Beyond Broadband Access

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Agenda

- Broadband Internet in Korea
- Beyond Broadband Services
- Features and Directions
- Summary & Remarks
Broadband Internet Business in Korea

Internet Users (unit: thousands):

- 1998.12: 3,103 (7.4%)
- 1999.10: 9,430 (22.4%)
- 2000.08: 16,400 (38.5%)
- 2000.12: 19,040 (44.7%)
- 2001.06: 22,230 (51.6%)
- 2001.12: 24,380 (56.6%)
- 2002.06: 25,650 (58.6%)
- 2002.12: 26,270 (59.4%)
- 2003.06: 28,610 (64.1%)
- 2003.12: 11,180 (~73% of total)

Internet Users Population percentage:

- 1998.7: 0.0%
- 1999.4: 20.0%
- 1999.6: 40.0%
- 2000.8: 60.0%
- 2001.12: 80.0%
- 2003.6: 100.0%

Broadband Internet households:

- 1998.7: 0
- 1999.4: 5,000
- 1999.6: 10,000
- 2000.8: 15,000
- 2001.12: 20,000
- 2003.6: 25,000
- 2003.12: 30,000

(Source: www.krnic.or.kr)

~73% of total households

(ref: www.krnic.or.kr)
Changing Life Style

Phenomenal increase of broadband Internet usage (ref: isis.nic.or.kr)

Weekly hours spent on Internet & TV

% of daily Internet users

- 6.76 h Internet 2000.3
- 14.1 h Internet 2002.12
- 16.5 h TV 2002.12
- 13.47 h TV 2000.3

- 30.8% 2000.3
- 71.9% 2002.12

- On-line banking: More than 30% of total transactions
- On-line stock trading: More than 50% of total transactions
- e-Commerce: 17% of total commerce transactions
- On-line gaming: Market size 2.5 times the size of console game market
  → Evolving into another type of entertainment area: game league
Two Sides of Broadband Internet Business in Korea

**Threat**
- Revenue: Saturating market with flat rate
- Expenditure: Increasing CAPEX/OPEX due to doubling traffic
- High customer expectation level:
  - avr. ~4.5Mbps bandwidth per customer
  - customer sensitivity to network quality

**Opportunity**
- Has established
  - high quality infrastructure
  - Large customer base
- Opportunities in application & value-added services
The Way Broadband is Being Used Today

Main Internet usages

- Mainly used for best-effort, data/control/file-oriented, store-&-forward applications
  - seldom used for high quality, interactive/distributive media service

Today’s broadband Internet service is limited to
- specific locations
- specific time of day
- specific terminal
- specific applications

Should overcome these barriers to generate mass application market

Where people are using Internet today

(ref: isis.nic.or.kr, Jul. 2003)
Beyond Broadband Service

- From simple Internet access to “quality life/work services”

Yesterday  Today  Tomorrow

Any-Access  Rich Contents

Browsers  Web Pages  P2P, Game  Servers  

Wireless

Wireline

HTTP  FTP  RTP  RTSP  WAP  VoIP
Beyond Broadband Service: Features

- Different business
  - From access service to end-to-end service
  - Both best-effort & quality service
  - From network service to solution/application services
  - Applications: from niche market to mass revenue market

- Different focus

  - Bandwidth
  - Ubiquity
  - Convergence
  - Quality
  - Handy
  - Personalization

Current broadband “access” business

Beyond broadband business
Bandwidth

Evolving access bandwidth

**Fixed**
- Past: PSTN Modem, ISDN
- Present: ADSL (1-8 Mbps), VDSL (20~50 Mbps), FTTH (100+ Mbps)
- Future: Megapass™: avr. ~4.5 Mbps

**WLAN**
- Past: IEEE802.11 (1+ Mbps)
- Present: IEEE802.11b (11 Mbps per AP)
- Future: IEEE802.11a (5GHz) (54 Mbps per AP), IEEE802.11g (2.4GHz) (54 Mbps per AP)

**Mobile**
- Past: PCS (IS-95A), IS-95B
- Present: CDMA2000 1X (144 kbps), 1X EV-DO (2.4 Mbps shared), 1X EV-DV (3.1 Mbps shared)
- Future: W-CDMA (384+ kbps)

(Megapass is an umbrella brand for KT’s broadband Internet service)
Ubiquity

- Ubiquitous network connectivity
  - Integrated connectivity with seamless mobility

Cellular Network (IS-95, cdma2000 1x, etc.)

2.3GHz Portable Internet

WLAN
Wireless LAN Service

Nespot™ & Nespot Swing™

- Nespot: Wireless LAN-based access service
- Nespot Swing: Both WLAN & Cellular service

Features and Directions
Portable Internet Service

- Portable Internet (PI)
  - ~1Mbps speed, mobility > 60km/h, coverage 500m~3km
  - Mobility: between WLAN and PI areas

[Diagram showing the network setup with PI (Portable Internet), MA (Mobile Agent), Telecom offices, WLAN, and Base Stations.

Features and Directions: 

Portable Internet (PI)
- ~1Mbps speed, mobility > 60km/h, coverage 500m~3km
- Mobility: between WLAN and PI areas

Legend:
- AP: Access Point
- PI: Portable Internet
- WLAN: Wireless Local Area Network
- Base Station

Network Setup:
- Internet Backbone (Kornet™)
- AAA Server
- MA: Mobile Agent (HA, FA)
- Telecom offices #1 and #2
- Fixed or moving subscriber

- 12 -
QoS

Basic tool for differentiated services from Telcos

- Issue
  - Complexity: Multiple vendor equipments with differing capabilities
  - Standardized QoS & Security mechanism needed
  - End-to-end control: premise network beyond Telco’s control
  - Evolution: Handling QoS-blind, QoS-weak equipments

- Killer App

Features and Directions

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Killer App

Complexity: Multiple vendor equipments with differing capabilities

Standardized QoS & Security mechanism needed

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Evolution: Handling QoS-blind, QoS-weak equipments

Features and Directions
Personalization

**Features**
- Personalized value-added & application services
- Site authentication → personal authentication
- Single sign-on between network login and application login
- Customer profile-based network setup
Convergence

- Fixed & wireless
  - OnePhone service

- Telecommunication & broadcasting
  - Digital Home service
    (Broadband Internet + broadcasting + VoD)

- Telecommunication & finance
  - K-Bank service

DMB
(Digital Multimedia Broadcast)
Handy

- Easily accessible service through various terminals
- Easy, simple, intuitive, consistent user interface
- From general purpose PC to appliance-type terminals
- Portable, carriable terminal
The Next Generation Networks

The following picture has been in place for more than 10 years

Too costly, per-service network architecture

Single/simple/cost-effective network infrastructure for existing & new services

Existing and newly emerging services

Network control (QoS, Security, IP Mobility)

Multi-Service IP Backbone

Wireless Access

Wireline Access

Mobile Networks

PSTN/ISDN

Data/IP Networks

CATV

Access Transport & Switching Networks

Features and Directions
NGN: From Vision to Reality

BcN Initiative in Korea

*high-quality broadband multimedia services integrating telecom, broadcasting, and Internet seamlessly at anywhere, anytime, and using any devices*
Summary & Remarks

- Broadband business in Korea calls for new market
- Next generation broadband: different business & different network
- Networking capabilities for next generation services
- Broadband Convergence Network as an enabler

Further considerations
- Deployment cost
- Services that pay off
- Regulatory issues
Thank You