

**Luncheon Address**  
**Commissioner Robert M. McDowell**  
**Broadband Policy Summit III**  
**June 7, 2007**  
**Crystal City, Virginia**

Thank you, Dick, for that kind introduction. And many thanks for inviting me to speak at the Broadband Policy Summit of 2007. Looking through your agenda, I see that you have an impressive array of speakers from industry, government and think tanks. As a result, you are sure to be bombarded by a plethora of ideas, data, analyses and opinions regarding the most dynamic, positive, constructive and disruptive force to rock the world economy since electricity: broadband. But, unlike electricity, people can't seem to agree on a definition of "broadband." And I'll discuss in a minute why that is probably a good thing.

As you may know, I was originally scheduled to be the breakfast speaker this morning. And, last Friday, June 1<sup>st</sup> was my first anniversary as a commissioner. That was the magic day when my now-famous Ethics Agreement released me from most of my recusal limitations. So I couldn't help but see the humor - and irony - in the fact that my first speech after my recusal period expired was to have been "sponsored by" ... AT&T. But the schedule change with Congressman Boucher changed all of that.

The past 372 days at the Commission have shot by at lightspeed. So have the last 30 years for that matter. Two weeks ago, America celebrated the 30<sup>th</sup> anniversary of the debut of *Star Wars*. I've watched several recent television specials about *Star Wars*. I remember when it first came out. Everyone was amazed at George Lucas's imagination - especially when it came to the boundless hope offered by the technologies of the future - or at least technology spawned a long time ago in a galaxy far, far away. And at one

point, I realized that I have been in the telecommunications realm an awfully long time – and I’ve become nothing short of a geek - when, while watching *Star Wars* clips, I started thinking, “Boy! Those technologies must use a lot of ... bandwidth.” Which brings us to the heart of the questions raised at this summit: How much is enough bandwidth? Should we define broadband? If so, how? Does America have a broadband policy? What should the government do? What does the future hold? And many, many more. I’ve spoken to many of you in different settings about several of these issues, but today new events and new ideas are sprouting up which deserve some fresh discussion.

Today I’d like to discuss five major points: 1) The most recent world rankings regarding broadband penetration are not what they appear to be; 2) Countries with command-and-control government-knows-best broadband policies actually have stagnating broadband markets; 3) Regulatory certainty, regulatory parity and deregulation are spurring an accelerating broadband penetration rate in the U.S. – and a light regulatory touch is America’s broadband policy; 4) Our broadband policies to open new windows of opportunity for the construction of new delivery platforms – especially wireless platforms – will enable American entrepreneurs to lunge ahead of our international competitors; and 5) Nonetheless, we can and will do more to strengthen America’s position by maximizing competition and encouraging investment.

**I. The Most Recent World Rankings Regarding Broadband Penetration Are Not What They Appear to Be.**

At this Summit, you will hear a lot of talk about how the U.S. is falling behind other nations in broadband deployment. So, I thought I’d jump right in to that fray right here. And I’ll start by giving you my conclusion first: predictions of doom and gloom

almost always turn out to be wrong. Let's review a few such dead-wrong predictions of the past.

Let's start with Thomas Robert Malthus, who 209 years ago this very day said, "The power of population is so superior to the power of the earth to produce subsistence for man, that premature death must in some shape or other visit the human race." Of course, Malthus failed to foresee the power of technology and innovation spurred by a free market to create an ever-increasing food supply to support population growth. Nonetheless, his doomsday predictions were later cited by Karl Marx to justify government control of economies.

Fast forward to 1992, Mitch Kapor, founder of Lotus Development Corporation and the Electronic Frontier Foundation, announced that, "ISDN is a critical and even necessary transitional technology on the path toward the future broadband national public network." Of course, ISDN quickly came to stand for: "it still does nothing." Thankfully, competition, investment and innovation shortened ISDN's rather unproductive lifespan. However, had government micromanaged by setting heavy-handed benchmarks or over-regulatory standards instead of allowing markets to evolve naturally, we might still be stuck with ISDN.

A more recent dead-wrong prediction came in September of 2003 when a technology analyst infamously declared, "[T]he Internet revolution is over, consigned to dust ...." Hopefully, all of you will agree that the Internet revolution is just beginning. It won't be long when we will look back on the technology of 2007 with the same sense of quaintness as we do Pong, Pac-Man or CB radios.

But the anxiety caused by such dire predictions can be a positive catalyst by producing adrenaline and, therefore, action. Being concerned fuels motivation to do better. And the end result can be constructive, if combined with thoughtfulness. The worst possible result would be to misinterpret, or deliberately omit, relevant data in the pursuit of public policy – policy that could lead to counterproductive government micromanagement to the point where public policy becomes industrial policy. And I fear that we could head down that path some day soon.

So let's start with putting the much-talked about Organisation for Economic Cooperation and Development (OECD) broadband statistical rankings in context. Somehow, the U.S. dropped from 12<sup>th</sup> in the world in penetration per 100 residents as of June 2006 to 15<sup>th</sup> a few months later. So let's take a look at how the OECD arrived at those numbers, or, better yet, how they did not arrive at those numbers. I have said several times that the study has many fundamental flaws in its methodology. And the new study has new flaws.

First, the OECD study methodology is so flawed that, by one analysis, even if all of the OECD countries, including the U.S., enjoyed 100 percent broadband penetration of all homes and businesses, our rank would fall to 20<sup>th</sup>. Under this scenario, policy makers could do nothing to help the situation because every home and business already would have a broadband connection. Yet the U.S. would be deemed a relative failure because the OECD methodology measures “broadband connections per capita.” Countries are punished or rewarded by the OECD analysis based on the number of persons living in a household or the number of people working in a business. Similarly, even if every

existing broadband subscriber in America had a fiber-fed 100 mbps broadband connection, we would only rank 12<sup>th</sup>.

Second, it does not take into account household broadband adoption rates. According to several recent surveys, the average percentage of U.S. households actually taking broadband is 42 percent, versus the E.U.'s average of only 23 percent. Also, the study does not emphasize the fact that the U.S. is simply the largest broadband market in the world with over 58 million subscribers according to the OECD report – more than twice the number of America's closest competitor.

Third, the study does not take into account a country's geographic size and its relation to population density. Population density puts a country as large as ours -- with sizable rural areas -- at a disadvantage. Only one country above the U.S. on the OECD list stretches from one end of a continent to another like we do. Only one country above us on this list is at least 75 percent rural, like the U.S. is. In fact, thirteen of the fourteen countries that the OECD ranks higher are significantly smaller than the U.S. The exception is Canada. And while Canada, number nine on the list, is less dense than the U.S. overall, the vast majority of its population – 80 percent - is extremely concentrated along the U.S. border.

In Iceland, number three on the list, 93 percent of its total population of 300,000 lives in urban areas. Over 60 percent of the population lives in one city: Reykjavik. It's a small enough community that the Reykjavik telephone book allegedly lists citizens by their first names. By the way, Iceland has about 88,000 broadband households today. In contrast, that's about how many households were connected to a broadband service in the U.S. in the last 36 hours.

Fourth, if we compare many of our states on an individual basis with some countries that are allegedly beating us in the broadband race, we are actually winning. Forty-three of our states have a higher household broadband adoption rate than all but five E.U. countries. Even large rural western states such as Montana, Wyoming, Colorado, Oklahoma, both Dakotas, Kansas, Oregon, New Mexico and others exhibit much stronger household broadband adoption rates than France or the U.K.

Not impressed with adoption rates? Fine. Let's look at state penetration rates vis-à-vis population, even with the OECD's flawed methodology. Anyone here from New Jersey? You might appreciate knowing that your state has a similar population density as fourth-ranked Korea, yet has a higher penetration rate (30 subscribers per 100 residents, versus 26 for Korea). Anyone here from Alaska? I bet you didn't know that as of June 2006, Alaska, which has a land mass roughly the size of Western Europe, but less than one percent of its population, had 18.7 broadband subscribers per 100 residents, versus France's 17.7. That's right, Alaska is more saturated with broadband services than France.

The OECD conclusions really unravel when we look at Wi-Fi. The study simply omits the fact that one-third of the world's Wi-Fi hot spots are in the U.S. Wi-Fi is not included in the OECD study unless it is used in a fixed wireless setting. I don't know about you, but I can't recall ever seeing any fixed wireless users cemented into a Starbucks. Most Americans who use Wi-Fi use it with personal portable devices. So it is impossible to determine how many Wi-Fi users are active at any given moment.

Additionally, 3G mobile technologies are excluded from the OECD stats. But I'll talk more about America's great strides in the wireless realm shortly. And have I

mentioned that the study does not attempt to measure consumers who use broadband services at work instead of at home? In short, the OECD data do not include all of the ways Americans can obtain high-speed connections to the Internet, therefore omitting millions of American broadband users. But it is correct in at least one regard, we can always do better, and we will. The question is “how?” Which leads me to point number two.

## **II. Countries With Command-and-Control Government-Knows-Best Broadband Policies Have Stagnating Broadband Markets.**

When we examine the European broadband market more closely, latent weaknesses foretell long-term problems for our allies across the pond. Europe lacks adequate competition among alternative broadband platforms to spur faster speeds that consumers and Internet II will require. Due to government policies, Europe is heavily DSL reliant overall. While Europe benefits from shorter loop lengths vis-à-vis DSL capability, such an advantage is only short-term. But it lacks robust competition from cable modem and fiber, let alone other technologies used by American consumers. For instance, in Europe, cable penetration is only about 21 percent. In the U.S., cable passes 94 percent of all households.

The U.S. also is home to the world’s fastest fiber-to-the-home (FTTH) market, with a 99 percent annual growth rate in FTTH subscribers compared with a paltry 13 percent growth rate in Europe. Japan, just ahead of us in the OECD ranking, has a 60 percent FTTH growth rate despite its far more advantageous population density. Additionally, our recent de-regulatory video franchising order will help speed the placement of more fiber into the ground. Overall, none of the higher ranked countries has as much competition among platforms as does the U.S.

In fact, the European Commission appropriately recognized the longer term challenges Europe faces vis-à-vis the U.S. when it concluded on March 27, “Broadband transmission speeds vary across the E.U., which on average still lag behind the U.S., Japan and Korea.... There is still a general consensus that competition is a major driver of broadband take-up. Member States such as the Netherlands and Denmark, where there are competing infrastructures, appear to be the best performers.”

In that vein, the European Competitive Telecommunications Association (ECTA) reported last September that Europe is witnessing a significant slow down in its broadband take rate. It has fallen from a 23 percent annual penetration growth rate to only 14 percent. Growth stalled in a number of countries including Denmark and Belgium (with just 4 percent growth). And France – a relative shining star - exhibited just ten percent growth. Yet, all of these nations are ahead of us on the much-talked-about OECD chart.

### **III. Regulatory Certainty, Regulatory Parity and De-regulation Are Spurring an Accelerating Broadband Penetration Rate in the U.S. -- A Light Regulatory Touch Is America’s Broadband Policy.**

In contrast, here in America, the country that is allegedly “falling behind,” broadband adoption is accelerating. According to Pew Research and FCC numbers, the American broadband penetration rate has accelerated from 20 percent growth per year to 40 percent to 52 percent as of a year ago. An estimated 65 million high-speed “lines” were in use by June 30 of last year. Furthermore, the 200 kbps threshold is already irrelevant because more than 50 million of the 65 million broadband lines in service across America far exceed 200 kbps in both directions, something akin to 1.5 to 3.0



mbps. And I'm pleased that the Commission is already improving its broadband data collection methodology.

As of this time last year, we had roughly 65 million high-speed "lines" in service. I put "lines" in quotes because the numbers for wireless services are particularly encouraging. Almost 60 percent of all new high-speed lines were mobile broadband wireless "lines." Mobile wireless broadband connections showed the largest percentage increase: from a mere 83,503 units at the end of 2005, to 1.91 million by mid-2006 – an astonishing 2,187 percent increase just six months! In fact, between June 2005 and June 2006, mobile wireless's share of total broadband lines skyrocketed from one percent to 17 percent.

In addition, the *Wireless Competition Report*, which the Commission released in September, discusses the proliferation of next generation wireless networks. The bottom line on this is: we will more than leapfrog over other countries with new wireless technologies that are already in the pipe line. Advanced broadband wireless technologies have been launched in U.S. counties containing about 269 million people, or about 94 percent of the United States. While other countries are still talking about 3Gs, the latest fourth generation wireless technologies are already available to over 63 percent of the U.S. population.

#### **IV. America's Broadband Policies Will Enable Us to Lunge Ahead of Our Competitors.**

Our flexible and de-regulatory broadband policies to open new windows of opportunity for the construction of new delivery platforms will enable American entrepreneurs to lunge ahead of our international competitors. We're actually leading the way. The past year has been especially productive. You've heard me mention some of

our recent actions before, but they bear repeating very quickly today because they are sure to be discussed throughout the Summit:

- Last summer's Advanced Wireless Services (AWS) auction was phenomenally successful, with over half of the licenses being granted to small businesses and designated entities. The growth and innovation that these new licenses will spark is unparalleled. And I am delighted, and thankful, that NTIA was able to free up this spectrum for commercial use. Given its international harmonization, deployment of this spectrum will produce greater efficiencies and lower handset and service prices for American consumers.
- We also adopted a new equipment testing regime for unlicensed devices that operate in the 5 GHz band, a technologically difficult task which will foster development of high data rate mobile and fixed communications in this band.
- Of course, we are in the midst of testing equipment for unlicensed use in the white spaces of the TV broadcast bands. I've been told that we are on track to issue an order this October so new equipment can be marketed by 2009.

Simultaneous with increased broadband penetration, the Commission has been busy adopting policies to promote regulatory parity. In the wake of the Supreme Court's *Brand X* decision, we have issued orders treating cable modem, DSL, broadband over power lines and wireless broadband services alike as information services, thus guaranteeing them a lighter regulatory touch. Similarly, we just issued an order last week

treating ILEC access to cable facilities in a similar manner to cable access to ILEC facilities to help spur voice, video and data competition across platforms in multiple dwelling units.

And of course, there's the promise of 700 MHz. Opening up the Lower and Upper 700 MHz Band for auction is America's best opportunity for spurring more competition in the broadband market. We will not have another chance like this for years. That's why it is so important that we get it right. In my view, to "get it right," the Commission must ensure that businesses of all sizes have a fair opportunity to bid on varied market sizes in both the Upper and Lower bands of the 700 MHz slice. Ideally, our rules should also provide bidders the flexibility to aggregate markets together to create either a nationwide market, or large, regional or other customized markets much like that occurred in the AWS auction, but even better. Providing such equal opportunities will help increase the chances of competition in the broadband market for the benefit of all Americans. Competition both between and within platforms will spur economic growth and enhance America's competitiveness in the world economy.

Some may be concerned that allowing for smaller market sizes in the Upper portion of the band may preclude the ability of some entities to secure a nationwide license to provide a new, competitive broadband platform, or a "third pipe." I'm listening to folks with those concerns. In the AWS auction, we witnessed a successful effort that fashioned together EA markets to form a virtual nationwide license. I welcome further discussions regarding how that may or may not work in the 700 MHz band. However, we must be careful to ensure that we do not overly-tailor our auction

rules to fit a particular business plan because there are never any guarantees as to who will participate at auction, or for how long.

Other questions I'm asking are: Are only national companies capable of providing such alternative platforms? What about regional players or local providers? Small town entrepreneurs?

Of course, many of you are probably thinking skeptically, "But use of 700 MHz is not a true substitute for DSL, or other technologies, and may only offer about 2 mbps per user." With yesterday's – or even today's - technology, that may be true. But shouldn't we think about tomorrow's technology? Although we may not yet be at a point where we have "enough" radio spectrum so that anyone who wants to use a portion of spectrum for his or her desired purpose could do so at any time and in any place, wireless technologies are constantly improving. Capacity and speed are moving targets. Just when we think we are going to "run out" of spectrum, some brilliant entrepreneur finds a way to become more spectrally efficient. In fact, by some estimates, ever since Marconi's first radio transmission 110 years ago:

- We have doubled our practical capacity every two and a half years;
- Practical spectrum capacity has become one trillion times more efficient when measured by bits per second per hertz per square mile, or the technical measurement of "throughput;" and
- The concurrent cost of delivering information over wireless platforms has dropped in half every 42 months.

Some engineers foresee this expanding rate of spectral capacity carrying on for at least the next 50 years.

This is all wonderful news for our future! It shows that demand forces compel innovators to become more efficient. History bears this out.

Think about this: we've moved from pagers that required just a few bits to function, to analog voice with a bandwidth of about 4 kbps to digital voice at 10 kbps. As we increasingly use our cell phones as our personal music players, we may need 100 kbps and higher. Our thirst for video communications is pulling even harder on our wireless capacity. Yesterday's television used only a few hundred thousand pixels. HDTV now demands 1.5 million pixels using about 5 mbps. YouTube itself uses as much bandwidth today as the entire Internet did in 2000. In the past year alone, we have witnessed a 1000 percent increase in videos being uploaded or downloaded on the Internet. Basic digital cameras provide us with 10 million pixel resolution. But with millions of rods and cones in each of our eyeballs, our senses will not be satisfied until we can view millions more pixels over the airwaves, perhaps requiring 250 mbps for each eye, by some estimates. After we get there, we will want to enjoy the experience of life-like holograms. And here we are, back to *Star Wars*.

But the point is, we must work together to maximize spectral efficiency. In a competitive market, consumer demand forces network owners to provide fatter and faster platforms. When the Internet was just all about email and static websites, dial-up and ISDN were sufficient. When Napster came along, we saw a huge spike in cable modem and DSL take rates – necessary tools in the art of stealing music. (Legal disclaimer: please obtain your music legally.) And as video becomes the latest “killer app,” our broadband adoption rate continues to increase.

The conclusion here is that: consumers don't buy fat pipes; they buy applications and content that require fat pipes. As consumer demand for more bandwidth-intensive applications and content increases, so does the incentive for network owners to provide more bandwidth, provided the market is competitive and unencumbered by unnecessary regulation. While I'm not sure I'm ready to agree with Marty Cooper of ArrayComm when he says, "We have never run out of spectrum, and we never will," I sure do like his entrepreneurial optimism.

**V. We Must Continue to Enact Policies That Maximize Competition and Encourage Investment.**

While we are on the right track, of course we can and will do more. As I stated earlier, at the FCC, under Chairman Martin's leadership, we are rushing to create new opportunities for more competition through the construction of new delivery platforms. We are trying to clear out unnecessary regulatory underbrush that may inhibit investment needed to fund more competition. We are also trying to create an atmosphere of regulatory certainty and parity. After a decade of turbulence and uncertainty caused by the legislation/regulation/litigation cycle in the wake of the 1996 Telecom Act, we are witnessing the strongest stability and growth in the telecom sector in years thanks to recent FCC policies. Stability and growth are evident not just in the incumbent players, but even in their newer competitors, who received a thrashing in the financial markets just a few years ago. Newer entrants are enjoying healthier bottom lines and brighter prospects as a result, in part, of the government not changing the rules of the game on them every few months.

But what more can government do? Entrepreneurs are telling me that they'd like Congress to enact a permanent extension of the Internet tax moratorium and a cut in the

depreciation schedules for high-tech capital expenditures such as network equipment and infrastructure, to name a few. They argue that stability, de-regulation, regulatory parity, and a favorable tax and regulatory environment will help spur the build out of better networks and improved technologies and efficiencies, and I agree. That's what history has taught us, so let's heed that lesson.

In conclusion, when it comes to broadband policy, let's focus on what we have done right and try to improve upon that. Let's not cast our lot with "modern day Malthusians" who are gloomily predicting our collective bandwidth starvation. Keep in mind that the world would not be using the term "broadband" had it not been for American entrepreneurs. Let's put recent studies and rankings in context and tread cautiously before we embark upon a voyage that may take us down the road of regulatory stagnation. I have great faith that, in the next few years, we will witness a tremendous explosion of entrepreneurial brilliance when it comes to broadband, if the government doesn't micromanage.

Thank you.