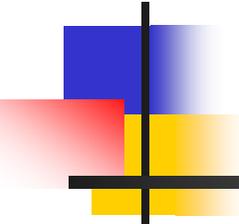# Korean View of Broadband Perspectives

Nov. 4, 2003

**Dr. Youngmin Chin**

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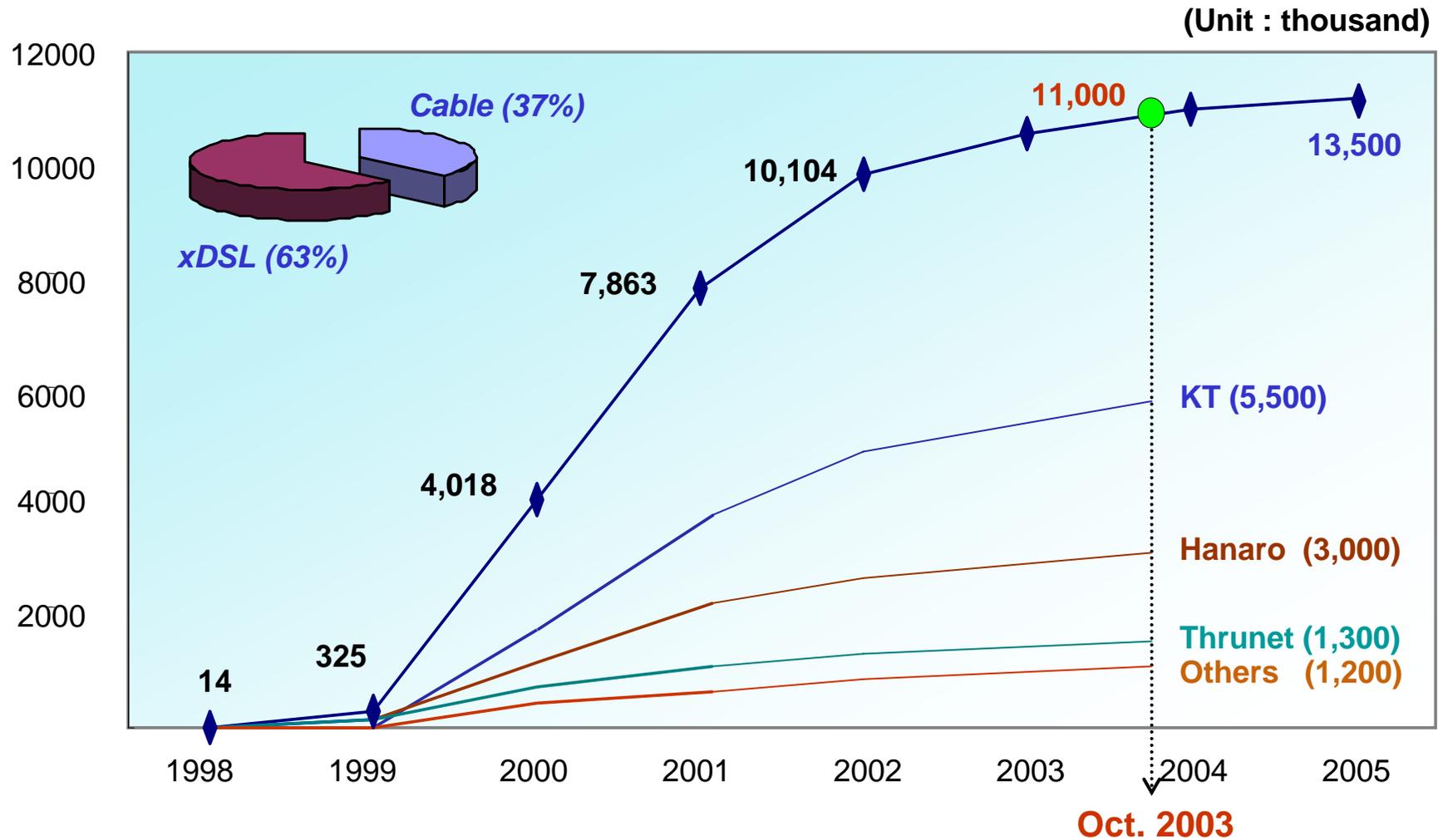
# Overview of Presentations

**This presentation covers :**

❑ **Status report of broadband market in Korea**

❑ **KT's broadband service portfolio**

❑ **Network convergence
(fixed and mobile, voice and data, indoor and outdoor)**

# Statistics on broadband service in Korea

| | |
|---|---|
| **Population** | **47.7  million** |
| **Household** | **14.8  million** |
| **Telephone subscriber** | **23    million** |
| **Cellular subscriber** | **34    million** |
| **Internet user** | **26    million** |
| **Broadband subscriber** | **11    million** |
| **W-LAN subscriber** | **310  thousand** |

# Broadband market growth in Korea

(Unit : thousand)

*Cable (37%)*

11,000

10,104

13,500

*xDSL (63%)*

7,863

KT (5,500)

4,018

Hanaro (3,000)

325

Thrunet (1,300)
Others (1,200)

14

12000

10000

8000

6000

4000

2000

1998    1999    2000    2001    2002    2003    2004    2005

Oct. 2003

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# Broadband market share

❑ **76% of Korean households have broadband access**

**(unit : thousand)**



Bar chart (left axis: 0–6000 thousand, right axis: 0%–50%):

- **KT** — 49.4% — xDSL
- **Hanaro** — 26.5% — xDSL + Cable Modem
- **Thrunet** — 11.5% — Cable Modem
- **Others** — 10.6%

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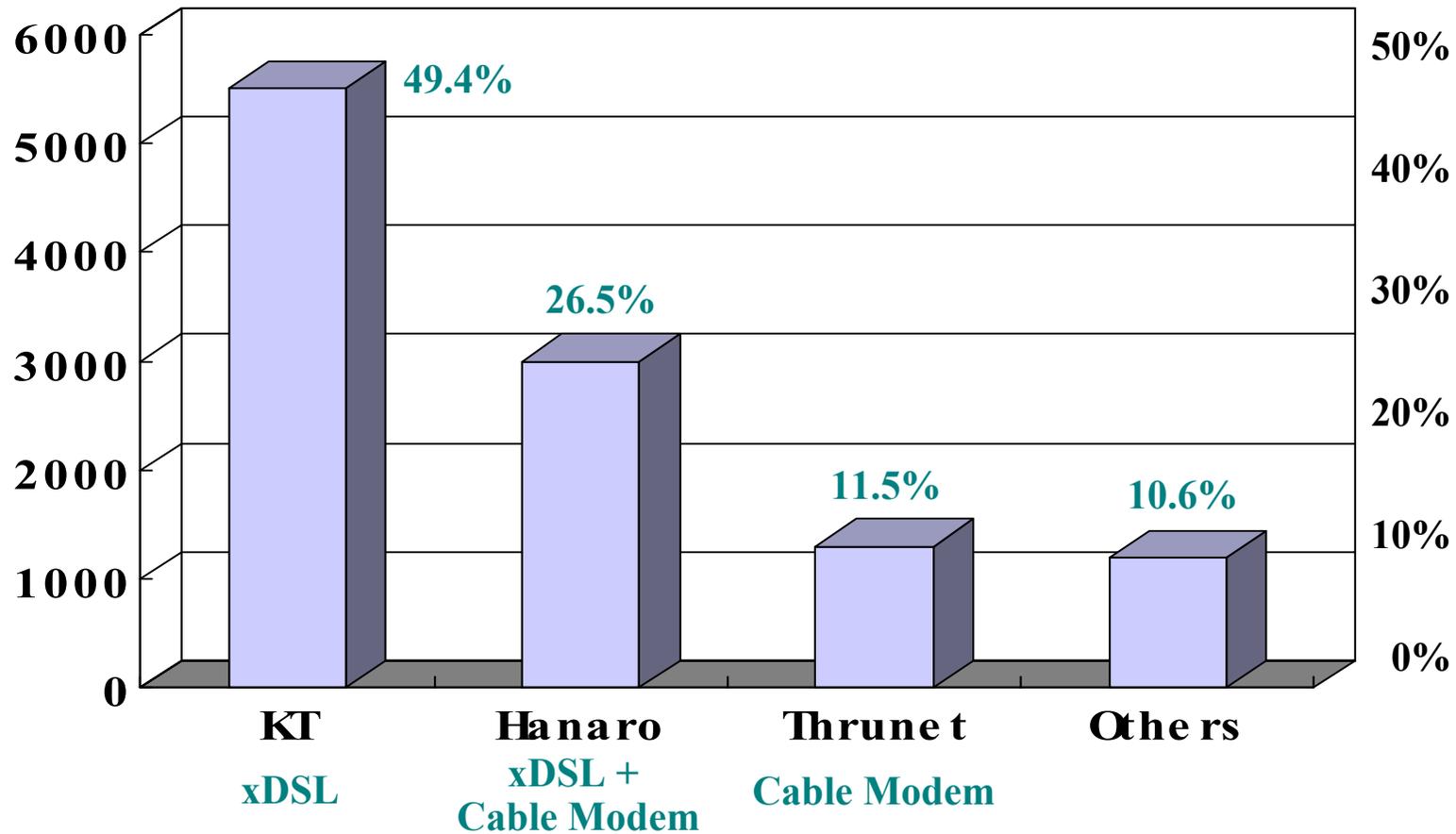
# Success factors

❑ **Government policy**

  ❖ **steady policy for deploying high speed network infrastructure (10 year plan)**

❑ **Dense housing pattern**

  ❖ **cost effective deployment**

  ❖ **50% of households live in apartment complex**
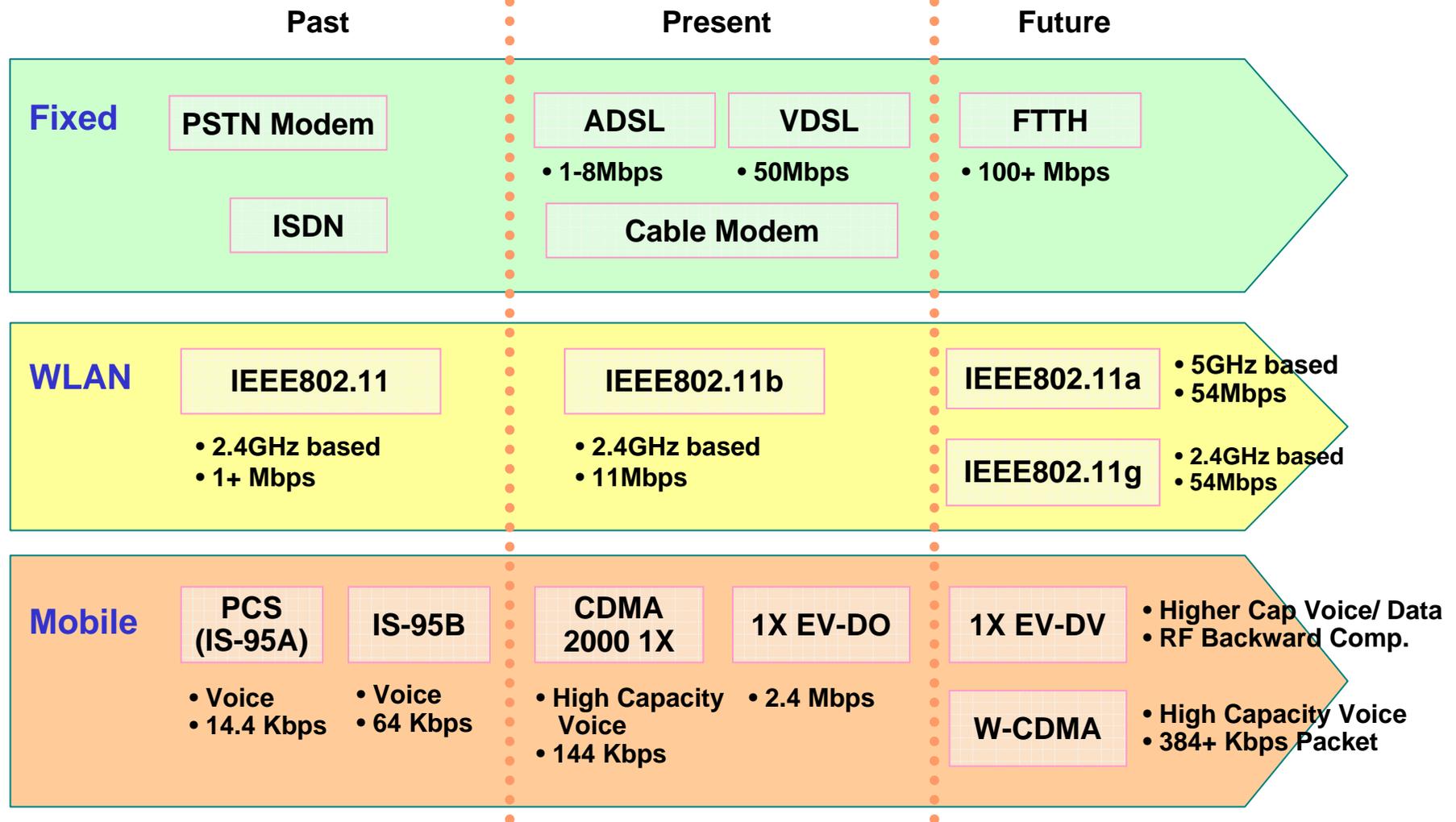
❑ **Huge demand**

  ❖ **education fever, cyber stock trading**

  ❖ **Internet café : for Internet game or stock trading**

❑ **Competition**

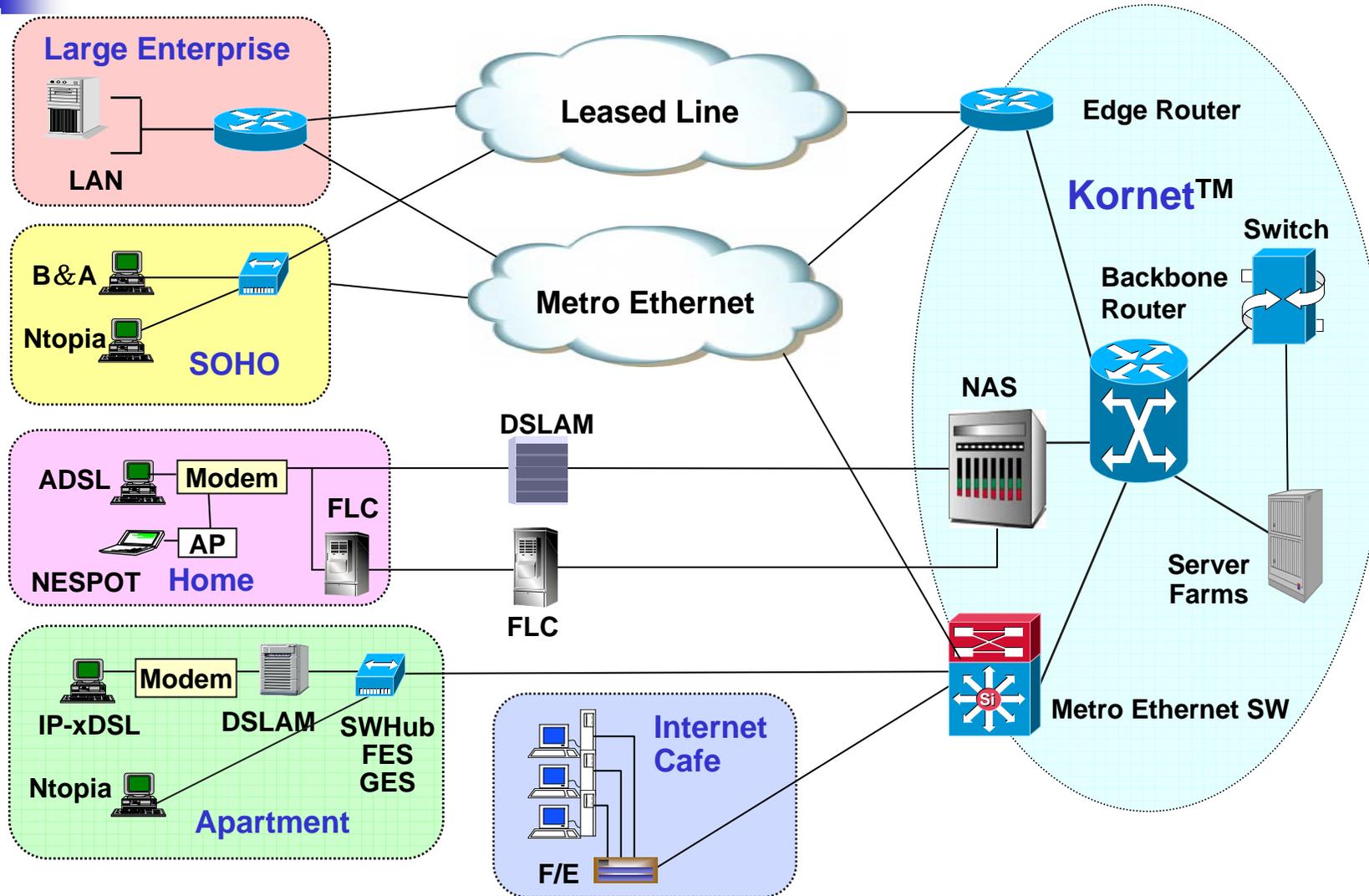  ❖ **3 majors and dozens of small players**

  ❖ **low and flat rate tariff**

# Trend of broadband technology

| | Past | Present | Future |
|---|---|---|---|
| **Fixed** | PSTN Modem<br><br>ISDN | ADSL • 1-8Mbps<br>VDSL • 50Mbps<br>Cable Modem | FTTH • 100+ Mbps |
| **WLAN** | IEEE802.11<br>• 2.4GHz based<br>• 1+ Mbps | IEEE802.11b<br>• 2.4GHz based<br>• 11Mbps | IEEE802.11a • 5GHz based • 54Mbps<br>IEEE802.11g • 2.4GHz based • 54Mbps |
| **Mobile** | PCS (IS-95A) • Voice • 14.4 Kbps<br>IS-95B • Voice • 64 Kbps | CDMA 2000 1X • High Capacity Voice • 144 Kbps<br>1X EV-DO • 2.4 Mbps | 1X EV-DV • Higher Cap Voice/ Data • RF Backward Comp.<br>W-CDMA • High Capacity Voice • 384+ Kbps Packet |

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# KT's broadband service portfolio

# Broadband in fixed line



**Large Enterprise**

LAN

**Leased Line**

Edge Router

**Kornet**TM

Switch

**B&A**

**Ntopia**

**SOHO**

**Metro Ethernet**

Backbone
Router

**DSLAM**

NAS

**ADSL**

Modem

FLC

**AP**

**NESPOT**

**Home**

Server
Farms

**FLC**

Modem

**IP-xDSL**

**DSLAM**

**SWHub
FES
GES**

**Ntopia**

**Apartment**

**Internet
Cafe**

**F/E**

**Metro Ethernet SW**

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# Broadband in wireless or mobile



AAA Server

**Internet Backbone (Kornet™)**

GSR

GSR

Telecom office #1

MA

Telecom office #2

MA

AP

AP

AP

**NESPOT™ (2.4GHz)**

**NESPOT™ (2.4GHz)**

Base Station

AP

**NESPOT™ (2.4GHz)**

**HPi (2.3GHz)**
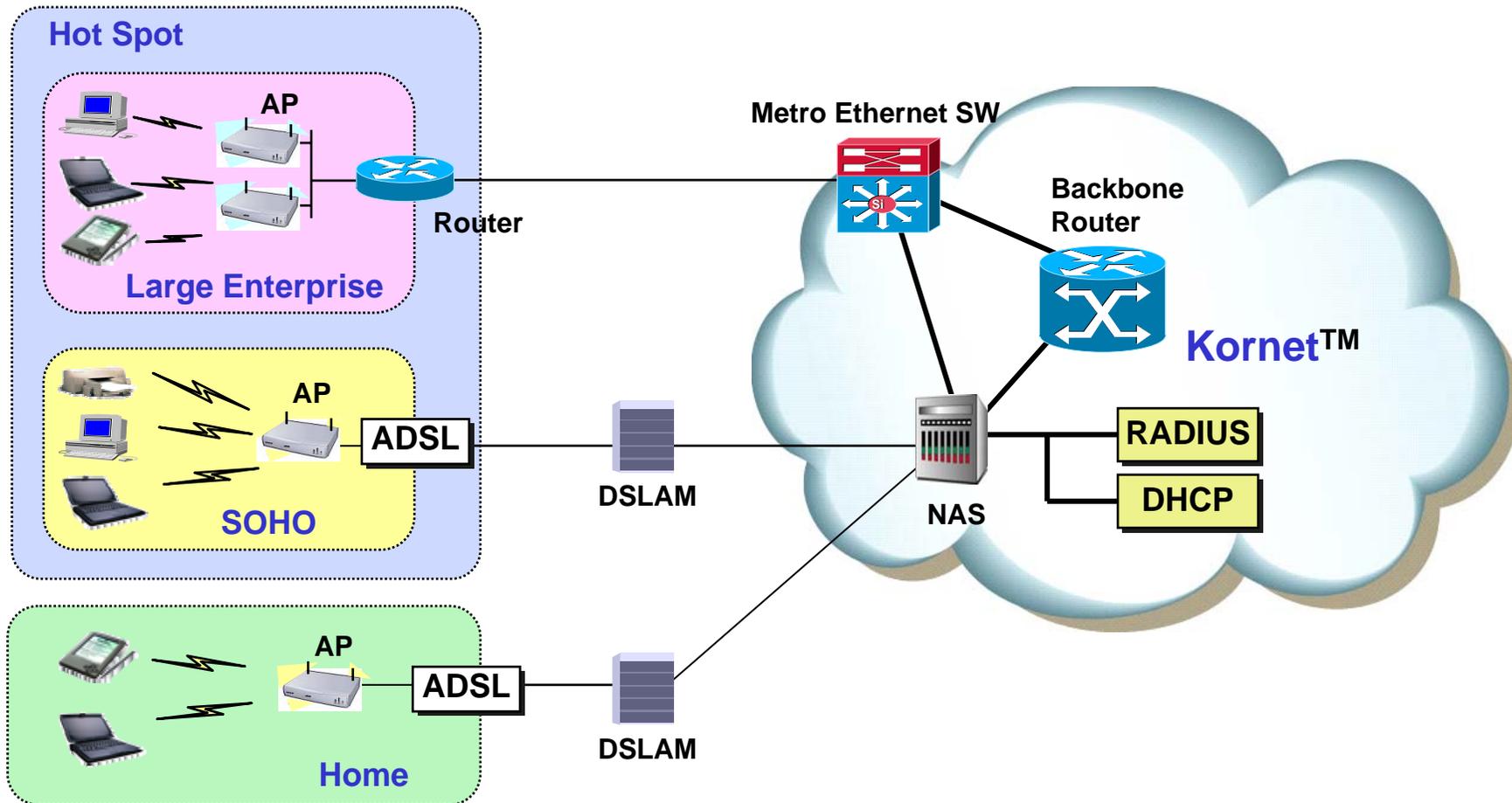
Base Station

**HPi (2.3GHz)**

**Fixed or moving**

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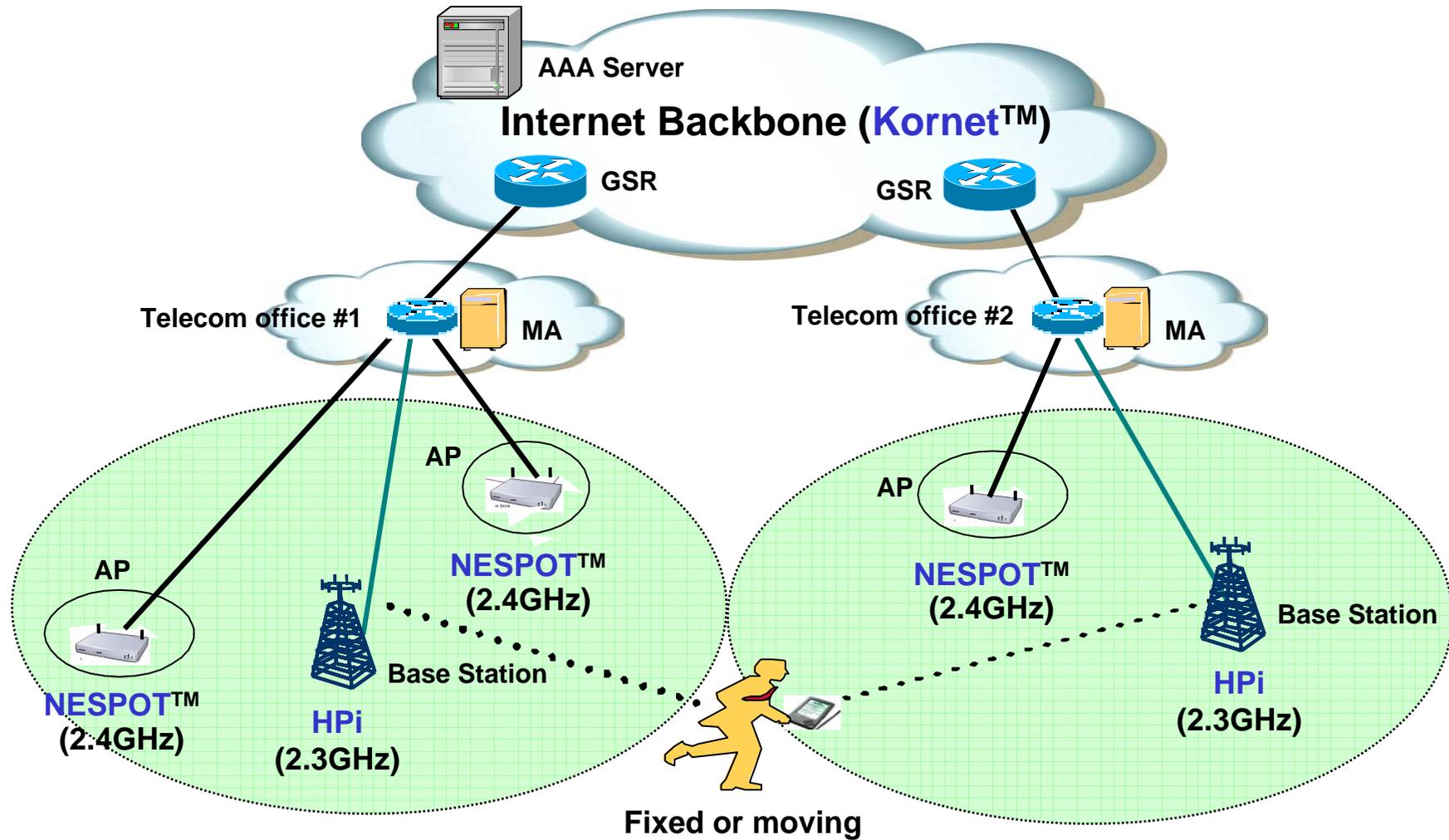
# NESPOT - KT's public wireless LAN

❑ **12 thousands of hotspots in airport, hotel, university, subway etc**

# HPi - High speed Portable Internet

❑ **Concept**

  ❖ **mobile broadband service using 2.3GHz**

  ❖ **more than 1Mbps bandwidth with mobility and handover**

  ❖ **Notebook, PDA, Smart phone**

❑ **Schedule**

  ❖ **standardization : 2004. 2Q**

  ❖ **carrier assignment : 2004. 4Q**

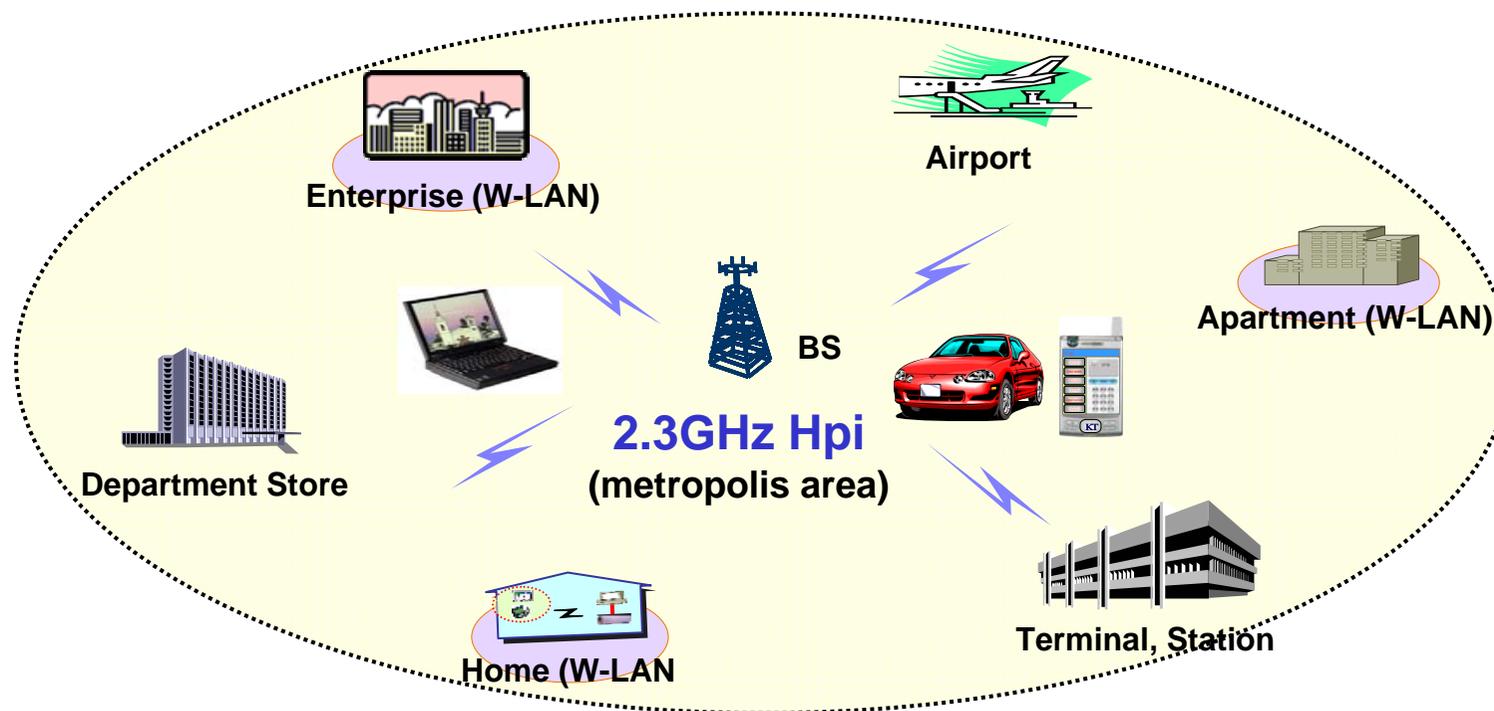  ❖ **service : 2005. 2Q**

❑ **Points at issue**

  ❖ **technology standard**

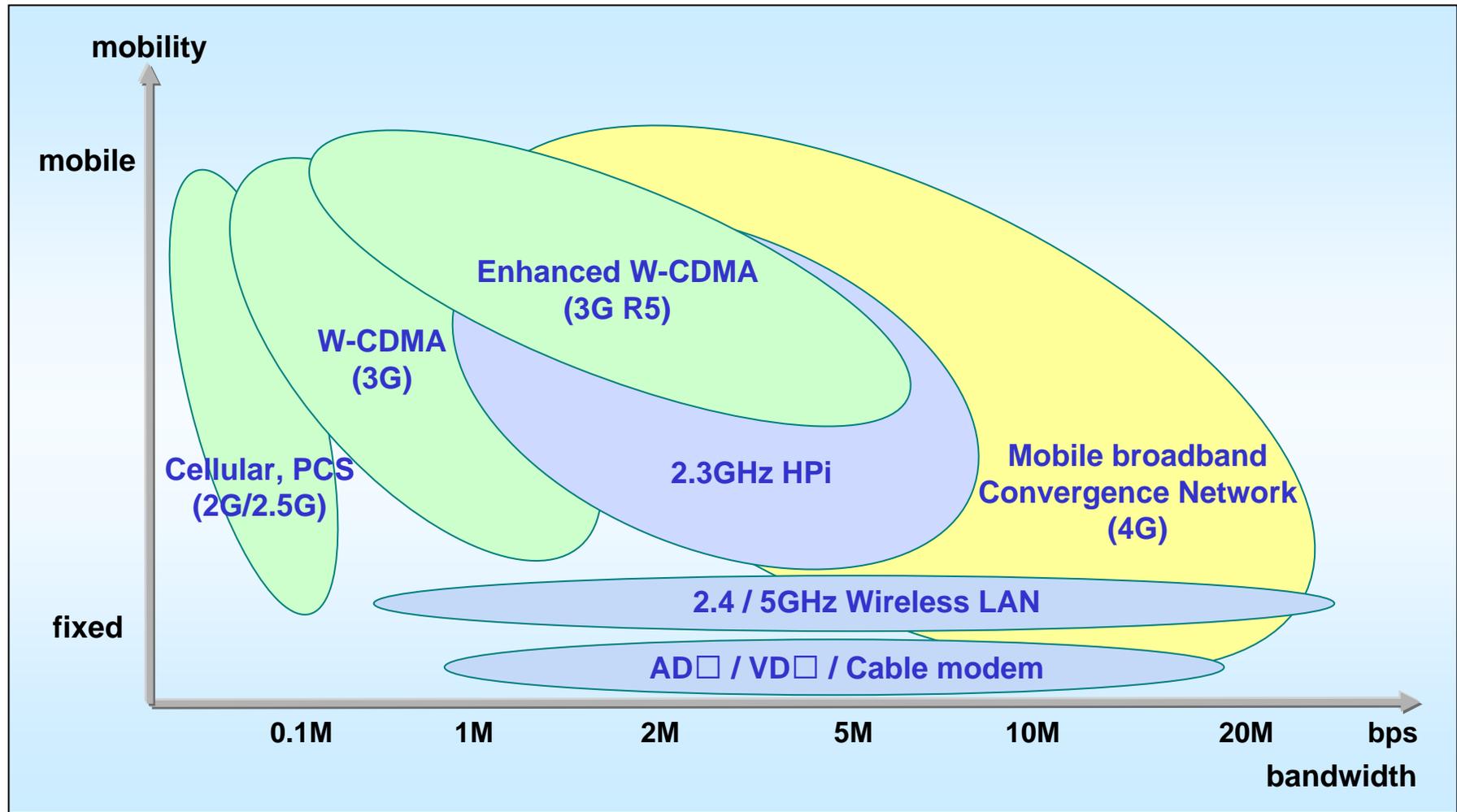  ❖ **number of carriers**

  ❖ **candidates : KT, SKT, Hanaro**

# HPi - High speed Portable Internet

## ❑ Outdoor expansion of NESPOT

- ❖ high speed Internet access service in moving
- ❖ hot spot → hot zone outdoors
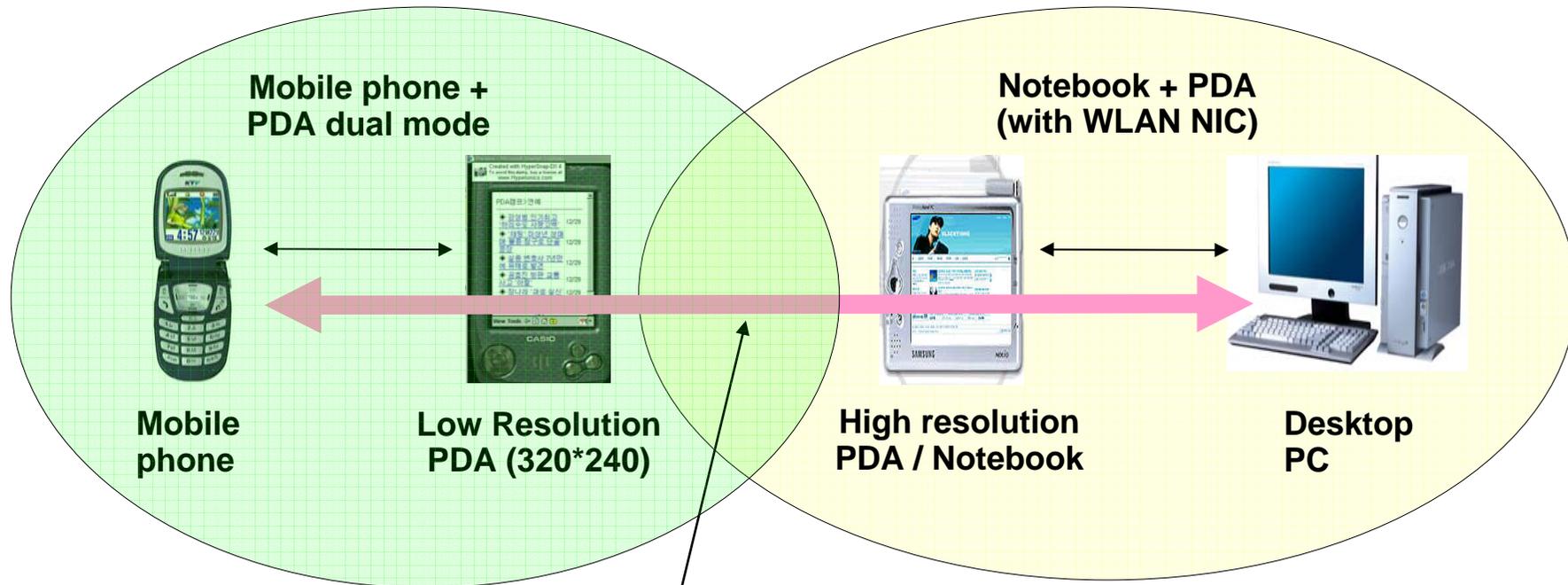- ❖ mobile broadband access in metropolis area



Enterprise (W-LAN)

Airport

Apartment (W-LAN)

BS

**2.3GHz Hpi**
**(metropolis area)**

Department Store

Home (W-LAN

Terminal, Station

# Positioning of broadband technology

# Convergence of fixed and mobile network

**Mobile Networking Area**　　　　**Fixed Networking Area**

Mobile phone +
PDA dual mode

Notebook + PDA
(with WLAN NIC)

Mobile
phone

Low Resolution
PDA (320*240)

High resolution
PDA / Notebook

Desktop
PC

Seamless service through fixed
and mobile convergence network

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# NGN - Next Generation Network

❑ **Concept**

- ❖ **simple network, flexible network, value creating network**
- ❖ **replacement of POTS service based on IP network**
- ❖ **IP communication service with Soft Switch**
- ❖ **unified service of voice and data**

❑ **Schedule**

- ❖ **soft switch development with LG electronics : 2004. 1Q**
- ❖ **trial service : 2004. 3Q**
- ❖ **commercial service : 2005. 1Q**

❑ **Points at issue**

- ❖ **numbering, billing, QoS, O&M**
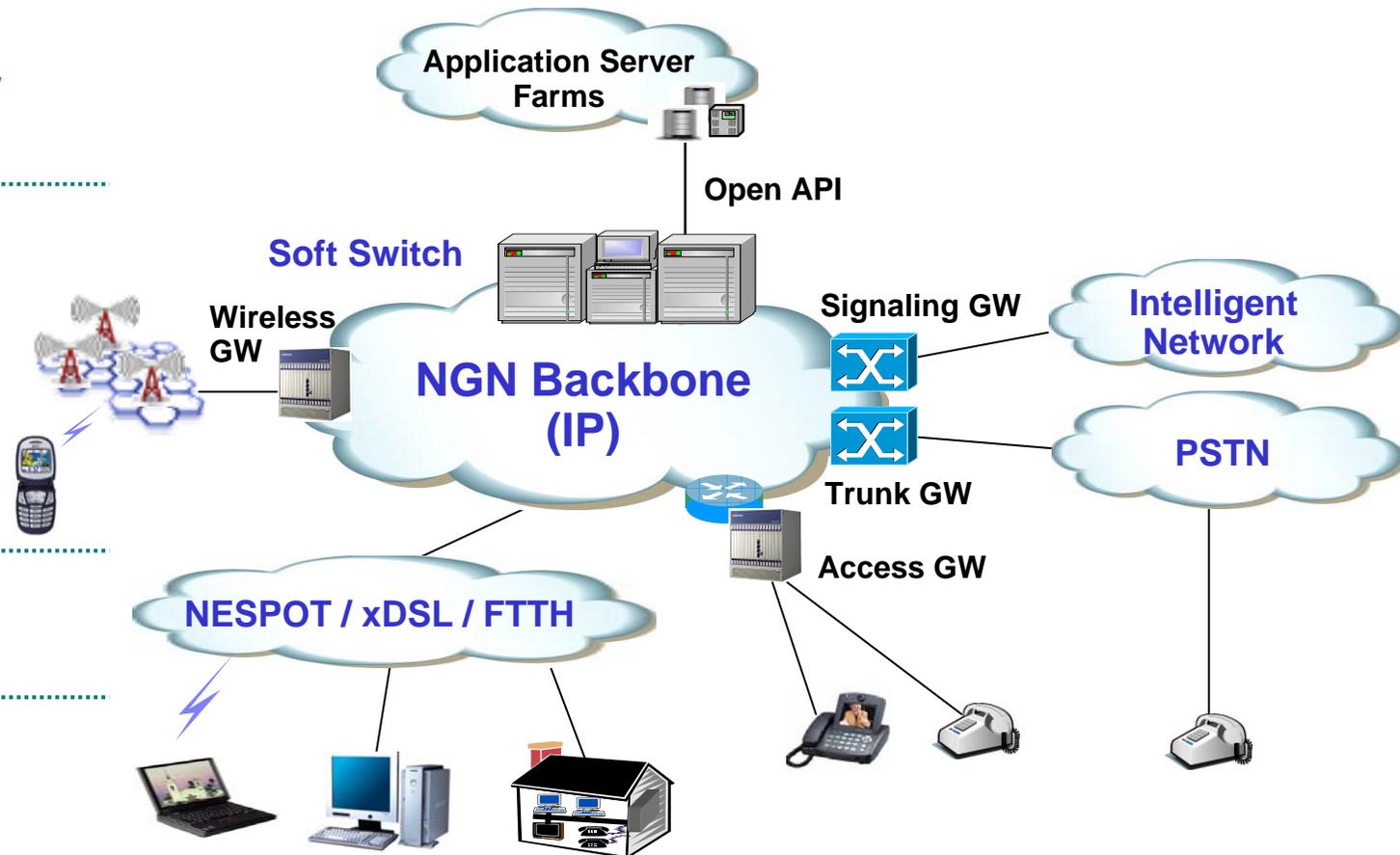- ❖ **will it be the cash cow?**
- ❖ **what is the killer application of NGN service?**

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# Convergence of voice and data network

**Service and Control Layer**

**Application Server Farms**

**Open API**

**Soft Switch**

**Transport Network**

**Wireless GW**

**Signaling GW**

**Intelligent Network**

**NGN Backbone (IP)**

**PSTN**

**Trunk GW**

**Access GW**

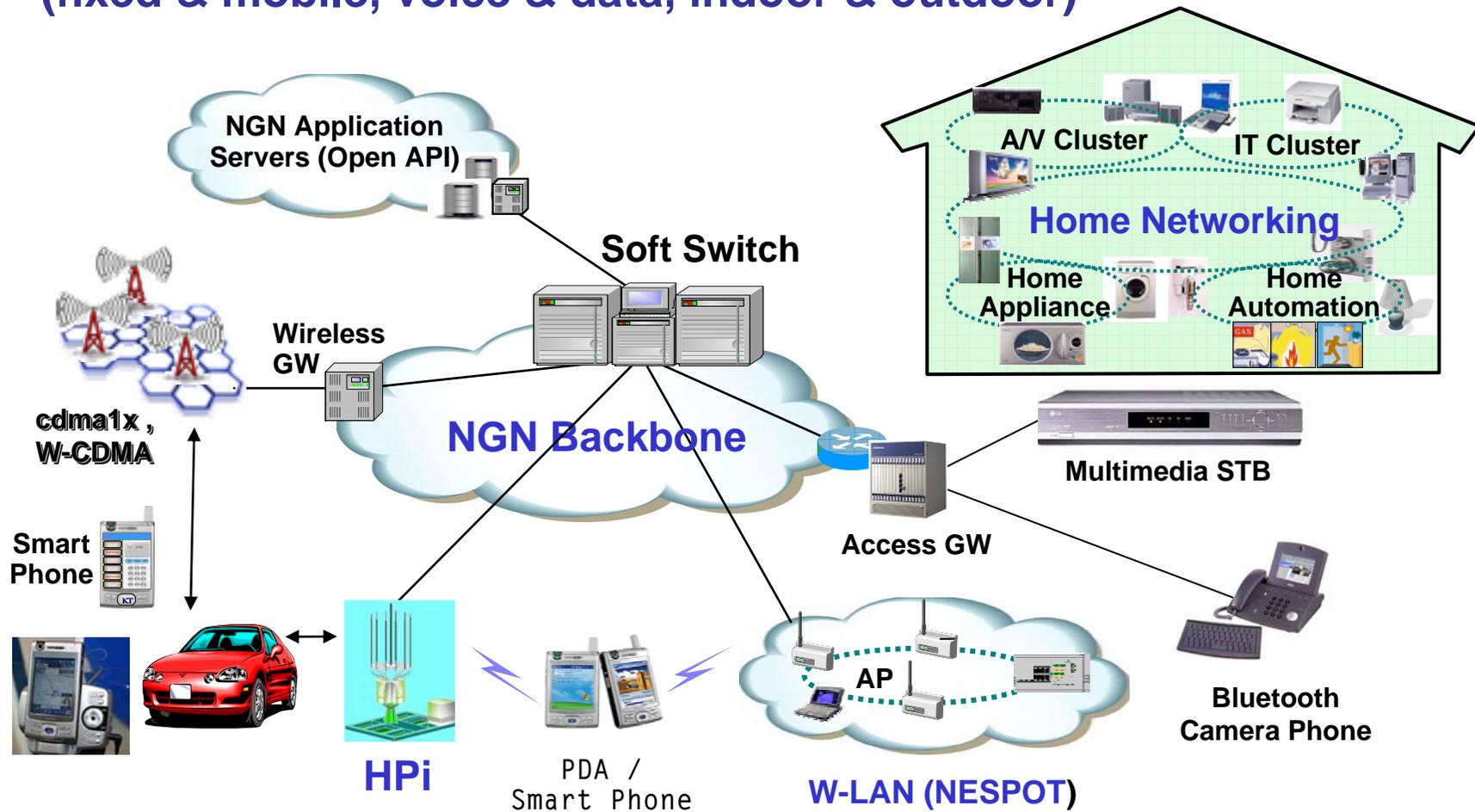**Access Network**

**NESPOT / xDSL / FTTH**

**Home / Terminal**

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# Network convergence

❑ **toward the ubiquitous network infrastructure
(fixed & mobile, voice & data, indoor & outdoor)**



NGN Application Servers (Open API)

A/V Cluster    IT Cluster

**Home Networking**

Home Appliance    Home Automation

Soft Switch

Wireless GW

**cdma1x , W-CDMA**

**NGN Backbone**

Multimedia STB

Smart Phone

Access GW

Bluetooth Camera Phone

**HPi**    PDA / Smart Phone    AP    **W-LAN (NESPOT)**

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# Summary and future perspectives

❑ **IT industry in Korea continues to be expanding based on nationwide broadband networks**

  ❖ various new e-Biz will be flourished on the broadband infra

  ❖ electronic transaction rate will be expected over 30% in 2006

❑ **Focusing on how to increase ARPU.**

  ❖ value added service will increase ARPU of broadband user

❑ **Realizing the network convergence in 2005**

  ❖ services can be connected at anywhere, anytime on any device seamlessly

❑ **Providing higher speed fixed or mobile networking services at lower cost**

  ❖ multimedia streaming services can be carried over more than 10Mbps interactively