about how wireless was different, and the two examples you came up with were that wireless had shared capacity and the ability for –

MS. KANG: Can you introduce yourself, please?

MR. TOPULSKI: Sure; I'm Rob Topulski, I'm Chief Technologist at New America Foundation's Open Technology Initiative.

MS. KANG: Thank you.

MR. TOPULSKI: So in that how wireless is different, your examples were that it's shared capacity and that demand could appear out of no where, demand could suddenly arrive, which strikes me as exactly like wire line. So I'm wondering how wireless is different and why it would need a separate set of rules than wire line.

MR. YOUNG: Great, thank you. And, Rob, I've never met you before, but I think you did a great job, you know, with identifying the issue that was going on with the – and so I think – I just want to thank you

because I think that kind of vigilant technical oversight is part of what keeps the internet open, and the fact that there are people like you out there who watch these things and identify problems and raise awareness of them is very important.

So I think – when I said that there were differences and that demand could just appear out of no where, in a wire line network, you know where your customer is, you build a certain amount of capacity out to that customer, and you manage that capacity so that as usage increases, you're ensuring that there's enough capacity to handle the peak demands.

On the wireless side, you can have a crowd converge on a cell site that normally only supports a certain number of simultaneous users that suddenly now has ten times or 100 times that number of users and they're all competing for the same resources, and so that's what I meant by that it's a different environment.

MS. KANG: Next question.

MS. ST. LEDGER-ROTY: Again, a question for Verizon. My name is Judith St. Ledger-Roty and I'm with the law firm of St. Ledger-Roty, Newman and Olson. I recently watched a web cast of – in which your Chairman was present, and one of the discussions was about the risks that wireless carriers face that ubiquitous openness would limit innovation and essentially reduce them to the dumb pipe that we have now, arguably in the long distance sector. Do you have concerns about

being reduced to a dumb pipe, and if so, what things do you think you can do to avoid that outcome?

MR. YOUNG: Sure, thanks. And that's actually a point that I was trying to make when I talked about our platforms being – our networks being a platform for innovation. There are things that we can do to add value to the content and application providers by providing a store front for them, like the Apple store or iTunes store. You know, we, too, have an application store, and we're trying to grow that store and make it more robust.

We provide billing and collection and payment back to the application provider, a service that's a value add on top of just distribution over the network. So there are things that we can do to make sure – to look at the developers, to make their applications work well with our network and support capabilities that we can provide, that if they choose to take advantage of, are of value to them. That doesn't prevent them from putting up their own applications on their own web servers or other app stores and making those things available to smart phones or other connected devices, but there is an opportunity, we believe for us to participate in the application value space and help drive network investment through the revenue that it generates.

MS. KANG: Josh, what do you think of David's thoughts on wireless network and spectrum management, and if you could comment on the previous question.

MR. SILVERMAN: And if I can just respond to – personally, I hate the dumb pipe phrase. Access is one of the most important things we have in technology, access to the internet, and it's not commoditized at all, it's how we define – I think Verizon has invested a lot as an example of having an incredibly high quality internet experience, both wire line and wireless, and I think a lot of the consumer research will demonstrate that people recognize and value that you're able to achieve a premium price for it.

And it is exactly, again, access to applications that are really compelling, that require better, more high quality access, and I think it, you know, we will continue to see the ability to differentiate quality of access. We're hugely supportive of that and I think our interest level lined around that. Where we get nervous is, you know, when you go to a lot of these telecom conferences and the breakout session is how do we avoid being a dumb pipe and it's sort of how do we leverage our market power to acquire people to use our applications or our whatever in order – so that we can capture more value.

But we think that access is not dumb at all, in fact, it's incredibly hard to do. And, you know, I'd applaud the efforts that Verizon has been making and really delivering great access to people across America.

On the wireless side, you know, again, all of our interests are aligned, that, you know, if there's a football game somewhere and

suddenly there's a massive crowd, we need to make sure that somehow that's managed. And I think the principals that the Chairman laid out around non-discrimination and transparency of how that happens are designed to make sure that that happens in an effective way.

MS. KANG: Next question, please.

MR. HOWARD: Hi, Alex Howard from searchcompliance.com. It's actually a question about mobile applications. It goes to Apple and Google and Skype. Skype's application was approved, Google Voice was not. How should the government be involved when most consumers are turning the mobile broadband as the principal use? How should platforms like Google's android operating system or Apple's iPhone OS be regulated to be open or not?

MS. KANG: David.

MR. YOUNG: Yeah, let me jump into that first and maybe there will be some additional thoughts. But the wireless market, I didn't mention this, but one of the things that also differentiates the wireless market is the highly competitive nature, you know.

You've got four to seven competitors in every market in the U.S., you know, vigorously trying to retain their existing customers and win new customers. And so when the iPhone came out, for example, I think that it sparked a lot of focus on the smart phone market and those four competitors to AT&T and Apple to create compelling product services and packages to compete with that.

And so, you know, the Blackberry Storm and other devices, other smart phone devices were put out in the market, and one of, you know, to the extent that there are applications that are supported on these other smart phones that aren't on the iPhone, that's a reason to go with Verizon and get the Storm. So, you know, I think that the competitive market allows for the innovation that occurs in one – by one party to then trigger responses by other parties in a way that's actually very healthy and good for competition, good for consumers, and good for the whole ecosystem.

MS. KANG: Is that reflective, Darrell, and what you found the consumers want those, to have to switch carriers and go with, you know, a different carrier based on whatever product offering – service – they have?

MR. WEST: Consumers want choice and they want competition and they want low cost, I mean that's kind of the short summary. I think the tricky thing in both the broadband and the wireless area is, there are contradictions across those goals. You know, it's like public opinion on health care, we want a lot of different things and some of the things we want are hard to get simultaneously. And I think the same thing is true to some extent in the consumer area here.

So I think there are interesting complexities to consumer psychology in terms of how the stuff is going to play out. Like if these changes do lead to greater choice, greater competition, and lower prices,

consumers, obviously, are going to love that. But the question is whether – it's really on the cost side of that equation, and I think that's the reason the FCC has to be very careful how it actually implements some of these principals, so that they can kind of manage consumer goals in a variety of different ways.

MS. KANG: It looks as though the debate over whether a wireless market is competitive or not will be a big topic going forward as this MPR process goes through. Ben, any thoughts on the competition of the wireless market, and would you agree with David that this is a very competitive market?

MR. SCOTT: Well, if your definition of competition is based on a standard created for the wire line market, where there are two, then wireless is more competitive. If your definition of competition is based on do we have any market failures, is there a market power, then certainly there are both in the wireless market.

I think that you have to look at wireless comprehensively, which the Commission is doing right now, and evaluate a market competition not by counting the number of available providers, but analyzing the market structure and looking at what the outcomes are and what consumers are actually getting in terms of price reductions and choices and impediments to competition and innovation. I think in all these cases, let's get back to the original question, it is a mistake to

evaluate policy against every new hypothetical or example that appears in the market.

Should step back and evaluate the entire market and start from the position of, what do you want, what is our goal. Our goal is to produce maximum consumer choice, competitive market, innovation and investment, and then we'll evaluate, do we have a market failure, is that market failure caused by the application – inappropriate application of market power, and if so, what is the proper tool to alleviate that pressure and recreate the competitive market.

And I think that that principal is going to apply equally – because it does – and I think that the framework of establishing based on principals that are applied to the entire internet ecosystem is correct.

MS. KANG: Josh, I think the question was actually originally posed to you; do you want to respond?

MR. SILVERMAN: Sure; we love competition, I mean we've been facing competition since the day we launched. Our Google Voice has some aspects of it that are competitive to us and some innovations that are different than what we do and we welcome that. We think consumers will welcome that. So we think the principal that people can get any application they want on any capable device is an important one, and we would encourage all the players in the market to allow for that.

I think android has many positive developments as the new operating system, as well, that we encourage. What we want to make

sure, though, is that android isn't felt in a way that advantages Google applications over others, and you know, we think Google has been pretty lined around that philosophically. We want to make sure that that continues going forward.

MS. KANG: Next question, right here.

MS. BLACK: Carol Black; I guess I'll ask the question for people over 50.

MS. KANG: I'm sorry, where are you from?

MS. BLACK: I'm from here; I'm interested in product, in terms of, are you studying demographics. We're getting so many applications that aren't being used by people over a certain age, and there's people who feel like I don't want to take a picture with my phone, I don't want to use gaming on my internet. Is there some type of move toward products that are used by people on a more frequent basis than under a certain age level? And cost, because you're being forced into paying for all these assets you're not using, especially wireless.

SPEAKER: I don't know if I'm the only person over 50 on this panel, but I will address your question. God, I hate to admit that, too. But in our study of consumer attitudes, we actually looked at various types of demographics breakdowns, income, ethnicity, and age, which you mentioned in particular, and not surprisingly, there are huge differences across the demographic categories in what people want.

I mean – and just to give you one example, I mean that question of, you know, have you actually download applications to your cell phone; very few people over the age of 65 said they did; only seven percent basically said they had, compared to 40 percent of young people who do that.

You know, when you look at the rising generation of young people, I mean they're using the internet and wireless applications in all sorts of new and interesting ways. They love games, for example. And so I think that when we – when the FCC thinks about its policy, it has to think not just about the overall situation, but how policy decisions may play out differently across various demographic groups. We ask, for example, in terms of ethnicity, you know, if you could add applications to your cell phone, you know, what is your top application, you know, what is it that you want.

We found African Americans, they wanted to add music; Hispanics valued social networking; Asian Americans valued local directories for restaurants and businesses. So when you kind of start to disaggregate the consumer market, there's a lot of variation based on age, income, and ethnicity, and, you know, our policy decisions have to reflect some of the variation that's out there.

SPEAKER: If I could echo that, you know, a lot of the policy debate has been driven by people who are more technically sophisticated and want, you know, complete control over everything. They want to

choose the operating system, and write their own applications, and, you know, do everything themselves, and that's great for the technically elite, and those options are available for them, but there's a wide variety of consumers out there who want some simplicity, who really want things just to work, who are happy to let somebody else sort of integrate the experience for them and deliver it reliably. And so both of these models have to be allowed to flourish. You know, you can't have one that becomes the extreme and forces every consumer into a model that may not be what they really want or what they're capable of handling.

SPEAKER: I guess I would just add that openness spurs innovation and innovation helps everyone, and so we will see applications that are great for the youth, we'll also see applications that are great for other populations. The average Skype user is late 30's, is our average age, and our demographics are incredibly reflective of the demographics of the population at whole.

So grandparents are a huge Skype user because the opportunity to video call with grandkids is one of the first reasons a grandparent is seeing why they actually want the internet. So openness helps all of us and spurs innovation across separate demographic –

MS. KANG: Do you have a question?

SPEAKER: I'd like to add just a little bit to – I think there's nothing mutually exclusive about an open network and a network that delivers different things to different people, and, in fact, I would say they

go hand in hand. To me, what's the most interesting about the history of the internet is how unpredictable it has been. And the applications that we now take for granted as the most popular didn't exist two or three years ago, and two or three years before that, and two or three years before that. There's just no way to predict what's going to be next, and if anything, we should expect the unexpected.

So, in my mind, it is critical to have an open network because if you begin to try to predict and try to optimize your network by changing its architecture or changing the way in which data flows to the network, to optimize for a particular application because today you want to target a particular demographic or a particular market, that's a dangerous path because you can quickly find that you're path dependent, and then you've created a market over here that's designed to service something that's happening today when we know what the beauty of the internet is that this thing breaks and something else emerges and then that becomes the most popular thing. And we don't want to create incentives to slow that process of creative destruction and innovation.

MS. KANG: We'll take another question.

MR. TEINOWITZ: Hi, my name is Ira Teinowitz, I'm a reporter with thewrap.com. This is for Mr. Young. You sort of said you were hopeful that the FCC would work with you and that the FCC would be open, but if the FCC goes ahead with the exact proposal that Mr. Genachowski suggested, which would, as I understand it, require you to

offer other phone services on cell phones, other phone services on normal line services, what would your reaction be? Do you think the FCC can do it, do you think it's authorized, and what happens if we'd go ahead and try to do it?

MR. YOUNG: Sure; so I guess the way I would respond to that is that, you know, the way I started, and that's that we believe that our customers want an open experience and our customers want choices, and so that's why we give them the choices that they want, and why we allow third party developers to make their applications available on our platforms and give our customers complete access to the internet and allow them to do what they want.

So I don't think that there's really any issue there, the real issue is that, you know, what the Chairman announced today was the beginning of a process, and that process is a rulemaking process, and the outcome will be known a year from now or eight months or nine months from now, whatever the length of time is for the process to run its course. And so, you know, it's hard to see exactly where that's going to end, but the concern is that, you know, these are regulations that would apply to the internet now for the very first time.

The FCC has studiously avoided regulating ISP's in any way, shape or form since the inception of the internet, and this would represent the first rules ever written to apply to the internet, and I think

there's a concern that there could be unintended consequences of doing that.

MS. KANG: So what would be the concern, going a little further off that question, of having, for example, a Skype application on your 4G network, what would be the potential concern?

MR. YOUNG: I have no concern with the Skype application on our 4G network. We have Skype on our 3G network. So, you know, again, one of the things I struggle with is, what is the problem we're really trying to solve here, and so that's why, you know, the fact that this will be a data driven process is really important to me, because I truly don't understand what the problem is that we're trying to solve, I don't understand what the barriers to innovation are on the internet side that need to be fixed – regulating ISP's for the first time. So, you know, that's part of what I hope to see come out of this is really what is the problem we're trying to solve and what is the data that supports the need for addressing it in a way that could be damaging.

MS. KANG: Josh and Ben, you seem to think that there is definitely a problem to solve; can you talk a little bit to –

SPEAKER: Sure; well, I mean first I'd like to give credit where credit's due to Verizon. I mean Verizon was the carrier that bid – the C block auction that had the openness principals on it. They explicitly allow – over there – over there 3G network and – the ODI, so I think

Verizon has made a lot of – the steps and we welcome and appreciate that.

That is not universally true, so I'm not here to say that I'm worried that some day Skype will be blocked, I'm telling you Skype is blocked, it's blocked on a lot of networks, in the United States and other markets abroad.

And effectively what does that mean, why should you care? It means that your ISP has decided that some of the zeros and ones that you're sending over your internet are fine with them and other zeros and ones that you're sending you're not based on what they think of that content, does it cannibalize other business models, do they like the political content of it or what. We think that's just an incredibly dangerous precedent, to have your ISP deciding which pieces of data you are and are not allowed to send, and that is, in fact, the fundamental principal that's being discussed today.

MS. KANG: And is Skype's block on Verizon's 3G network?

SPEAKER: No, it's not.

MS. KANG: It's not?

SPEAKER: No.

SPEAKER: There's a question, though; the FCC has already taken action to stop blocking the voice over IT services, so have you filed a complaint with the FCC about the problems of ISP's blocking –

SPEAKER: We've been working closely with the FCC and we're seeing action. But the truth is that today, Skype and other applications, you know, we saw what happened with Google Voice, for example. You know, plenty of applications are being blocked today, including Skype, on other networks, and we're seeing the attention of the FCC now to come and look into that and investigate why that should be, and you know, what – for that.

MR. YOUNG: I'd like to just do something bold and common sense and put some facts on the table. First, it's true, the FCC did enforce an issue of whether the application was blocked, but that was using authority which was immediately repealed in 2005. Two, the – the internet has no regulations in and around the market, it's total nonsense. Spam is regulated, interconnection rules are regulations, prices in the special access market are regulated. There's a proposal to put universal service underneath broadband, that is a massive regulatory system.

The internet is becoming an infrastructure, it is inevitably going to have a regulatory structure around it. What we're deciding is not we're going to have a regulatory structure, what we're deciding is, what is it going to look like and what is its purpose and what would its outcomes be and whose interest will they serve.

So, to me, this is about establishing on the front end of an evolving marketplace a set of principals upon which we would expect this market to develop and to produce outcomes which are openness,

innovation, investment and consumer relations. It is something that is commonplace across the communications act to establish policy goals. It happened in radio and television, it happened in cable, and now it's happening for the internet. This is not something we should be wary or frightened of, it is something we should expect and embrace and do it right.

And I think what we heard today from the Chairman is the beginning of that process, and it's music to my ears.

MS. KANG: So, David, what's the concern of regulating the internet, and –

MR. YOUNG: The concern is that it will stifle innovation, investment and growth, and those were the concerns that led the Clinton Administration to take a very deliberate proactive policy of non-regulation of the internet when the internet was first commercialized, basically to not subject ISP's on the internet to heavy handed common carrier regulation that had been designed for a monopoly telecom environment.

And that was – that was the policy of the United States that was adopted within the U.S., and it's a policy that was proactively promoted by the United States outside of the country, to basically not regulate the internet, and I think it's been widely successful. And so, you know, with all due respect, I think that the internet has been very successful. I have heard that we need to take this step to encourage investment at the edge, and I have not yet seen a demonstrated problem in generating investment

at the edge, and so perhaps that's something that will come out of this process, as well.

But to dramatically change the 15 year policy of the United States government to not regulate the internet is a pretty radical thing and should be driven by a very real and present need to do so.

SPEAKER: Ben pointed out many areas where the internet has been regulated in order to create more openness and transparency and consumer protection, et cetera, and that's really what we're talking about today. You know, we do not have a perfect market in terms of access. There are very high barriers to – it costs billions of dollars to really go and create a new network, and if you spend time with various application providers in any part of the United States, the first question that the venture capitalists will ask is, you know, how are the carriers going to feel about this, because we recognize the carriers control the handsets and the handsets, you know, control what applications you can load, and so if one does come with an application that is potentially disruptive to carrier's business model, you're going to have a lot of questions in your funding process, because that's the state of the world that we're in today.

And that's what we're talking about, is really coming up with a framework that's predictable for everyone, where there is transparency around what the rules of the game are so that we can foster more investment and –

SPEAKER: I think the Chairman – I'll just add one small thing, which is that I think the Chairman identified in his speech that those are natural tensions for network operators. We're trying to decide, do we create a business model of – with abundance where we can – lots of applications on the open internet, which, by the way, I congratulate and applaud Verizon for doing with its FIOS system.

I think more companies should take a lead from that. Or do they choose a business model where band width – is the ideal outcome because there are extra revenues that can be generated from extracting – from those who can pay to access – family. That is the tension in the market that we're identifying. If you stretch the regulatory and policy goals of this FCC to encourage investment in band with – and open network, you will move the market in that direction, which I think will be a positive for everyone, and we'll duplicate what we've seen across the internet for its entire history.

MS. KANG: We'll take another question right here.

SPEAKER: (off mike) Hi, my name is – with the – The Chairman spoke – network – what is that realistic wish list for transparency; what does that actually mean in practice?

MS. KANG: A wish list, so you're asking from –

SPEAKER: Everyone.

MS. KANG: Everyone, okay. Do you want to start or I can – I might actually let Josh –

MR. SILVERMAN: Ben.

MS. KANG: Okay, Ben.

MR. SCOTT: Well, since you asked, last year we filed a document with the FCC where we provided exactly that, we called for a proposed rule on network management disclosure and we listed out a dozen or so things that the Commission ought to look at, questions they ought to ask about, and it essentially boils down to the principal of, anytime a network operator makes a management decision which substantially impacts the communication between a content producer and the content consumer or between two consumers, that practice should be disclosed.

The consumer should know how traffic is being managed. The consumer should know how much speed they're actually getting versus how much they're paying for. Consumers should know if applications are being blocked and for what reason. I think those are the baseline elements of any transparency regime ought to come down to, know what you're buying and know what's happening with your service once you've bought it.

MS. KANG: David, is Verizon okay with that?

MR. YOUNG: So in a competitive market, consumers benefit from having information about what they're buying, and so we fully support that idea, that disclosure should be made, and there's more that all of us could be doing to increase transparency and disclosure in those

regards, not just in the ISP's, but I think throughout the whole spectrum of the internet ecosystem. When consumers are interacting with online services, I think that there could be better disclosure of what they're actually getting and how the service works. And so I think that's something everybody can support. I think the challenge, though, is when you talk about network management practices, it's a – and the Chairman said this, it's a very dynamic environment, in particular with respect to security.

And so network operators need to have the flexibility to respond in real time to dynamic security issues, distributed denial of service attacks and other things that just are hard, you know, you need to have flexibility in how you deal with these things as the threats of all – over time.

MS. KANG: Is there a commercial reason for why you might not want – you might not need to or want to disclose up front what your practices are?

MR. YOUNG: I think there are security concerns in particular. You certainly don't want to make it easy for people who are trying to do bad things, to know how to, you know, the steps that you're taking to prevent those bad things from happening.

So I think there are some concerns when you're talking about cyber security in particular and the steps that are taken to secure networks and servers from those cyber threats. But, in general, I think the

idea that if a practice is going to have an effect on consumers, if it's going to change their experience, their online experience, then absolutely, that should be disclosed.

SPEAKER: Just one thing I'd add; so we all have an interest around having an internet that functions, and some of the network management is important and we understand that. Transparency is key to, you know, if there's policies around network management, no one should be concerned about making those open because – or assuming that it's done just to manage the network itself.

But we do believe that transparency alone is not enough. You know, Ben spoke about market failures, and there are quite a number in this space, one is relatively high – costs, right. As a consumer, you may be locked into a one year, two year, three year contract, there's handsets, there's all kinds of things, so the idea that, you know, a 50 year old in Wisconsin has read the nine point font on the – recognizes – and is switching networks, you know, is maybe a little bit more than where – is for people, so we think transparency is a key element combined with non-discrimination. As the Chairman laid out, we think those two work really nicely together.

MS. KANG: Any other questions? We'll take one right here.

SPEAKER: -- from U.S. Department of Commerce. I'm not really in the telecommunications field, but I have a question. Many years ago when I was starting to school, I remember universal service question

which – the debate about a facility based computation telecommunication area, and the internet industry was exempt from that. Today when we're talking about the open internet discussion, haven't heard about – anybody talk about universal service. Is this question totally out of picture or – thank you for the whole panel.

SPEAKER: I can give an answer to that. And apropos, since you're from the Commerce Department, I will give you a Commerce Department answer. The two are deeply connected, and, in fact, in the Commerce Department's grant program to distribute more than \$4 billion to promote the goal of universal affordable broadband access, they make as a condition of the contract to get grant money and openness provision, not dissimilar at all from the one the Chairman of the FCC just laid out.

This idea of providing a universal, affordable, useful, open internet that works to everybody is one that I think everybody on this panel could get behind. So to your question about universal service and broadband, and you know, there's – the panel is very – about improving broadband, and so there's a lot more involved in that than just the discussion we've had about the dos of the day. And clearly, I think that there's an opportunity to improve the way universal service money is used, and there are changes that are going to be required to the way that universal service money is collected.

And figuring out how those changes can be made in a way that supports broadband deployment and adoption I think are going to be

critical. So there are a number of areas that I think, you know, could be focuses for improvement there, but I think that that's something that the FCC should, in fact, look very closely at.

SPEAKER: And if I could add just one aspect of that. I mean the digital divide is still alive and well. I mean if you look at the Pew survey data on American's use of the internet, America is still divided roughly into thirds. There are a third of the people, like us, who are regular users of the internet, there are roughly a third who are sporadic users, there's still a third that are pretty much outside the digital revolution, and there are lots of reasons for that, income, access, and otherwise. But I think when the FCC develops its national broadband plan by February of next year, you know, closing those access barriers will be absolutely crucial and, you know, something we all should be paying attention to.

MS. KANG: Okay. So this is part of the national plan. Let's take some more questions. I think this gentleman in the very back – quite a while.

MR. GARGAN: Just very quickly, for Josh with Skype, what do you see as an evolving business model that would allow those people who cannot currently afford internet access, and particular broadband internet access, either because of cost or because of the location, particularly rural areas, and also, I guess sort of in general, are people seeing that there are any blockages to the flow of actual information that is

coming across the internet as the information we receive from our traditional media sources are beginning to become less and less, actual information that we get?

So, you know, are people more and more pointing their camera out the window saying, hey, this is what's happening as opposed to talking heads, promoting each other's jobs? I mean, you know, how do we see those two models evolve in the business side and also the political side? My name is Eric, Eric Gargan, I'm with FTK5, and I really appreciate this conversation today.

SPEAKER: So we do think we – in universal access. You know, we think that communications and voice communications are nothing more than data passed over the internet, and so when you get Skype, you can call any other Skype user for free. But that essentially means you just get a lot more value out of the internet access, right. So we think that we're delivering more value and making it more affordable for people to get internet access, because once they get it, they can do a lot more with it, they can save a lot of money, for examples, on their phone bills, and we think that's helpful.

I do want to say Skype is not a replacement for land line telephony, you know, we still think you should have a land line, but you can get a lot more value out of your internet access when you use Skype, and we think that makes the internet more affordable for people around the world.

It's also true that, and I don't want to make this all about Skype, but, you know, as innovations come around like Skype, we do push the boundaries of what communications is. So to your point about reporting from the field and, you know, opening up communication around the world, broadcast networks are now using Skype to do video broadcasting from the field. Now, if you look at occurrences happening around the world, my wife is an Iranian American, and I know there's been a ton of communications between Iran and other parts of the world with the recent disturbances there, and it just makes the world closer to each other, and we think that's a great benefit of – it's something the internet has always done and that benefit is accelerating.

MS. KANG: David, I'd like –

MR. YOUNG: So I think you raised a really important point, and that's – I think we need to keep our minds open to the idea that there could be new business models that would enable access for people who aren't getting access today. You know, there's a lot of stuff on the internet that's available for free, well, how do you do that? Obviously, somebody pays for it, and so there are business models that allow those services to be delivered over the internet to end users for free. And perhaps there's a way to incorporate some of those models into the access world, as well, to help offset some of the very real costs of delivering those services.

MS. KANG: Let's take one more question. We'll take two more questions, this – right here in the back.

MR. RAFFERTY: Scott Rafferty to Mr. Young. I'm with the Ari Group, formerly an employee of one of your predecessor corporations. One of the assumptions we have about competitive markets is that consumers have perfect information about exactly what they're buying. When we look at transparency, would you support reporting detailed geographic quality of service information for wireless data plans? And if that was to be a part of the transparency regulation, would you expect it to stimulate competition among carriers to increase the quality and the footprint of wireless internet?

MR. YOUNG: So it's a good question. And, you know, here is an area where we believe that data is our friend. And Verizon spends a lot of money building its network, we spend a lot of money testing our network, and we are proud to tell people where our network is available, and so, you know, we have very robust coverage maps.

CTIA, in addition, has adopted a consume code that also addresses the issue of disclosing coverage availability through maps. So I think that there's a lot that's being done in that regard and I think that there's more that the industry can do to continue to improve the way we communicate to customers.

SPEAKER: I mean right now the FCC I think is limited by inadequate data. For example, it has a form 477 that collects bi-annual data on whether an area has internet service by zip code. But the data don't distinguish the number of providers, broadband speed, or levels of

utilization, and obviously, all those things are critically important to policy decisions the FCC makes.

So in our – one of the concluding points is, we need better data. And I like the Chairman's comment, that it's going to – that it needs to be a data driven process, we need a lot better data to make some of the decisions that are coming up.

SPEAKER: And to your point, though, Darrell, it would be good to have the information at a more granular level like census tracks, it would be good to have broadband speed information by tiers, not just, you know, do you have it or not. And so the good news is that the FCC has actually started collecting data in this way, and so they haven't published any information yet with their new form 477 data, but they've actually collected that now twice, so they've got a year's worth of data and we're looking forward to seeing that data used in an upcoming report.

SPEAKER: And that's our first recommendation; they should start publishing this data.

MS. KANG: We'll take one last question and then I'll give each panelist maybe just one minute to kind of wrap things up. In the back.

MR. MAURY: I'm Marvin Maury, I'm a law professor, and I've worked with – for years. I have a question for David. We saw the Chairman make two comments that stuck out at me, one was that the internet is a future approved network, you know, unpredictable

applications can run over the internet, voice, video, you know, things we haven't imagined yet, video conferencing, but he also mentioned managed services, and you sounded a little skeptical to me.

And I've heard some skepticism about managed services, so I was wondering if you could give me an example of a service that can't run over the open internet that would need a managed service of some sort.

MR. YOUNG: Sure; so, you know, he talked about the internet being a future proof network, but the internet 40 years ago could not support video conferencing, or, you know, Skype would not run on the internet 40 years ago, it wouldn't have run on the internet 15 or 20 years ago. It's only in the last ten or even five years that you've gotten this critical mass of broadband connected consumers and adequate connectivity throughout the internet and fasten up routers that have really enabled this kind of innovation.

So the internet is a future proof concept because the internet is constantly changing and evolving to support the demands of new applications. And so we certainly don't want to see the internet locked in stone, as it is today, just like we wouldn't have wanted it locked in stone in the late '90's, when, you know, the dial-up internet was the model. The internet needs to continue to innovate.

That said, the platforms that are being used to deliver broadband internet access to consumers are also being used to deliver

other services that consumers value, multi channel television service, telephony service, in the future they may be telemedicine services or smart grid applications, things that perhaps require a higher quality of service or have unique security requirements, and so these things have to exist together unless you want to have two separate completely distinct, or maybe not even two, you'd have to have different infrastructures for each application, which is clearly not a good idea. So being able to deliver these multiple services and capabilities over the same infrastructure is incredibly valuable and something that needs to be encouraged and not discouraged, provided that consumers are able to get the open internet access that they want and that they're going to continue to want. There's not a trade-off here, it's a win-win, consumers can have both.

MR. KANG: Any thoughts on – Ben or Josh?

SPEAKER: To me, the way it looks is that the number of applications that are technically incapable of being run over the open internet in a competitive market are very, very few and far between and the specifications necessary are very limited. We should take a look at that. But we should also remember what this means, and I want to address this back to the previous two questions of both transparency and diversity of voices over the internet the internet enables.

Because when you're talking about providing services that are offered over a shared network – and you're selling them in the commercial market and you're saying, we don't have enough band width

and so we're going to sell to let's say the cable networks on opportunity to prioritize their video, well, that's great if you're watching those channels. If you want to watch somebody else's channel, well then your speed is going to drop down substantially; potentially those applications aren't going to work.

And secondly, you're creating an environment where there's an incentive to duplicate the model where the dominant media channels of yesteryear are the dominant media channels of tomorrow by giving them an advantage in the internet marketplace of content and distribution.

And the next generation of distributed technology, the next generation of citizen journalists, the next generation of new business – distributed information and commercial services may not emerge. So the tension there is very real, and getting this wrong is, as the Chairman put it, takes doing nothing as an unacceptable cost of its own.

MS. KANG: Josh, do you have any thoughts on the response to – to this question about what would be – the network management system?

MR. SILVERMAN: Well, I think we just want to fall back to basic principals around safety, for example, and security. But, in general, we're not in the business of picking winners, and so to the extent that network management is allowing the network to function for, you know, things like security and consumer protection, that's fine, but as soon as it starts to look like it's picking winners, that's when we start to get nervous.

MS. KANG: Well, I'd like to give each panelist just one minute to sort of wrap up their final thoughts on this and maybe even – yeah, just wrap up their final thoughts. Darrell.

MR. WEST: Okay. The last thing I would like to say on this topic is really to kind of hit home the point about infrastructure, because the thing that annoys me the most when we're thinking about infrastructure as a country is, people still define infrastructure in physical terms. You know, we're thinking about highways, bridges, and dams, and when you go back to the President's economic stimulus package, there's a lot of money for that kind of infrastructure.

We need to think about infrastructure in its digital form, because I think broadband and mobile and wireless infrastructure is equally important to our future economic development. We're going to see over the next few years interesting applications in a wide variety of area. We're going to see high speed devices that allow physicians to share digital images across geographic areas. That will have a profound impact on the practice of medicine in America. Schools are going to be able to extend distance learning to underserved populations. We're going to have smart electric grids that produce greater efficiencies in monitoring energy consumption. And we're going to have video conferencing that can save government and businesses a lot of money on travel costs.

So as the Chairman pointed out in his remarks, it's really important to get broadband and wireless right, because if we really want to

get our economy back on track, the digital infrastructure is equally important to our future.

MS. KANG: Thank you. David.

MR. YOUNG: The FCC has been given a very important job in creating this national broadband plan, and it has very important goals of increasing adoption of broadband, of increasing availability and deployment of broadband, and so as the FCC gets into this and works through the plan and how to bring the benefits of broadband to individual consumers, as well as to the country through the things like smart grid and help IT and telemedicine, those sorts of things, balancing conflicting requirements is going to be a crucial job. And so while recognizing the goals of preserving openness and taking steps to do that is important, I think there's also the need to continue to encourage the investment that's occurring today in the wire line and wireless broadband space, and they can't do anything I think to one extreme or the other. You know, they wouldn't want to foreclose the open internet, but at the same time, they also wouldn't want to do anything that would undermine the goals of increased investment and deployment.

MS. KANG: Thank you. Josh.

MR. SILVERMAN: So we talked about innovation policy a lot today, and one of my beliefs is, change is incremental until suddenly it's disruptive, which just means you have a predictable path of making

things a little better, and all of a sudden something comes along that no one expected that changes everything.

The day before Skype launched, no one, including the employees of Skype, could have imagined that it would gain a million users in its first few days. And, you know, if you look at Facebook and on and on, that is the truth of the way the world is operating. If you think about our collective knowledge, what the internet does, what the printing press first did was allow us to stop reinventing the wheel, and every advancement in communication allows us to build on the learnings of our fellow mankind faster and better. And since communication is becoming much more linked, what that means is, disruptive innovation is happening faster and faster. Maybe it used to be once every hundred years, then once every 20 years, we're seeing now once every two or three years new technologies that really do change everything. That we know is going to continue.

So if you're trying to future-proof something, how do you do it? You need to fall back on a few fundamental principals that you believe will always stand the test of time. In the internet, non-discrimination, and transparency have been fundamental principals that I think all of us, and I've been involved in the industry since 1998, you know, it's something all of us have believed to be implicit values held dear to us.

And what I think the Chairman is now doing is making those implicit values explicit so that we have an opportunity to make sure we continue to live by them.

MS. KANG: Ben.

MR. SCOTT: I'd like to close by putting things in a little bit of historical context, to say that what the Chairman announced today is not new, what the Commission is about to undertake is something that every FCC has done since the first electronic technology of mass media was invented. The Communications Act of 1934 was in many ways developed to deal with the radio. And every time a new technology develops, it becomes the fundamental transmission media for news and information, first radio in the '30's, broadcast television in the '40's and '50's, cable in the '70's and '80's.

There's a paradigm shifting moment in policy-making where our commercial interests come to Washington and set the framework for how the market will be regulated and what outcomes it will produce. We're at that moment now for the internet. It is an extra special moment for the internet because not only is the internet the 21<sup>st</sup> century's mass media technology, it is also the 21<sup>st</sup> century's infrastructure.

Now, the previous three paradigm shifting moments in policy change have had two critical characteristics; one is, there's been almost no public involvement whatsoever in determining what the framework should be; and number two is, it is decided that the few would have control

over the media system to the benefit of the many, although often it worked out to the benefit of the few. Now we have an opportunity to change both of those.

First, the public is very involved in what the future of the internet looks like. It is an interactive process that uses the internet to talk about what the future of the internet will look like. And second, the internet is the first technology where we can make the framework to give the many control over technology to serve the many, and that is a principal worth standing up for.

MS. KANG: Thank you. Can you please show some appreciation for our panelists and for the Brookings Institute for hosting this event? Thank you very much.

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