

## BROADBAND DEPLOYMENT: A PERSPECTIVE ON KOREA

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## Some Things to Keep in Mind

- In 1975, 527,000 Korean households had telephones; 1.7 million in 1980; 5 million in 1985; 10.8 million in 1990 (11.4 million households)
- In 1975, there were 419 persons per passenger car; 153 in 1980; 73 in 1985, 21 in 1990, 5.75 in 2000
- Seoul National University is the second largest *undergraduate* source of *US*-granted doctorates, 1999-2003 (after UC Berkeley)

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## Korean Network Characteristics

- Most Koreans live close to KT's central offices and are (V)DSL-qualified
  - 90 percent live within 2.2 km (7.2 kfeet)
  - 98 percent live within 5 km (16.5 kfeet)
- 48 percent of Koreans live in MDU's that attract facilities competitors (e.g. Hanaro Telecom's fiber to complexes with 300 or more units)
- Non-KT operators use fiber-fed VDSL or CableLabs' DOCSIS standard modems on fiber-coax networks
- Some apartment complexes have shared Ethernet "apartment LANs"

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## Government Promotion of Infrastructure Development

- Korea Information Infrastructure Plan (1995-02) provided funding and assigned roles to infrastructure operators
- KT 40 percent owned by government until 2002
  - Shareholders' "ability to influence us [KT] may be limited" as a result of government ownership –2000 KT SEC Form 20-F
  - Required to unbundle local loops
- Powercomm formed by government-controlled KEPCO to provide fiber/coax networks to wireless and cable industry
  - "Powercomm is an enterprise established to contribute to the governmental policy of early construction of the Information Superhighway" – Powercomm web site
  - Acts as "carriers' carrier" for multiple broadband ISPs
  - Privatized 2002 (sold to LG)

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## KT's Broadband Prices Were Not Inexpensive

Service	Speed (Mbps)	Monthly Charge (won)
<b>April 30, 2001</b>		
Megapass Premium	8.0	40,000
Megapass Lite	1.5	30,000
Megapass B&A (Apt. LAN)	2.0	28,000
<b>April 30, 2004</b>		
Megapass Special II	20.0	60,000
Megapass Special I	13.0	50,000
Megapass Premium	8.0	40,000
Megapass Ntopia (Apt. LAN)	2.5	36,000
Megapass Lite	2.0	30,000

Source: KT SEC Forms 20-F

Notes:

- Up to 15 percent discount for term contracts.
- Exchange rate: 1,300 won/\$ 2001; 1,000 won/\$ today; OECD purchasing power parity: 761 won/\$ 2001; 771 won/\$ 2004.

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## Today's Subscribers Use a Mix of Broadband Technologies

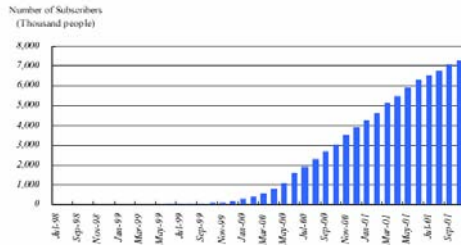
Provider	XDSL	Cable Modem	Apt LAN	Total
KT	5,544,879	-----	539,376	6,084,205
Hanaro Telecom	1,080,290	1,355,343	292,817	2,728,450
Thrunet	-----	1,279,096	3,780	1,282,876
Other	138,436	1,448,203	259,480	1,846,119
Total	6,763,605	4,082,642	1,095,453	11,941,650

Source: Ministry of Information and Communication, as of Jan. 2005.

Note: There are about 15 million Korean households.

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## The Great Broadband Adoption Wave Occurred in 2000-01



Source: Korean Ministry of Information and Communications

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## It's the Demand Side, Stupid

- Government encouragement
  - Promotion of e-commerce, e-government, e-education
  - Apartment building certification (broadband "star" ratings, which increase sale value)
- Hurry, hurry national culture
- Different expenditure patterns than US
  - Most families save for, then buy homes (shelter only 3.3% of household expenditures in 2004 vs. 6.7% for communications; in US its 19.3% vs. 2.3% (telecom))
  - Less than one car per household (no cars for teenagers!)
  - Less expensive, analog-only cable service
  - Unmarried adult children generally live with parents

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## It's the Demand Side, Stupid, cont'd

- Measured dial-up rates made broadband cost-effective for many Internet users
- Competitive broadband providers used tenants as commission-based agents to sell broadband Internet access in their buildings
- Broadband online transactions and communities ("an essential tool for life")
  - Over 22 million online banking users
  - Large number of Korean language web domains
  - Apartment building, extended family, web sites
  - Over 7 percent of world's online game revenues (2003)
  - Peer-to-peer pornography issue

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## But All Is not Quiet on the Managed Competition Front in 2005

- In May, the KFTC fined KT \$116 million for fixing voice and business Internet access prices with Hanaro, and allocating market share
  - "KT had taken such actions in accordance with the MIC's supervision and encouragement designed to recover Hanaro from the financial crisis due to cumulative losses ... restore Hanaro's local tariffs ... to the level of ... July 2002...and adjust local telephony market share similar to that of advanced countries. However the FTC did not buy the argument." KT Press Release
  - KT will appeal and seek better interagency coordination "so this kind of incident won't happen again"

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## All Is not Quiet on the Managed Competition Front, cont'd

- But the KFTC permitted Hanaro to buy Thrunet, the next largest broadband access provider, out of bankruptcy even though:
  - "Hanarotelecom will stabilize the broadband market and put fair competition practices in place by completing Thrunet acquisition ... and by doing so it, will also seek to promote profit growth of the overall telecommunications industry." (Hanaro SEC Form 6-K)
  - "By strengthening partnerships with CATV [operators] the Company attempted to avoid excessive competition." Hanaro 2004 Annual Report

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## All Is not Quiet on the Managed Competition Front, cont'd

- The CEO of KT told its 2005 annual meeting that flat-rate Internet access pricing must give way to metered pricing, since subscriber growth has matured, while traffic is growing (and concentrated among a subset of users)
- Hanarotelecom returned its Wireless Broadband license ("Wibro") due to its need to conserve financial resources
- The MIC has threatened to fine SK Telecom and KT Freephone for failing to make promised investments in their 3G networks

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## What about the future?

- Key broadband platforms will survive (but operators may consolidate)
  - Copper DSL/fiber-fed VDSL/FTTH
  - Cable modems (DACOM/Powercomm entry?)
  - Wireless
- Business resistance to investment without added revenue may increase and may shape government action (e.g. roll-out of 50-100 Mbps “broadband convergence network”)
- Korea Broadcasting Commission and MIC in conflict over IPTV jurisdiction; KBC wants to control cable-telco competition
- Landline broadband platform operators will try further to “decommoditize” their offerings via applications (e.g IPTV), as wireless operators are doing

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