

Wireless Communications Association International: 2005 Annual Conference

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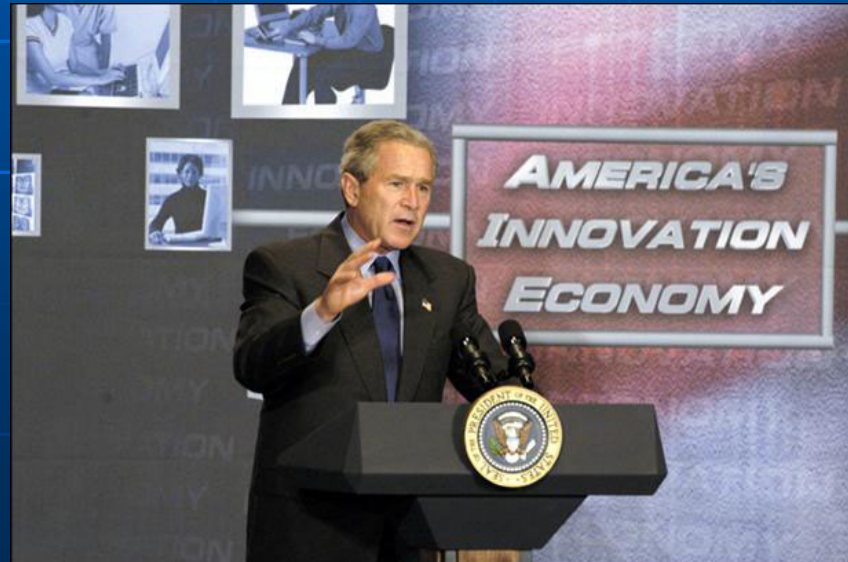


June 30, 2005
www.ntia.doc.gov



Overview

- State of the Economy
- The President's Broadband Vision
- New and Emerging Broadband Technologies
- Spectrum Policy
- Global View
- Preserving the Internet's Security and Stability



Overarching Goal: Promoting Economic Growth

Thanks to the President's policies, America's economy is strong:

- During the past four quarters, GDP grew 3.7%, above its average pace during the past three decades. Meanwhile EU25 GDP grew 1.7% and Euro-zone GDP grew 1.4%.
- The economy has shown job growth for 24 straight months and added nearly 3.5 million new jobs – more than Canada, France, Germany, Great Britain, and Japan combined.
- The U.S. unemployment rate is 5.1% (May 2005), while the EU25 unemployment rate is 8.9%.
- The manufacturing unemployment rate was 4.5% in May, below the 5.6% rate in May 2004.
- Manufacturing activity (ISM index) has been growing for 24 straight months – the longest period of growth in 16 years.
- Homeownership rate was 69.1% in the fourth quarter of 2004, just under the record high of 69.2%.

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.

Benefits of Broadband

“[B]roadband will not only help industry, it’ll help the quality of life of our citizens.”

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

- Tele-Medicine
- Distance Learning
- Tele-Work
- National Security
- Jobs and Economic Growth



Creating Economic Conditions For Broadband Deployment

Tax relief has given businesses powerful incentives to invest in broadband technology:

- Accelerated depreciation for capital-intensive equipment.
- Extension of the Internet tax moratorium until Oct. 31, 2007; support making it permanent.
- An 18-month extension of the research and experimentation tax credit; support making it permanent.
- President's FY 2006 budget requests a record \$132 billion for research and development.

Reducing legacy regulation of broadband services:

- The Administration supports the FCC's order freeing newly deployed broadband infrastructure from legacy regulation.
- As a result – FOCUS, FTTH Council and TIA announced 5/10/05 that the number of communities with fiber build outs has increased 83% from 217 communities to 398 communities in 43 states. The number of homes passed by fiber grew from 970,000 in October '04 to 1.6 million in April '05.

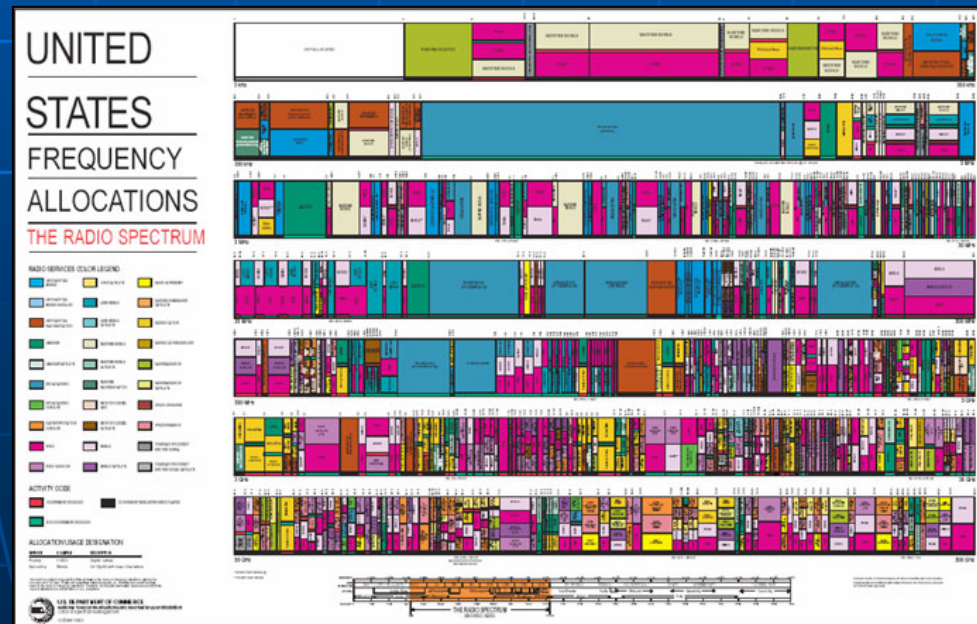
Expanding Competition: Wireless Broadband and New Technologies

“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.”

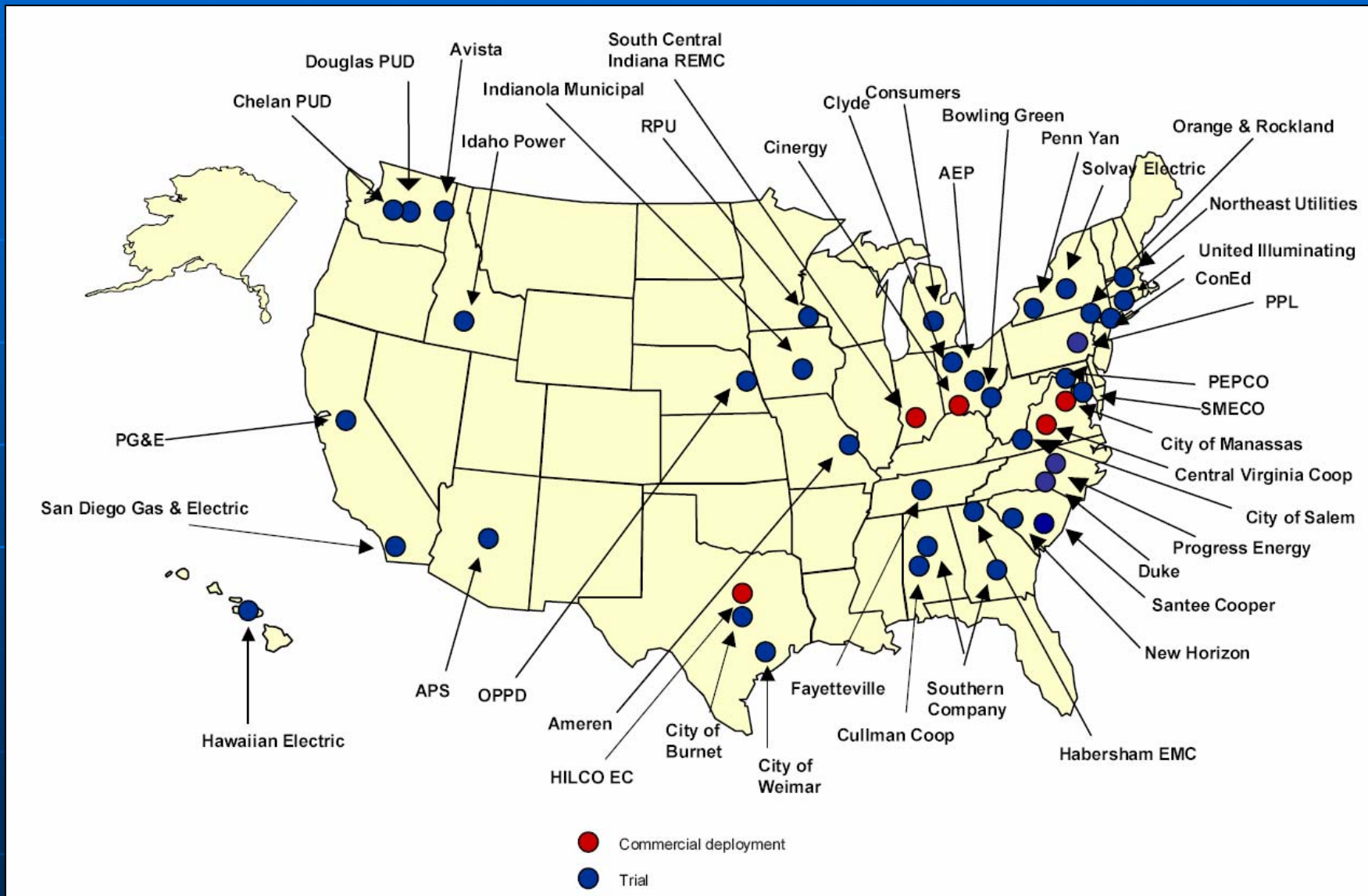
-- President George W. Bush, June 24, 2004

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



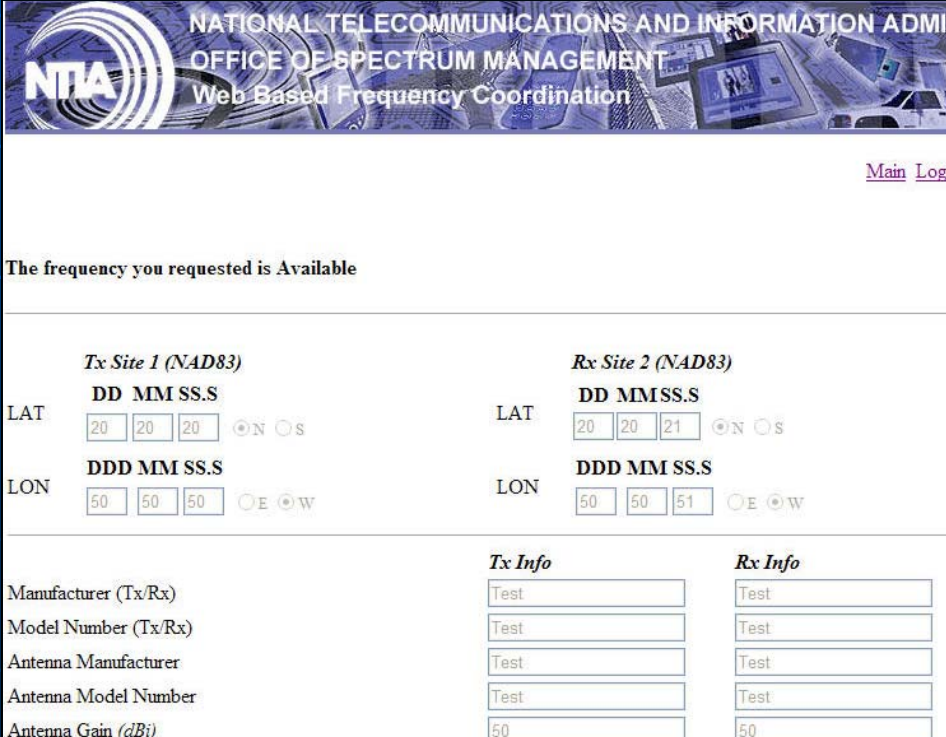
Broadband Over Power Lines: Current Deployments



Source: UPLC 2005

70/80/90 GHz Website

- As part of the President's initiative to streamline U.S. spectrum policy, fiber-speed wireless communications links in several spectrum bands may now be coordinated and approved for commercial use in a matter of minutes.
- NTIA has completed development of the web-based mechanism to facilitate real-time coordination of federal and non-federal operations in these frequency ranges.
- This new system will allow non-federal users to use a website to determine whether they have any potential conflict with federal users.
- Commercial users can now establish high-speed, point-to-point data links through this web-based coordination system activated on Feb. 8, 2005.



NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION
OFFICE OF SPECTRUM MANAGEMENT
Web Based Frequency Coordination

[Main](#) [Log](#)

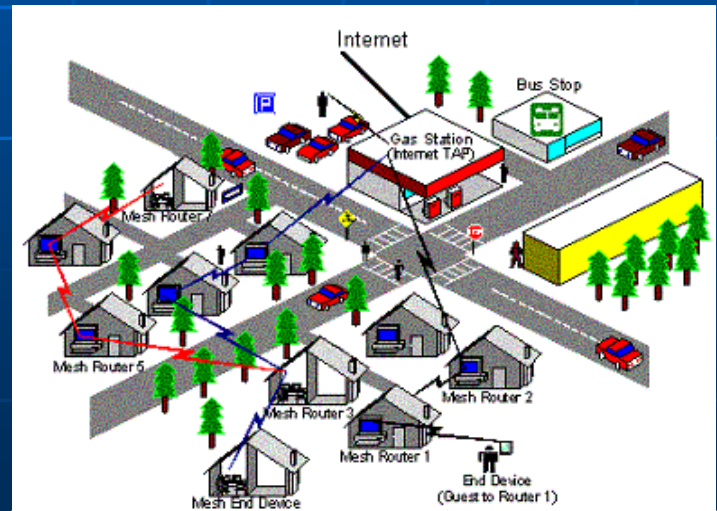
The frequency you requested is Available

Tx Site 1 (NAD83)		Rx Site 2 (NAD83)	
LAT	DD MM SS.S 20 20 20 <input type="radio"/> N <input type="radio"/> S	LAT	DD MMSS.S 20 20 21 <input type="radio"/> N <input type="radio"/> S
LON	DDD MM SS.S 50 50 50 <input type="radio"/> E <input checked="" type="radio"/> W	LON	DDD MM SS.S 50 50 51 <input type="radio"/> E <input checked="" type="radio"/> W

	Tx Info	Rx Info
Manufacturer (Tx/Rx)	Test	Test
Model Number (Tx/Rx)	Test	Test
Antenna Manufacturer	Test	Test
Antenna Model Number	Test	Test
Antenna Gain (dBi)	50	50

Moore meets Marconi: Wireless Applications

- **Wi-Fi:** Until recently, the utility of Wi-Fi phones was limited to businesses and colleges. Companies such as Nokia, Flarion, IDT, Motorola, Cisco, and SpectraLink are beginning to develop hardware and software to facilitate Wi-Fi telephony.
- **WiMax:** Intel plans to build WiMax into its Centrino chip platforms, which power 80% of all PCs, by 2006. InStat/MDR estimates that a company could reach 97.2% of the U.S. population with a \$3.7 billion investment in Wi-Fi.
- **Unlicensed Mesh Networks:** By linking nodes on an ad hoc basis, mesh technology promises to deliver high bandwidth wireless coverage to areas that lack wired infrastructure, and can link diverse devices or networks.



Self-Organizing Neighborhood Wireless Mesh Networks (Source: Microsoft Research)

The Spectrum Challenge

A Presidential Policy Board examining spectrum management summed up the urgent issues in stating:

"The development of so valuable a resource as the radio spectrum is a matter of paramount importance. Despite technical and operational improvements the demand for frequencies has steadily crowded the supply within the usable spectrum. The use of this resource should have the most careful planning and administration within the United States and in cooperation with other countries. Unfortunately, guidance and administration have often been inadequate."

STOCK ANALYSTS
THE PRESSURE TO SAY 'BUY'
PAGE 54

▶ ASEA'S GLOBAL PUSH ▶ WILL ABC PASS NBC? ▶ XEROX' STRATEGY

BusinessWeek

JULY 23, 1990

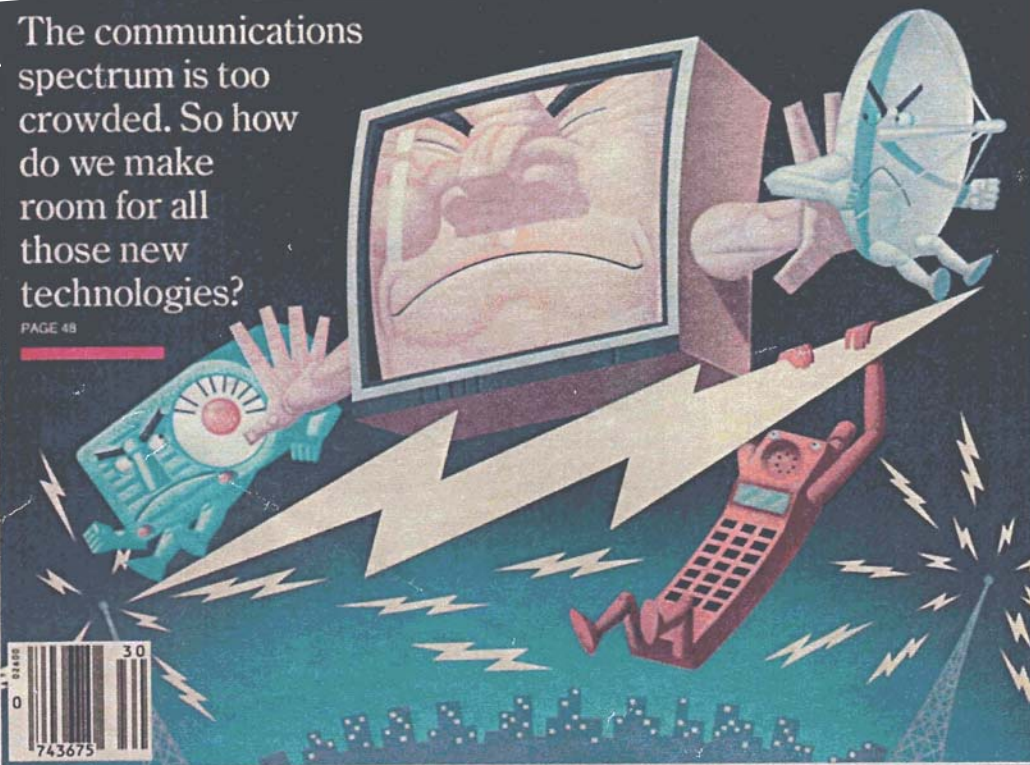
A MCGRAW-HILL PUBLICATION

\$2.00

AIRWAVE WARS

The communications spectrum is too crowded. So how do we make room for all those new technologies?

PAGE 48



Cover story
July 23, 1990

President's Spectrum Policy Initiative

“The existing legal and policy framework for spectrum management has not kept pace with the dramatic changes in technology and spectrum use.”

- President George W. Bush, Presidential Memorandum, May 29, 2003

1. **President's Executive Memorandum** (June 2003)
2. **Two Reports from the Secretary of Commerce to the President** (June 2004)
3. **President's Direction** (November 2004)
4. **Secretary of Commerce Implementation Plan** (May 2005)
5. **Changing Spectrum Management** (May 2005 – November 2011)

Spectrum Reform Initiative's Key Objectives

- A.** Facilitate a modernized & improved spectrum management system
- B.** Facilitate policy changes to create incentives for more efficient & beneficial use of spectrum & to increase predictability & certainty for incumbent spectrum users
- C.** Develop policy tools to streamline deployment of new & expanded services & technologies while preserving national & homeland security & public safety, & encouraging research
- D.** Develop means to address the critical spectrum needs of national & homeland security, public safety, federal transportation infrastructure, & science

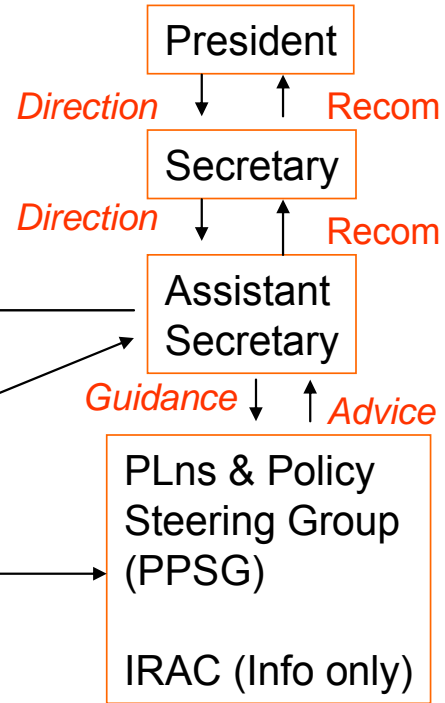
President's Spectrum
Policy Initiative/Direction Jun 03

2 NTIA Reports – Jun 04
24 Recommendations

President's Direction
(Nov 04)

**NTIA/OSM Projects
And
Working Level Groups**

**President's
Spectrum Policy
Initiative Implementation
APPROACH**



*Implementation
Direction/Guidance*

Implementation Plan
(6 months)
Annual Progress
Report (12 months)

PLNs & Policy
Steering Group
(PPSG)

IRAC (Info only)

Opportunities for International Trade and U.S. Job Growth

“In the last ten years, 3 billion people have joined the world economy.”

- Craig Barrett, CEO, Intel Corporation

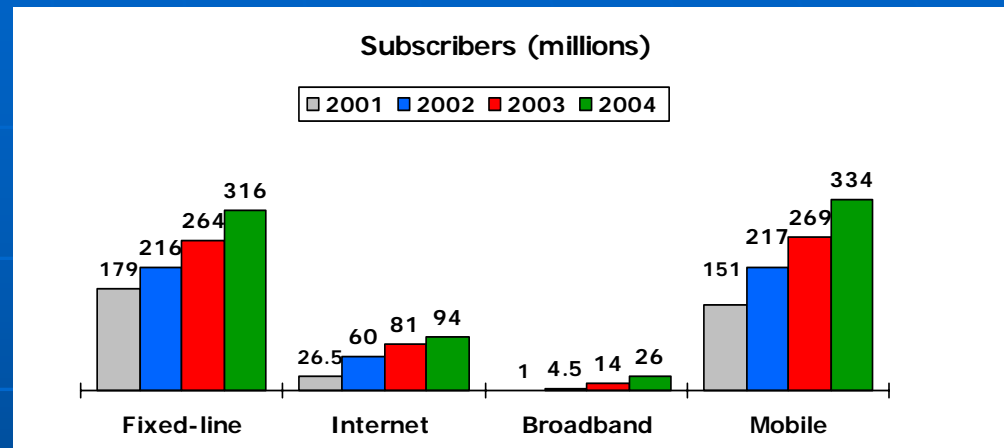
- The number of international calling minutes in the U.S. has grown from 1.6 billion in 1980 to 43 billion in 2003 ¹.
- VoIP international calls increased from 7.5 million minutes in 1997 to 21.9 billion in 2003 ².
- Wireless broadband expansion married to VoIP creates great opportunity to reach vast markets in China, India, and other emerging markets.
- Mobile subscribers are 51 percent of all telephone subscribers worldwide (ITU 2003).
 - 1.37 billion GSM subscribers worldwide (GSM Ass'n 6/05)
 - Over 256 million CDMA subscribers worldwide (CDG 3/05)
- HSPDA, a faster version of 3G (WCDMA) is expected to reach the mass market in 2006 → launching first in the United States, followed by Japan, then Europe.

¹ FCC, “Trends in the International Telecommunications Industry”, June 2005.

² TeleGeography, 2004.

America's Telecom Trade with China

- China has the world's largest landline and mobile telecom networks.
- China plans to inject \$500 billion between 2001-2005 into its telecom infrastructure.



Source: MII, TIA, USITO

- China's telecom equipment market, (\$20 billion estimated worth) is among the world's largest. U.S. exports comprise only \$630 million of that total, leaving ample room for expansion.
- MII expects the number of fixed line telephone users to reach 361 million (27.6% penetration) by the end of 2005 and the number of cellular users to reach 392 million (30% penetration). With such an investment, Chinese telecom carriers expect to generate revenues of \$76.5 billion, 10.4% more than that in 2004.

India: Market Expansion



- 1.08 billion people = world's largest democracy ¹
300 million people = world's largest middle class ²
- Currently over 75,000 Indian students educated in U.S., most in masters or PhD programs ³
- Long-standing history and partnership - High Technology Cooperation Group
- Strong growth in the mobile sector - India recorded the highest annual mobile subscriber growth (over 100%) from the 2nd quarter 2003 onwards ⁴
- Broadband and internet growth a priority for government - Government of India has set a minimum goal of 20 million broadband subscribers and 40 million Internet subscribers by 2010
- Policy changes signal new telecoms investment climate:
 - Access Deficit Charge (ADC) reduced 23-53%
 - Foreign Direct Investment (FDI) limit raised from 49% to 74%

¹ The World Factbook 2005 (June 2005 estimate)

² UC Santa Cruz, <http://humwww.ucsc.edu>

³ Business-Standard.com , June 28, 2004

⁴ Telecom Regulatory Authority of India press release, November, 8, 2004

Russia and Eastern Europe: Shifting Investment Landscapes

■ Russia

- \$33 billion in investment needed in next ten years
- Market for IP Telephony expected to reach \$200 million in 2004
- Mobile penetration almost twice that of fixed-line telephony, and growing at 104% annually
- Internet and broadband growth limited by inadequate infrastructure

■ Eastern Europe

- 35% mobile penetration in Eastern Europe, but varies greatly country-by-country
- Economic growth in Eastern Europe is around 6% - more than double the rate of Western Europe

Value – and Threats – Continue to Grow

Then...

Domain Names

38.4 million

(Verisign, 2001)

Average DNS Queries per Day - 3.3 billion

(Verisign, 2001)

**Average Emails per Day
15.8 billion**

(IDC Market Analysis, 2001)

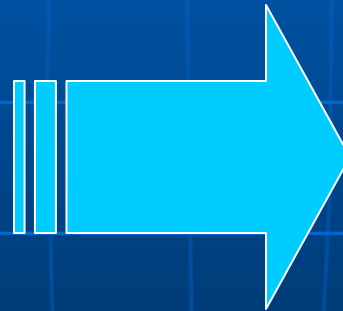
Average Virus/Malware Incidents per Day

2.0 (Verisign, 2001)

E-Commerce Revenue

\$6.9 billion

(Census Bureau, 1Q01)



Now

Domain Names

76.9 million

(Verisign, 1Q05)

Average DNS Queries per Day - 13.0 billion

(Verisign, 2005)

**Average Emails per Day
31.8 billion**

(IDC Market Analysis, 1Q05)

Average Virus/Malware Incidents per Day

4.0 (Verisign, 2005)

E-Commerce Revenue

\$19.1 billion

(Census Bureau, 1Q05)

Commitment to Stability and Security of the Internet DNS

- More than 25 years ago, the US Government began funding research to develop packet-switching technology which eventually evolved into today's Internet.
- This historic role continues today with DOC being the steward of the critical elements of the Internet's underlying infrastructure --- the domain name and addressing system (DNS).
- The Internet and the variety of applications that it supports provide tremendous opportunities for economic growth and social developments in the United States and around the world.
- Therefore, the Administration takes its role in maintaining the stability and security of this essential infrastructure very seriously.

U.S. Principles on the Internet's Domain Name and Addressing System

- The United States Government intends to preserve the security and stability of the Internet's Domain Name and Addressing System (DNS).
- Governments have legitimate interest in the management of their country code top level domains (ccTLD).
- ICANN is the appropriate technical manager of the Internet DNS.
- Dialogue related to Internet governance should continue in relevant multiple fora.

Conclusion

- Spectrum dependent services are essential to the United States' national security and economic security.
- Spectrum is a critical engine for economic growth and job creation.
- The Bush Administration is committed to spectrum policies that create a domestic and international environment for economic growth by removing barriers to the implementation of U.S. technologies and services.
- The Bush Administration intends to preserve the security and stability of the Internet's domain name system (DNS), continues to support ICANN and will work with the international community to find appropriate ways to address Internet governance issues.