THE BROOKINGS INSTITUTION

NATIONAL BROADBAND PLAN:

CONSUMER SURVEY RESULTS ARE IN

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PARTICIPANTS:

Welcome:

DARRELL WEST, Vice President and Director
Governance Studies
The Brookings Institution

Opening Remarks:

JULIUS GENACHOWSKI, Chairman
Federal Communications Commission

Presentation of Survey Results:

JOHN HORRIGAN, Consumer Research Director
Federal Communications Commission

Discussants:

DANNY WEITZNER, Associate Administrator
Office of Policy Analysis and Development
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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 of Governance Studies at the Brookings Institution, and I would like to welcome you to our forum on consumer attitudes and national broadband policy.

One year ago Congress directed the Federal Communications Commission to develop a national broadband policy and the goal was to have policies that would be accessible, affordable and effect and that would advance the public interest in education, health care, civic participation and energy independent among other goals. Central to this legislative request was the idea that digital infrastructure is vital to our country's long-term economic, social and civic development, and that similar to the development of the electric grid, the interstate system, we need a strong broadband system so that consumers and businesses can reap the benefits of broadband and wireless technologies.

When you look within the United States as well as internationally it is clear that broadband is vital to our future. One study of 120 nations found that each 10 percentage point increase in broadband adoption added 1.3 percent to that country's GDP so that there was a clear association between broadband and economic development. I have a paper that we just put out a few days ago that reviews the international experience with high-speed broadband, and many nations are using broadband to boost economic development, social integration, civic engagement and public service delivery.

Today we are pleased to welcome a number of distinguished guests. For opening remarks we are delighted to have Julius Genachowski back to Brookings. As you all know, he is the Chairman of the Federal Communications Commission. He is the person everyone is watching to see what action the government will be taking in this

area. As you know, before joining the public sector he spent 10 years in the technology industry as an executive and an entrepreneur. This morning he will discuss how consumer data provide insights about broadband policy and what we need to do in order to improve access for consumer businesses.

Also with us is John Horrigan, the FCC Consumer Research Director. There's probably no one in this city who knows more about consumer attitudes and behavior than does John. Before moving to the FCC he was the Associate Director for Research at the Pew Research Center's Internet and American Life Project. While there he was responsible for periodic consumer surveys about a range of issues. Last fall under John's direction, the FCC undertook a detailed study of broadband adoption and its use in the United States. The survey interviewed over five-thousand Americans and John will discuss what he found in terms of adoption and nonadoption rates and the reasons behind each of them and what we need to do. He has a fascinating report if you haven't seen it yet. It's very detailed and very comprehensive which was released today so that it is available online and I strongly recommend that you look at it.

Following John's report, Danny Weitzner and I will discuss the results. Danny is the Associate Administrator for the Office of Policy Analysis in the Commerce Department's National Telecommunications and Information Administration. Danny, that has to be the longest title in the federal government. NTIA which is how I prefer to refer to it serves as one of the principal advisers to the president on telecommunications and information policy. It works with a variety of administrative agencies to develop technology policy. Danny is someone who is very knowledgeable about broadband and technology innovation in general. Before joining NTIA he was the Policy Director of the Worldwide Web Consortium and he has taught internet public policy and was co-founder of the Center for Democracy and Technology.

To kick off our discussion we have opening remarks from the Chairman of the FCC, so please join me in welcoming the chairman to the Brookings Institution.

MR. GENACHOWSKI: Darrell, thank you, and welcome everyone. My main job today is to be setup man for an extraordinary person and an extraordinary project. The person is John Horrigan who as Darrell mentioned has led the effort to produce the survey that's released today. The project was the survey and I just couldn't be more excited and proud of this effort. In our broadband operation we've been focused on making sure that we develop a fact-based record for tackling this big challenge that Darrell described. I'll try to be as brief as possible because the really interesting stuff is going to come from John.

Let me do a couple of things by way of introduction. Darrell, thank you for hosting this and for your work and Brookings' work in this area of shining the light on broadband, the importance of it and the opportunities related to broadband. So thank you for that. Let me welcome a number of people who are here, Danny Weitzner from NTIA and the Commerce Department who is working very hard on these issues at Commerce as well and we appreciate that. In addition to John, there are a number of people here from our broadband team. I won't mention them all. I will just guarantee you that none of them have slept for more than 4 hours in a very long time. From Brookings also I want to thank Sue Kellum, an old friend who I know works very hard on organizing these events.

As Darrell mentioned, we have been working at the FCC on a challenging project, an important project that Congress assigned to us in the Recovery Act, the project of developing a National Broadband Plan for the country. Let me tackle a couple of basic questions that people have when they hear about this. The first is why is broadband important? Actually, the first question people ask is what is broadband? This

group knows and I think more and more people are understanding that broadband is high-speed internet, the connective information tissue of our new economy and society. Broadband is important to my mind because it is our generation's major infrastructure challenge. It's like what roads and canals and railroads and telephone and I think especially electricity were to previous generation, an infrastructure to connect America, to connect all cities and towns across the country, all businesses large and small, all schools, all hospitals, all Americas. Broadband is indispensable infrastructure for the 21st century. It is already becoming the foundation for our economy and democracy in the 21st century, a platform for opportunity for Americans in the 21st century. Darrell mentioned a Brookings study and he mentioned a World Bank study. There is also an MIT study. They all show that even incremental gains in adoption create jobs and generate economic growth. Broadband in addition to being a platform for opportunity will be our central platform for innovation in the 21st century. This is essential in a globally competitive economy. We have unique advantages as a country in the United States. Many of them are around our capacity to innovate, our capacity for entrepreneurialism. They require a robust, open, universally accessible broadband infrastructure. Finally, broadband is important because it's a platform for solutions, a platform for helping solve some of the most essential challenges we face as a country, education, health care, energy, public safety. In each of these areas it is simply the case that we will not solve them, we will not make the progress we need to make in the 21st century, unless broadband is part of the solution.

Why do we need a plan? Why do we need a National Broadband Plan? We need a plan for our country to compete globally in the 21st century; we need a plan for our people to have real opportunity in the 21st century. As I mentioned, America is competing increasingly, we know this, in a fiercely competitive global marketplace and a

world-class communications infrastructure, 21st century broadband, will be essential to America's ability to compete. Other countries are not standing still. We know this from studies that institutions like Brookings are doing. I know this from my experiences talking to my counterparts in other parts of the world. They understand the opportunities that a broadband infrastructure provides any country that seizes the opportunity. The rest of the world is not standing still. To compete and win in the 21st century requires an excellent broadband infrastructure. We need a plan to get there and we need a plan to get there because the U.S. is lagging behind. The studies show this. Not everyone is connected in the United States. Not every community has broadband. Not every person who can get broadband subscribes to broadband. Not every American has the digital skills they need to compete in a 21st century economy or to participate in a 21st century democracy. And the speeds of our networks are not world class. For too long we have lacked a plan in the United States to tackle these challenges, to seize the opportunities of broadband for job creation and economic growth, for unleashing new waves of investment in innovation, and to harness broadband as I said to help solve some of our country's most pressing challenges like health, education, energy and public safety.

So that's what this incredible team has been working on. We haven't released the plan yet. We have another week to go, and believe me; people are working around the clock. But let me tell you a little bit about the direction that we're going in with the plan. What will our plan do?

The first thing is it will set a 2020 vision for the country. This is a strategic plan that will lay out goals for the country and a path to get there. What kinds of goals? I believe we need to set ambitious goals for the United States to achieve by 2020. Some examples, by 2020 the United States should have affordable 100 megabit America to 100 million America households. That would give us the largest and most innovative

high-speed broadband market in the world. Another example, we need to set a goal around adoption. As John in his survey found, the adoption numbers are around 65 percent, the nonadoption numbers are around 35 percent and John will have more detail. We need to move that. We need to move it from about 65 percent now to at least 90 percent by 2020. This is an ambitious goal. It took about 30 years to move from the 1960s to the 1990s in adoption for regular service. We need to make faster progress in broadband, and that's the kind of goal that we're going to set for the country in this plan. A third goal, by 2020 all Americans who graduate from high school, all of America's kids, need to be digitally literate. They need to have the skills required to compete in the 21st century economy and to participate as citizens in a 21st century democracy.

Those are a taste of the goals that we're going to set. They're not the end of them. The plan of course will also include a series of recommendations and initiatives to fulfill the promise of broadband and to move us on a real path to achieve those goals. The plan will include, again some examples, stay tuned for the full plan, but I can tell you now that the plan will include a recommendation for a once-in-a-generation transformation of our Universal Service Fund. We have a fund that has worked well over the last decades to raise up adoption and deployment rates for telephone service. We need to transform it to support broadband. This won't be easy, but we're going to lay out a plan to accomplish that. Our National Broadband Plan will include initiatives for increasing adoption rates around broadband, not an easy challenge but one we're going to take on in the plan. Our plan will include recommendations around unleashing spectrum so that we have a mobile infrastructure that leads the world in speed, service and innovation. Some people when they hear broadband think wires, that broadband is what happens when you plug your computer into the wall, not the electric outlet but your broadband outlet. That's true, and having a world-class wired infrastructure is essential

for the United States, but it's no less important to have a world-class mobile broadband infrastructure and we will lay out in our National Broadband Plan steps to achieve that.

We'll lay out steps in the plan to remove barriers to investment in our broadband infrastructure, to cut through red tape, to lower the cost of investment. In this country, our broadband success will hinge on private companies investing, competing, and this will be a core focus of the plan to identify ways to lower costs of investment, to accelerate deployment, to remove barriers. We'll include a strategy in the plan to tackle something that the market won't solve which is to make sure that we have mobile broadband for our first responders, for our cops, for our fire fighters, for our EMTs. We need to head toward a future where every one of those services have the ability to communicate over broadband text, voice, video, safe lives, and to do it in a way that's interoperable so that we can have difference services in different communities be able to communicate with each other in broadband. We can get there. We're going to lay out an ambitious plan to accomplish that goal. Finally, our plan will lay out a series of steps to tackle the opportunities around using broadband to solve core challenges, what the statute calls national purposes, education, health care, energy, small-business opportunity, so there will be a lot in the plan and I encourage you to continue to pay attention.

Let me just talk for a minute about the survey that we're releasing today. John will speak in more detail about it. Again, it's a tremendous accomplishment, the first time the Federal Communications Commission has ever done a survey like this. It's essential that the agency do this kind of work to make sure that we have a fact base to generate the ideas, the initiatives, to pursue to accomplish our objectives.

What's important about today's survey? What does it mean? The short answer is whatever John says it means. But here's what John taught me. One of the

most important facts revealed by the survey is that today, and this is a very recent survey, 93 million Americans, almost 100 million Americas, almost one-third of the country, doesn't have broadband at home. Thirteen million children, thirteen million children, between the ages of 5 and 17 don't have broadband at home. Think about that. Many of us have kids, we see what's starting to happen in schools, what can happen in schools, we see the ways that a broadband infrastructure is essential for learning at the best schools and is even more essential for learning at schools that are lagging behind. In fact, broadband has the opportunity to be the great equalizer of opportunity in our educational system because it can connect kids everywhere to the best teachers, the best information, the best tutors. But we see also more and more educational plans involving broadband and computers are not just what happens during school hours. They're also what happens after school. They're the homework assignments that kids get, the papers that gets get, the ability of parents to interact with school teachers, with their kids, over a broadband infrastructure. Thirteen million American kids between 5 and 17 don't have access to broadband at home.

The survey finds three core reasons that people don't have broadband yet. One is affordability, a real challenge for many Americas especially in these times. A second is digital literacy, the skills to be able to use broadband. And the third is relevance, understanding the potential benefits that broadband can have. For me the findings of the survey confirm the wisdom of Congress in instructing us to develop a National Broadband Plan. These problems won't take care of themselves. We need to take action to address them. We need to take action to seize the opportunities for our country. In fact, I think the survey provides a spur to action and does so on the basis of facts about what's really going on in the country.

Let me close with this. I've had the chance over the last few months to get out of Washington and see communities trying to tackle some of these challenges and I've become convinced through what I've seen that smart actions can make a difference, that we can accelerate adoption, that we can hasten our broadband future and solve some of the challenges. I went to Cleveland and I visited a senior community center. As you'll hear from John, seniors are one of the areas not surprisingly where we really lag. What I saw at this community center convinced me, one, that it would be a terrible tragedy to leave seniors behind and to say seniors aren't interested in computers and connectivity, we'll just focus on other things. It also convinced me that the barriers to bringing seniors online can be overcome, and I'll tell you what I saw at this computer center. One senior who had learned how to use computers and the internet to send photographs back and forth with her grandchildren in South Carolina. I saw another senior who had learned how to use the internet for health care information. It was fascinating. She gave me a guided tour to the different sites she uses for health issues that we faced, improving her health care and it's easy to see how that lowers the cost of the health care system. A third senior I saw told me about how she had found a job through the internet and through the training that she had gotten, the basic digital skills that she had gotten, at the center. There are pockets of success like this across the country that to me validate the powerful need to move forward. These examples now are the exception and part of the goal of our National Broadband Plan is to make them the rule for the country.

With that and with the promise of more to come with our National Broadband Plan, I thank you for letting me introduce John Horrigan and the survey team. I think we're going to take some questions first. Again, I really encourage you to listen

carefully and to read carefully the work of John and his tremendous team in putting together this important survey. Thank you.

MR. WEST: Thank you for coming to Brookings and we appreciate you sharing your thoughts with us. We have time for just two or three questions because the chairman has to run off to another event. I'd like to start with the first question. You outlined the goal of this plan by 2020 to provide affordable 100 megabit broadband to 100 million households. As we think about the next 10 years, it seems like there are going to be some tradeoffs in terms of each of those three goals, the affordability issue, the access and the speed, and there are some people in this room I'm sure who would like more access, instead of 100 million households, 110, 120, 130. There are some who would say high-speed broadband may not be so crucial, we really need to boost adoption rates. And then there are some internet service providers who worry about the government in all of this. I'm just wondering as you think about the National Broadband Plan, what is the hardest policy choice you face in trying to juggle these goals, access, affordability and speed?

MR. GENACHOWSKI: That's a good question. Let me comment on the first part of the question that you asked and be clear that in broadband we need as a country to accomplish several things. Let me tell you a little bit more about the thinking behind some of these goals. The 100-squared goal is a goal that's designed to make sure that America is in 2020 the world's center for innovation on a broadband platform. It would give us the largest market in the world for high-speed internet and it is what I believe we need to do to make sure that we continue to attract the best innovators, the best companies, the best job creators, the best problem solvers, here in the United States. So it's essential that we don't lose this competition to other countries that have the chance to develop a very large market of very high-speed internet and attract the

kinds of companies that we've been very fortunate to have in this country there. It's the next generation of Apple, Amazon, et cetera. That's one. That is in addition to the goal of making sure that every American has access to basic broadband, to essential broadband, and that's why we've set the adoption for 90 percent in 2020. We've set goals that we want to hit. We think that getting from the 1960s to the 1990s on adoption for broadband in a third of the time as we did for telephone service is am ambitious goal but one that we have to commit as a country to reaching. The ultimate goal is 200 percent, and we will get there.

What are the hardest policy choices? I think the hardest policy choices come around the different major initiatives that we've started to talk about such as reforming the Universal Service Fund and moving it from supporting yesterday's communications technology to supporting tomorrow's communication is a real challenge. We are going where others have tried to go and failed. We're going to do the best we can to succeed. We think we need to succeed for the country, and we're hoping that all of the various stakeholders in that will step forward and participate with us in ultimately delivering for the country a Universal Service Fund that helps us meet our broadband goal.

The challenges around spectrum also are not easy. We have the opportunity to lead the world in mobile over the coming years, but it's not guaranteed. We have some real challenges in terms of our spectrum infrastructure and policies to get there, and that's the second major area that we're tackling. And of course the adoption areas are a difficult set of challenges too in part because as anyone like you who has followed this area knows, there is no silver bullet to solving adoption. You'll hear more from John as you hear that there is no single reason. There are multiple reasons, they interrelate with each other, and so the right set of policies to move us from the 1960s to

the 1990s in adoption will not be a silver-bullet strategy but will have to involve a multiple set of activities inside and outside government to move the country from where it is to where it needs to be.

MR. WEST: I was hoping for a silver bullet. That would be easy.

MR. GENACHOWSKI: So were we.

MR. WEST: We have time for one or two questions.

SPEAKER: You've talked a lot about adoption this morning and so I'm wondering why the FCC cares if people choose not to adopt broadband.

MR. GENACHOWSKI: It's a good question. I tried to talk a little bit earlier this morning about the opportunities of being on broadband. Let me give you a couple of examples that make it more concrete. Actually let me do two parts. One is to listen carefully about when John talks about the reasons that people don't have broadband. In some cases if the obstacle is affordability, the question of choice is an interesting one. If the issues are digital skills, digital literacy or lack of understanding, those are different. I would say that we believe that the percentage of Americans who would choose if they could afford it and if they had the skills and if they were aware of the benefits would be very, very small, much smaller than the 35 percent nonadoption rate that we have now, and that percentage as you'll from John is much higher in particular demographics.

The second thing I'd say is to relate some things that were eye opening to me. One is a realization about the consequences of some trends that we know about. We know that classified ads are moving, largely have moved, from newspapers to the internet. It's a very significant trend and we tend to focus on the consequences that that has for newspapers, and it has very significant consequences for newspapers and raises a very important set of issues. It means a second thing too which I think people focus on

less but which is very important. Ten years ago, fifteen years ago, twenty years ago if you were looking for a job what would you do? You'd get a newspaper and you look for the job. Today that's now how you look for a job. The ads aren't in newspapers anymore. In fact, our data as part of the broadband effort shows that increasingly companies that are hiring are doing all of their job postings online. What does this mean for people who are looking for jobs and the vital necessity of having internet access if you're going to find a job? That's part of what motivates us in trying to unlock the adoption challenge.

I'll give you one other example. I went to Erie, Pennsylvania and listened to a farmer talk about broadband. When we started this project I wouldn't have predicted that the following exchange would have happened. The farmer said I'd been farming all my life. My kids farm, my grandchildren farm. If you had asked me a few years ago whether computers and this internet thing would be relevant to me as a farmer I would have said I don't care. That's ridiculous. He said today you can't be a farmer without internet access. He went on to talk about the importance of getting information and the sophisticated information you can get about crop rotation and planting. I'm hardly an expert in this. But that's another example that illustrates the benefits of tackling adoption, and I hope that's a partial answer to your question.

MR. WEST: Mister Chairman, I know you have to run. We've already made you late for the noon event that you have to attend, but I want to thank you for sharing your thoughts with us. All of us are eagerly anticipating that broadband report in the middle of March. Thank you very much.

MR. GENACHOWSKI: Thank you very much.

MR. WEST: I'd now like to invite John Horrigan and Danny Weitzner to come up on stage. John as I mentioned earlier is the FCC Director of Consumer

Research. He is the author of the study that the chairman was just citing and who took this very ambitious consumer survey last fall. John is going to discuss the survey and what it tells us about usage, pricing and access levels. John, thank you.

MR. HORRIGAN: Thank you very much, Darrell, and thank you for hosting us here today for the release of the report.

I'm going to go through some PowerPoint slides going through some of the data from the survey report that we're releasing today. Before I do that I would like to recognize a few people. Ellen Satterwhite on our broadband team was a copilot in this endeavor with me and I want to recognize her. Without her help this report would not have been of the quality that it is. We're also part of a broader broadband adoption team within the Broadband Plan and we have several folks here today, Brian David who directs our group, Elise Cone and Karen Archer-Perry among others from the FCC here today. So we're part of an enterprise within the Broadband Task Force trying to understand adoption and the survey is one part of it.

Let me get underway with some of the results. What I want to do today is talk for a little bit about what we learned about what adopters are doing and what they value with their broadband connection, and in the latter part of the discussion focus a great deal on what we found with respect to nonadoption of broadband.

Here is some due diligence on describing how we did what we did. We had a sample of 5,005 Americans. We actually oversampled nonadopters so that we got 2,334 nonadopters which helped us with our confidence in our statistical analysis. We included a Spanish-speaking option in the survey. We also included cell phone numbers in the sample which is increasingly important in the polling community today and since we have the prevalence of cell-phone-only households, if you're not sampling cell phones

you're missing a lot of people. Finally, I should note that this survey was mandated by the Broadband Data Improvement Act.

At a very high level with regard to adoption we find that 78 percent of all Americans are internet users. Among households, 67 percent contain broadband users and 65 percent of Americans use broadband at home. That 2 percent discrepancy is due to the fact that we did in fact reach people in the survey who said that they're not internet users, but we pressed them with some additional questions to see whether they had someone in the household who connected with a broadband connection and that's the source of the 2 percent discrepancy.

We also wanted to understand how people may be accessing the internet on mobile devices. Eighty-six percent of Americans have a cell phone. Thirty percent of all Americans have at some point tried to use or have used the internet on a hand-held. In this case, that's defined as people going online to check email with their cell phone or hand-held, get information from a webpage or downloading an application. There has been discussion at various times about whether a hand-held internet device serves as a substitute for broadband access at home or a supplement to it, and we find that by and large that the mobile access path is supplementary for people. Among all nonadopters, just 14 percent have access to the internet on a cell phone. That figure is a little bit higher for African Americans and blacks, but it's still primarily the case that people who are accessing the internet on a hand-held device also have broadband at home.

Digging into some of the details on different subgroups with respect to broadband adoption, we see that education, income and age are the main dividing lines with broadband adoption at home. For the education number, those who have a high school degree or less versus those who have had some experience in college or a college degree, that sorts at about fifty-fifty in the adult population, and you can see the

large discrepancy in broadband adoption rates there, 46 percent for high school or less versus 82 percent for educated Americans. Age is also an important dividing line. Thirty-five percent of seniors have broadband connections at home. That's an increase from 30 percent from Pew internet survey in April 2009, so we see seniors steadily increasing broadband adoption but they still lag the population at large quite substantially.

Finally, we did in the survey ask questions of respondents to determine whether they have some sort of disability. About 24 percent of the sample said that they had a disability, and their broadband adoption rates are much lower than average with 42 percent of disabled Americans with broadband internet access. Disabled Americans and senior citizens have a lot of overlap in the group, but when you dig into the statistical analysis, we do find that there is a significant correlation between having a disability and not having broadband that is true when you hold everything else constant. We'll be spending in fact some time in the Broadband Plan thinking about how we can increase adoption for people with disabilities given some unique challenges that that group faces.

This next slide provides an amazing amount of detail on broadband adoption across segments. I'll call your attention to the bars on the far right about adoption among racial groups. Fifty-nine percent of African Americans in our survey have broadband at home and 49 percent of Hispanics have broadband at home. That actually represents a sizable increase in adoption when compared to an April 2009 Pew internet survey so that it is good news to see those segments coming online at a greater rate although they still of course lag the national average by a decent stretch.

Let me also call attention to the figure for rural broadband adoption. You can see that half of rural Americans have broadband at home, much less than everyone else in America at somewhat over two-thirds. Some of that is due to available

infrastructure for rural Americans, some of it has to do with the fact that rural Americans are more likely to be older and lower income than their counterparts in non-rural areas.

The Broadband Data Improvement Act told us to ask people what they pay for broadband per month so we did. We find that on average people say that their monthly broadband bill comes in at about $41 a month. That is roughly in line with what Pew found in April 2009 at $39 a month. We tried to figure out what people were paying when they had bundles versus having stand-alone service, and so we found that when people take the service not bundled with other kinds of services, they pay about $46 a month. For the 70 percent of broadband users who take service in a bundle, the average monthly fee is $38 per month. And the survey findings when asking people to estimate their monthly broadband bill as the slide shows tracks reasonably well with metrics by other firms who use different methods to collect information on broadband prices.

One thing we did in the survey was ask people a bunch of questions about what they do online. This slide doesn't report that. The detail is in the report. One thing we did in addition to asking people what they do online was to ask them what are the most important applications that you use on the internet. One motivation for asking this question is something you hear a lot these days that entertainment is driving broadband adoption. We wanted to dig into that issue and so we asked people what are the most important applications or what applications to you are very important given the menu of things that you do online. Sure enough, most people today are using the internet for what most people have been using the internet for, for a long time now which is to communicate with family and friends. Two-thirds say that that application is very important to them. Sizable numbers say that keeping up with community news is important to them. Sizable numbers also say sharing content online is very important to them.

What surprised me at least was the relatively meager number of people saying that entertainment applications were very important to them. On the one hand that's not a shocker since there are plenty of other ways these days to consume entertainment that are probably a little more satisfying than looking at your laptop computer. But to me at least the size of the gap between people wanting to use the internet just to communicate versus entertainment applications was interesting and notable. We wanted also to understand what new users value in terms of getting online so we asked people who have been online for 2 years or less what are the most important reasons for getting access. As the data suggests, communication and self-improvement either for yourself or others in the family really lead the way. A third say that the most important reason that they got online was to use email and stay in touch with family and friends, and there are several other categories that suggest education either for self or a family member was the driving for getting people online.

Important takeaways for the portion of the survey that focused on adopters, one, the internet does remain a multifaceted tool for adopters. People use it to communicate, socialize, participate, create, share something of themselves with friends and family on their social networks. And there is also a hint of path dependence here meaning late adopters of the internet value the internet for the same reasons that early adopters did which is communications and socializing.

Let me turn to nonadoption, something that the chairman talked a good bit about and is really an anchor of this particular survey undertaking. When you start to dig into the pool of 35 percent of Americans who are nonadopters we see three baskets of nonadopters. Twenty-two percent of Americans are not internet users at all, 6 percent still use dialup at home, and 6 percent are online users who do not use the internet from home, they use it from some place else, often times a library, sometimes a friend's

house. We asked people in the survey, and I'll be getting shortly to the nature of the barriers that people face to using the internet, but we asked people whether broadband infrastructure was available where they live. Four percent of all Americans told us in the survey, and again this is a self-reported sense of infrastructure availability and not an actual measure of it, said that they can't get broadband where they live. The upshot of that is that 31 percent of Americans are nonadopters who could get the internet but for reasons that I'm going to get into do not.

I want to talk a little bit about the way that we went about trying to figure out the nature of people's barriers to using broadband. What we did in the survey was undertake a two-step approach. We let people choose from a menu of different barriers to broadband adoption, more than reason, we wanted to understand whether there were various dimensions to people's nonadoption choices. We let people pick more than one reason for nonadoption if that was the case for them so that they could pick more than one reason. Step two was to ask a follow-up question which tried to pin them down by asking them what the most important reason that they faced for not getting broadband was. That was the important two-step process for determining the nature of people's barriers. We also asked some people some general attitudinal questions about broadband in order to understand even more deeply underlying reasons for nonadoption.

I'm hoping the colors translate reasonably well in this slide. This slide shows the menu of reasons people could choose for nonadoption. The categories that are in green are the ones that are the cost-relevant factors for nonadoption, either the monthly cost of internet is too expensive or the activation or installation fee is too much, cannot afford a computer or don't want to enter into a long-term contract. The red reasons listed are the ones that we'll refer to as digital literacy barriers, people who are not comfortable with a computer or people who are worried about online hazards.

Probably most of us at some time or another are worried about online hazards such as identity theft and the like. An important point here is that these people have identified this as a reason not to be online. Then finally, the blue highlighted reasons are the ones that pertain to lack of relevance, lack of awareness of relevant content online, people saying there's just nothing on the internet that I want to see, people saying that the internet is a waste of time, again something probably we all feel from time to time, and then among dialup users, people saying they're content with their current service or don't need additional speed.

What are the results when we do the analysis and pull out these reasons and put them into one slide of data? We can see that cost of the leading reason that people cite as the main reason for them not being online. Thirty-six percent of nonadopters say that cost is the reason that they don't have internet at home or broadband at home, 15 percent saying that the monthly fee is too much, 10 percent saying that the computer is too expensive for them. Twenty-two percent of nonadopters cite reasons pertaining to digital literacy as a reason that they don't have broadband at home. And then 19 percent cite reasons suggesting that they're not aware of relevant content out there. The bottom portion of the slide goes through a range of other reasons to total up to 100 percent. Again, the anchors that the chairman spoke of early in his remarks in terms of what are the barriers to nonadoption, cost leads a way with a little bit more than a third of Americans, but there are a lot of other reasons that people cite as the primary reasons for being online with digital literacy and relevance being the main ones among these remaining reasons.

For the next couple of slides I'm going to take the discussion in a somewhat different direction by talking about two things. I'm going to talk about the attitudes that non-broadband adopters have with respect to the internet, in this slide

comparing it to broadband adopters, and then I'm going to talk about the different information, goods and services that nonadopters have. I'll refer to that as their technology assets exclusive of broadband since they're nonadopters. I'm going to go through some of what we found with respect to nonadopters along those two dimensions, and then to fold it into an effort to build some categories of nonadopters which in turn will help us think about the policy consequences of the overall survey.

You can see in this slide that nonadopters are about twice as likely as adopters to say that the internet is a dangerous place for kids. Nonadopters are about 50 percent more likely than adopters of the internet to say that the internet is a place where it's too easy to have their personal information stolen, so that's definitely a glass-half-full perspective for broadband nonadopters. The third set of data points goes to attitudes about whether people think the consumer is a valuable tool for learning. You can see that incumbents, broadband adopters, are highly likely to say that the internet is a good place for learning, more likely than nonadopters to say that, yet about 60 percent of nonadopters do think the internet is a place where they can learn something so that that is sort of a glass-half-full perspective that nonadopters share about the internet.

Let's turn to technology assets. It's common to hear that people without broadband are just people on the other side of some tech divide, they don't have much in the way of modern information goods and services. This slide shows that that's not entirely true. It certainly is true for some people, but as you can see, 80 percent of non-broadband adopters have premium television of some sort, 70 percent have a cell phone and they're willing to pay some money per month for that cell phone service. We found that on average nonadopters with cell phones pay $73 a month their cell phones and that probably includes a lot of multiple-line plans. Half of non-broadband adopters are computer users, and you can see that there is some reasonable level of confidence in

their ability to use a computer among these computer users, a third saying they're very comfortable using computers. Then finally, 42 percent of nonadopters say they have at least one working computer at home. That's half the rate for adopters, yet there is a core of non-broadband adopters who have a set of tech assets and a certain amount of confidence with them. It's also worth noting that among the other half of nonadopters who do not have computers or are not computer users in any sense of the term that about a third of them in the past have used the computer. Finally, we find that about a quarter of nonadopters have some experience with broadband in the past, maybe at work, maybe at a friend's house and we find that 80 percent of nonusers have unadopted the internet and that they used to have broadband service at home. There is a range of things going on among the nonadoption population that suggests some opportunities which in turn will suggest some strategies in trying to reach them.

That leads to the final couple of slides in which I want to talk about categories of nonadopters. I've just talked about two dimensions, attitudes and assets among nonadopters, and using those two dimensions you can sort people into four different categories and the categories help us think about these groups' tendencies toward adoption, their disposition toward adoption. You can imagine that there's a group of nonadopters who have a high proximity to information technology, maybe they have a computer at home and a cell phone and they have some level of confidence with both of those things, and they have positive attitudes. They may think that the internet is a great place for learning for themselves or their children. So they would have a reasonable chance to adopt perhaps in a reasonable time horizon. On the other end of the spectrum you can imagine people with a very low chance to adopt in that they're by and large cut off from modern information technology and they have reasonably sour attitudes about

the internet. Then in between you can imagine that there are some people who have low proximity and good attitudes versus others with high proximity and negative attitudes.

When you put it all together and do some of the number crunching we come up with four categories of nonadopters. As we dig into these four categories of nonadoption, I map their dispositions toward adoption to the barriers that they face which will help us begin to think about the kind of policy solutions that might be appropriate. Green is for green light. The newer converts are 10 percent of the overall population and they are the ones with a fairly positive learning toward adopting broadband. They have a high rate of computer ownership, they have comfort with information technology and positive attitudes. When you look at the kinds of barriers that this group faces to adoption, they're very likely to say cost is the main reason, in particular the monthly level of the internet fee. So you can imagine that this group is the remaining set of low-hanging fruit in the nonadoption population and if you could get some targeted relief to them they might have a reasonable chance of adopting broadband.

Going on the diagonal to the red cell for the digitally distance, again that's also 10 percent of the population, these are going to be the very hardest to reach. The chairman talked about a goal of 90 percent by 2020. This could be that 10 percent who might be very difficult to reach simply because they don't have much in the way of skills or confidence with respect to information technology, nor do they have the resources to get online. As to barriers, they face a range of barriers. I noted that one of the reasons for asking people to check a menu of different reasons for not being online is to understand the different dimensions to nonadoption. This group and other two groups in fact face multiple reasons for nonadoption which suggests one type of policy solution wouldn't meet their needs.

On the other diagonals we see digital hopefuls and the digitally uncomfortable population. The digital hopefuls like the idea of being online but lack the resources so that they need some cost relief, but they also need help with digital skills to get online. Again they like the idea of being online, they just need help in understanding how to get rolling with negotiating internet sessions and turning on the computer essentially. Finally, the digitally uncomfortable are the group of people who make up 7 percent of the population. They have the access means but they have middling attitudes toward ICTs. Again, cost and understanding the relevance of broadband is important to this group.

To wind up, what are the implications of looking at nonadoption in the way that this study has? The first thing, we have identified a relatively easy to convert population to broadband, the near converts. They need relief on the level of the monthly bill. Thereafter, however, things get a little more multidimensional in thinking about nonadoption. By and large, solving the cost issue for nonadopters is a necessary but not sufficient condition to bringing people online. Digital literacy and relevance typically are barriers for nonadopters. This in turn means that comprehensive approaches are needed to nonadoption. At least three-quarters of the nonadopting population face multiple barriers to getting online with broadband and that in crafting the policies to reach this population that is going it's going to be important to develop programs that meet a range of needs, not programs that only target relief, but programs that target cost relief while building digital skills for people.

Let me make a final observation about the nature of the adoption problem. The term that we learned in the course of our workshops on the broadband planning effort was social infrastructure. Among the people who taught us that term include Sharon Strover from the University of Texas who participated in our broadband

workshops early on and who's here today. What the term means is that even though adoption decisions are individual in nature, they take place in a social context. That indicates that solutions have to be driven at a local level in the community so that not only are people learning the skills to be online, but are becoming part of a wider community of people traveling that journey from nonadoption to adoption so that they can learn from one another as they learn how to use the internet and how to become as digitally competent as many people in this room no doubt are. With that I will conclude and we can open it up to discussion.

MR. WEST: Thank you very much, John. John will join us on our panel. We're going to take a little bit of time to discuss the results. We have Danny Weitzner of NTIA here and he will start with his reactions and then we will save some time for questions and comments from you. Danny, let's start with you. What do you think?

MR. WEITZNER: I think it's a great thing that the FCC has done and it's a great contribution that John has made. I think that John is the first data point in the FCC's effort toward data-driven policymaking, because to have someone like John making these contributions is extraordinary and I think we're all quite lucky.

The way that I thought I'd try to respond to these results is to start off by putting it in a bit of context with a survey that we just did. This is probably a rare week in the history of internet usage surveys, a 2-week period there are two major surveys that came out, and actually there's another one coming out later this week which I won't preannounce in case it hasn't been announced. So all of a sudden we have this incredible wealth of information about what's going on in the internet environment in the United States.

The survey that we did, NTIA commissioned a survey that was conducted by the Census Bureau as part of their current population survey and the good

news for all of us, we save ourselves from embarrassment, that our results are largely consistent with the FCC's results. I think I probably would have declined this invitation if we had dramatically different views.

MR. WEST: Then we would have had a great panel.

MR. WEITZNER: Someone else would have been up here with our data.

The difference that I think is interesting in fitting the two together is that survey that we did through the Census Bureau asked a very small number of questions, just give questions as opposed to sixty-some-odd questions that you guys asked. But we asked them of about 54,000 households and covered about 125- to 129,000 individuals around the country. Again because we had that breadth across the country, the fact that our numbers overall were consistent with the Commission's numbers I think are a useful validating function. Our results identified some of the major points that obviously broadband adoption and broadband internet access around the country is growing, but at the same time the disparities, both the geographic disparities, the demographic disparities, the income disparities, have remained to a very large extent the same and point to a real challenge.

One gap that our data revealed very strongly was the gap between rural and urban availability. When we looked at questions about who's adopting and who's not adopting and looked at the reasons as to why different populations in different parts of the country are not adopting, the rural populations by a factor of 10 gave non-availability as the main indicator of why they were not adopting. So there was a pretty small percent not surprisingly of urban populations that said they just didn't broadband internet access so therefore did not, but in the rural areas you had about 11 to 12 percent of the nonadopters gave nonavailability as the prime reason. For us at NTIA that underscores the importance of looking at how to bring more infrastructure into rural areas, the work

that we're doing with RUS, the work that the Commission has announced or suggested on universal service reform obviously raised the stakes on all of this so that that gives us one important target that I think again is consistent with what the Commission has found.

The other result that we found that I think was striking and also confirmed in the FCC's data is the fact that fully 30 percent of the population does not use the internet at all today and that's a really I think extraordinary number when you think about it. Probably not many of those 30 percent are in this room today, but if you think about our lives, our economic lives, our social lives, our political lives, and if you think about cutting the internet out from that aspect of our lives, if you think about cutting the internet out from the educational experience that we and our children have and you say 30 percent of the population has no access to those resources and I think you get a quite extraordinary result. For us we asked not just about internet usage in the home but internet usage anywhere. So for almost a third of the population to say we don't use it at all anywhere is an extraordinary result and that really requires attention.

I'll highlight what I think are two challenges that we found and that are again underscored in looking at our data and the Commission's data. Really understanding what nonadoption is about I think is something that we all need to spend a lot more time on. If you look carefully at our data and the Commission's data, there are mostly for definitional or interpretative reasons differences in the weighting of the factors for nonadoption. I think that what this suggests is not that there's any problem with our surveys but that we really need to do more work in this area to understand what's going on in that 30 percent of the population, what are the real reasons. For us, one of the main reactions that we got to our survey that I think points to an opportunity for all of us is because we had a very broad national sample, we were able to start to get data about individual parts of the country, one state versus another, rural areas versus urban areas.

We don't actually have all that data yet from the census so we're not able to answer all the questions that people would like to be able to hear about, but in questions from policymakers, questions from the Hill, questions from the press, what we saw over and over again is that people really want to know what's happening in their area. People in California want to know why California as such a big sophisticated state and not so high up on adoption. Why is that? I think that the huge opportunity for us might be summed up in a slogan it's the mapping, stupid. We're very excited to be working with the Commission on a broadband mapping effort. Certainly the research community who looks at these issues around the country is getting better and better at using geolocated data in order to ask very focused questions about what's going on in particular communities and particular types of geographic areas and I think that going forward that's going to be a tremendous guide for policymakers and it's something we have to continue to invest in and pay attention to. That's I think because as we work on closing this adoption gap as we go from 65 hopefully to 70 to 85 percent, what we're going to have is more and more dispersed, more and more discrete, harder and harder to identify segments of the population that are still not adopting and we have the opportunity I think to really learn a lot about what's going on in this individual communities. To pick up on Professor Strover's notion of social infrastructure, where do we need to build social infrastructure, very often that is geographically specific infrastructure those investments that have to be made whether through direct government support, whether through private-sector efforts, whether through changes in policy to make sure that resources are directed in the right way, we need to understand in physical and immediate senses where to direct those resources so that we can actually build up the social infrastructure. What we certainly see is that right alongside cost, the non-cost factors, all of them combined

whether it's fear or lack of awareness of lack of interest or whatever it is, is going to be a major, major factor in the communities that we're trying to reach.

I'm interested in hearing your questions. As a recovering former academic I'll end by saying more research is needed. It really is. We're certainly working hard at NTIA to make sure that the data for researchers to chew on is available. When we released our initial survey report we put out all the census data in raw form that we had available and intend to continue to do that. That's one of the side benefits of the Open Government and Transparency Initiative of this administration. I'm hoping that we're at the very beginning of a real flourishing of increasingly sophisticated analysis of the data that's going to become available and clearly we're at a point where we have a real commitment from the regulatory agencies and from this administration to look very hard at these numbers and make sure that we achieve our goals. Thank you very much.

MR. WEST: Thank you, Danny. I have a couple of quick reactions and then we'll open the floor to questions from you.

First of all, I applaud both the FCC and the Department of Commerce through the Census Department in putting out these data because we really need to have a better understanding of what's going on. What I like about both the survey as well as the census information is that the sample sizes are large enough that you can really focus on special populations because we know a little bit about the overall situation but the large samples here allow us really I think for the first time in any great deal to look at issues of the disabled, senior citizens, African Americans, Latinos, low-income people and rural Americans. Those are all people who are on the edge of this nonadoption issue and I think one of the good things that is coming out of these data is we will have a better understanding not just over the overall situation, but what is the particular situation for individuals in those types of categories.

I think we clearly see based on the analysis here that raising the adoption level, home adoption that is, from the current 65 percent up to the 90 percent goal by 2020 is going to be a challenge. It's not a situation where one size fits all. There are differing subpopulations. They each have differing issues. So you need a multifaceted strategy. Just to give you an example of one result that jumped out at me when I read through John's report, they had detailed information comparing low-income versus high-income people in terms of what those individuals wanted from the internet. One of the things in terms of low-income people which is a very difficult adoption category is 77 percent of them wanted broadband in order to get information about jobs. They really saw it in their economic self-interest to go online to get job information and that was a major motivating factor for them which was not true in the same degree for the rest of the population. So there are interesting differences by subgroups that I think will inform the private sector as people think about what's the content that we need in order to attract attention or how do we appear to specialty populations. There is really a wealth of information out there.

The last comment that I will make is a point that John mentioned, the importance of social context to individual adoption. Sharon Strover I guess is becoming the most famous person on this panel who's not actually on the panel in her work on social infrastructure. A set of numbers that jumped out at me, they had a bunch of questions about home access to the internet, but then there were questions about public access points such as other than your home where do you get access to the internet and where do you have broadband access. Thirty-three percent cited the public library, only 26 percent cited schools, 15 percent cited community centers, 5 percent cited religious institutions. It strikes me that when we think about this whole nonadoption problem, schools are absolutely crucial, health institutions are absolutely crucial, some of these

other nonresidential places may actually represent a very strong key. We have seen the technology revolution sweep through banking, airlines, the public world, music and a variety of other fields. The two big areas that have been perhaps slowest to embrace technology innovation are education and health care. So what really jumped out at me in terms of John's study is we really need not just to focus on individual access and residential access, but the larger social milieu in which we can actually start to reach some of those subpopulations that have been slow to embrace technology. I think it's a very rich study and I appreciate both John and Danny being here.

We have a little bit of time for questions. You've been very patient in listening to our presentations. We thank you for that.

MR. GRINDSTAFF: Hugh Grindstaff. You just about took away my question which was a lot of access for people who are nonusers at 30 percent is in the public library. If you go to the Rockville Library, people are waiting to get onto the computers. It's a way of giving those who don't have monetary ways of using it to get on. Is there some kind of public/private fund that the libraries could get pushed to, to get better computers? Could the computer makers make sure that our libraries here do have the computer access and the computers to work with so those people who don't can say I'm going to the library, and the Rockville Library is one example of it, to have libraries as a central point of the community. And in rural areas too. The library is a central point of the community.

MR. WEST: John?

MR. HORRIGAN: An observation on that gives me a chance to plug some research that the FCC commissioned with the Social Science Research Council that's coming out in a couple of weeks in an event that the American Libraries Association is putting on. We had the Social Science Research Council team conduct

research among nonadopters, qualitative research, focus groups, at different places around the country often times gathered in libraries. We found the same stories about libraries being very stressed in these economic times by people waiting in line to use the internet to do job applications. Like the chairman said in his remarks, often times these days the only way to apply for a job is to have internet access and the research that we'll be talking about in a couple of weeks points to that. The chairman in his remarks of about a week ago in setting up some of the broad recommendations for the Broadband Plan mentioned the notion of trying to encourage public/private partnerships to help meet some of these needs and that's something very much that we're thinking about. I can say that we're very much attuned to the nature of the library as an important third access point for a large swath of the population who are nonadopters.

MR. WEITZNER: So there are two initiatives underway at NTIA to address just this issue. As part of the Recovery Act funding, part of the BTOP program we're funding public computing centers all around the country. That's a $250 million plus effort just in this Recovery Act program. In addition, we're putting an emphasis in the second round of the broadband infrastructure funding program on funding anchor institutions in communities so that that means bringing very high-capacity facilities out to anchor institutions whether they be health care providers, community colleges, libraries certainly could qualify as well, to being high-speed access out to those institutions both in order to make sure that the institutions have the kind of access that they need and with the expectation that those facilities which will be open-access facilities for other internet service providers will provide a way to expand the last-mile access available in communities that are currently underserved.

MR. WEST: We have a question in the front row from Miles Gilbert and there's a microphone coming up the aisle for you.

MR. GILBERT: I'm curious as to how much of the 30 percent issue you think may simply get taken care of by the passage of time and the aging of the population given that we know that there's a difference in adoption between older populations and younger, you might assume that older populations have less digital literacy, have less perception of the value of the internet. I'm curious if you fast-forward 10 years to 2020 is the 30 percent problem just by normal aging going to be a 15 percent problem?

MR. HORRIGAN: We did some analysis on that question and, yes, father time will take care of some of it, and also nonadopters tend to be older. But the median age for some of these nonadopting populations are in their fifties, so time alone won't take care of it. We do find sizable numbers of people under the age of 55 or under the age of 50 facing these issues of cost and digital literacy so that we clearly think that we have to take intervention today in order to being more people online on the kind of time horizon that we're talking about.

Another finding in the report pertains to digital skills and literacy among adopters today. We did ask some questions that tested people's level of digital knowledge which is a proxy for their overall level of digital skills and we found that sizable numbers of nonadopters aren't very aware of the rudiments of negotiating online sessions so that if you address digital skills not only for the nonadopter population but also for segments of the adopting population who need it, you could encourage deeper internet use for a lot of the national purposes goals that the chairman talked about.

MR. WEITZNER: I'd just make a couple of observations. Number one, I know you're not suggesting just writing off older people at all, but we should remember why we are trying to encourage people to get online. On some part it's to have access to services that matter particularly to the older parts of the population, health care services as an example and other kinds of social support services that are available online that

can reduce the overall cost of those services. So it's important to address this issue before it somehow by natural selection takes care of itself. I know that you're not suggesting that because there's a real need to do that.

Second of all, I would say that what we've observed from looking at the subsets of the populations where we still see gaps is that those gaps persist as John said certainly despite age, but also the gaps persist in other populations notwithstanding age so that there are gaps that really do need to be closed that show no indication of being resolved over time just by those older populations declining.

MR. WEST: I think we have time for one last question.

SPEAKER: I have a question about how to measure broadband at home. In particular, I wonder how a mobile piece comes into play. For example, my friend who has an iPhone 3G broadband and he has no broadband access at home -- or FiOS or -- does his household have broadband under your definition? That's my question. Thank you.

MR. HORRIGAN: I think NTIA and the FCC asked the questions on broadband access in the same way. To your question, I did put up the data point that tried to understand whether the phenomenon you described was widespread. Even when you find that 14 percent of nonadopters have access to the internet on a hand-held device, we don't know whether that's truly broadband speed. We're generally of the disposition in developing the National Broadband Plan that wireless broadband or 3G is not an acceptable substitute for the speeds that you get typically with wireline today. So by framing the question in that way, we tried to get at whether the example you raise was widespread, it's not very widespread, it does nonetheless still have some measurement challenges going forward to really understand the nature of the nature of the untethered user.

SPEAKER: I'm asking this question because this is a very common phenomenon in Japan. So the subscriber on fixed lines are decreasing and more and more people have 3G handsets. We understand if you set the goal of 100-squared initiative it implies a fixed line. So I think it's a very challenging goal. I think you should take into consideration more mobile pieces. That's my question. Thank you.

MR. WEST: Thank you very much. We are out of time. I want to thank John and Danny for joining us today as well as the Chairman of the FCC, and thank you very much for turning out.

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