
BROADBAND DEPLOYMENT IN A MULTI-MEDIA WORLD: MOVING BEYOND THE MYTHS TO SEIZE THE OPPORTUNITIES

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Good afternoon. Thank you, Dave, for your warm introduction. I'm delighted to join you today. Thank you also to Commissioner Kathleen Abernathy for inviting me to this symposium. Also, before we get started, I must "single out" my intern, third-year CUA law student Guy Parrinello, who is here today. Guy: thank you for all of your assistance and hard work. It's been a pleasure having you as part of my team. Another of my interns, California Western law student Melissa Slawson, is also here. Hello and thank you to Melissa.

I want to congratulate Davina Sashkin and all of the CUA communications law students on today's symposium. The depth and breadth of the issues presented today is extremely impressive. How great that law students are tackling in a substantive way the issues at the core of communications policy.

Today, I want to speak with you about broadband deployment in a multimedia world. As a preliminary matter, I want to let you know that, at first blush, many of the statistics surrounding our nation's broadband penetration rate can be misleading. We are not always getting the whole story. It's important to distinguish the myths surrounding our nation's progress in this regard, and I will first spend some time highlighting these distinctions. It is more important, though, to move beyond these myths. We should never

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stop striving to look over the horizon. What actions should the Commission take to continue to increase the rate of broadband penetration and foster more choices for all types of consumers? We should seize every opportunity to continue to move America forward.

Let's begin with the myths.

You may have heard that the Organization for Economic Co-operation and Development ("OECD") has concluded that the United States is the largest broadband market in the world—with over 56 million broadband subscribers. Nonetheless, the OECD currently ranks the United States as 12th in the world in terms of broadband penetration—behind Denmark, the Netherlands, Iceland, Switzerland, and Sweden, among others. I hear this figure used a lot for a variety of purposes, but it is important to put it into context.

Table 1: OECD: Broadband Subscribers per 100 Inhabitants, June 2006¹

	DSL	Cable	Other	Total	Rank	Total Subscribers
Denmark	17.4	9.0	2.8	29.3	1	1,590,539
Netherlands	17.2	11.1	0.5	28.8	2	4,705,829
Iceland	26.5	0.0	0.7	27.3	3	80,672
Korea	13.2	8.8	4.5	26.4	4	12,770,911
Switzerland	16.9	9.0	0.4	26.2	5	1,945,358
Finland	21.7	3.1	0.2	25.0	6	1,309,800
Norway	20.4	3.8	0.4	24.6	7	1,137,697
Sweden	14.4	4.3	4.0	22.7	8	2,046,222
Canada	10.8	11.5	0.1	22.4	9	7,161,872
United Kingdom	14.6	4.9	0.0	19.4	10	11,622,929
Belgium	11.9	7.4	0.0	19.3	11	2,025,112
United States	8.0	9.8	1.4	19.2	12	56,502,351

First, OECD does not account for population density, which puts a country as large as ours—with sizable rural areas—at a disadvantage. No other country above the U.S. on the OECD list stretches across a continent like we do. No other country above us on this list is 75 percent rural, like the U.S. is. In Iceland, number three on the OECD list, almost 65 percent of its total population lives in its largest city, Reykjavik. It's a small enough

¹ ORG. FOR ECON. CO-OPERATION AND DEV., OECD BROADBAND STATISTICS TO JUNE 2006.

community that the Reykjavik telephone book lists citizens by their first name, allegedly.

Furthermore, if you 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. 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? Here's another fact: 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.

Putting this complicated picture into even more context, consider that the U.S. has a population density of 31 people per square kilometer, compared with Korea at 483 people per square kilometer—that's almost 16 times more dense than the U.S. Similarly, the U.S. population is significantly larger than some of the higher-rated countries. For instance, the U.S. is comprised of 300 million people, while first-ranked Denmark has only 5 million, second-ranked Netherlands has 16 million, and third-ranked Iceland has only 300,000. In short, we have more people to connect than others "ahead of us" on the list and a much larger land mass to cover.

As an interesting aside, let's take a quick look at the latest study undertaken by the European Competitive Telecommunications Association ("ECTA").

Table 2: ECTA Broadband Scorecard Q3 2006²

Ranking	Q3 2004	Q3 2005	Q3 2006
1	Sweden	Denmark	→ Denmark
2	Denmark	Netherlands	→ Netherlands
3	Netherlands	Finland	↑ Finland
4	Belgium	Sweden	↑ Sweden
5	Finland	Belgium	↓ United Kingdom
6	France	France	↑ Luxembourg
7	Austria	United Kingdom	↓ Belgium
8	United Kingdom	Luxembourg	↓ France
9	Germany	Austria	↓ Austria
10	Portugal	Germany	→ Germany

ECTA recently reported a significant slow down in the broadband take rate across Europe, falling from a 23 percent annual penetration growth

² European Comp. Telecomm. Ass'n, Broadband Scorecard Q3 – 2006.

rate to only 14 percent growth between April and September 2006. Growth stalled in a number of countries including Denmark and Belgium (which experienced just four percent growth) and France, where growth was only ten percent after a strong performance in 2005. ECTA also reports that growth has also slowed in Sweden—a nation ahead of the U.S., according to the OECD. It is interesting that this slowdown comes at a time of great activity by European regulators. To me, therefore, these findings provide a powerful incentive for the FCC to continue its market-based policies that encourage broadband deployment by an array of competitive entrants.

The OECD's numbers do have merit in at least one respect, however. The overall point is that the U.S. can do better. I agree. We can. We are. And we will. America loves nothing more than hard fought economic competition. Americans intuitively recognize—and history certainly demonstrates—that free market principles will always triumph over government centralized planning that squelches creativity and entrepreneurialism. Thus, as we move forward, it's important to keep in mind that, while broadband deployment in the smaller, more densely-populated European countries is slowing, the truth is—broadband deployment in our country is accelerating.

Table 3: Services that Exceed 200 kbps in at Least One Direction³

Technology	2003		2004		2005		2006
	June	June	Dec.	June	Dec.	June	
ADSL	7,675,114	11,398,199	13,817,280	16,316,309	19,515,619	22,575,010	
SDSL/Traditional Wireline	1,215,713	1,407,121	1,468,566	898,468	904,539	948,160	
• SDSL	--	--	--	411,731	394,348	337,438	
• Traditional Wireline	--	--	--	486,737	510,191	610,722	
Cable Modem	13,684,225	18,592,636	21,357,400	23,936,536	26,469,242	28,513,500	
Fiber	111,386	130,928	159,653	315,651	448,257	700,083	
Satellite & Wireless	309,006	421,690	549,621	965,068	3,814,122	11,872,309	
• Satellite	--	--	--	376,837	426,928	495,365	
• Fixed Wireless	--	--	--	208,695	257,431	360,976	
• Mobile Wireless	--	--	--	379,536	3,129,763	11,015,968	
Power Line/Other	--	--	--	4,872	4,571	5,208	
Total Lines	22,995,444	31,950,574	37,352,520	42,436,904	51,156,350	64,614,270	

³ INDUS. ANALYSIS & TECH. DIV., WIRELINE COMP. BUREAU, FED. COMMC'NS COMM'N, HIGH-SPEED SERVICES FOR INTERNET ACCESS: STATUS AS OF JUNE 30, 2006 (Jan. 2007) [hereinafter HIGH-SPEED SERVICES FOR INTERNET ACCESS].

Yes, despite notions to the contrary, significantly more Americans are adopting broadband services each day. The FCC recently released a status report on high-speed services for Internet access.⁴ As of June 30, 2006, high-speed lines connecting homes and businesses to the Internet increased by 26 percent during the first half of 2006; from 51.2 million to 64.6 million lines in service. And, for the full twelve month period ending June 30, 2006, high-speed lines increased by 52 percent (or 22.2 million lines).

The numbers for wireless services are particularly encouraging. On January 31, 2007, the FCC released its most recent status report on high-speed services for Internet access. As set forth in the *High-Speed Services Report*, wireless growth was significant during the first six months of 2006.

First, with respect to services that exceed 200 kbps in at least one direction (and I'll talk more about that low hurdle in a minute), almost 60 percent of all new high-speed lines were mobile broadband wireless lines.

Also, with respect to two-way services, 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 eye-popping 2,187 percent in just six months! In fact, between June 2005 and June 2006, mobile wireless's share of total broadband lines rose from one percent to 17 percent.

*Table 4: Services that Exceed 200 kbps in at Least Both Directions*⁵

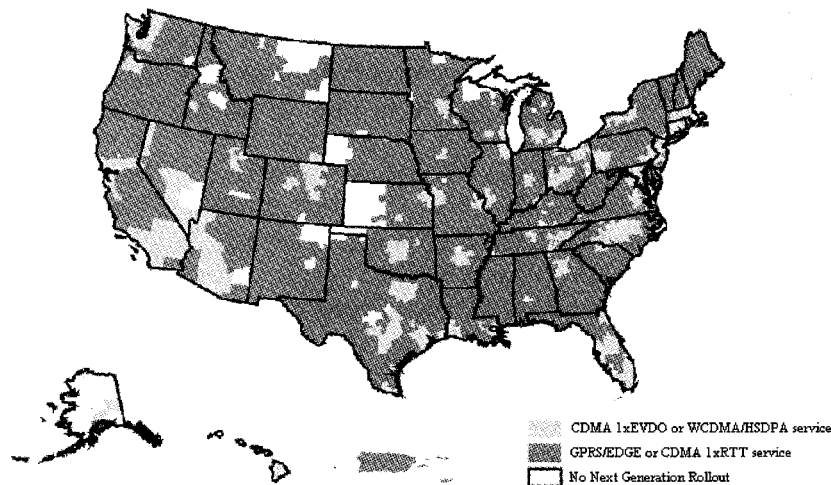
Technology	2003	2004		2005		2006
	June	June	Dec.	June	Dec.	June
ADSL	2,536,368	3,768,019	5,695,548	13,176,095	15,921,353	18,301,930
SDSL/Traditional Wireline	1,215,713	1,407,121	1,468,566	869,772	874,263	946,900
• SDSL	--	--	--	387,451	368,736	336,612
• Traditional Wireline	--	--	--	482,321	505,527	610,228
Cable Modem	11,935,866	17,567,468	20,891,624	22,664,106	26,200,400	28,220,563
Fiber	110,829	129,636	157,127	314,229	447,244	698,990
Satellite & Wireless	64,393	93,805	106,616	223,274	340,110	2,274,465
• Satellite	--	--	--	10,966	36,331	27,489
• Fixed Wireless	--	--	--	191,229	220,276	333,072
• Mobile Wireless	--	--	--	21,079	83,503	1,913,904
Power Line/Other	--	--	--	4,174	4,501	5,208
Total Lines	15,863,169	22,966,048	28,319,482	37,251,651	43,787,781	50,448,057

⁴ *Id.* tbl. 1: High-Speed Lines (Over 200 kbps in at least one direction).

⁵ *Id.* tbl. 2: Advanced Services Lines (Over 200 kbps in both directions).

In addition, the *Wireless Competition Report*, which the Commission released in September, discusses the proliferation of next generation wireless networks.⁶

*Map 1: Next Generation Network Rollout in the United States*⁷



As reflected in [dark gray], advanced broadband wireless technologies have been launched in counties containing about 269 million people, or about 94 percent of the United States. The latest fourth generation wireless technologies (as reflected in [light gray]) are available in counties containing 63 percent (CDMA 1xEVDO) and 20 percent (WCDMA/HSPDA) of the U.S. population respectively.

I am pleased to learn that, in the months that have passed since we released our report, wireless carriers have continued to invest the necessary capital and build the network upgrades to make advanced broadband services available to many more millions of potential subscribers. And, it's not only the largest companies making these investments. Regional companies, as well as smaller companies, are also deploying the latest wireless technologies and offering advanced services to their customers. Moreover, Mobile Virtual Network Operators (MVNOs) and a host of specialized

⁶ *In re* Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services, *Eleventh Report*, 21 F.C.C.R. 10,947 (Sept. 26, 2006).

⁷ *Id.*, app.B, Map 8: Estimated Rollout of Next Generation Networks Estimated by County.

companies serving specific demographic groups, such as young professionals and Hispanic consumers, are also riding the wave.

I'll temper my enthusiasm for a moment—albeit slightly—to acknowledge the critics. Some say that we should throw away the *High-Speed Services Report* as worthless because it includes services that run at only 200 kbps. Having this speed qualify as broadband may be insufficient, as consumers expect faster transport of ever-larger bandwidth-intensive files, especially given the skyrocketing amount of user-generated content flowing “upstream” from consumers’ homes and businesses. This incredibly powerful wave of consumer demand, however, appears to be pushing the network operators to offer fatter and faster pipes at competitive prices.

Table 5: High-Speed Lines by Information Transfer Rates⁸

Technology	Exceeding 200 kbps in only one direction	Exceeding 200 kbps in both directions <i>and</i>				
		Greater than 200 kbps & less than 2.5 mbps in the faster direction	Greater than or equal to 2.5 mbps & less than 10 mbps in the faster direction	Greater than or equal to 10 mbps & less than 25 mbps in the faster direction	Greater than or equal to 25 mbps & less than 100 mbps in the faster direction	Greater than or equal to 100 mbps in the faster direction
ADSL	4,273,080	12,176,743	6,111,807	11,255	--	--
SDSL	826	327,370	9,223	11	--	--
Traditional Wireline	434	583,221	10,363	891	12,270	3,543
Cable Modem	292,937	3,053,382	23,039,748	2,099,654	27,779	0
Fiber	1,093	221,227	315,266	133,339	15,778	13,380
Satellite	467,876	--	--	0	0	0
Fixed Wireless	27,904	313,011	17,220	2,580	207	54
Mobile Wireless	9102064	--	--	0	0	0
Power Line & Other	0	--	--	0	0	0
Total Lines	14,166,213	18,618,973	29,506,209	2,247,730	57,101	18,044

As depicted in [Table 5], this most recent *High-Speed Services Report* does capture and include data regarding services operating at speeds significantly higher than 200 kbps. And, I hope that future FCC studies continue to capture more detail regarding consumer take-rates of services at faster speeds. With respect to substance, we are seeing here that more than 50 million of the 64.6 million broadband lines in service across America

⁸ HIGH-SPEED SERVICES FOR INTERNET ACCESS, *supra* note 3, tbl. 5: High-Speed Lines by Information Transfer Rates.

exceed 200 kbps in both directions. Moreover, over 63 percent of those lines have transfer rates in the faster direction of 2.5 Mbps or greater.

Some say the *Wireless Competition Report* is insignificant, claiming it does not accurately measure service coverage in rural areas. I believe, however, that the report is by no means depressing or meaningless. In fact, in several sections, the information is hopeful, positive, and even exciting. These figures illustrate that we have come a long way in broadband deployment in a short time. While we still have far to go—we need to continue to turn the [dark gray] areas of our map into [light gray] areas, for instance—we should not lose sight of the fact that broadband has had the fastest penetration rate of any technology in modern history. That is to say, broadband has been deployed faster than: electricity, radios, TVs, VCRs, DVD players, PCs, and every other technology in American history. Nevertheless, we should never stop striving for ubiquitous pipes that are fatter and faster.

Which brings me to the crux of this afternoon's message: These numbers suggest that wireless broadband is the wave of the future. Clearly the Internet is going wireless. It's no secret that wireless technologies offer an additional means to bring advanced, innovative services—and the associated benefits—to all Americans, no matter where they live or work. So, what concrete steps should the Commission take to further accelerate adoption of mobile multi-media broadband technologies? What should the FCC do to seize every opportunity to move our country forward and continue to drive up the rate of wireless broadband penetration? I respectfully offer the following:

First, we must maximize opportunities for deployment in the 700 MHz band. The FCC is gearing up to auction 60 megahertz of prime spectrum in the 700 MHz band. Why is this spectrum "prime"? As Professor Tramont has long known: spectrum is not fungible. Because of their low spectral location, the radio waves in the 700 MHz band travel much farther and have more building penetration power than higher frequencies such as the personal communications service (PCS) spectrum (at 1900 MHz), or even the original cellular spectrum (at 850 MHz). This makes 700 MHz particularly attractive for any type of wireless service and significantly reduces the capital expenditure needed to construct a network.

Given Congress' mandate that we deposit the proceeds from this auction no later than June 30, 2008, practically speaking we must quickly wrap up our work on the service rules for this band, and we must start the auction before the leaves start falling from the trees. I am delighted that the Chairman has already indicated that the forthcoming rules will include market sizes even smaller than the smallest of the AWS auction. Whenever possible, we must avoid assigning spectrum over broad geographic areas to entities that may use it only in limited portions of these areas. I would also urge that we not tinker too much with the original flexible rules, which are expressly designed to accommodate myriad offerings beyond the tradi-

tional stovepipes. It's important that all entrants have the ability to freely employ new, smart technologies, which drive down the cost of service and encourage efficient spectrum use.

Second, we must vigorously promote widespread unlicensed use of the vacant TV channels. This spectrum, commonly called "white spaces," is located sporadically in the VHF and UHF spectrum bands between 54 and 806 MHz. Last June, in my first month at the Commission, we adopted a new equipment testing regime that facilitates deployment of unlicensed devices, including mobile WiFi, which operate in the 5 GHz band. This testing regime is radically innovative in that it permits operation of these devices while, at the same time, ensuring that the devices not cause harmful interference to incumbent government users in the 5 GHz band. I am hopeful that the work to ease equipment roll-out in the 5 GHz band will be replicated as the Commission's Office of Engineering and Technology conducts its ongoing testing of consumer devices designed for deployment in the white spaces. It is important that the Commission do its part to ensure that new consumer equipment designed for use in this spectrum does not cause harmful interference to the current operators in the white spaces. So, maybe we should start calling them "gray spaces."

Third, we must create regulatory parity, when possible. With respect to video franchising, I pressed for a follow up, fast-track rulemaking to quickly build a record on the possibility of extending the de-regulatory benefits set forth in our recently released order to all video providers, be they incumbent cable providers or over-builders. We will release that order no later than September. All market players deserve the certainty and regulatory even-handedness necessary to spark investment, speed competition, and make America a stronger player in the global economy. Accordingly, I am examining the possible classification of wireless broadband Internet access service as an information service. Previously, the Commission has classified Internet access over cable modem, wireline and power line facilities as information services, thereby establishing a consistent regulatory framework. In recognition of the important consumer benefits that stem from the certainty associated with regulating like services in a similar manner, the Commission is close to adopting this order.

Fourth, let's be practical. We must expeditiously act on requests from Commission licensees seeking regulatory relief to facilitate broadband deployment. What do I mean by that? Earlier this month, the Commission favorably ruled on a request for waiver seeking authority to design, build and operate a broadband video network at higher powers. Our action had a very tangible practical effect: this new entrant will require fewer numbers of base stations and its costs will be significantly reduced. In granting this request, the Commission enabled this licensee to ultimately roll-out an innovative and exciting mobile broadband video service to American consumers living in urban, rural, insular, and tribal areas. If we want America to move forward, this is precisely the type of action the Commission must

take to provide the certainty necessary for our country's entrepreneurs to forge ahead with advanced broadband offerings. We simply cannot let government inaction create market distortions.

Fifth, we must create incentives for the private sector to bring public safety along for the ride. I recently read that our nation's emergency response providers typically pay \$3,500–5,000 each for radios alone! That's right—radios alone. Let's do the math: here in Washington, D.C., there are roughly 10,000 public safety "boots on the ground." That translates to an outlay of between \$35 million and \$50 million dollars just for radios. It's no wonder that these folks don't have the means to take advantage of the latest technologies. I want that to change.

While commercial wireless technologies may not be appropriate for every type of public safety communication, public safety agencies may find it useful to employ commercial systems, or to partner with commercial entities, to fulfill their critical role in securing the homeland. I applaud the private sector companies that have stepped up to coordinate with public safety agencies in the New York City and Washington, D.C. regions. These companies are developing and constructing networks that employ advanced commercial wireless technologies yet also meet the stringent requirements necessary for public safety use. These broadband systems will provide these agencies with cost-effective and robust interoperability, while offering the necessary high data throughputs in a spectrally efficient manner. By using the latest proven and reliable commercial off-the-shelf technologies, these public safety agencies—and, more importantly, the taxpayers who fund them—are benefiting from the considerable discounts associated with economies of scale.

Finally, we must encourage market entry by small businesses, rural telephone companies, and businesses owned by members of minority groups and women. This year in particular the Commission is in an excellent position to ensure that wireless licenses are disseminated among a wide variety of applicants. We have been working hard to open new windows of opportunity for all types of spectrum license applicants, as well as unlicensed operators. In last summer's extremely successful Advanced Wireless Services spectrum auction, 55 percent of winning bidders identified themselves as small or very small businesses, rural telephone companies, and businesses owned by members of minority groups or women. I would urge that we enhance and improve upon the positive aspects of last summer's auction to provide a second meaningful opportunity for participation in the upcoming 700 MHz auction.

Separately, I expect that the technology innovation spurred by the Commission's leadership in the white spaces proceeding will play a critical role in the global multi-media marketplace, including fostering job growth and related business opportunities. For this reason, I am hopeful that advances in wireless technology and multi-media applications will make it easier for new and diverse players to enter the market. Hopefully, we can spark a

virtuous cycle of innovation, investment, deployment, job creation, lower prices and increased consumer choice.

In sum, effective personal telecommunications should deliver reliable, ever-increasing bandwidth to individuals at ever-decreasing cost. And, in spite of the myths, I'm bullish on the future. Each step the Commission takes to foster choice for all kinds of consumers—residential, businesses, governments and public safety agencies—moves us closer to ubiquitous, multi-media broadband availability. I am hopeful that, by eliminating the barriers and reducing the uncertainty that may hinder new entrants from constructing new delivery platforms and owners of existing platforms to upgrade their facilities, the Commission will ensure greater competition among, and within, various broadband platforms.

Thank you for inviting me here today and best of luck to you all.

