U.S.-E.U. Information Society Dialogue

Spectrum and Wireless Services Discussion

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Overarching Goal: Promoting Economic Growth

- Thanks to the President's policies, America's economy is strong:
  - U.S. economy grew at a real GDP rate of 2.8% in the second quarter of 2004; economic growth in second half of 2003 was the fastest in nearly 20 years.
  - Over the last year, 1.7 million new jobs have been created, including 107,000 in the manufacturing sector since January.
  - There has been a sharp pickup in business spending on capital equipment.
  - Homeownership is presently at its highest level ever – 68.6 % in the first quarter of 2004.
  - Productivity in the non-farm business sector rose an estimated 5.5% in 2003, following a 4.4% gain in 2002 – the first time in the past 50 years that annual productivity gains have exceeded 4% in two consecutive years.
  - In May 2004, the Department of Agriculture forecasted that U.S. agricultural exports would set a new record in 2004, totaling an estimated $61.5 billion.
  - In August 2004, manufacturing activity rose for the 15th month in a row.

The Global View

- The US has 5% of the world's population, but accounts for 1/3 of world economic production

- 3 billion people have joined the world economy in the last 10 years

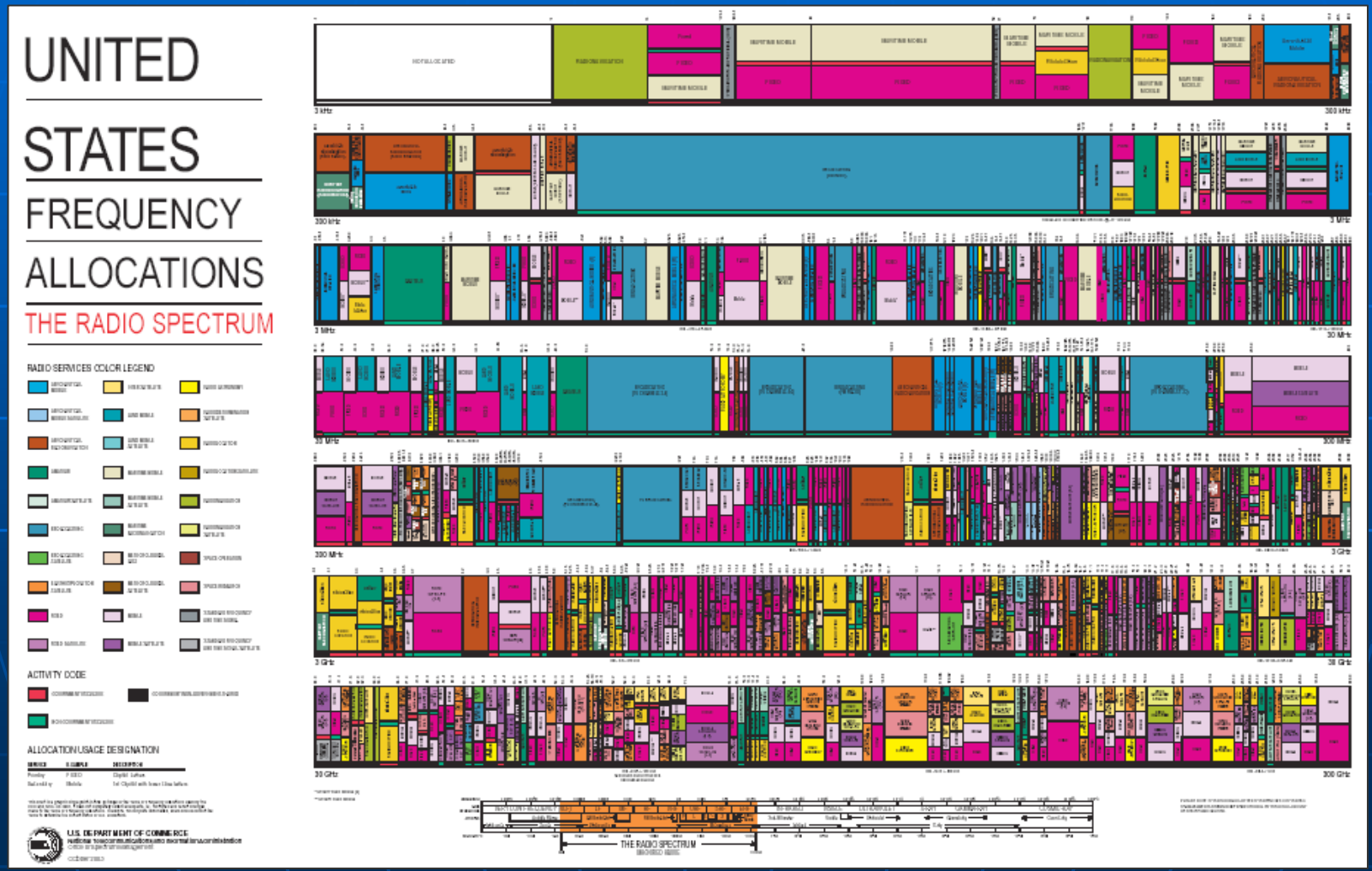
- A regulatory climate that fosters investment is an essential part of a country's ability to compete. As articulated by Chairman Powell earlier this year:

  "*If we do not create a regulatory climate that attracts and encourages investment in our states and in our Nation, we will face the rude reality that opportunity can and will go elsewhere. If the regulatory climate is hostile, the information age jobs go to India not Appalachia. If regulatory costs are excessive, email, voice and video servers will be set up in China not California. Unlike the earth-bound networks and businesses of the past, there is nothing I, or you, can do to keep economic activity in your state. " (Washington, DC March 10, 2004)*

America's Trade with the European Union

- The US and the E.U. share a huge and mutually beneficial economic partnership
- The U.S. and the E.U. engage in approximately $370 billion in two-way trade
- Last year, U.S. exports to the E.U. were $150 billion, and imports were $244 billion
- The U.S. exported $3.5 billion in telecommunications equipment to the E.U. in 2002, and the E.U. exported $3.6 billion in equipment in the same period

Spectrum Allocation Chart



Spectrum Relocation Fund

- The spectrum relocation fund would substantially speed and facilitate the relocation of federal government spectrum users to new frequencies to permit the introduction of new commercial services for consumers.

- Under current law, the winners of spectrum auctions are required to reimburse a federal entity for the costs incurred in the process of relocating the agencies' spectrum operations to a different spectrum band.

- Instead of requiring auction winners to pay twice (once at the auction and then again after negotiating uncertain relocation costs), the proposed fund would allow relocating government users to recoup their costs out of auction proceeds.

President's Spectrum Initiative

- On May 29, 2003 President Bush signed an Executive Memorandum announcing the Administration's commitment to develop and implement a comprehensive United States Spectrum Policy for the 21st Century.

- The President's Memorandum also defines two courses of action: first, the establishment of a Federal Government Spectrum Task Force; and second, to conduct public outreach to a broad range of stakeholders.

Responding to the President's Directive

The President directed the Secretary of Commerce:

- To establish a Federal Government Spectrum Task Force and develop recommendations for improving the Federal agencies' use of the spectrum.

- To convene public meetings and after seeking the views of a wide range of stakeholders develop recommendations for improving United States spectrum use as a whole (including spectrum use by Federal, State, local, and private sector entities).

- To prepare reports with recommendations on both of the above activities and submit them to the President within one year.

[Further details available at http://spectrumreform.ntia.doc.gov]

Responding to the President's Directive Spectrum Report Recommendations

- On June 24, 2004, the Department of Commerce submitted two reports to the President that presented recommendations for developing a U.S. spectrum policy for the 21st century:
  - Report 1: "Recommendations of the Federal Government Spectrum Task Force"
  - Report 2: "Recommendations from State and Local Governments and the Private Sector Responders"

- As directed by the President, the Recommendations focused on the following issues:
  - Modernize and Improve the Spectrum Management System
  - Establish incentives for achieving improved efficiencies in spectrum use and for providing incumbent users more certainty of protection from unacceptable interference
  - Promote the timely implementation of new technologies and services while preserving national and homeland security, enabling public safety, and encouraging scientific research
  - Develop means to address the spectrum needs of critical governmental missions

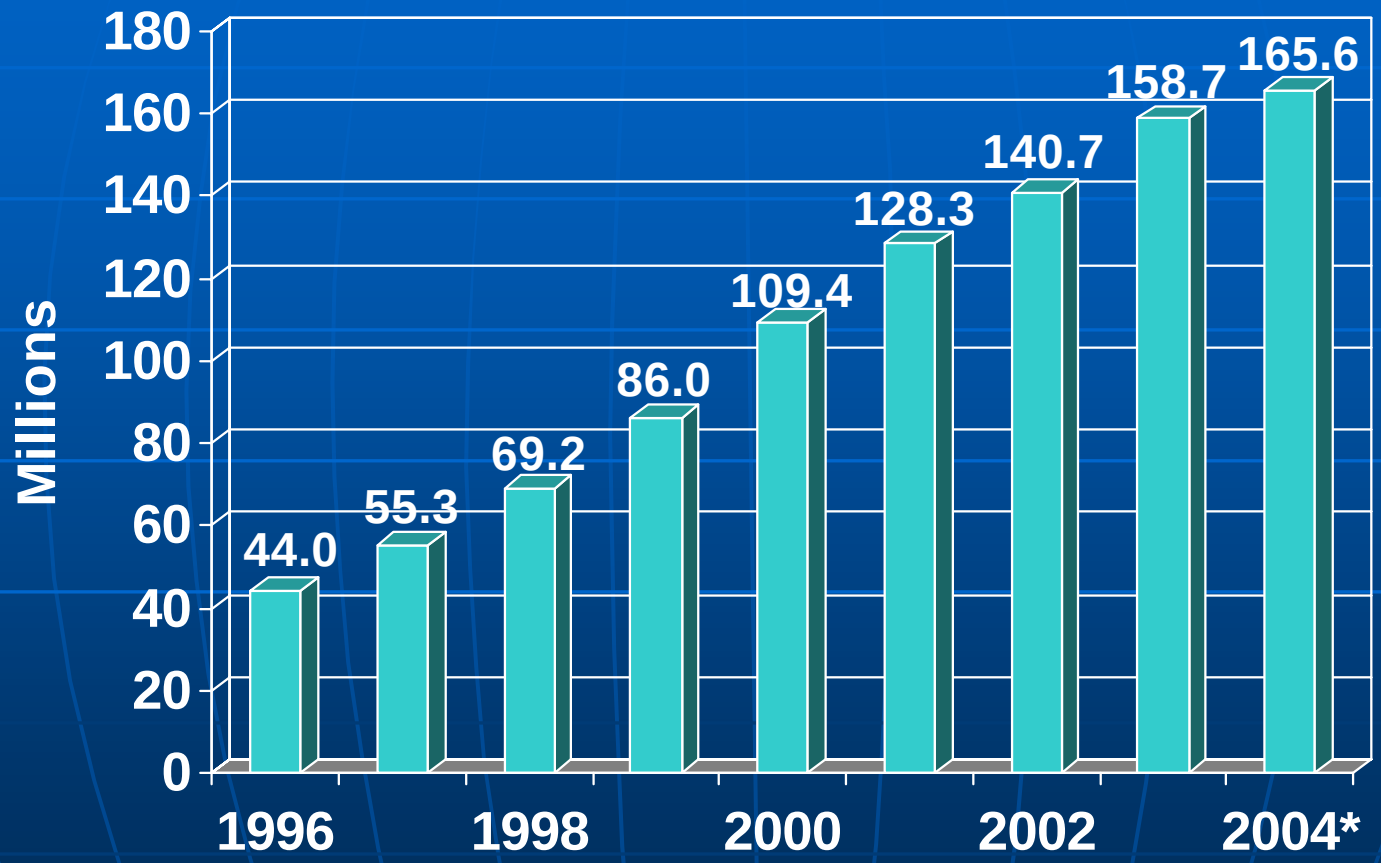
Mobile Advanced Wireless Service Policies

- Chief aim of federal policies for mobile services is to ensure sufficient spectrum and competition so that the market works to fulfill availability, price and service quality objectives of consumers
- An increasing amount of spectrum is being made available for mobile advanced wireless services – most recently 2495-2690 MHz, and new licenses around 1900 MHz
- New spectrum will allow services to grow into high data rate applications
- Provide incentives in spectrum auctions to expand the number market players and in selected cases to promote service availability
- Provide for secondary markets for mobile networks to improve efficiency and fill-in or extend coverage of wireless networks

Mobile Advanced Wireless Service Standards

- Technology neutrality – policy allows the consumer to decide which is the “right” mobile standard
- Treat mobile advanced wireless networks in terms of content the same as we do other IP networks whenever possible
- For example, wireless number portability has been implemented along with number portability for wired services
- Federal government is taking appropriate steps to ensure law enforcement needs are accommodated in advanced networks

Wireless Service Has Grown Dramatically



*June 2004

Source: CTIA

RFID and Wireless Sensors

- RFID and other wireless sensors are at early stages of development and have limitless potential for business and home use.
- Some current uses: tracking supplies and inventory, tracking baggage on airlines, monitoring livestock.
- Department of Defense and Wal-Mart Stores Inc. announced requirement for suppliers to use RFID tags by 2005. Wal-Mart projects cost savings of $8.4 billion annually. Others using RFID include Procter & Gamble, Michelin, and Target.
- RFID is anticipated to increase sales by 3% from improved in-store stocks, reduce in-store labor expenses up to 65%, and reduce annual store and warehouse expenses by 7.5% (Precursor Analysis).
- Policy issues discussed at Department of Commerce's April 2004 Forum
  - Need for different types of spectrum
  - Need for harmonization of standards globally
  - Privacy concerns about information stored through RFID.

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Broadband Discussion

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The President's Broadband Vision

Goal

"This country needs a national goal for broadband technology . . . universal, affordable access for broadband technology by 2007."

– President George W. Bush, Albuquerque, NM, March 26, 2004

Government's Role

"The role of government is not to create wealth; the role of our government is to create an environment in which the entrepreneur can flourish, in which minds can expand, in which technologies can reach new frontiers."

– President George W. Bush, Technology Agenda, November, 2002.

Creating Economic Conditions For Broadband Deployment

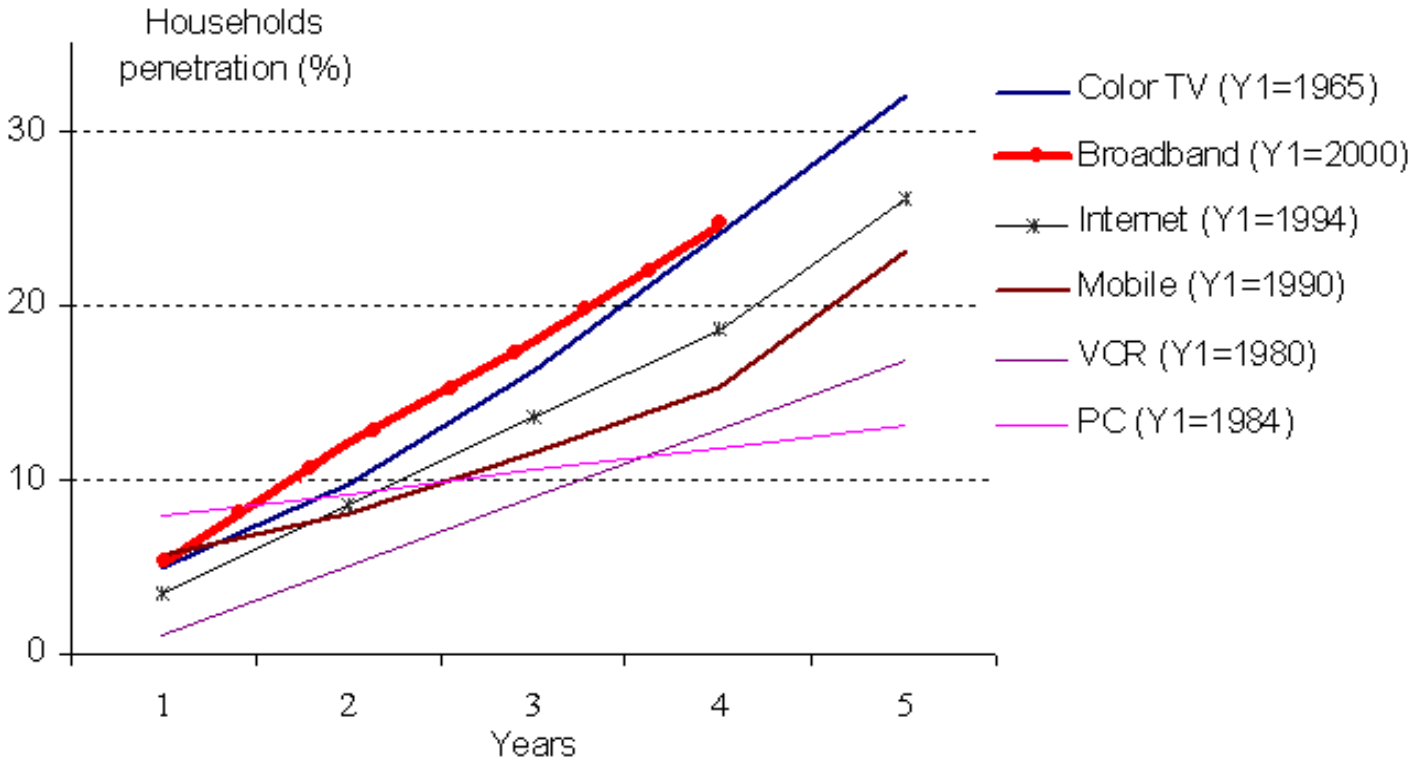
"We ought not to tax access to broadband. If you want something to flourish, don't tax it."

– President George W. Bush in Baltimore, Maryland on April 27, 2004

- Tax relief has given businesses powerful incentives to invest in broadband technology
  - Accelerated depreciation for capital-intensive equipment
  - Extension of the Internet tax moratorium; support making the moratorium permanent
  - Extension of the research and experimentation tax credit; support making it permanent
  - President's FY 2005 budget requests a record $132 billion for research and development.

Rate of Broadband's Diffusion in the U.S. is Strong

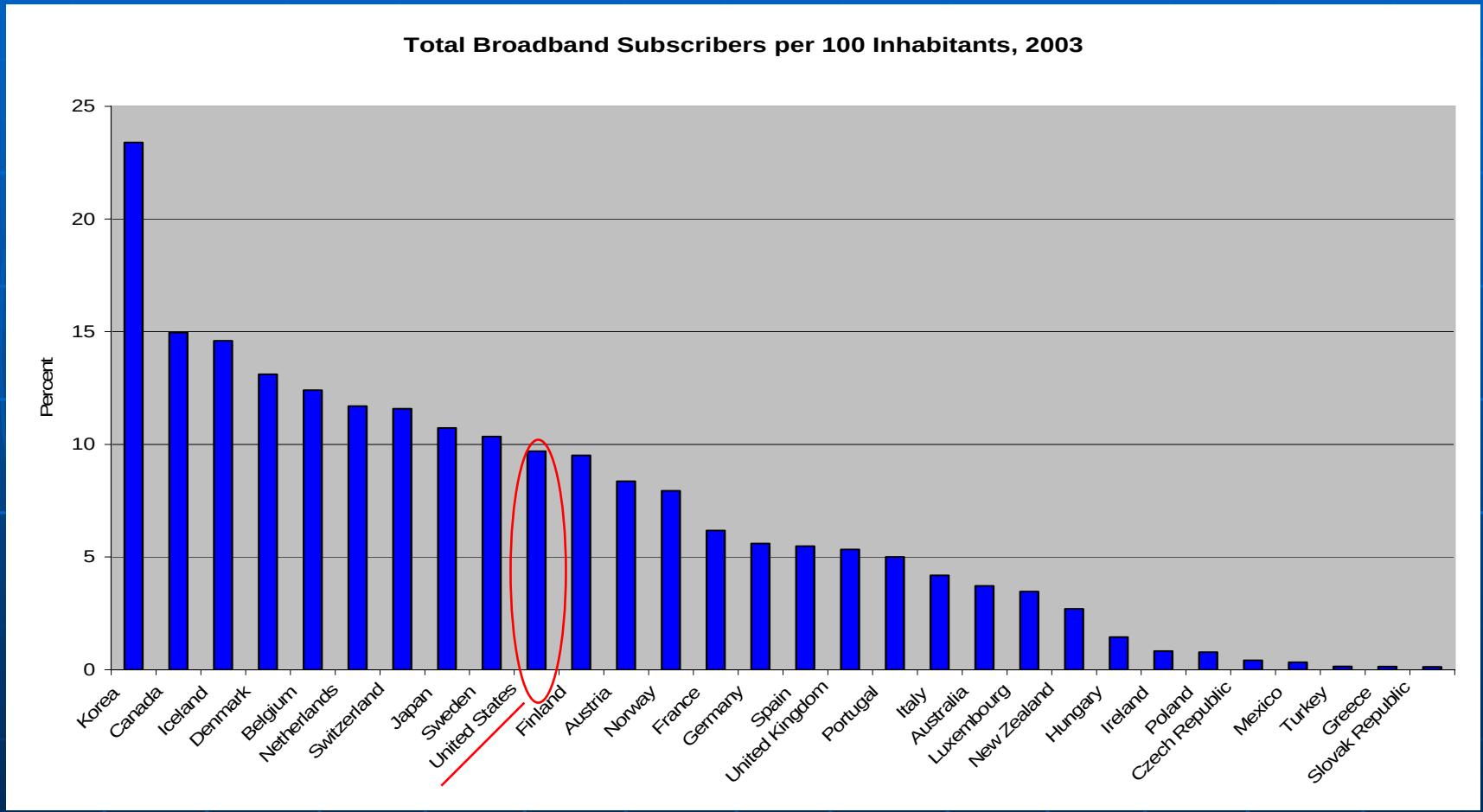
United States: Diffusion of consumer goods and communications services
(5 % onwards)



Source: OECD, 2003

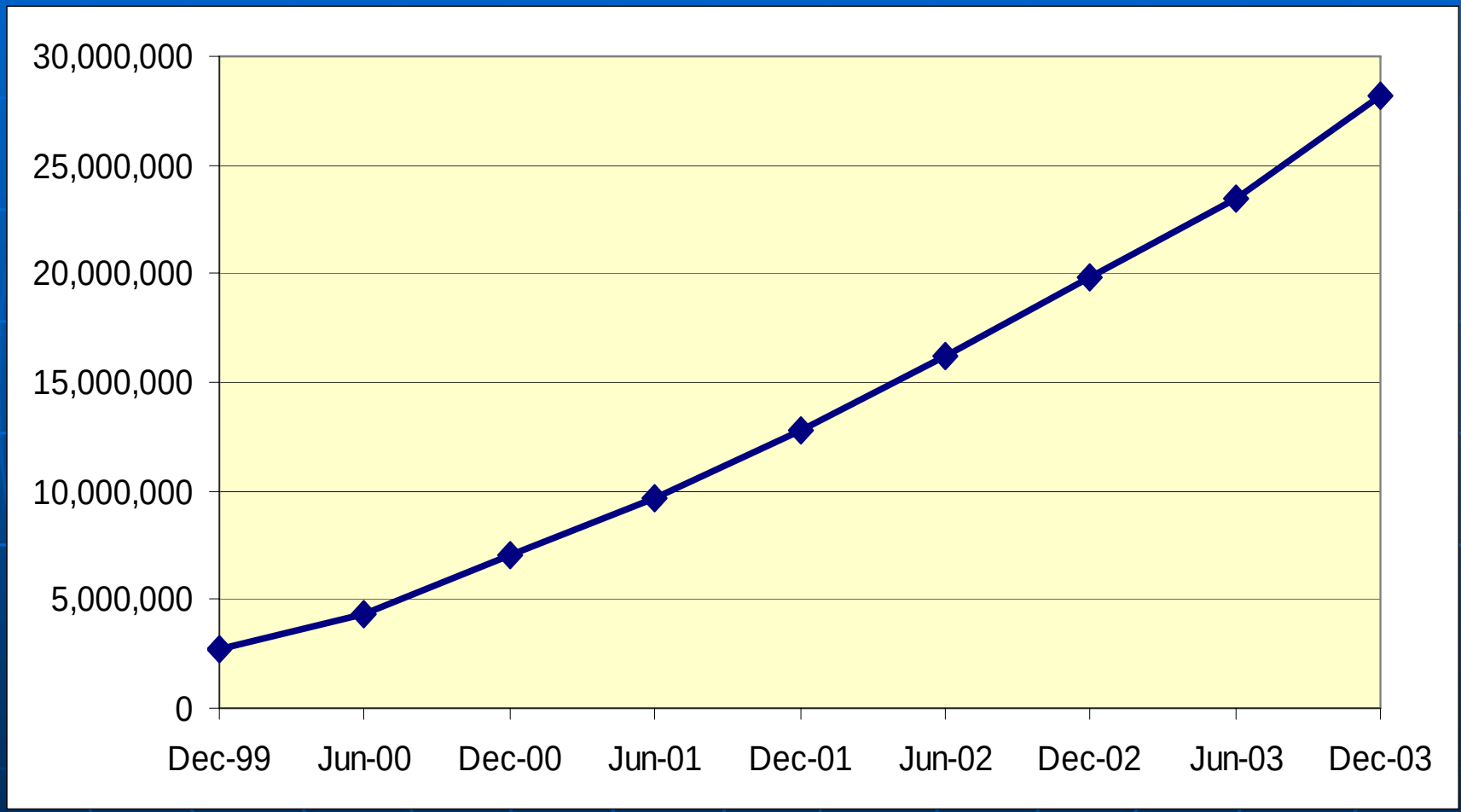
But, it Needs to Be Stronger…

December 2003



Source: OECD

Total High Speed Lines in the U.S.

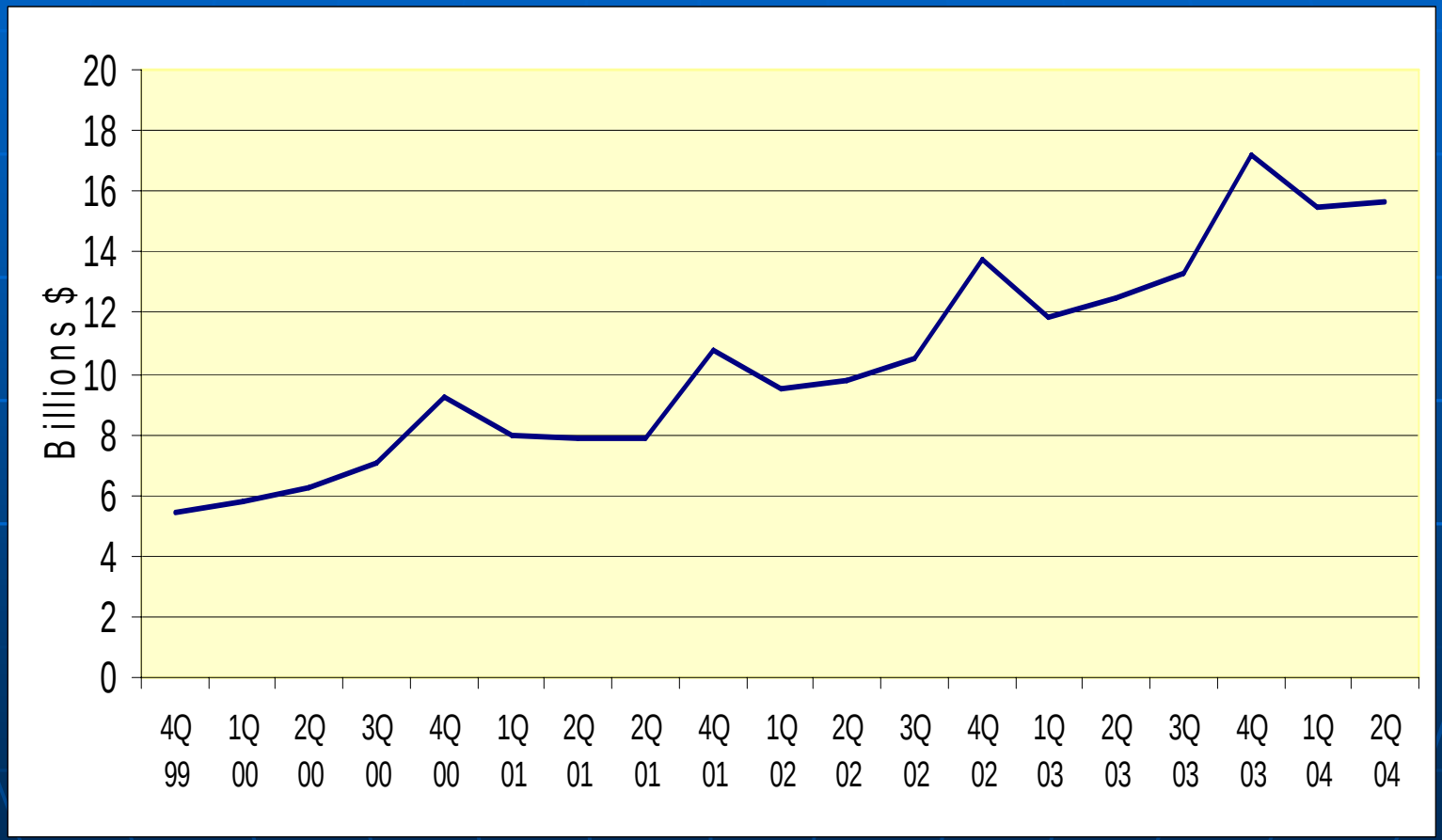


Source: FCC, 2004

The Growth of E-Commerce in the U.S.

Estimated Quarterly U.S. Retail E-commerce Sales:

4th Quarter 1999 – 2nd Quarter 2004



Source: U.S. Census Bureau, 2004

Wireless Broadband and New Technologies

"The other promising new broadband technology is wireless. The spectrum that allows for wireless technology is a limited resource . . . [a]nd a wise use of that spectrum is to help our economy grow, and help with the quality of life of our people."

- President George W. Bush, U.S. Department of Commerce, June 24, 2004

The Administration has made more radio spectrum available for wireless broadband technologies:

- Advanced Wireless Services ("3G")
- Ultra-wideband
- 5 GHz Spectrum
- 70/80/90 GHz

Wi-Fi Hot Spots

- There are over 20,000 hotspots in the United States. (Intel's Hotspot Finder)
- City and County-wide hot spots:
  - Walla Walla County, WA
  - Spokane, WA
  - Cerritos, CA
  - Chaska, MN
  - Athens, GA
- Some Communities developing major free hot spots:
  - Long Beach, CA
  - San Jose, CA
  - Washington, DC
  - New York, NY
  - Austin, TX
  - Las Vegas, NV
- WiMax is coming Fast

WiMax

- WiMax or 802.16 is designed to provide wireless broadband access in a Metropolitan Area Network (MAN), operating at speeds up to 75 Mbps over a 30 mile radius.

- WiMax connectivity is fast enough to support more than 60 businesses with T1-level connections and hundreds of homes with DSL-rate connectivity using only 20 MHz of channel bandwidth.

- Intel plans to build WiMax into its Centrino chip platforms, which power 80% of all PCs, by 2006. Motorola plans to commercially offer integrated radio access networks that can handle 3G, Wi-Fi, WiMax and other future wireless innovations. AT&T, Siemens, and Alcatel are also backing WiMax technology.

- Industry analysts predict six-fold growth in WiMax sales over the next three years.

Broadband Over Power Lines: The Third Wire

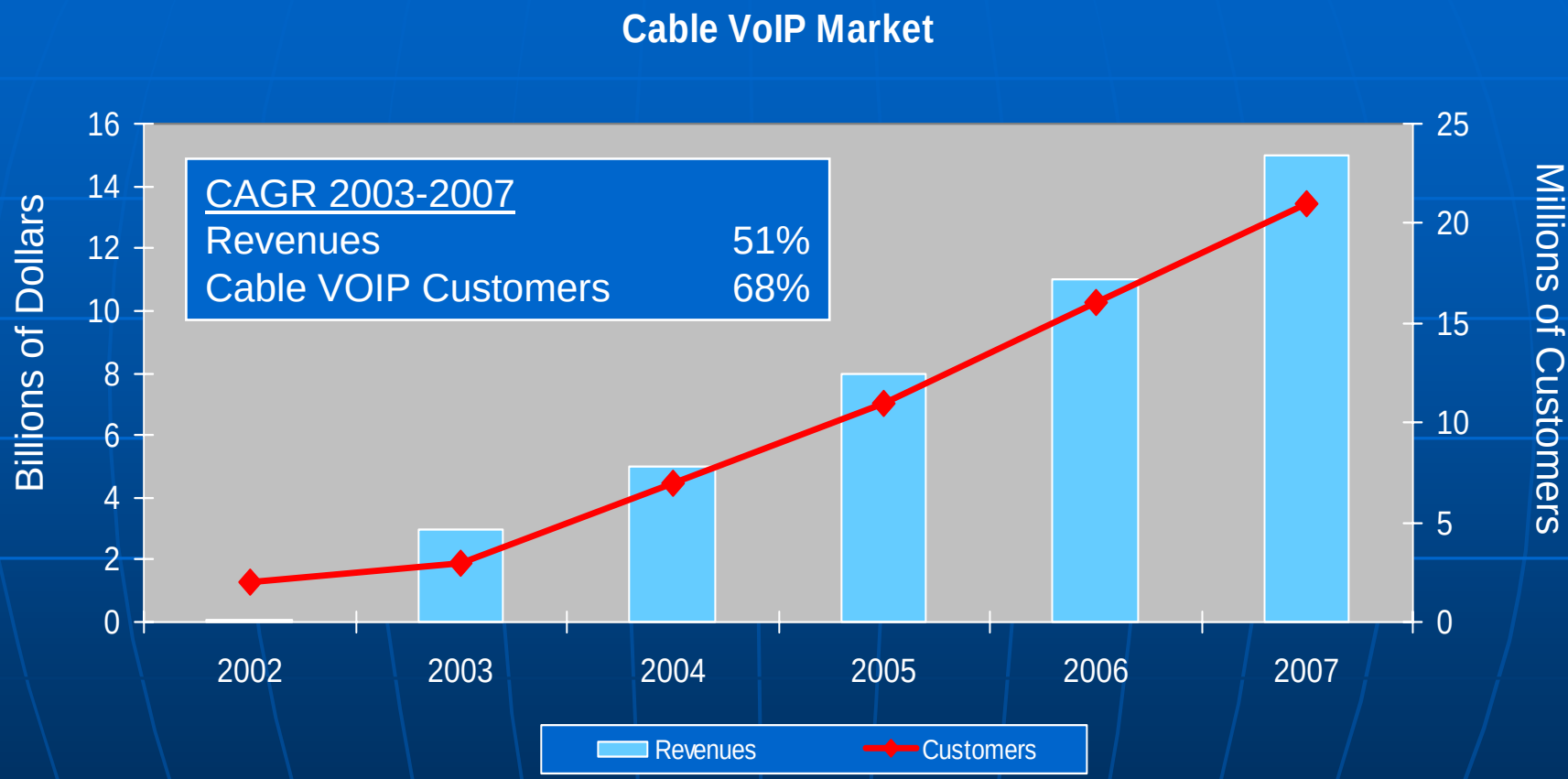
"We need to get broadband to more Americans . . . one great opportunity is to spread broadband throughout America via our power lines."

— President George W. Bush, US Department of Commerce, June 24, 2004

- Principal concern is the risk that BPL systems might interfere with federal government radio communications or other state and private radio operators.
- FCC began BPL rulemaking on February 12, 2004.
- On April 27, 2004, NTIA submitted to the FCC a Phase 1 interference report, which suggested interference mitigation techniques to protect critical government radio systems.
- On June 4, 2004, based on additional analyses, NTIA recommended several supplements to the FCC proposed BPL rules to reduce further any risk of harmful BPL interference

HomePlug Modem can turn an electrical outlet into an Internet connection.

VoIP and Other IP Applications Will Continue to Change the Market



Source: Kaufman Brothers, "A General Flavor of Mild Decay," July 14, 2003

ENUM and IPv6 Will Enable New IP Capabilities

- ENUM promises true convergence by facilitating the integration of telephone numbers and IP addresses, providing a foundation for development and deployment of new Internet-based communications devices and applications

- IPv6 developed during 1990's as replacement for existing Internet Protocol version 4 (IPv4)

- Enhanced capabilities of IPv6 as compared to IPv4 would:
  - Exponentially increase the number of available Internet addresses
  - Enable the proliferation of enhanced mobile services/applications
  - Increase Security