Broadband Opportunities and Challenges in the United States

Global Forum 2009 Bucharest, Romania October 19, 2009

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U.S. Broadband: A Decade of Progress

- In less than a decade, U.S. broadband deployment and adoption have exploded:

  1999 = fewer than 3M broadband connections
  2007 = 121M broadband connections

  2000 = 6% broadband adoption
  2009 = 63% broadband adoption

U.S. investment in broadband and related information technology has driven 1/3 or more of the productivity growth of this decade.

- USTelecom Analysis

- In less than a decade, the U.S. private sector has invested over **$100B** to build nationwide broadband networks over a variety of platforms including, fiber, copper, cable, wireless, and satellite
- U.S. network providers invested **$60B+** in communications networks in 2008; AT&T alone invested more than any other publicly traded company

Over the past two years, the nation's nearly 1,400 facilities-based broadband service providers invested approximately $120 billion in modern communications networks. This investment exceeds annual federal investment in all U.S. transportation infrastructure.
- The Telecom Sector and the Economy, Jeffrey A. Eisenach, Empiris, 9/2008

Over the past two years, private sector broadband investment was more than twice the U.S. government's annual investment in building the nation's interstate highway system and putting a man on the moon—combined and adjusted for inflation.
- USTelecom Analysis

Over $1 in every $5 in private capital invested in the U.S. economy in 2008 went into communications and information technology — over $455 billion.
- U.S. Department of Commerce Bureau of Economic Analysis

at&t

AT&T's Broadband Networks

Did you know?
AT&T transmits 18 Petabytes of data on an average business day

- Over the past two years, AT&T has invested some **$38** billion to enhance its wireless and wired networks and supporting infrastructure

- AT&T plans to invest **$17-$18B** in 2009, with approximately two-thirds of this investment devoted to expanding our advanced wireless and wired broadband networks

Broadband:

- Fast and affordable broadband options via DSL, U-verse and satellite
- AT&T passes 17 million living units with its U-verse network and plans to pass 30 million by the end of 2011
- In 2008 AT&T completed the largest deployment of 40 Gigabit Internet backbone connectivity – the world's most advanced and extensive backbone network

16.9M AT&T Broadband Connections

Wireless Broadband:

- Fastest 3G wireless broadband service available in 350 major metro areas
- 100,000 Wi-Fi hot spots around the world
- Plans to upgrade our network to High Speed Packet Access (HSPA) 7.2 technology to deliver considerably faster mobile broadband speeds

AT&T's Broadband Networks – Deploying Multiple Broadband Technologies

Mobile

- 3G broadband deployed to 350 U.S. markets by the end of 2008, including all top 100 cities
- Announced an upgrade of AT&T 3G technology from a max rate of 3.6 Mbps to 7.2 Mbps
- Deployment of nation's first HSUPA-enabled mobility network by middle of 2009

Portable

- Largest U.S. Wi-Fi network with more than 20,000 domestic and more than 80,000 global hot spots
- Leveraging Wi-Fi capabilities to differentiate mobile and broadband services from other providers

Fixed

- >14 million broadband connections
- Rich suite of IP services for businesses of all sizes
- Ethernet Services (fiber and copper-based)
- AT&T U-verse platform to reach 30 million living units by end of 2010

Yet Broadband Challenges Remain

- **Despite a decade of progress, not all Americans have access to terrestrial broadband service**
  - Broadband is available to approximately **90%** of U.S. households [CRS]
  - **74%** of all U.S. households own a home computer [Connected Nation]
  - **57%** of adult Americans have broadband Internet connections at home [Pew]
  - "About **30%** of households have access to some type of terrestrial (non-satellite) broadband service, but do not choose to subscribe" [CRS]
    - A large gap was noted among certain groups; although, these same groups also saw the greatest growth in adoption rates over the past year
      - Senior Citizens (81% growth)
      - <High School Education (72%)
      - Low Income (65%)
      - Minority (54%)
      - Rural (54%)

The cost to make broadband universally available also depends on the type and amount of broadband required, and probably falls in the **$20-350 billion** range.

-FCC Commission Meeting, September 29, 2009

  - "About one-third of adults without broadband cite price and availability as the reasons why they don't have broadband in their homes, while two-thirds cite reasons such as usability and relevance" [Pew, cited by CRS]

U.S. Broadband Policy Programs

- **American Recovery and Reinvestment Act (ARRA)**
  - **$7.2B** for programs directly aimed at providing:
    1. Broadband access to consumers residing in unserved areas of the U.S.
    2. Improved broadband access to consumers residing in underserved areas of the U.S.
    3. Broadband education, awareness, training, access, equipment, and support
    4. Improved access to and use of broadband service by public safety agencies
    5. Demand for broadband, economic growth, and job creation
  - The ARRA broadband grant programs can compliment private investment and further spur demand for broadband

- **FCC National Broadband Plan**
  - ARRA goal of ubiquitous broadband for all people of the U.S. to include:
    1. An analysis of the most effective methods for ensuring broadband access
    2. A strategy for achieving affordability
    3. An evaluation of deployment status and progress of supported grant projects
    4. A plan for use of broadband infrastructure and services in advancing public welfare
  - FCC report to Congress by February 2010

American Recovery & Reinvestment Act (ARRA)

AT&T's Recommendations to NTIA:

1. Prioritize grants to public and non-profit anchor institutions in both unserved and underserved areas

2. Focus provider grants on unserved areas

3. Fund programs that remove barriers to broadband adoption, particularly for low-income users

4. States should play an important role in identifying and prioritizing which projects should be funded in their States

5. NTIA and RUS should define "Unserved" and "Underserved" by reference to the level of broadband subscribership and the needs of anchor institutions

6. NTIA and the FCC should establish clear and reasonable definitions for the "non-discrimination and network interconnection obligations" imposed by the statute

FCC National Broadband Plan

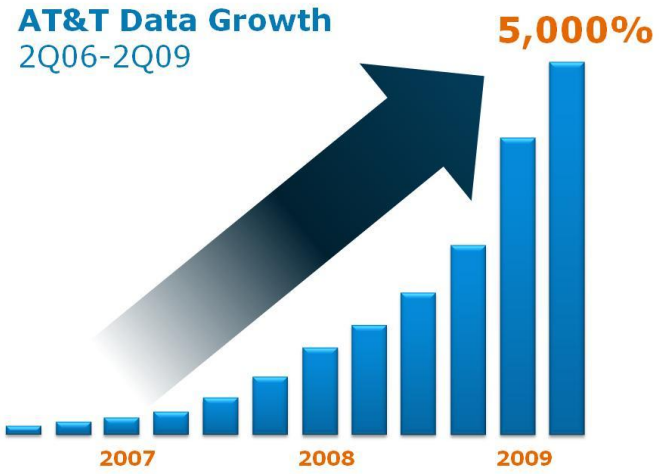
AT&T recommends that the FCC establish two quantifiable core national goals that should be achieved by February 2014:

- **Ensure Broadband *Access* for 100% of Americans**
- **Enable Broadband *Adoption* by 100% of Americans**

Guiding Principles for the FCC's Plan:

- Create a more **inclusive** society in which every American can participate in the digital ecosystem
- Be **expansive** in its solutions – reaching across federal, state and local agencies, public and private institutions
- Be **user-focused** enabling users to access the broadband services they want and breaking down barriers to adoption
- Ensure **regulatory alignment** with Congress's overall objective by designing and reforming regulations to encourage private sector investment in broadband

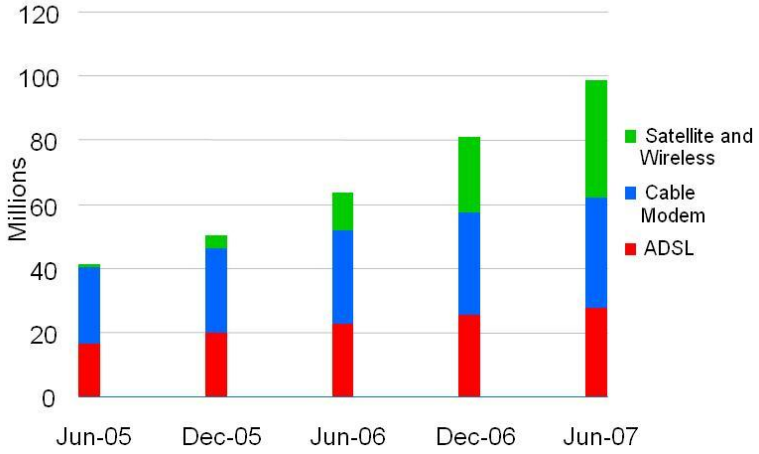
Broadband Infrastructure Challenge – Network Drivers have changed



Source: AT&T

- AT&T data up 4,932% last 3 years
- Disproportionate use by a few
- Top 3% of smartphone customers:
  - Use 40% of all smartphone data
  - Consume 13x the data of the average smartphone customer
  - Represent only .9% of AT&T's total postpaid customer base

Wireless broadband is growing exponentially as a share of total broadband



No of high speed lines (at least 200 Kbps in one direction)

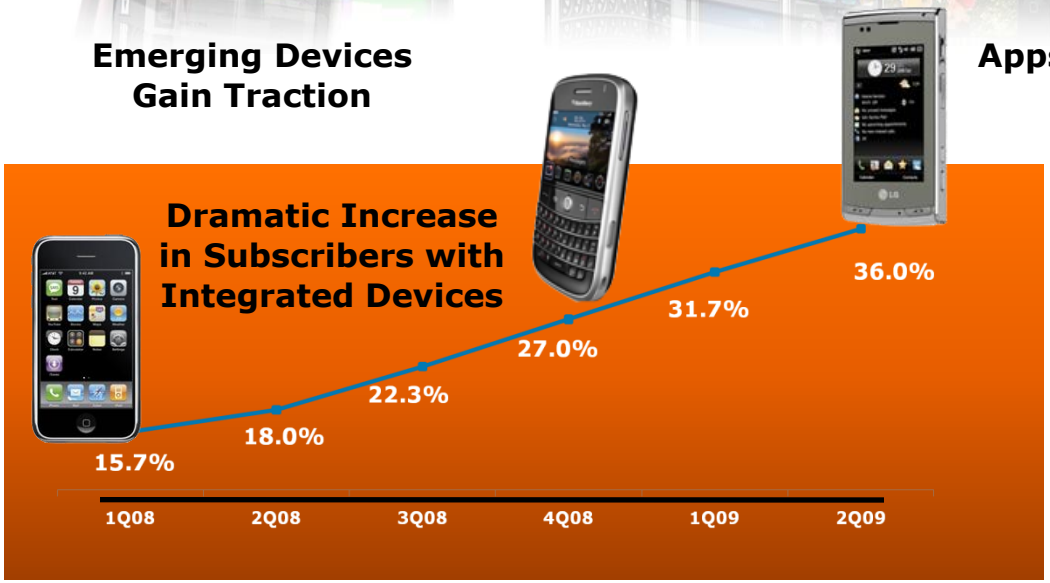
Source: FCC

- The 2008 FCC Broadband Report shows the dramatic increase in wireless high speed lines over the last 2 years
- Wireless high speed lines accounted for 60% of the new adds in high speed access lines in 2006.
- Mobile wireless' share of total broadband lines rose from 1% to 27% of total broadband lines

"Applications and device use and demands are evolving; Internet use today will not look like Internet use tomorrow."
-FCC Commission Meeting, September 2009

Proliferation of Apps

Emerging Devices Gain Traction



Apps Go Mobile

Thank You