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The Whole Picture: Where America’s Broadband Networks Really Stand

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Motivation for the Report

- European Commission VP Neelie Kroes says U.S. is pulling ahead:
  - High speed networks now pass more than 80 percent of U.S. homes, a figure that quadrupled in three years
  - Though the public sector can help, the real heavy lifting must be done by private investment

- American critics say we’re falling behind:
  - U.S. is 22nd and falling in broadband – Susan Crawford
  - U.S. in 29th place and falling fast – David Cay Johnson

- Who’s right?
Four Dimensions of Broadband Policy

- **Deployment**: What share of postal addresses does the network cover?
- **Adoption**: What share of households subscribe?
- **Performance**: How fast are downloads and uploads?
- **Price**: What does it cost to use the service?
America’s Circumstances

- Long copper loop PSTN
- Cable TV system alongside the PSTN
- Low population density, especially in urban areas
- Plethora of entertainment choices, but low computer ownership
- Close to most key Internet resources
- Technology-flexible mobile policy
Broad Deployment of DSL and Cable

- 96.3 percent have access to some form of wired broadband
  - ~96 percent have access to cable modem
  - ~85 percent have access to DSL
  - ~18 percent have access to fiber
DSL and Cable in OECD
Broad Deployment of DSL and Cable

- Third highest rate of wired intermodal competition in OECD (behind Belgium and Netherlands)
  - Fiber-based broadband (FiOS and U-verse) is growing faster than cable modem
  - Long-loop DSL is losing subscribers
  - Market share is 57% cable, 43% telco
Intense Fiber Installation

- America is installing more fiber optic cable than all of Europe
OECD Fiber Deployment
America Leads in 4G/LTE

- America leads the world in the adoption of 4G/LTE mobile broadband
- Only Korea is close
- Very helpful for rural broadband
Adoption Remains an Issue

- Broadband adoption is not as high as we would like it to be, but:
  - U. S.: 68.2%
  - EU-15: 66.9%

- Adoption is best measured by computer-owning homes
  - U. S.: 88.6%
  - EU-15: 85.9%

- Spread between top nation Iceland and U.S. for computer homes is less than 5%
High Adoption by Computer Homes

- 88.6% adoption by U.S. computer-owning homes
Reasons for Non-Adoption

Source: Pew survey: Americans’ main reasons for not using the Internet, 2010
Speed: Overall

- Traditional Speed leaders:
  - Korea, Japan, Hong Kong, Netherlands, and Denmark
- U. S. average network (peak) rate is **29.6 Mbps**
- Top 10 Nations are less than 10 Mbps ahead
  - Average peak for the other Top 10 nations is **37.9 Mbps**
  - American speeds are improving faster than world-leading speeds.
Speed: High Speed Adoption

- 7th in the world and 6th in OECD in percentage of users with connections faster than 10 Mbps
Speed: 100 Mbps Proliferation

- 82% of American homes are passed by DOCSIS 3
  - Capable of 100 – 160 Mbps
  - DOCSIS 3.1 will be even faster

- Vectored DSL may soon bring a second 100 Mbps service to the market

- LTE Advanced is another possible 100 Mbps pipe
Speed: US Advertising Claims Accurate

Advertised vs. Actual Speeds, per FCC, 2012

- Cable: Sustained Download Ratio: 99.0%, Advertised: 110.2%
- DSL: Sustained Download Ratio: 84.4%, Advertised: 103.4%
- Fiber: Sustained Download Ratio: 116.9%, Advertised: 106.1%
Price: Overall

- Entry-level pricing for American broadband is the second lowest in the OECD and fourth lowest in ITU survey.

- U.S. rank in prices for higher speeds is lower.
Price: Low Entry-Level Prices
Price: Benkler’s Pricing Insight

Figure 3.28. Firm-level offerings in OECD, by price tiers; US offers in orange

Source: OECD, TeleGeography, Point Topic
Note: Top 4 providers only
Factors for Price: NOT Excess Profits

- American broadband providers are less profitable than EU-15 providers
Factors for Price: Low U.S. Subsidies

- Low-price, high-speed nations have committed heavy subsidies to private firms

- Despite subsidized fiber, Japan’s adoption level is no higher than ours
Factors for Price: High Costs

- America is an expensive nation to serve because of low overall urbanization and low-rise cities
  - U.S. has 27th lowest rate of urbanicity (urban density) in the OECD
  - Costs of broadband are Mbps/mile
  - U.S. has to spend many more dollars per capita on cable and electronics to produce speedup effects than Japan, Korea, or Hong Kong
The railroad corporations will either own the people or the people must own the railroads. — Omaha Platform, 1893
Conclusions

- U.S. is a facilities-based deployment leader in cable, fiber, and LTE

- Korea and Singapore are adoption leaders

- U.S. is isn’t far behind for computer-owning homes
Conclusions – cont’d

- Korea, Japan, Hong Kong, Netherlands, and Denmark are consistent speed leaders
  - U. S. is in Top 10 and rising

- U.S. is a low-price leader at entry-level, but U.S. prices are higher at the high end than most OECD nations
  - Subsidies and urbanicity play a role, profits not so much
Issues to Tackle

- Internet engagement, digital literacy, computer ownership
- Subsidy programs for poor and rural residents, following Connect America model
- Use of smart auctions to allocate subsidies
- Spectrum remains scare due to government over-allocation
Verdict

- Neelie Kroes Wins
Thank You

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