Understanding the Japanese Broadband Miracle

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Agenda

- ***Broadband Market in Japan***
  - ***Market Statistics***
  - ***Broadband Services***
  - ***Competitive Landscape***
- ***Broadband Policies***
  - ***Policies Accelerated BB Deployment***
  - ***Policy Implications***

Broadband Market in Japan

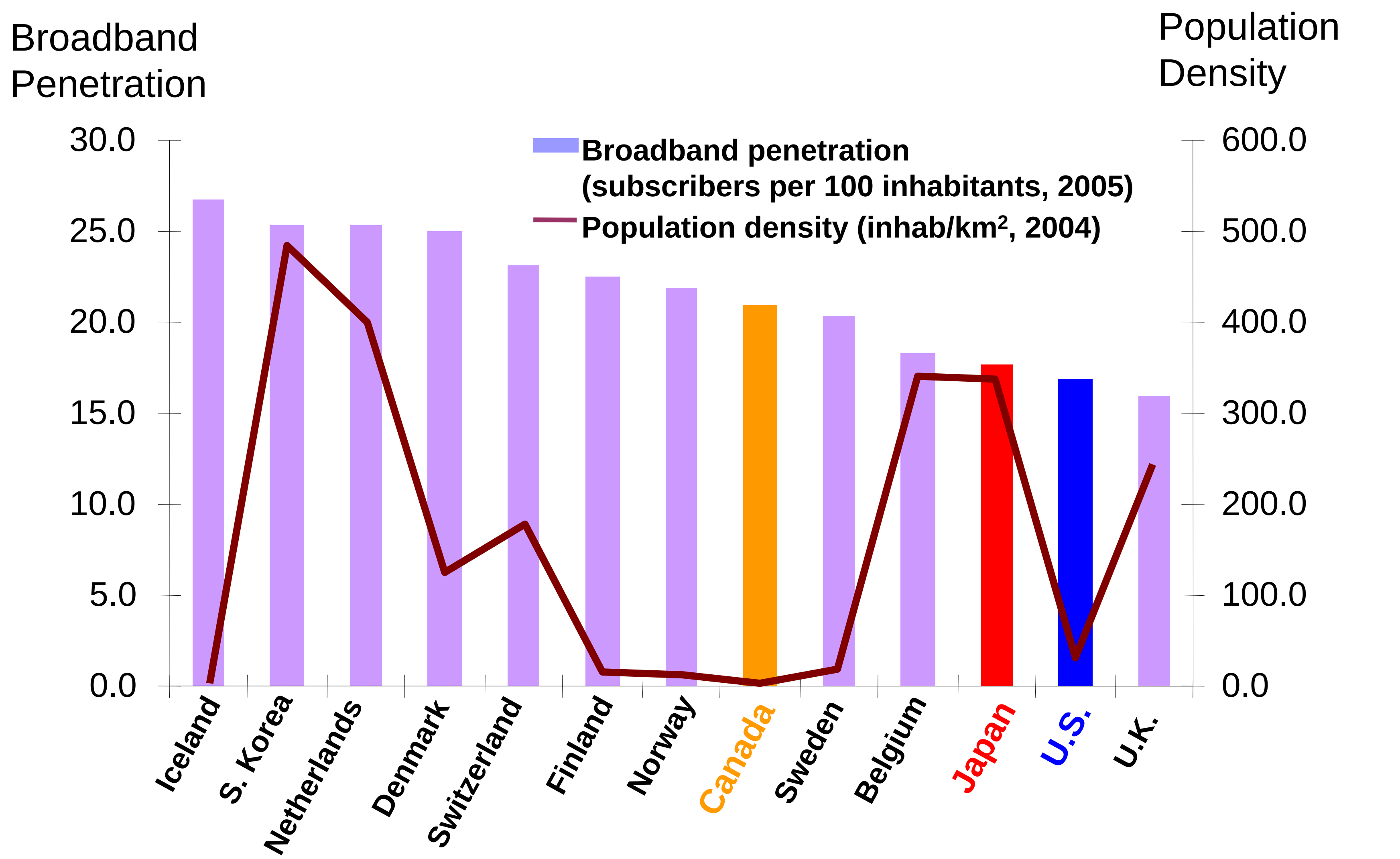
- *Market Statistics*
- *Broadband Services*
- *Competitive Landscape*

Snapshot: Japanese Broadband Market

	Japan	(US)
• Population:	127 mil,	(290 mil)
• Households:	50 mil,	(110 mil)
• Geography:	380,000 km^2	
• BB Subs:	25 mil*,	(53 mil**)
• BB Penetration:	17.6%*** 11th	(16.8%***) (12th)

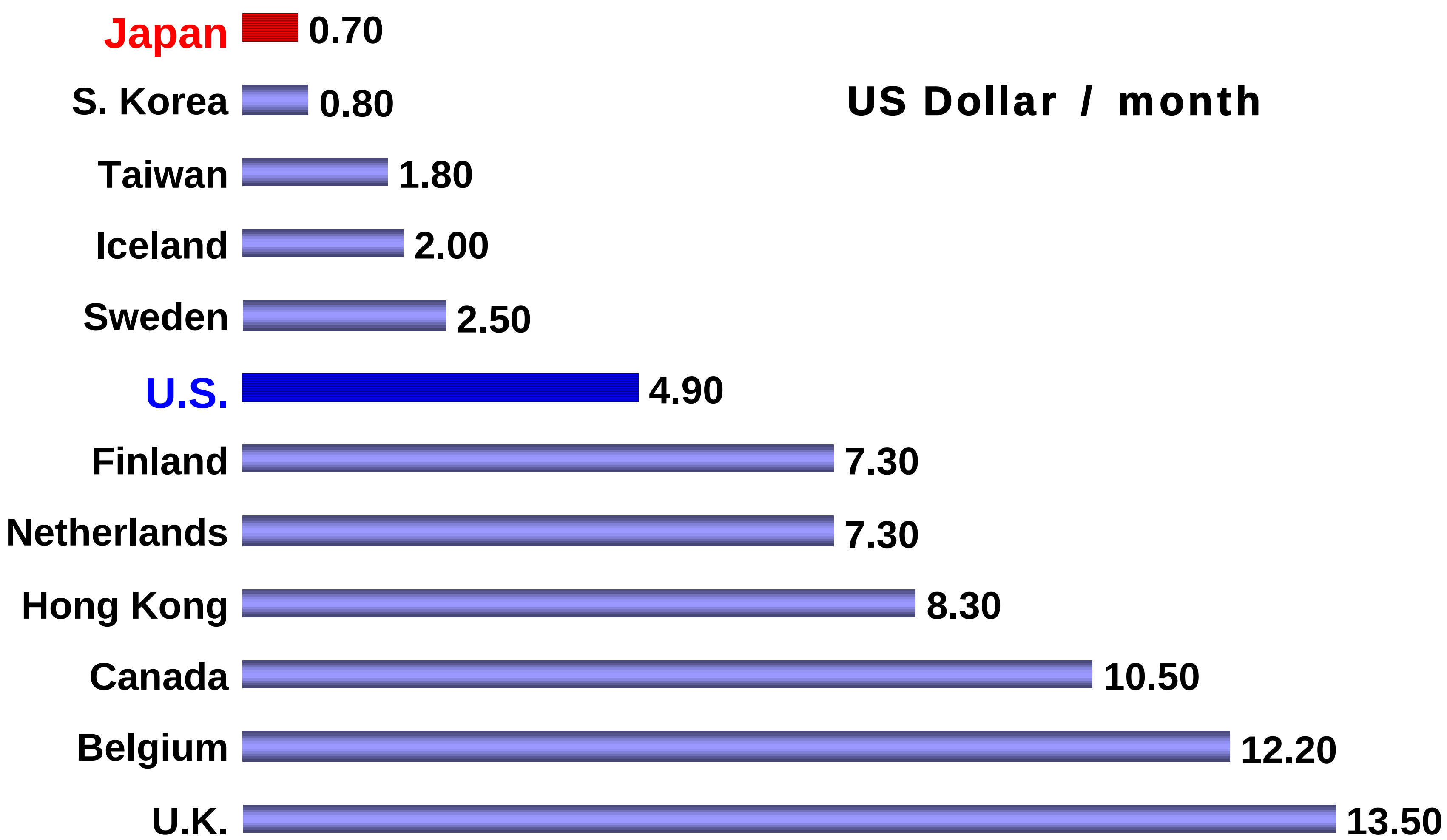
*As of Sep 2006 (MIC: Ministry of Internal affairs and Communications, Dec 2006)
** As of Jun 2006, “Mobile Wireless” excluded (FCC, Jan 2007)
*** As of Dec 2005 (OECD 2006)

BB Penetration Rate & Population Density



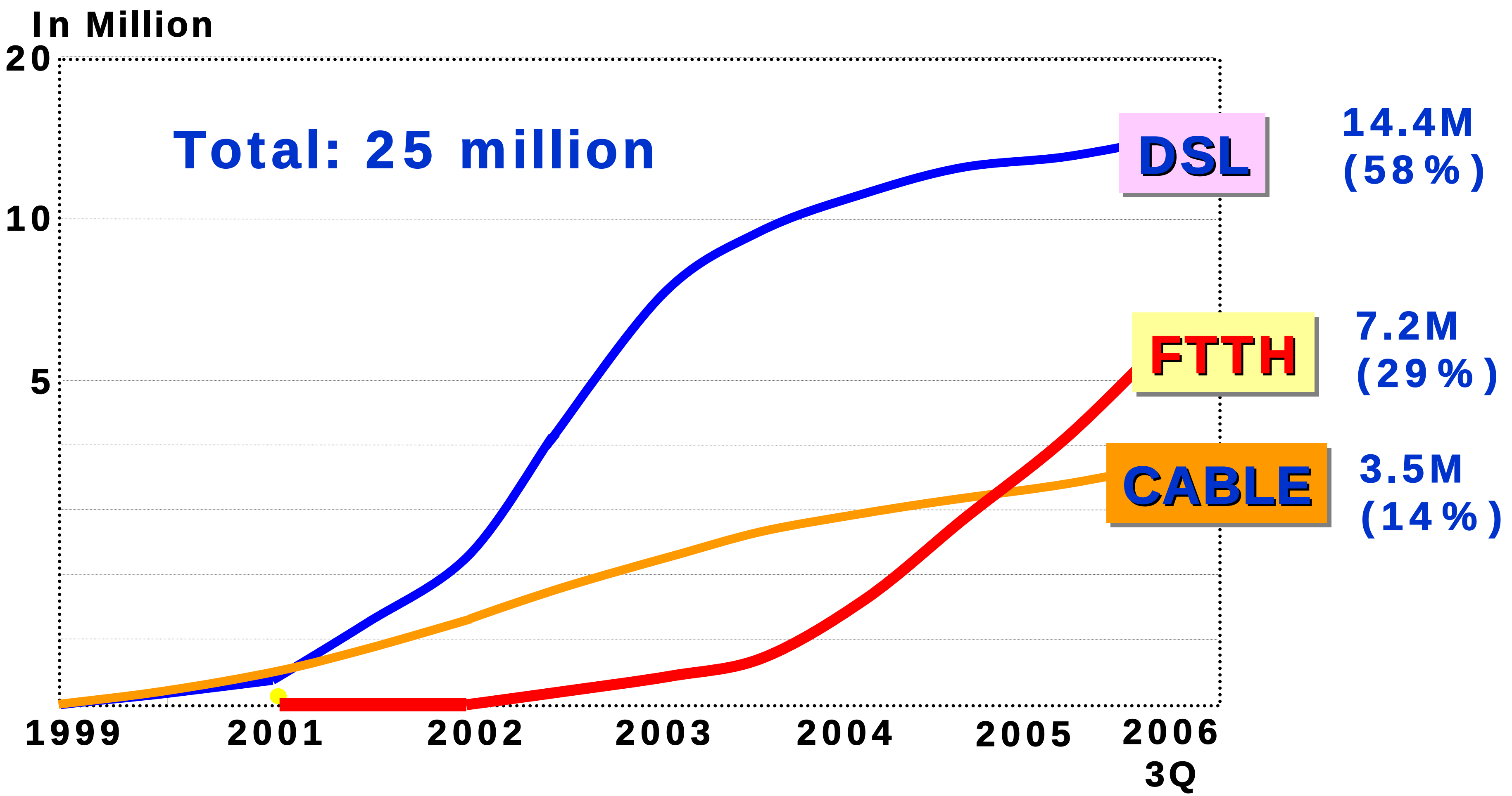
Source: OECD 2006

Price for 1Mbps Bandwidth



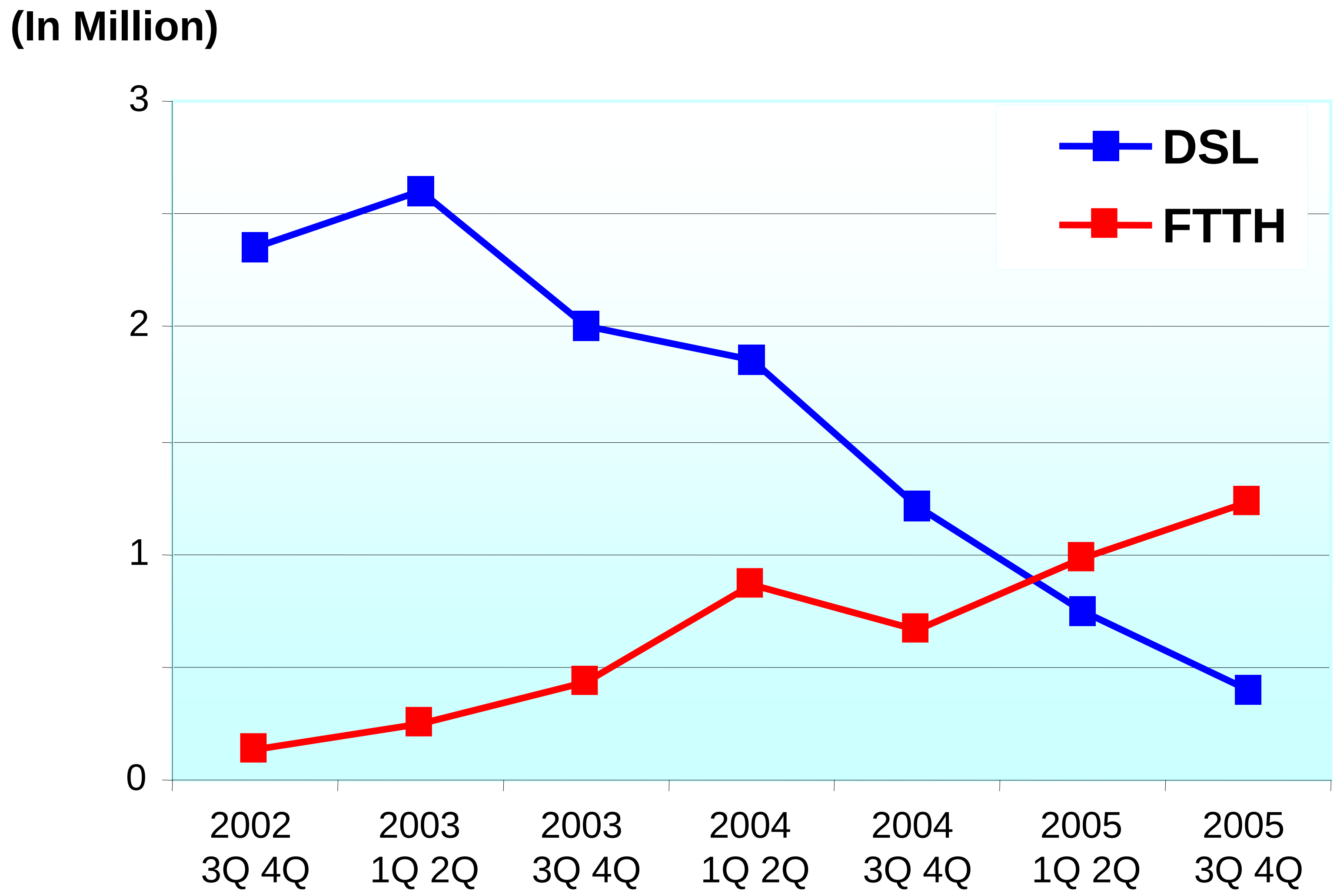
Source: ITU Internet Reports 2005

Growing Broadband Market in Japan



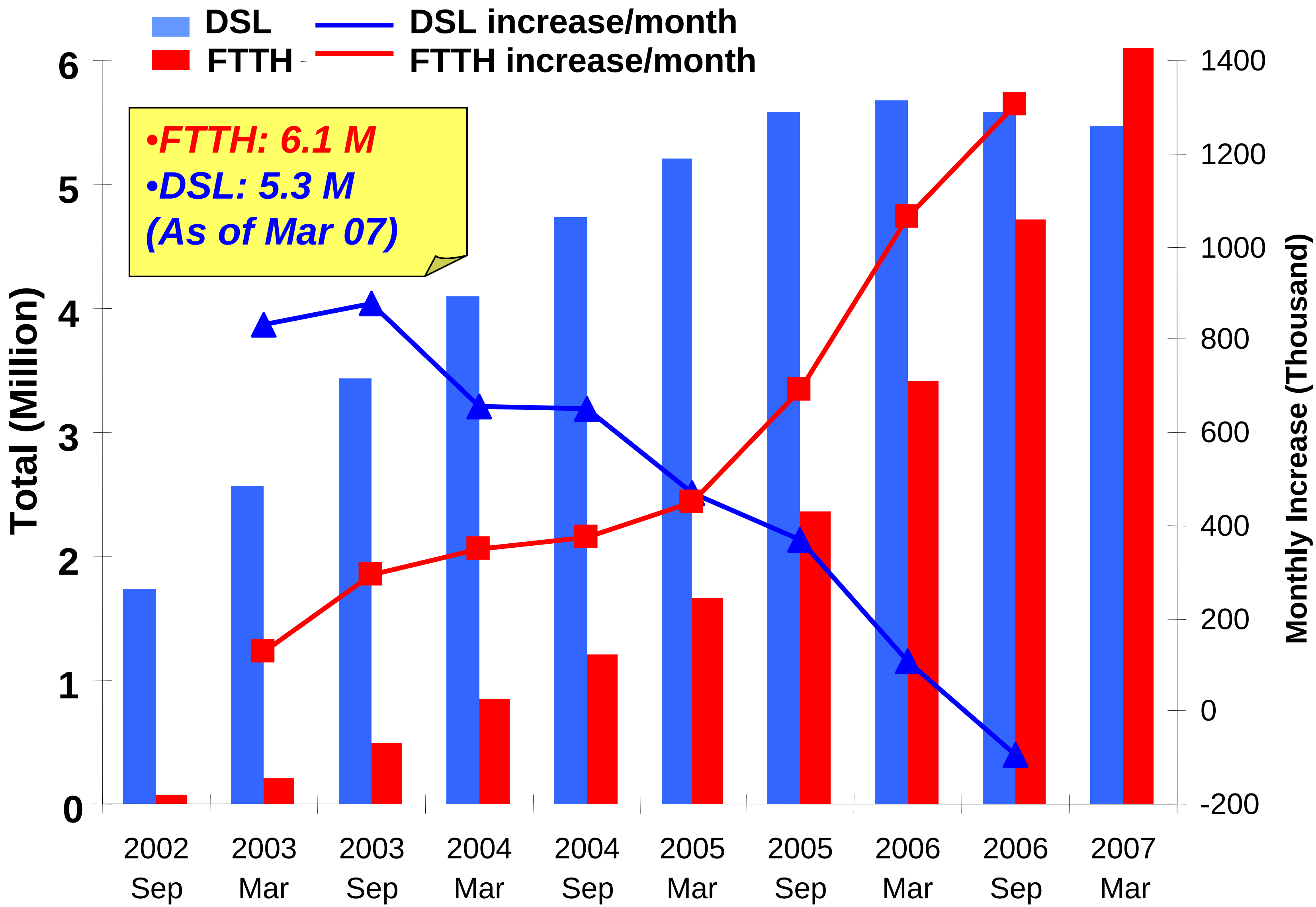
Source: Ministry of Internal affairs and Communications (MIC), Dec 2006

Broadband Net Increase



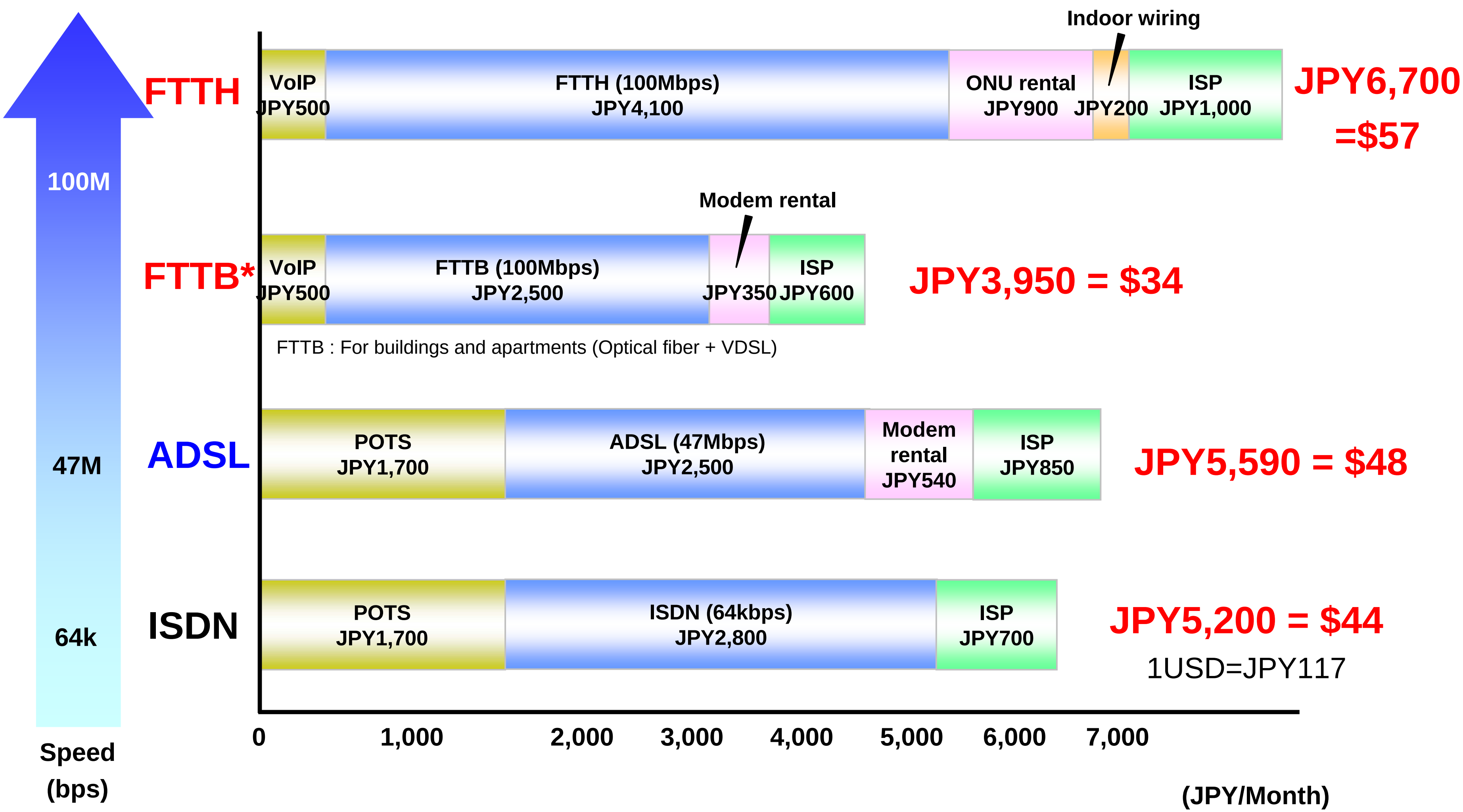
Source: MIC, Mar 2006

Broadband Subscribers of NTT



Source: NTT EAST and NTT WEST (Apr 2007)

Monthly Charges of Broadband Services



Adapted from NTT EAST Corporate Information

Broadband Home Passed

In case of NTT EAST (Largest incumbent)

Home Passed

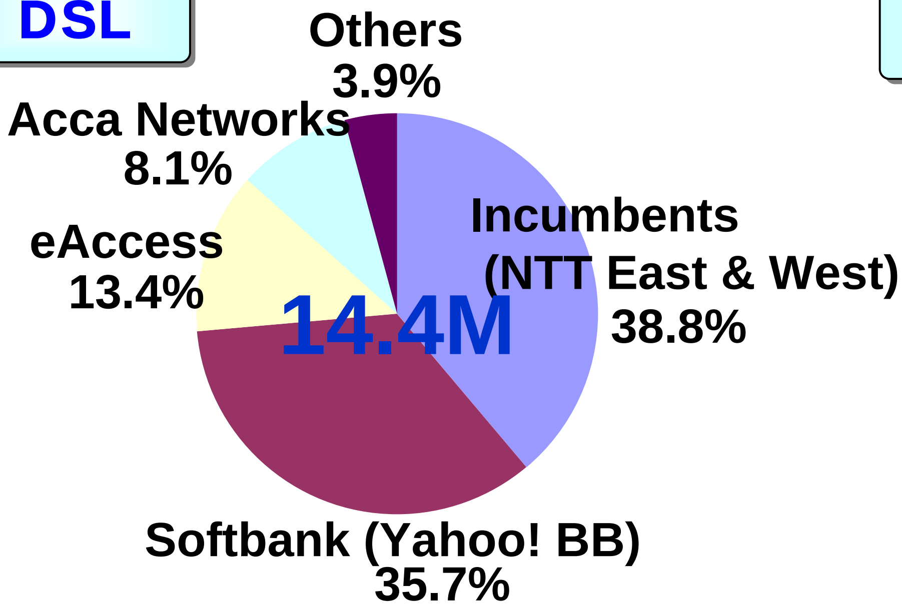
FLET'S ADSL — 98%=25M households

B FLET'S (FTTH) — 75%=18M households

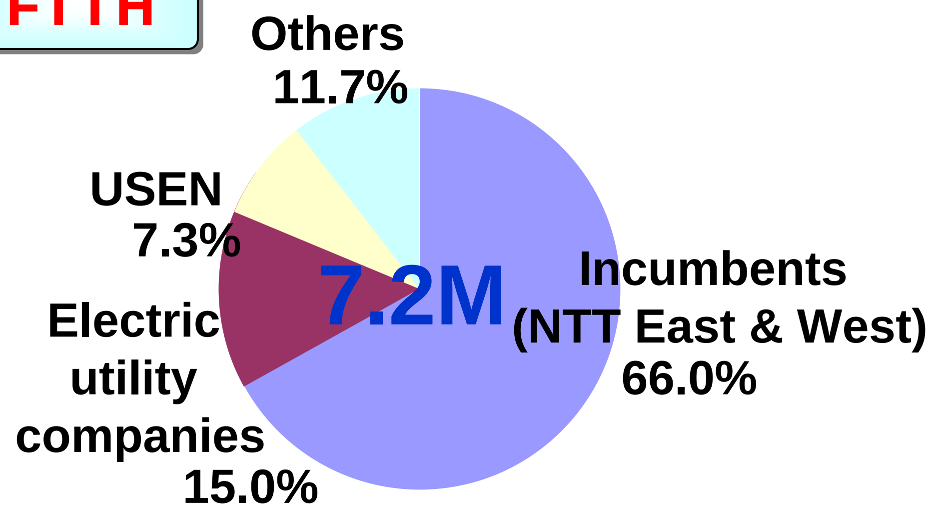
Source: Information NTT EAST (As of Mar 2006)

BB Services Market Share

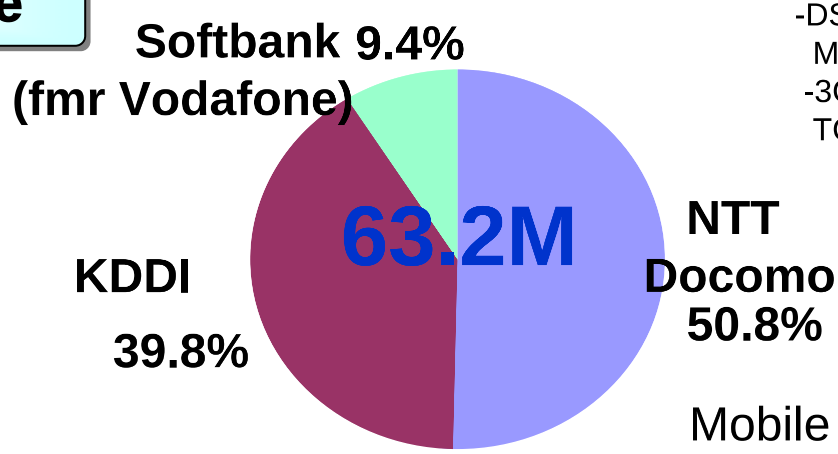
DSL



FTTH



3G Mobile



Sources:
-DSL & FTTH (as of Sep 2006),
MIC, Dec 2006- 3G Mobile: as of Jan 2006,
-3G Mobile (as of Dec 2006),
TCA: Telecommunications Carriers Association

Mobile Total (2G+3G+PHS): 94.5M

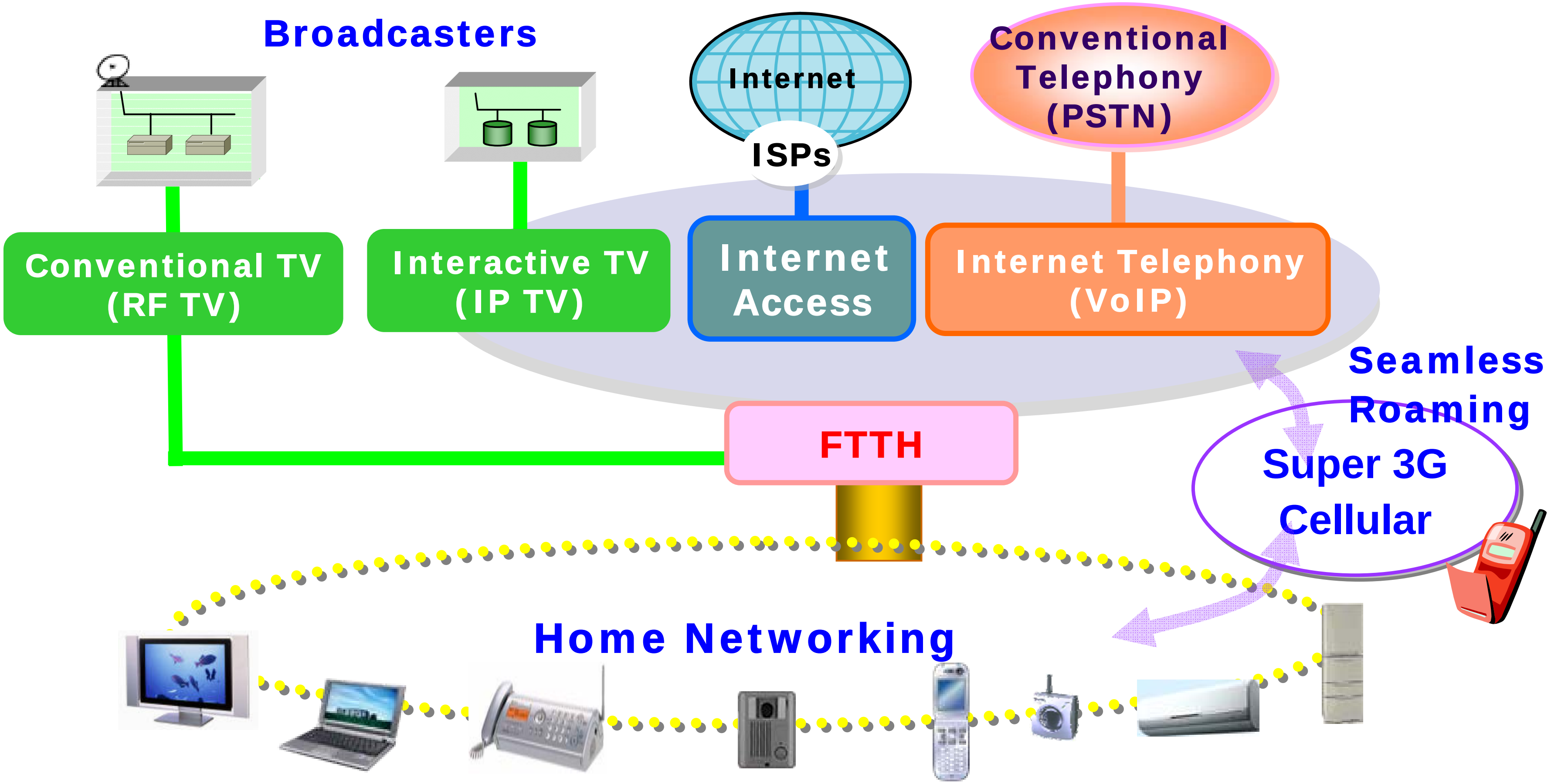
Competitions in Broadband Market

- Price & speed competitions (2000~2005)
  - Average monthly price down 47% in 5 years
  - $56 /mth (1.5Mbps) → $30 /mth (50Mbps)
- Services and content competitions (2005~)
  - Quality IP telephony
  - Broadcasting TV over fiber
  - Interactive TV
  - Free “ad-supported” video streaming (GyaO)

Source: InfoCom Research

Towards Ubiquitous Net Society
Next Generation Networks Initiatives

Everything over FTTH & Super 3G Cellular
Quad Play & Beyond
Home Networking Solutions



Advanced mobile phone applications e-payment

- Electronic wallet

Retail shop

Train ticket

Vending machine

ATM

Advanced mobile phone applications
Digital mobile TV

- "One Segment Broadcasting" or "One Seg" based on ISDB-T
  - Available nationwide by the end of 2006
- Delivering richer content (visuals, related info, URLs)
- Benefits
  - Major broadcasters: more viewership, more ad revenues
  - Mobile operators: increasing data ARPU, e-commerce opportunities

"One Seg" enabled devices

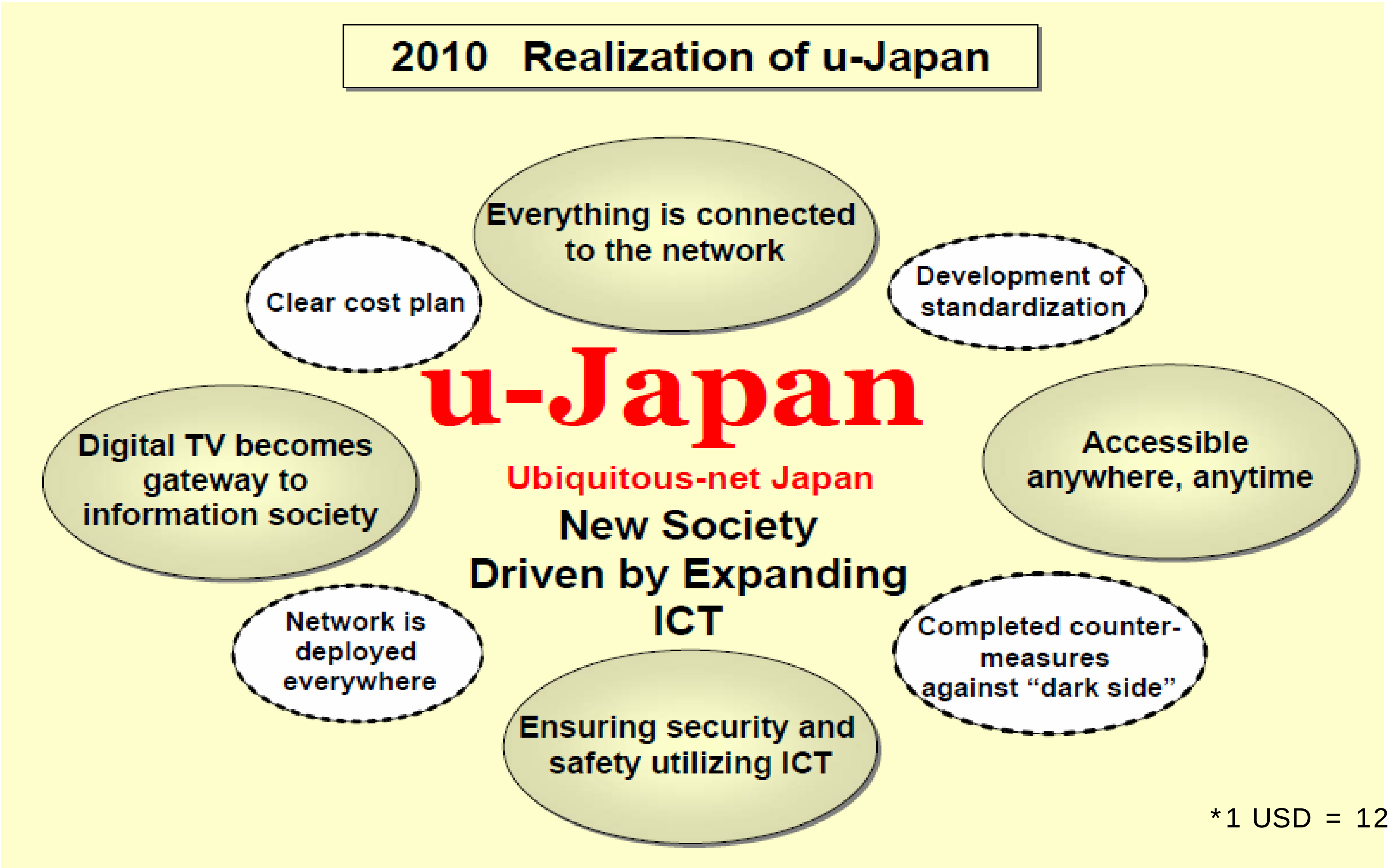
Service availability
as of Apr 2006

Japanese Broadband Policies

- Policies Accelerated BB Deployment
- Policy Implications
- Challenges for the Future

u-Japan strategy & estimated impact

- Estimated economic impact in 2010
  - Ubiquitous networking industries: $730 billion*



*1 USD = 120 JPY

Source: White Papers for Information Communication 2004

Mitigating Digital Divide: Gov't financial supports for broadband

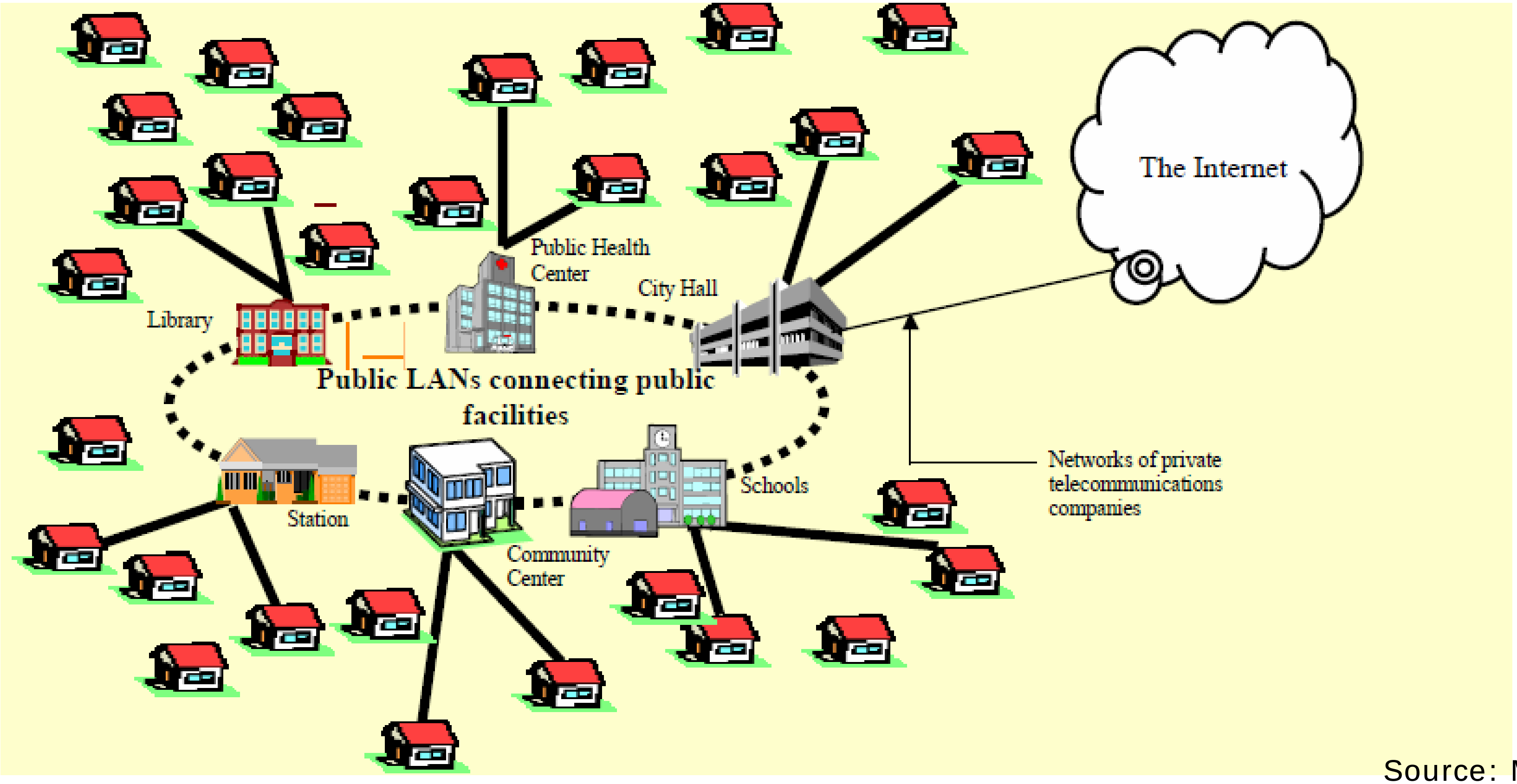
- Primary beneficiaries are municipalities

- For public sector
  - Municipality intranet projects (schools, CCs, libraries)
  - Rural FTTH projects (details in later slides)
- For both public and private sectors
  - Zero- or low-interest-rate financing*
- For private sector
  - Tax incentives*
    - Deferred income tax payment
    - Reduction of fixed asset taxes for designated network equipment

*a very limited financial impact for the private sector due to a zero-interest-rate policy of Bank of Japan

Gov't-financed rural BB deployment: Rural FTTx Projects

- Collaboration of municipalities and service providers
  - 1/3 of construction costs is subsidized
  - Municipality-owned fiber networks to be wholesaled
  - Level playing field must be ensured



Source: MIC

US-Japan Telecom Policy Comparison

	JPN	US: Bell Companies		US: Cable
		1996	Now	96-Now
Local copper loops unbundling	Yes	Yes	Yes	N/A
Line sharing on copper loops	Yes	Yes	No new rules since 2003	No
Local fiber loops unbundling	Yes	Yes	No* new rules since 2003	No
Open access to incumbent carrier's Internet backbone	Yes	Yes	No new rules since 2005	No

* Some exceptions for high-capacity leased lines for enterprise use

Implications of Japanese BB Policies

- Unbundling mandates for both copper and fiber loops
- Line sharing requirement for primary lines
- Mixed results in terms of “facility-based” competition
- Fierce price competitions in DSL market forced incumbent operators to move up to FTTH market
- A role of national ICT strategies: “e-Japan” and “u-Japan”
- Investors’ comparatively better understanding on long-term investments

Conclusion

- Fastest and least expensive broadband
- Reasonable non-incumbent (CLEC) market share
- Mixed results of facility-based competition
- National ICT strategies played a significant role
- A need for a good balance between long-term and short-term development goals
- Maintaining incentives for innovative investment is the key to sustain broadband deployment