A Vision for Wireless Broadband Service

‘WiBro’

2005.2

Outlines

I. Introduction
II. Business Environment
III. Business Strategy
IV. Service Plan

High Speed Internet in Your Pocket!

"Wired Internet + Mobility"

"While on the Move"	"Anywhere at Anytime"	"High Data Rate"	"Low Access Cost"
■ Nomadic Service in the early stage – Low Mobility	■Seamless Anywhere – High Mobility	■1 Mbps/User – Even Higher Later	■ $30~$40/Month – Mixture of Meter Rate & Flat Rate

User Terminal


Phone Type


PDA

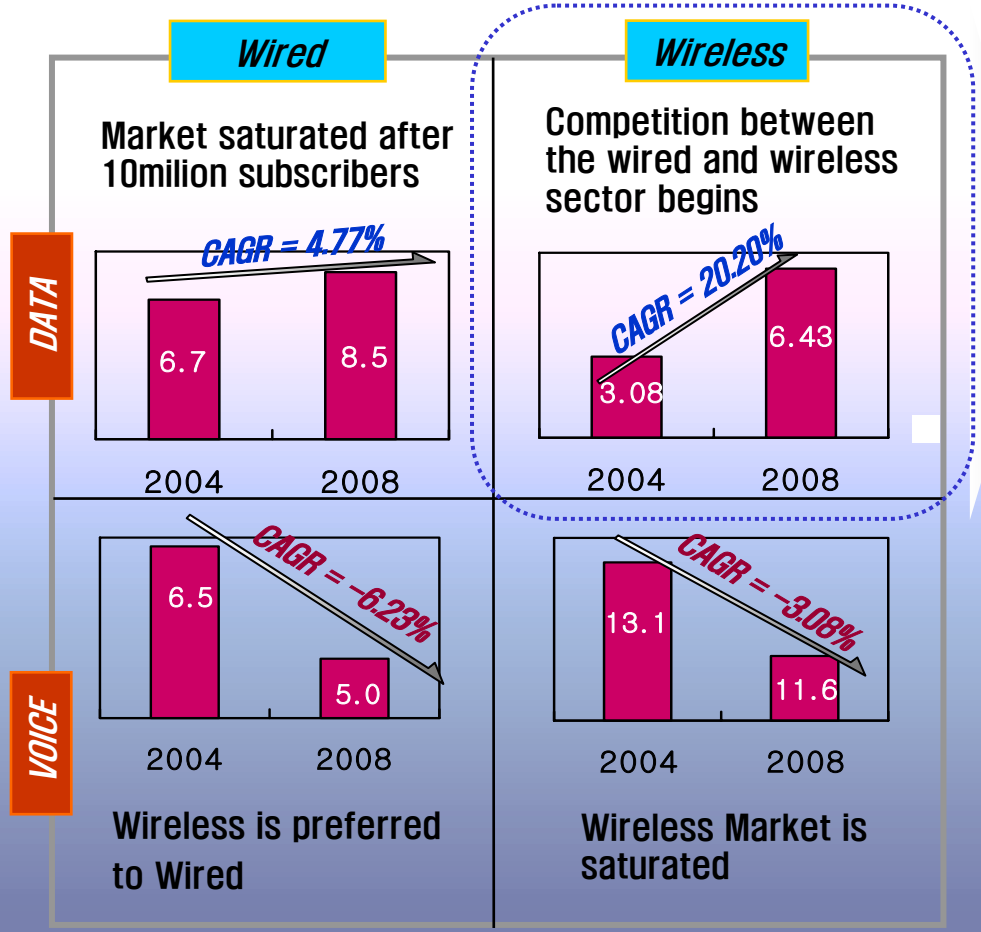

Handheld PC


Laptop


Laptop connected to Phone


Laptop or PDA with PCMCIA modem card

❑ Wireless Data Market will expand from 3 tril. Won in 2004 to 6 tril. Won in 2006[1]



< IT Market Analysis (KISDI) >

- **Wireless Data Market expands rapidly.**
  - 0.18 tril. Won(2000) → 1.9 tril. Won (2003)
  - 3 tril. Won(2004) → 6 tril. Won(2008)
- **WiBro Market in 2008 : > 1 tril. Won**
  (assuming 20% market share)
  - EV-DO (meter-rated billing) takes over 10% market share in 2 years.

• Wireless Data Market Expectation

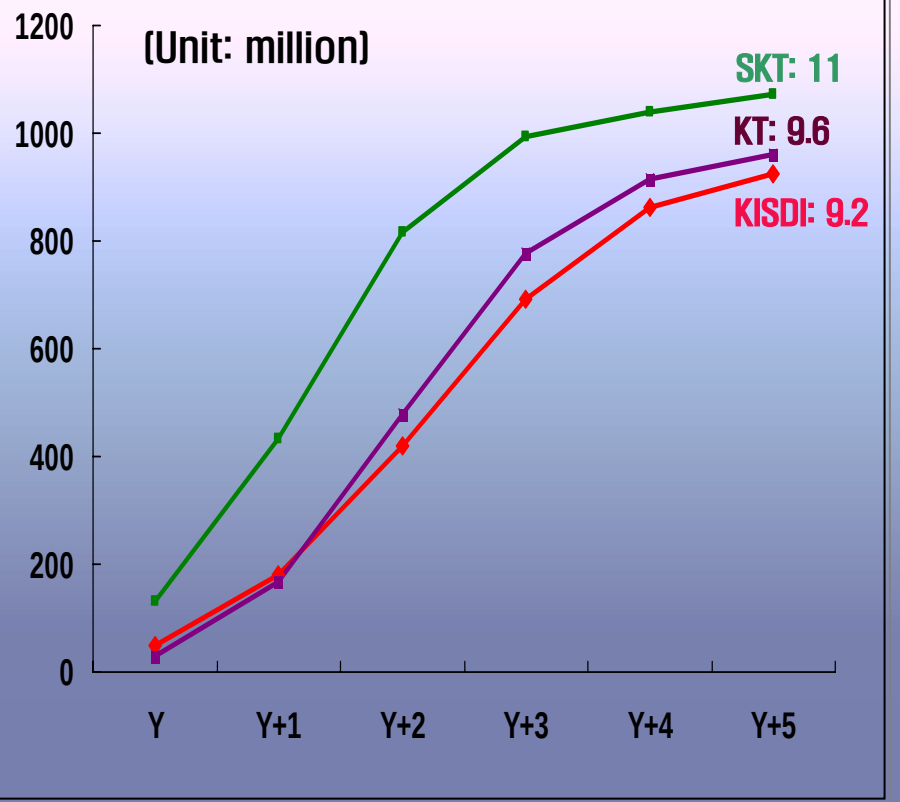
Institution	Rate of Growth(2005~2010)
OVUM (2003)	20% (National)
IDC (2003)	31% (International)
ARC (2003)	45% (National)

[1] Reference : KT Business Management Research Lab

- Market Size in Y+5: 9.2~10.7 mil. subscribers
- WiBro will creates 270,000 new jobs, and the gross product of 18 tril. Won
- Systems and User Terminal Market is greater than 10 tril. Won

(1 Device per Home → 1 Device per User → 1 Device per Appliance/Machine)

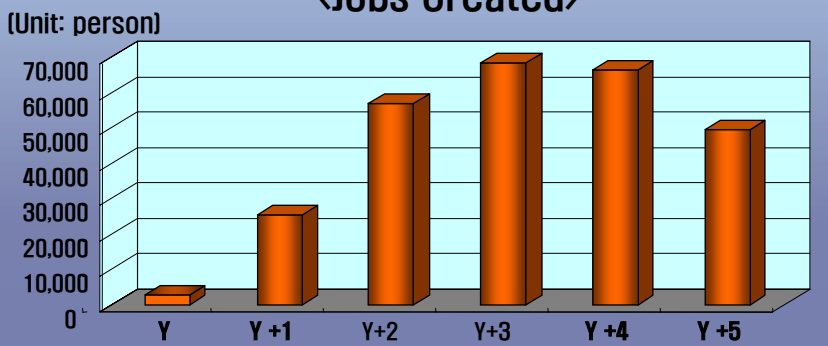
Market Prediction



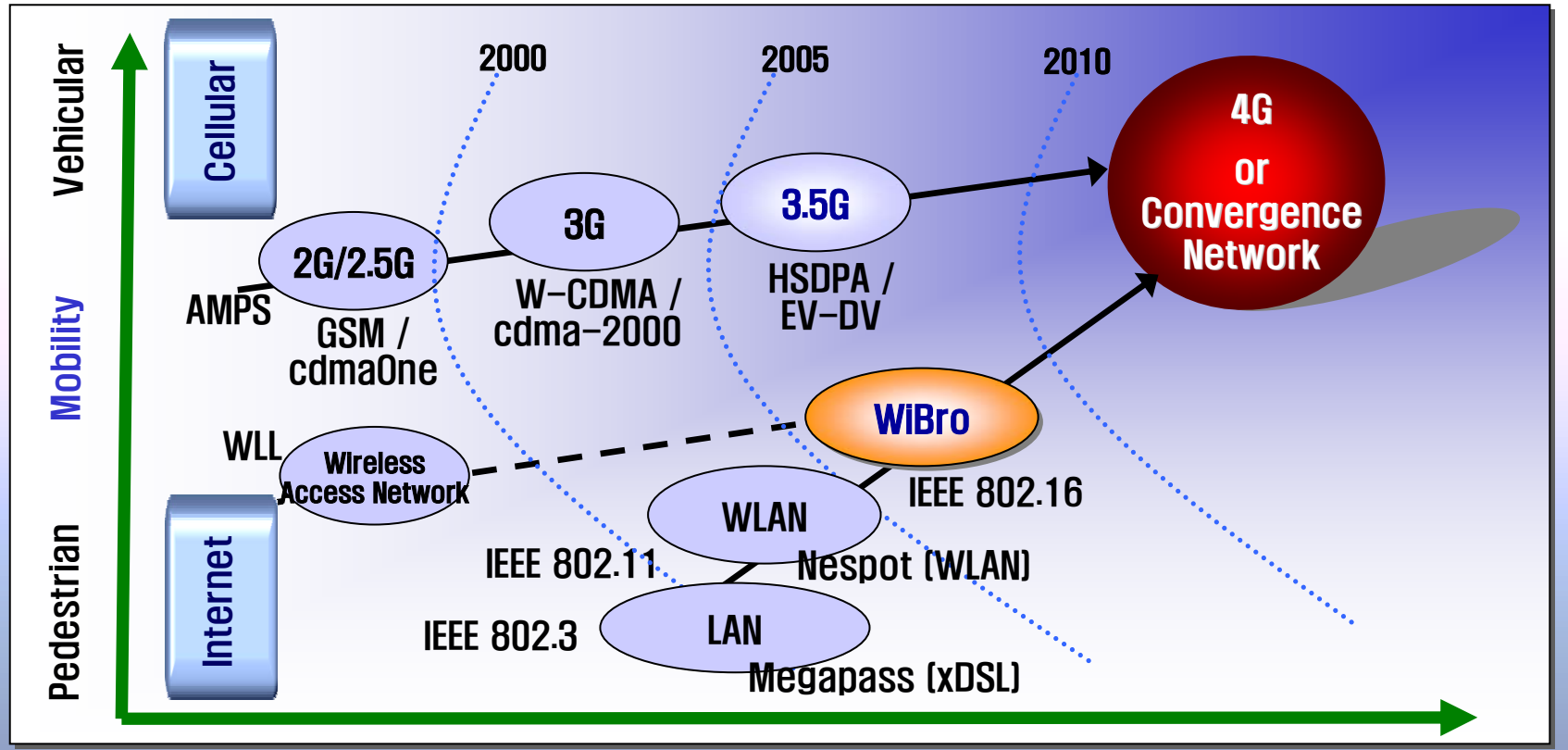
Economical Effect

Gross Product	17.98 tril. Won
Value Created	7.43 tril. Won
Total Export	6.28 tril. Won
Total Import	4.63 tril. Won

<Jobs Created>

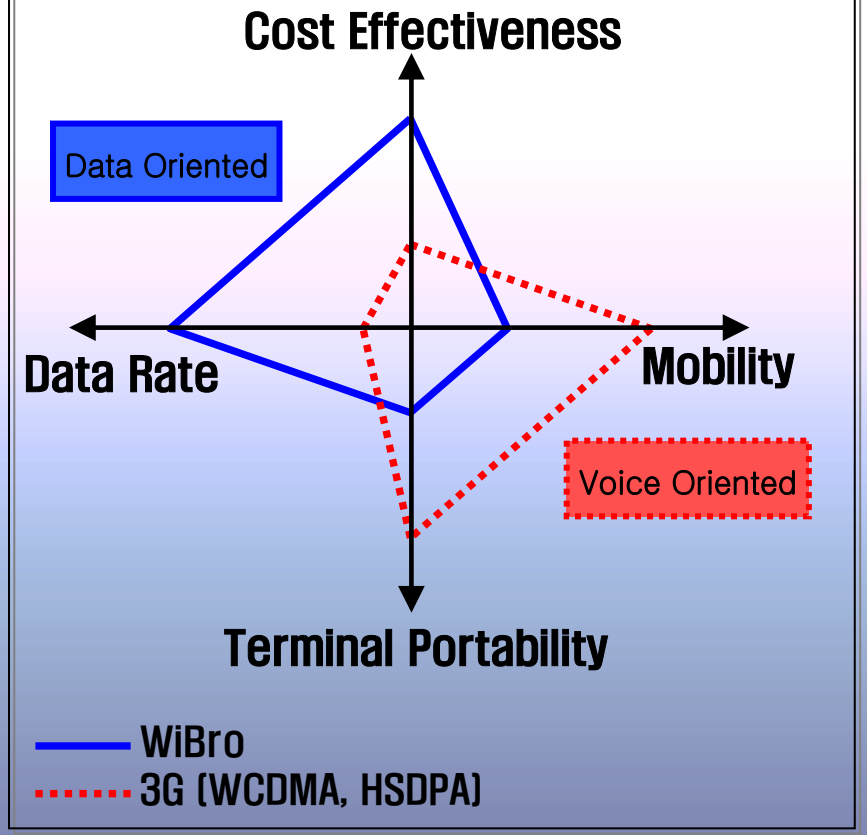


(Reference : ETRI, IT Industry Trend Analysis,2003.10)

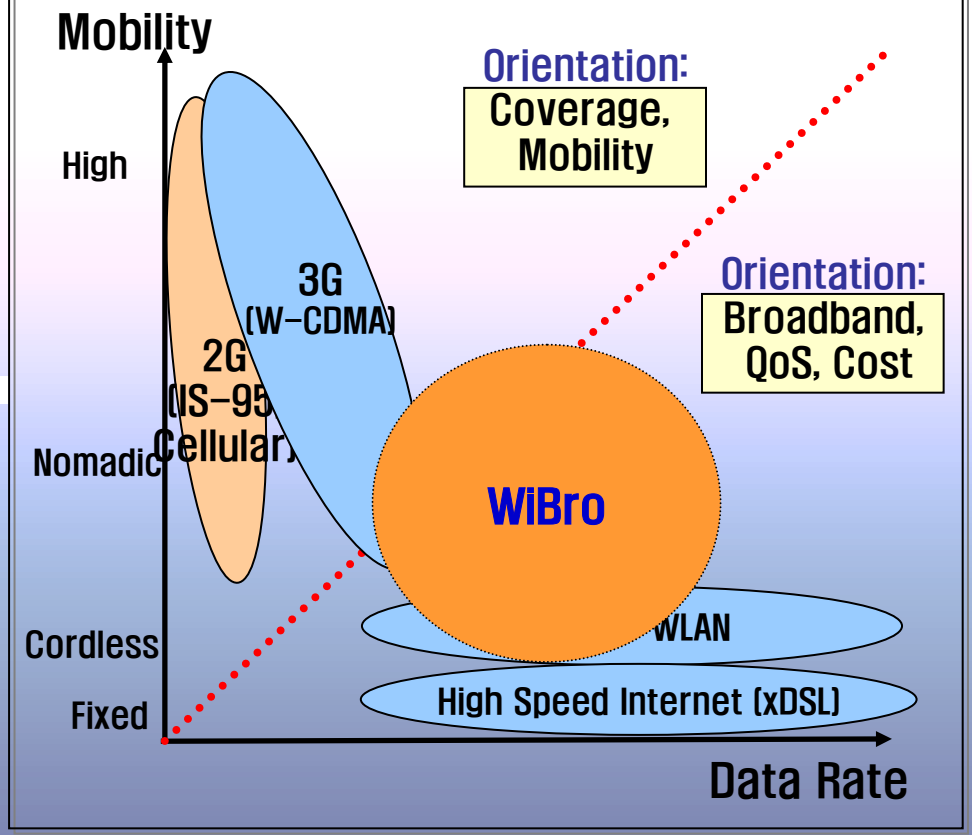


- Evolution of the Technology
  - Wired Internet: IEEE802.3(LAN) → IEEE802.11(WLAN) → IEEE802.16(WiBro)
  - Cellular Network: 1G (Analog) → 2G (Digital) → 3G (IMT-2000) → 3.5G (HSDPA)
- WiBro is a 'last mile' extension of the wired Internet.

Service Characteristic



Service Positioning



☞ WiBro/3G/WLAN complements each other.

Item		WiBro	W-CDMA		CDMA 2000	
			R4	R5 (HSDPA)	1x EV-DO	1x EV-DO Rev.A [1]
Duplex		TDD	FDD	FDD	FDD	FDD
Multiple Access		OFDMA	CDMA	CDMA	CDMA	CDMA
Bandwidth (FA)		10MHz	5MHz x 2	5MHz x 2	1.25MHz x 2	1.25MHz x 2
Frequency		2.3~2.4GHz	UL :1.94~1.98/DL:2.13~2.17G		800M/1.8G	800M/1.8G
Max. Data Rate (1FA 1sector)	Down	18.432 Mbps	2 Mbps	13.976 Mbps	2.4576 Mbps	3.072 Mbps
	Up	6.144 Mbps/User	2 Mbps/User	2 Mbps/User	153.6 kbps/User	1.2288 Mbps/User
Average Throughput (1FA 1sector)	Down	5.95 Mbps	1.04 Mbps	5 Mbps[2]	850 kbps	825 kbps
	Up	1.53 Mbps	1.21 Mbps	1.5 Mbps	266.1 kbps	465.4 kbps
Standardization		802.16e D3 (04.05) 802.16e D4 (04.08)	2001.3	2002.6	2000.10	2004.2
Network Deployment		yr. 2006	Seoul Area	yr. 2006	Operating	yr. 2005

(1) In Revision A, the performance of 1x EV-DO is increased to that of 1x EV-DV.

WiBro vs. xDSL

- ❑ WiBro provides High Speed Internet Access as xDSL.
- ❑ WiBro's Mobility and Portability will attract xDSL users to WiBro.

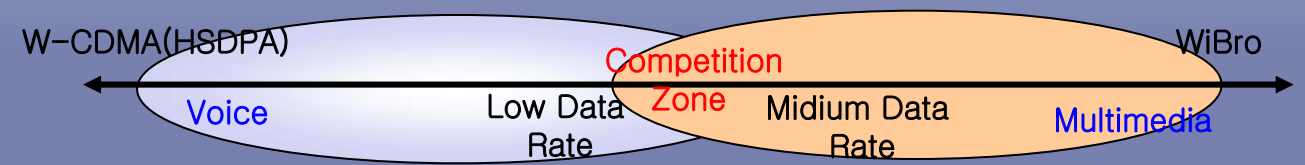
WiBro vs. WLAN

- ❑ Demand for coverage expansion in WLAN will attract WLAN users to WiBro.

WiBro vs. 3G

- ❑ Low access cost will attract 3G users to WiBro.
- ❑ There will be partial competition between the services; however, they will complement each other in general.

<Service coverage of WiBro and WCDMA(HSDPA)>



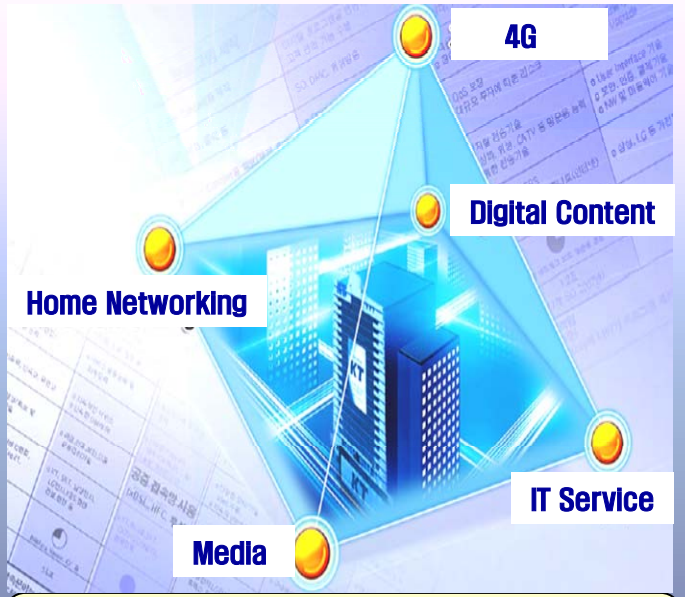
❑ WiBro: Cornerstone of Wired/Wireless Convergence/Ubiquitous Network

Wired/Wireless Convergence and Ubiquitous Network

Customer Base	Positioning	Infrastructure
Create Mass Market using KT-xDSL and KT-WLAN customer base	Create New BM for Convergence and Ubiquitous Era	Create synergy combining KT&KTF Infrastructures

Create Future Business	Leading IT Industry	KT Group Level Synergy
Secure Wireless Data Market	Keep dominating in the Wired-Data Market(xDSL)	Utilizing KTF's Contents Marketing/Dist. Systems, Service Platforms

KT Vision 2010: 5 Business Engines



Exp. Annual Sales in 2010 : 17 tril. Won

User Terminal Development

○ Early DBDM chipset development
– Develop Business alliance model with vender

○ Early standardizations of the User Terminal features for timely development

Building Wireless Networks

○ Reuse or share the conventional network infrastructures to reduce capital expenditure.

○ Secure network construction/ operation/management personnel

Systems Development

○Early Int'l standardizations to create Multi Vendor Environment

○Development Managing Systems for early system development

Marketing

○ Categorizing customer's needs
○ Recognizing Target market
○ Develop Package services in connection with other services and their customer base.

Application Development

○ Develop Killer App exploiting the Broadband and Mobile Characteristics of WiBro

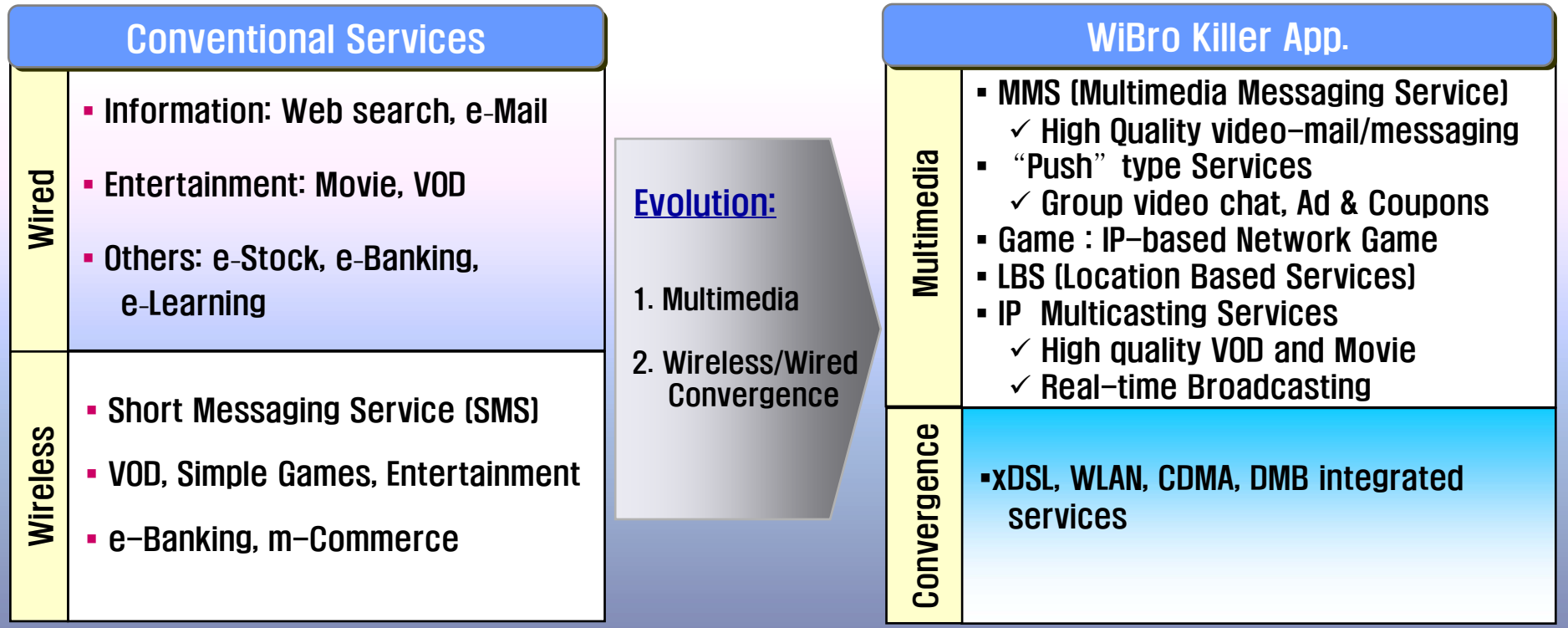
○ Develop Detailed Marketing Strategy for each App Service

Contents Development

○ Develop Key Application Contents

○ Develop Business alliance model with Contents Provider

- ❑ Killer Applications: Exploiting the Mobile and Broadband Characteristics.
- ❑ Convergence Services: User Convenience and Max. Revenue.

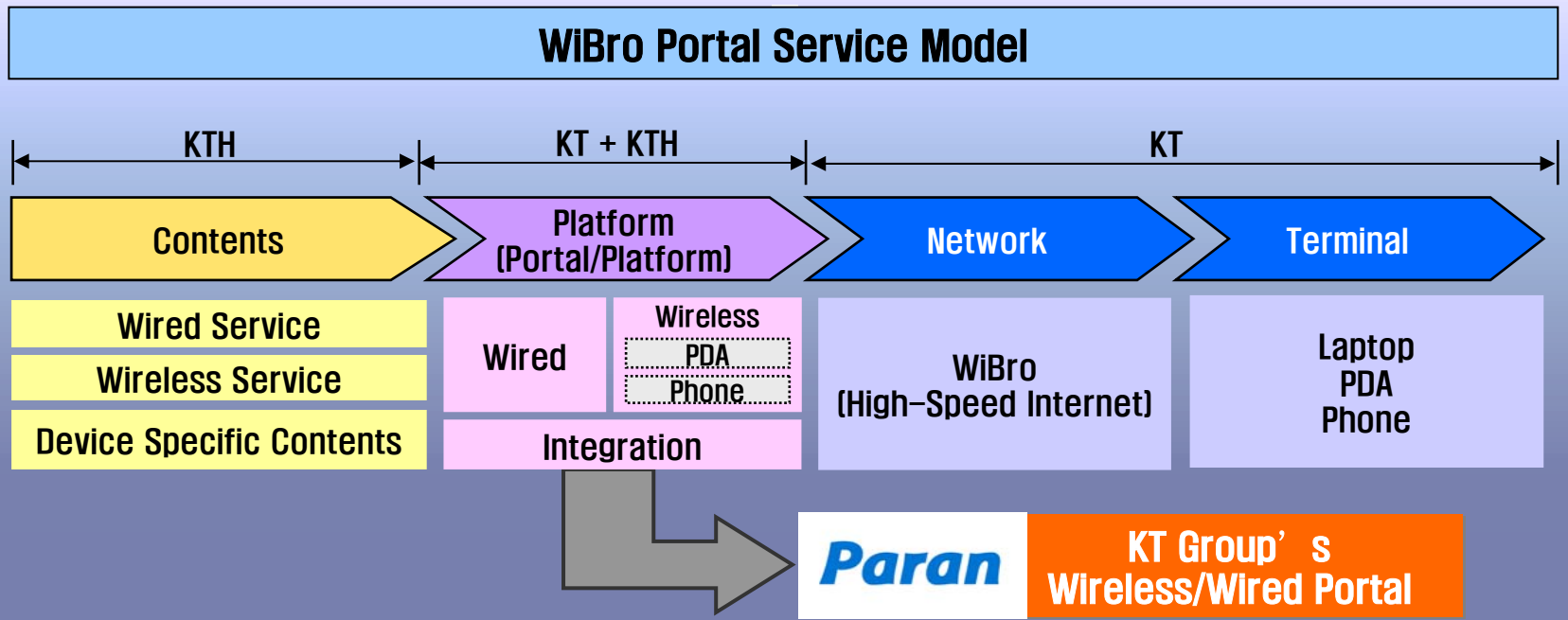


Use KT's WLAN/xDSL Networks & Operation Know-How
Wired<Lacks Mobility> + Wireless<Small BW> → Convergence

Wired/Wireless Contents + Internet Web Service
Up-grade to Multimedia/3D+Convergence Services

❑ WiBro Portal

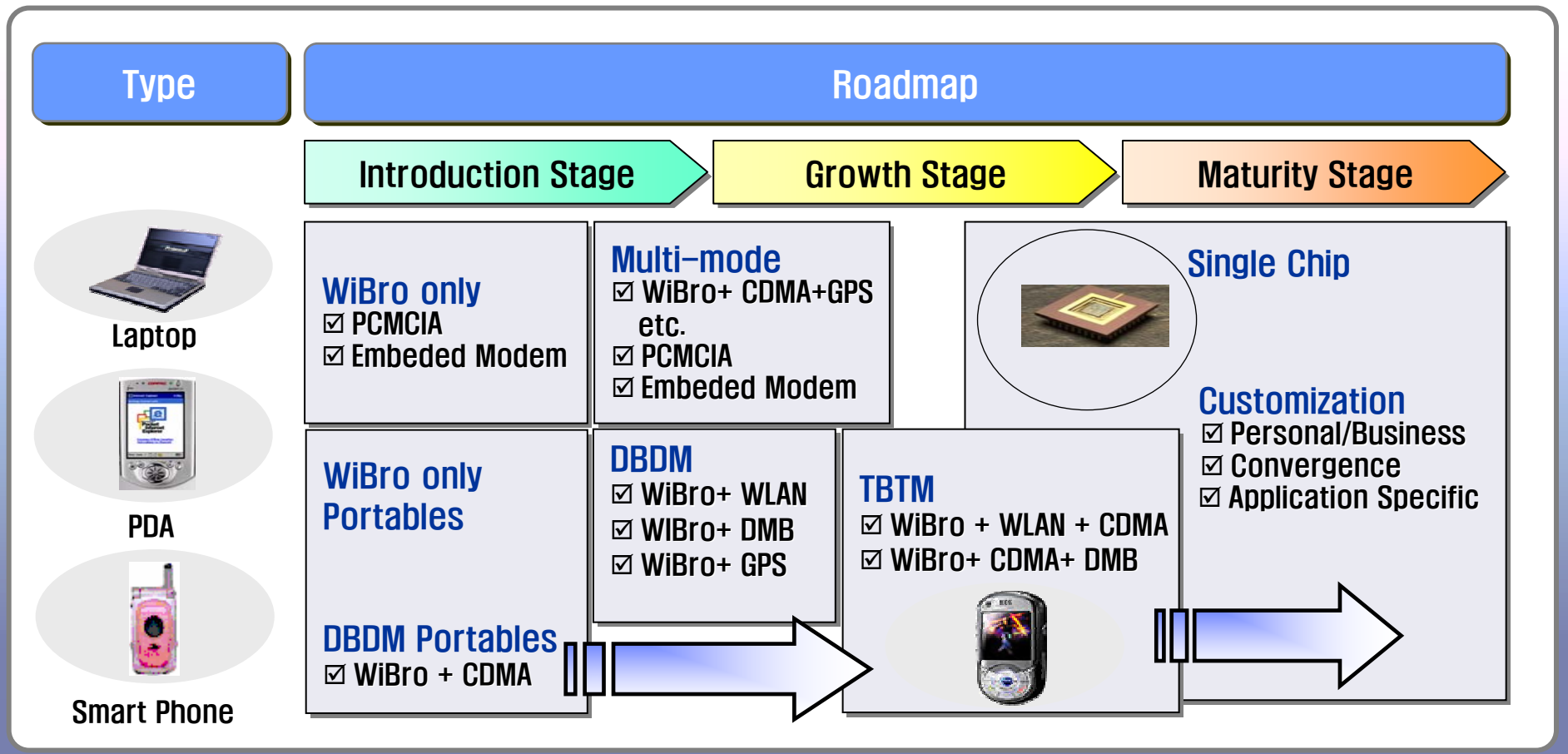
- ❍ Use KT's Internet Portal ('Paran') as a WiBro Portal
- ❍ Develop Wireless+Wired Portal with KTH
- ❍ Develop Easy-to-Use/Customer-Friendly UI
- ❍ Develop New Contents, and Up-grade KTH's Conventional Content Service



❑ Contents Development and Management Strategy

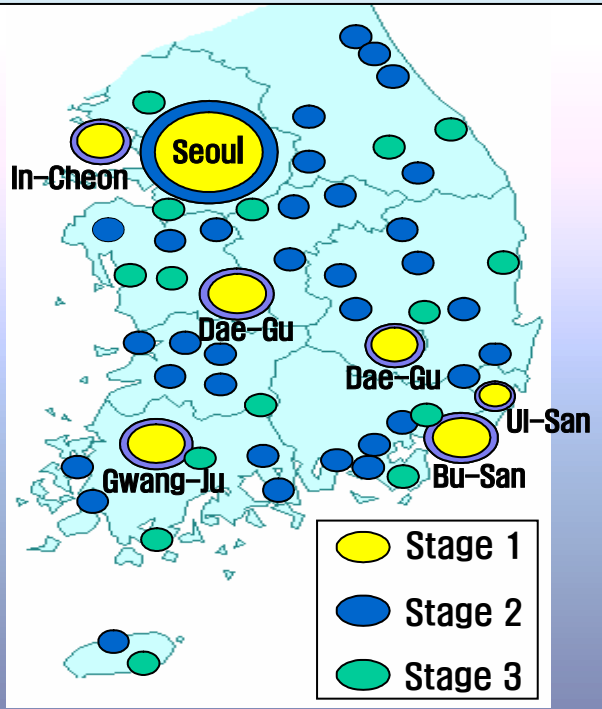
- ❍ Utilize KT's Conventional Portals and Services to Develop Multi-Purpose Porta (VOD, music, game etc.)
- ❍ Utilize KT Group's Contents: KTF (Fimm/MagicN), KTH (Paran), KDB
- ❍ Utilize KTH's MCP: Strengthen CP Relations
- ❍ Develop CP Management System: CP Selection, Support, Evaluation

- ❑ Variety of User Equipments: PCMCIA card, Laptop, PDA, HPC, Smart Phone
- ❑ Wireless+Wired Integrated Terminals: Friendly and Easy-to-Use UI
- ❑ DBDM, TBTM Equipments: WiBro + WLAN/CDMA/DMB

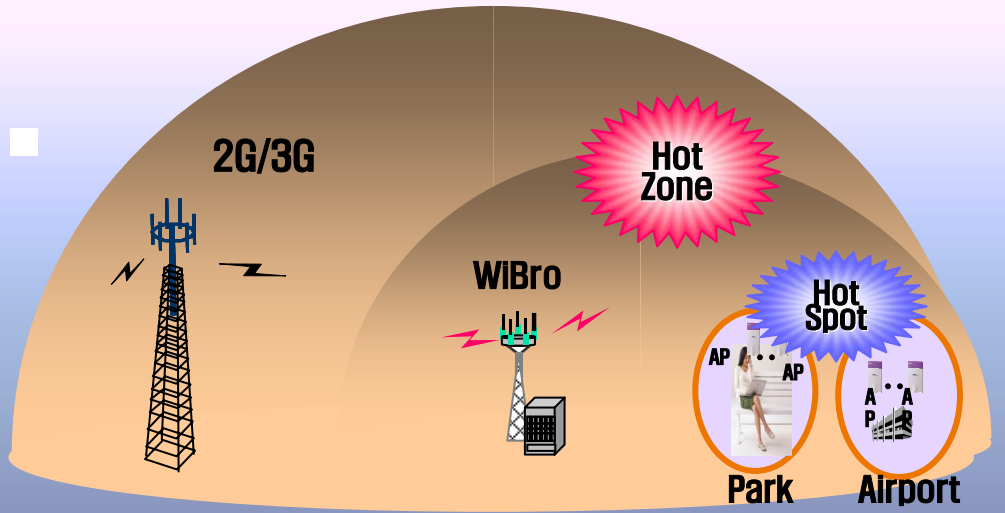


❑ 3-Stage Network Deployment Plan

Network Planning



Access Network Integration



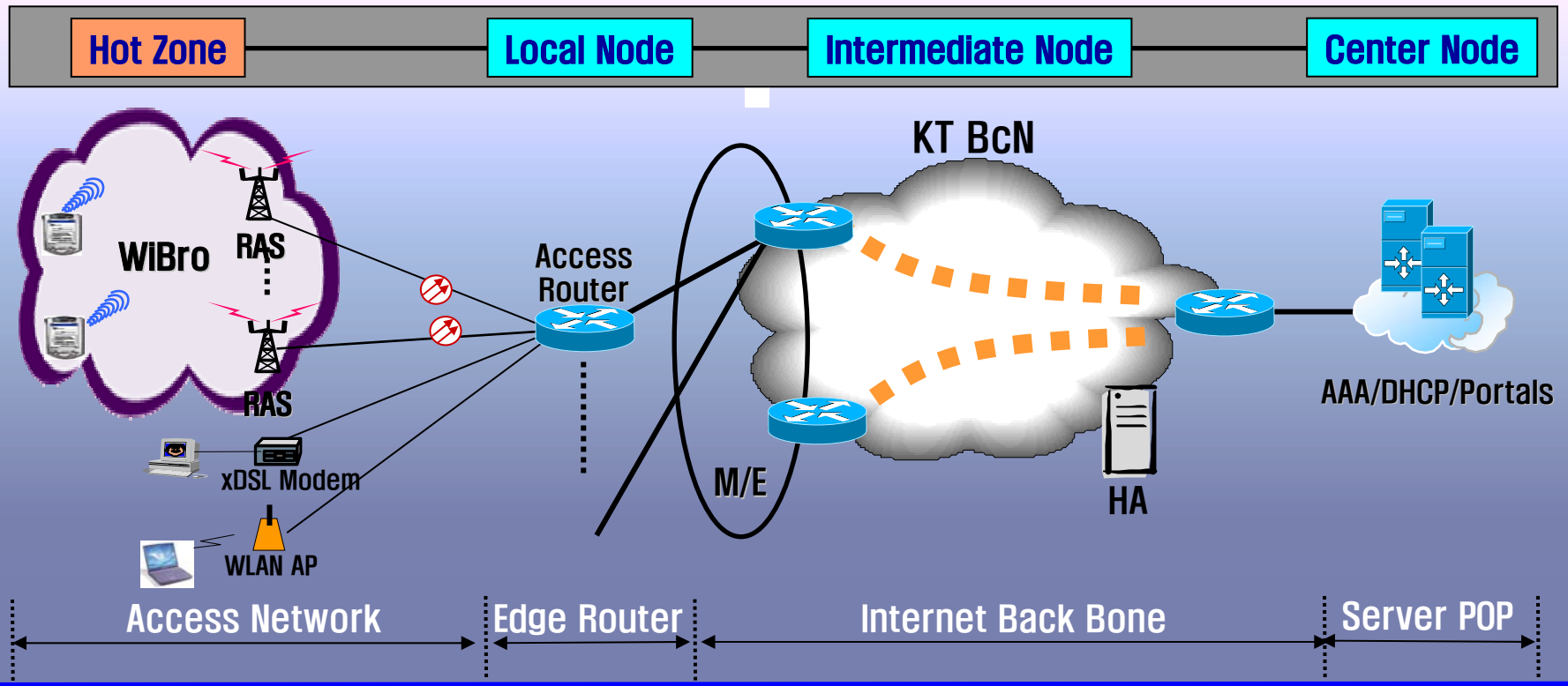
- Prep. Stage (2005): APEC Demo, Test Service
- Stage1 (2006): Seoul, Metro, Major Cities (20)
- Stage2 (2007): Medium Size Cities (18)
- Stage3 (2008): Rural Cities (46)

- 2G/3G: Voice-Oriented, Wide-Area, Narrow-Band
- WiBro: Urban Cities
- WLAN: Home, Hot-Spot, Airport etc.

❑ Sharing the Cnventional Network Infrastructure to reduce Capital Expenditure

→ KT Internet Backbone, KT Optical Networks, KT Transmission Lines
→ KTF 2/3G Base Station Infrastructure , KTH Service Platform
→ Sharing Access Network with other WiBro Service Providers
Capex/Opex Reduction: 420 billion Won

WiBro Network Structure



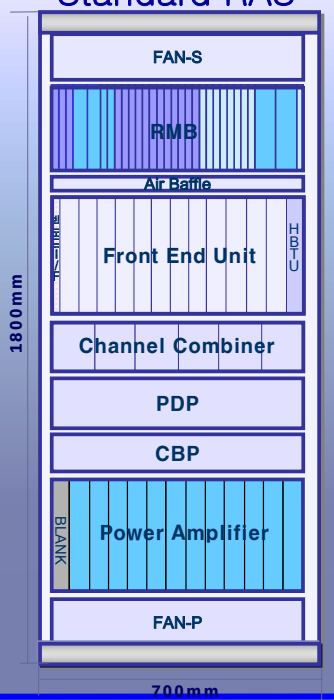
❑ Production Schedule

	RAS (Base Station)	PSS (Mobile Station)
Vendor	Samsung, LG, POSDATA	Samsung, POSDATA, Orthotron, RunCom
Schedule	End of 2005	End of 2005 ~2006

- ❑ 2005.11 Busan APEC : City-wide WiBro Demonstration
- ❑ 2006.04 Seoul : Commercial Service (Service extends to 84 cities within 3 years)

Mini-RAS

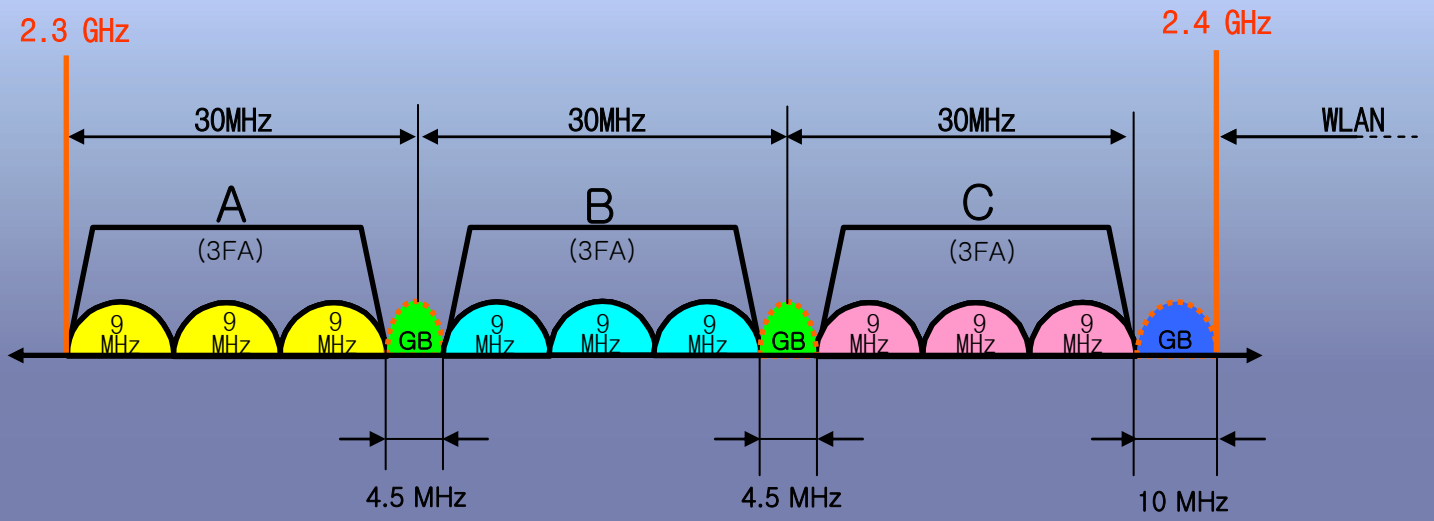
Standard RAS



- KT, HTI, DACOM, SKT has been competing for WiBro Service license.
- Government announced the competition results last month. (2005.1)

  KT : 1st Place SKT : 2nd Place HTI : 3rd Place
- KT will select one frequency band of its choice at the end of this month.
- Commercial service begins

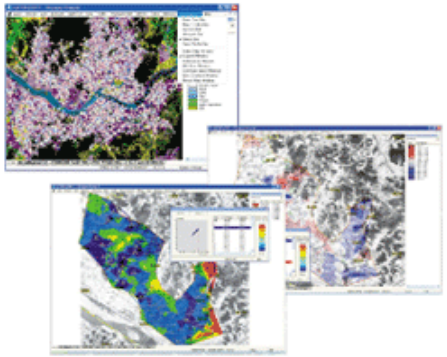
  KT : 2006.4 SKT : 2006.6 HTI : 2006.6



Thank You

Let's KT

[Appendix] R&D / Standardization Efforts



R&D

- Develop Cell Design Tool CellTrek/OPT. 2004. 4
  - Optimized for WiBro Cell Design
    - Reducing the time and man power needed for cell planning

Standard

- Actively involved in TTA standardization and ETRI 's HPI Project.
  - Playing major role in TTA standardization.
  - Shortest standardization resulting timely-commercialization.
  - Contribution for HPI Project : 3 Billion Won (2003~2005)
- Playing major role in IEEE802.16 standardization.
  - Establish International Standardization Forum, BWF. (2004.1.20)
    - ☞ Broadband Wireless Forum: KT, Sprint, Nextel, KDDI, SKT, Hanaro Telecom.
    - ☞ Leading vandors are actively participating (Intel, Samsung etc.)
  - Harmonizing TTA and IEEE Standardizations
    - ☞ Contributing 24 key technical drafts

Industry Coalition

- Establish PII (Portable Internet Initiative). (2003.3.11)
  - Over 100 Member Companies (2004.9)
  - Contributions
    - Develop WiBro Business Model
    - Sharing technical and business information among members

PII PORTABLE INTERNET INITIATIVE
www.pii.or.kr

[Appendix] WiBro TDD Repeater

❑ KT developed a first TDD Repeater in South Korea.

Repeater R&D

- ❑ TDD Repeater R&D Working Group (2004.2)
- ❑ Initiating TDD Repeater Research (involving 5 Companies and 6 Systems)
  - ❍ Optical Repeater : Solid Tech., Eastelsystems, Neotelecom
  - ❍ RF Repeater : Acetech, C&A Microwave
- ❑ Demonstration and Test
  - ❍ High Power TDD RF Repeater Demo (2004.8.23)
  - ❍ WiBro Repeater R&D Report (2004.9.23)