ITU-APT Regional Seminar 2004

2.3GHz Portable Internet (WiBro) for Wireless Broadband Access

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Discussion Topics

I. Why Portable Internet (WiBro)?

II. Portable Internet (WiBro) Service

1. Service Positioning
2. Service Concept
3. Service Features
4. Customer Needs
5. Demand Forecast

III. Service Schedule

IV. TTA PG302 Activities

V. Decision of PG302

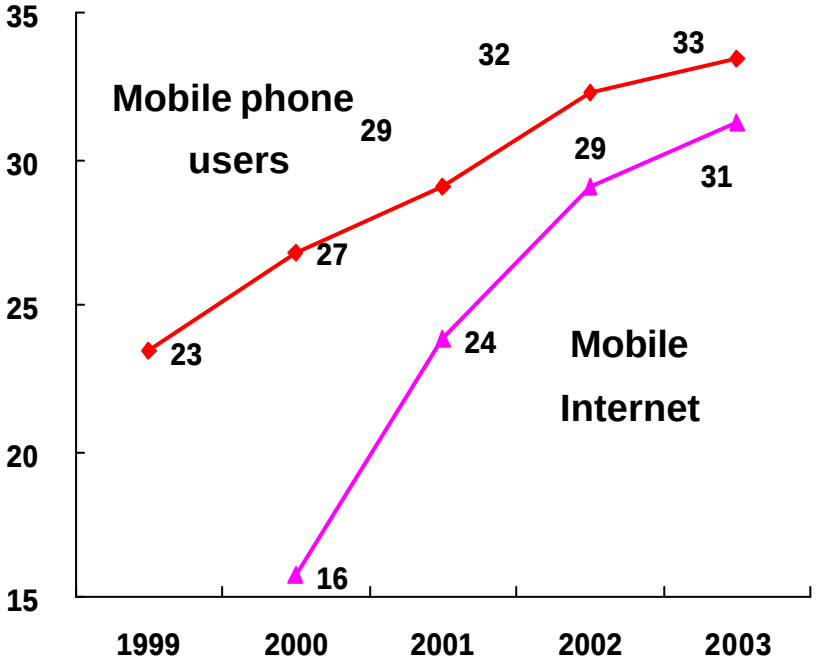
VI. Future Plan of PG302

VII. Summary

? . Why WiBro? : Subscribers in Korea

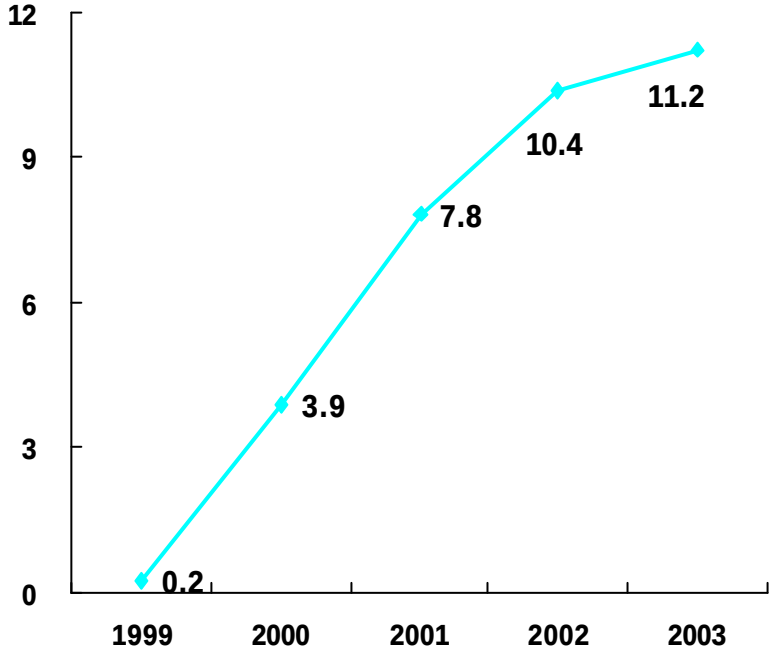
Mobile phone/internet users

Unit : Million Users



High speed internet users

Unit :Million Users



Source : Ministry of Information & Communication (Nov, 2003)

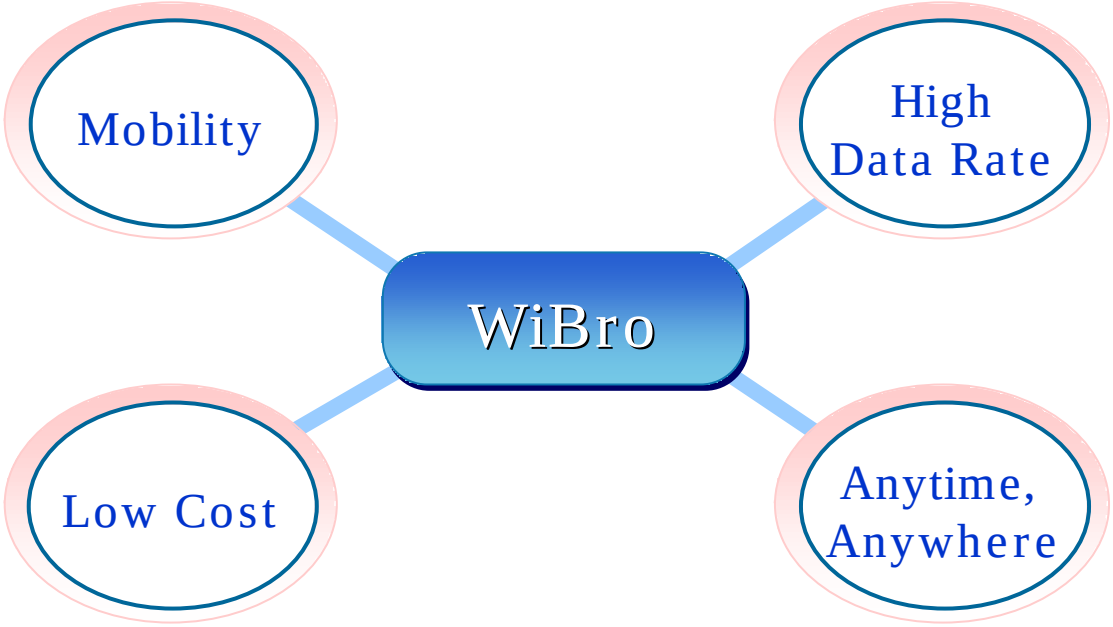
? . Why WiBro? : Definition

Definition

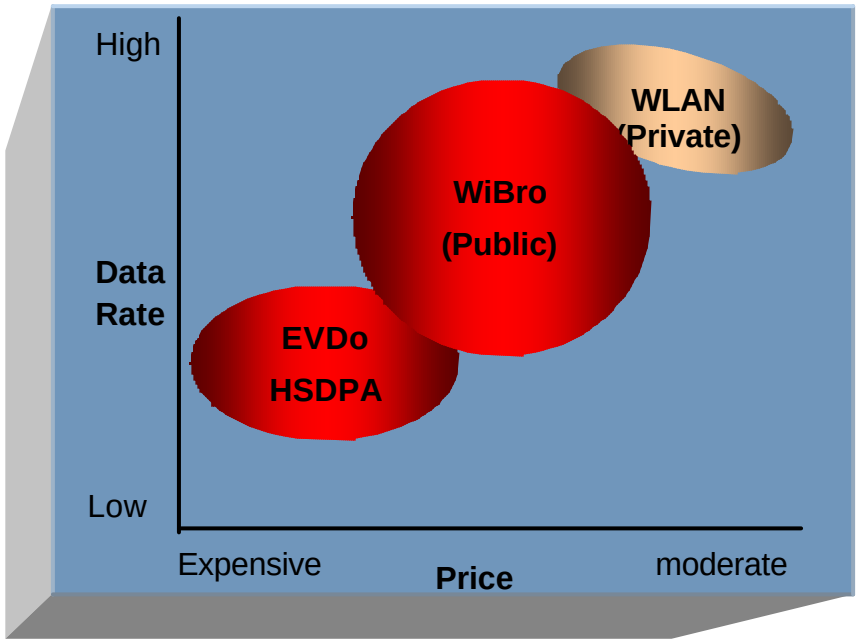
- Portable Internet Service(WiBro) is to providea high data rate wireless internet access with PSS(Personal Subscriber Station) under the stationary or mobile environment, anytime and anywhere.

Reference

- ? Portable Internet? was named as ? WiBro? . (End of April, 2004)
- WiBro : Wireless Broadband



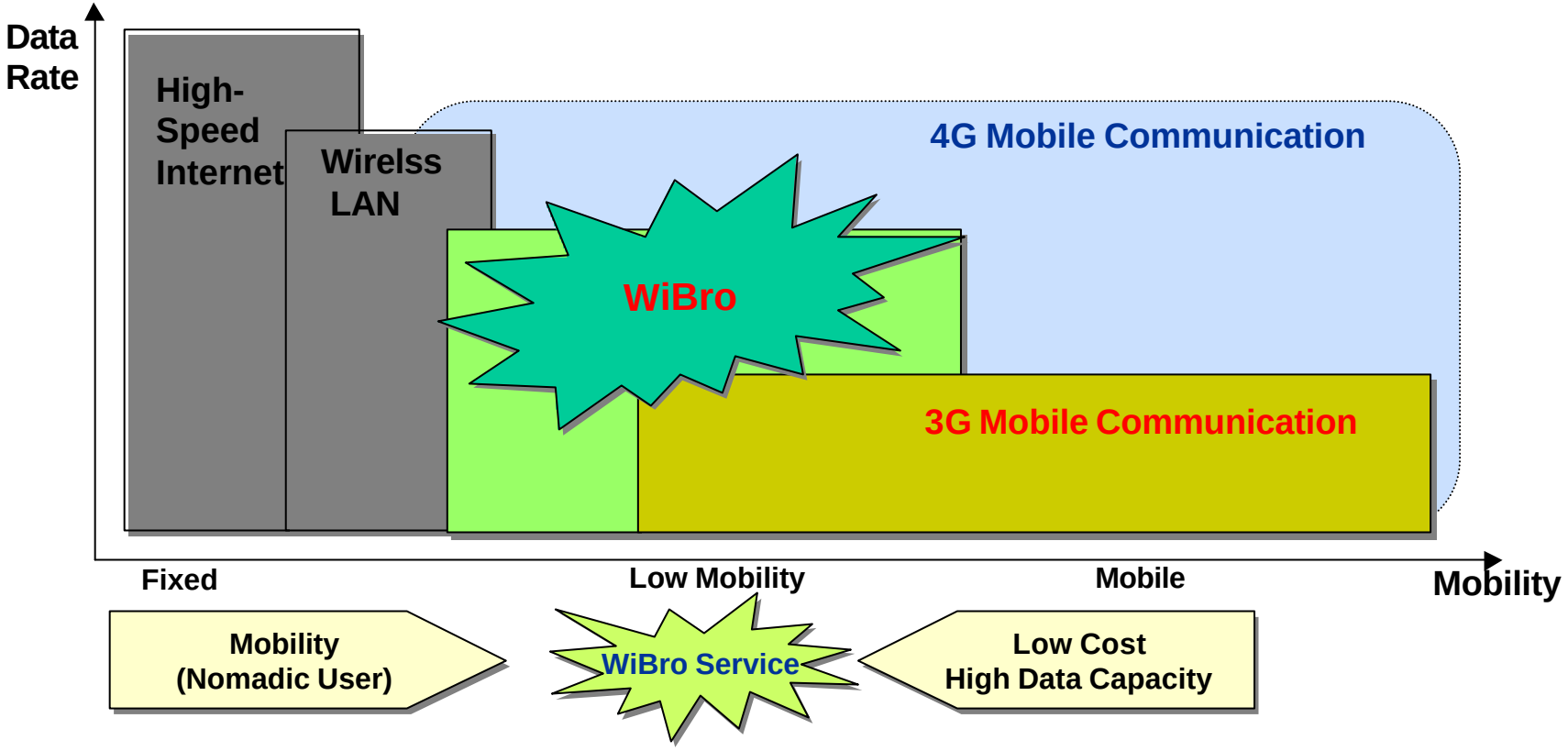
? . Why WiBro? : Korea market wants WiBro



	Wired Line	Wireless
Data	• Cable Modem, ADSL, VDSL • Telephone Line Modem, PDSN, Router / ATM	
Voice	• PSTN, ISDN • Key Phone, PABX	• CDMA, WCDMA • TRS

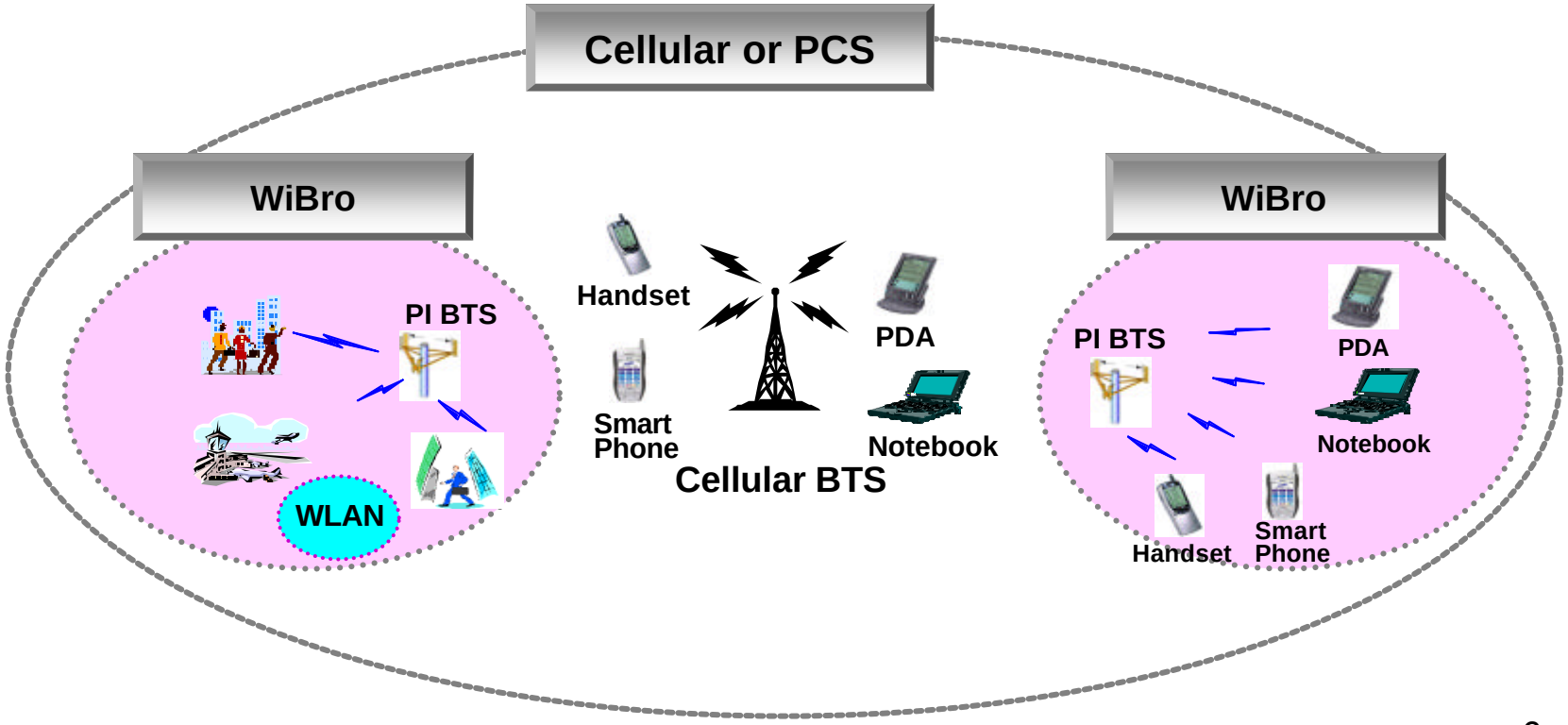
? . WiBro : Service Positioning

- User Data Rate : > 1Mbps/user
- Low-mobility Service : < 60 Km/h
- Low-Charge : Lump Sum Based Price



? . WiBro : Service Concept

- WiBro : Urban, High Data Rate
- Cellular : Nationwide, Low·Mid Data rate
- WLAN : Hotspot, High Data Rate

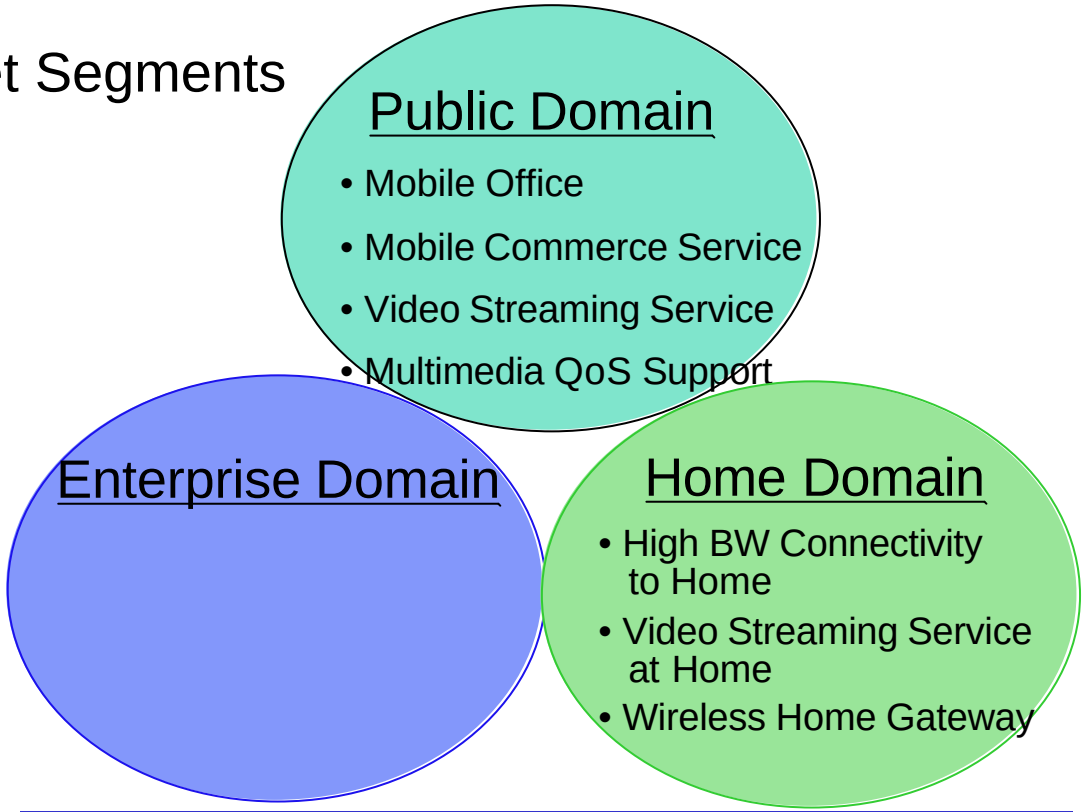


? . WiBro : Service Concept (cont'd)

- **WLAN: High-speed Wireless Internet Service (IEEE 802.11 series)**
  - **Wireless IP service in a local or private area**
  - **Very high data rate up to 54Mbps**
  - **But, limited coverage and poor QoS**
- **Cellular: Medium or Low Speed Wireless Internet Services (cdma2000, WCDMA)**
  - **Public mobile service on Cellular-based platform**
  - **Higher Infra cost**
    - **Designed to provide voice and data simultaneously in nationwide area.**
  - **Lower data rate**
    - **144/384 Kbps (cdma2000 1x, WCDMA), 2.4/15Mbps (Ev-DO, HSDPA)**
  - **But, too expensive and limited data rate**

? . WiBro : Service Concept (cont'd)

- **Service Vision**
  - **Seamless and Ubiquitous Wireless Broadband Access**
- Market Segments



Key Design Principle of Air Interface :

A flexible framework applicable to various Market Segments

? . WiBro : Service Features

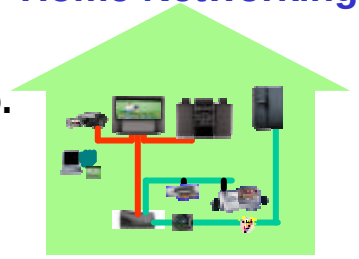
Entertainment

- Large volume VoD, MoD, AoD
- Real-time Streaming Broadcasting
- 3D Network Game
- Multimedia Messaging

Information

- Web Browsing
- File Downloading
- Interactive News & Info.
- Distance Edu./Med.
- Home Networking

Home Networking

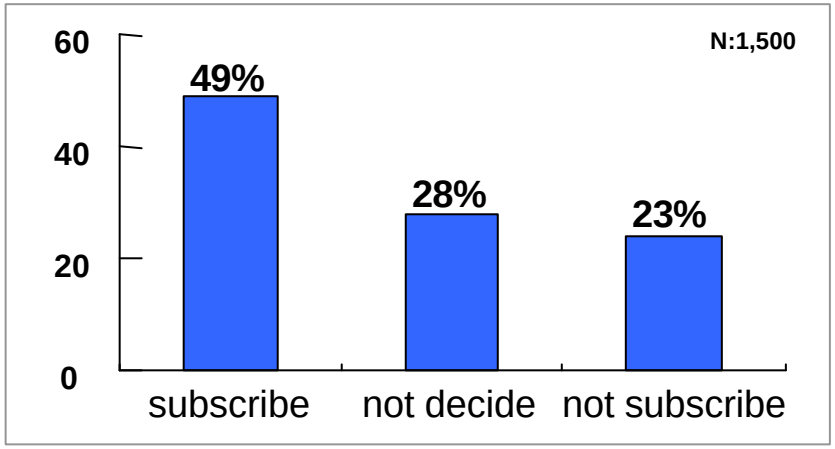


Commerce & Finance

- m-Commerce
- Mobile Banking, Trading
- Interactive Advertisement
- Finance, Field Agent Service
- Biz Solution , Settlement

? . WiBro : Customer Needs

Service Acceptability



Customer Needs

Mobile Internet User

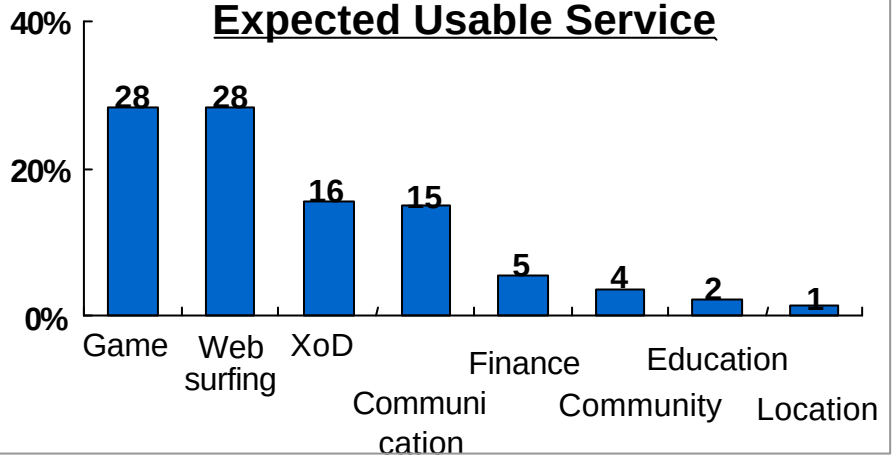
- Price decrease: 85.5%
- Access, D/L Quality : 46.2%
- Content usability : 40.0%

WLAN User

- Coverage Expansion : 63.1%
- Service Stability : 35.4%
- Price : 24.6%

Terminal

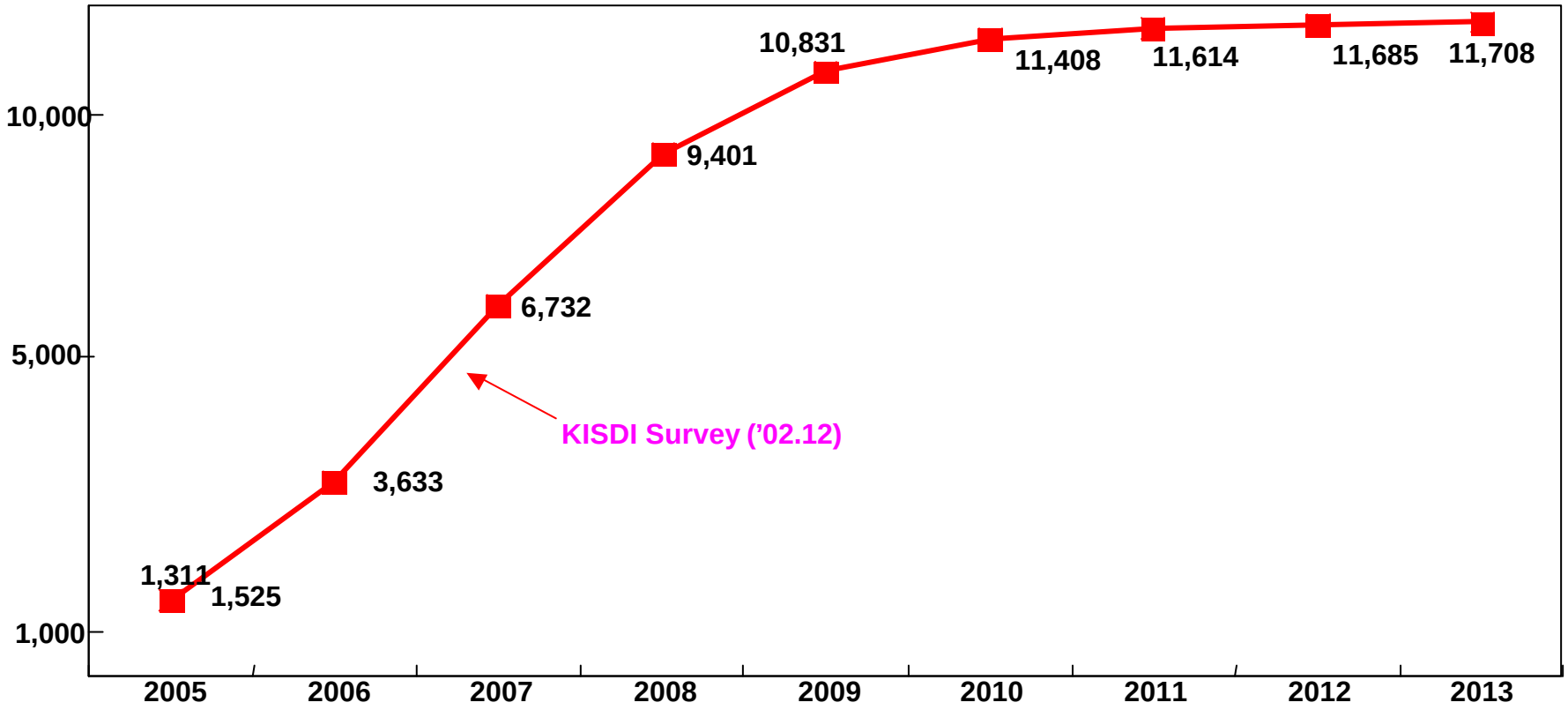
Expected Usable Service



Source : SK Telecom Internal Survey (2003. 10)

? . WiBro : Demand Forecast (South Korea)

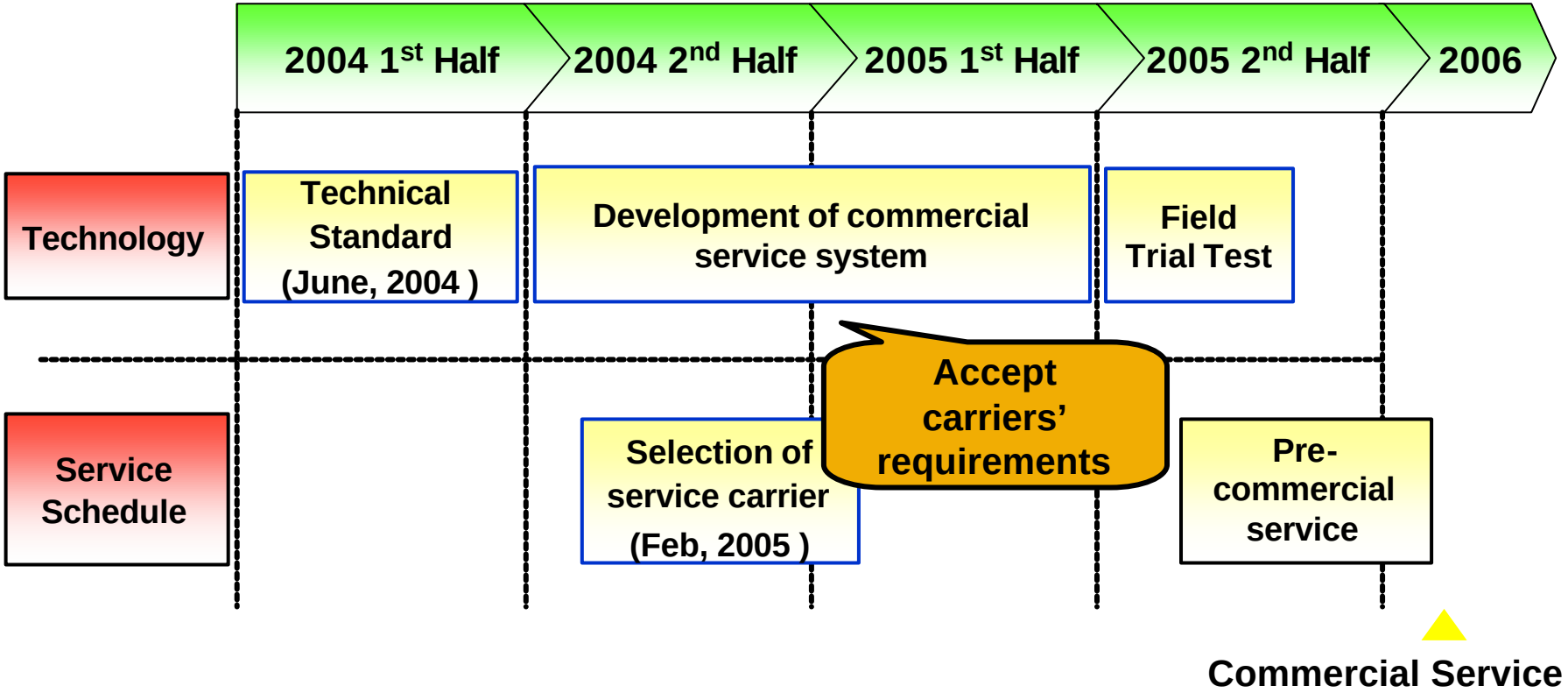
The survey on PIS indicates there will be rapid increase in subscriber total to 10.5mililon in Korea Market by year 2010



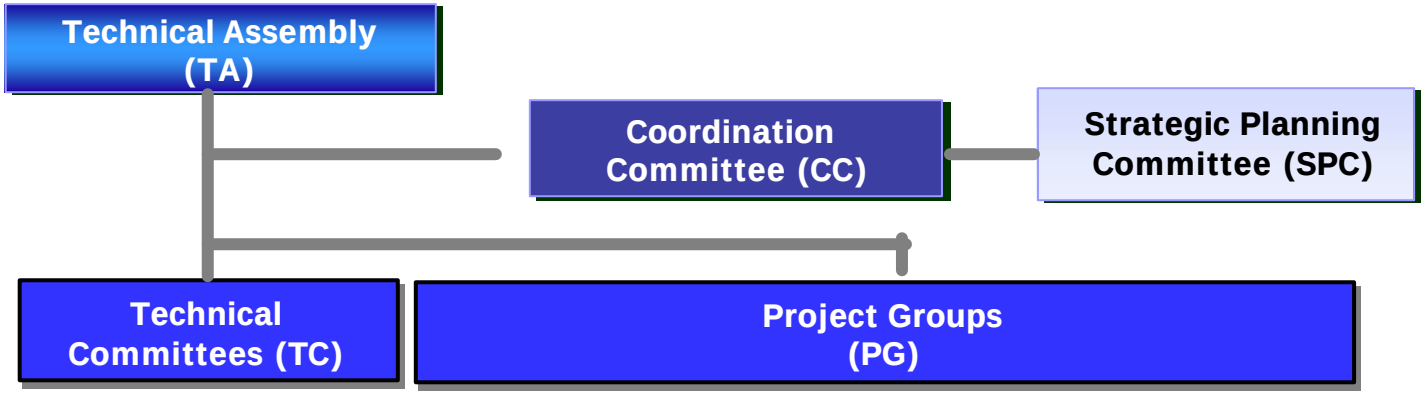
Source : KISDI(Korea information strategy development institute, '02.12)

? . Service Schedule (expectation)

- The finalization of technical standard: 1st half of year 2004
- The selection of service carrier: Feb. of year 2005
- The commercial service launch: 1Q of year 2005



IV. Telecommunications Standard Committee, TTA



Common Infrastructure (TC1)	Information Security, Internet Security, Biometrics, Welfare Communication, IC Card, SoC, Disaster Recovery, Embedded S/W
Transmission (TC2)	Optical Transmission, Optical Internet, Signaling, Routing Protocol, Quality of Service, VoIP, ENUM, NGN, Active Internet, Charging & Interconnection, Network Management, IPv6, LAN, DSL, Digital Home
Radio Communication (TC3)	Digital TV, DMB, Digital Cable, WPAN, Wireless LAN, Propagation Measurement, NGMC, LBS, Telematics, **Portable Internet**
IT Application (TC4)	WEB, Multimedia Application, Workflow, E-commerce, Public information, MetaData, S/W Process, S/W Components. NGIS, ITS, Grid

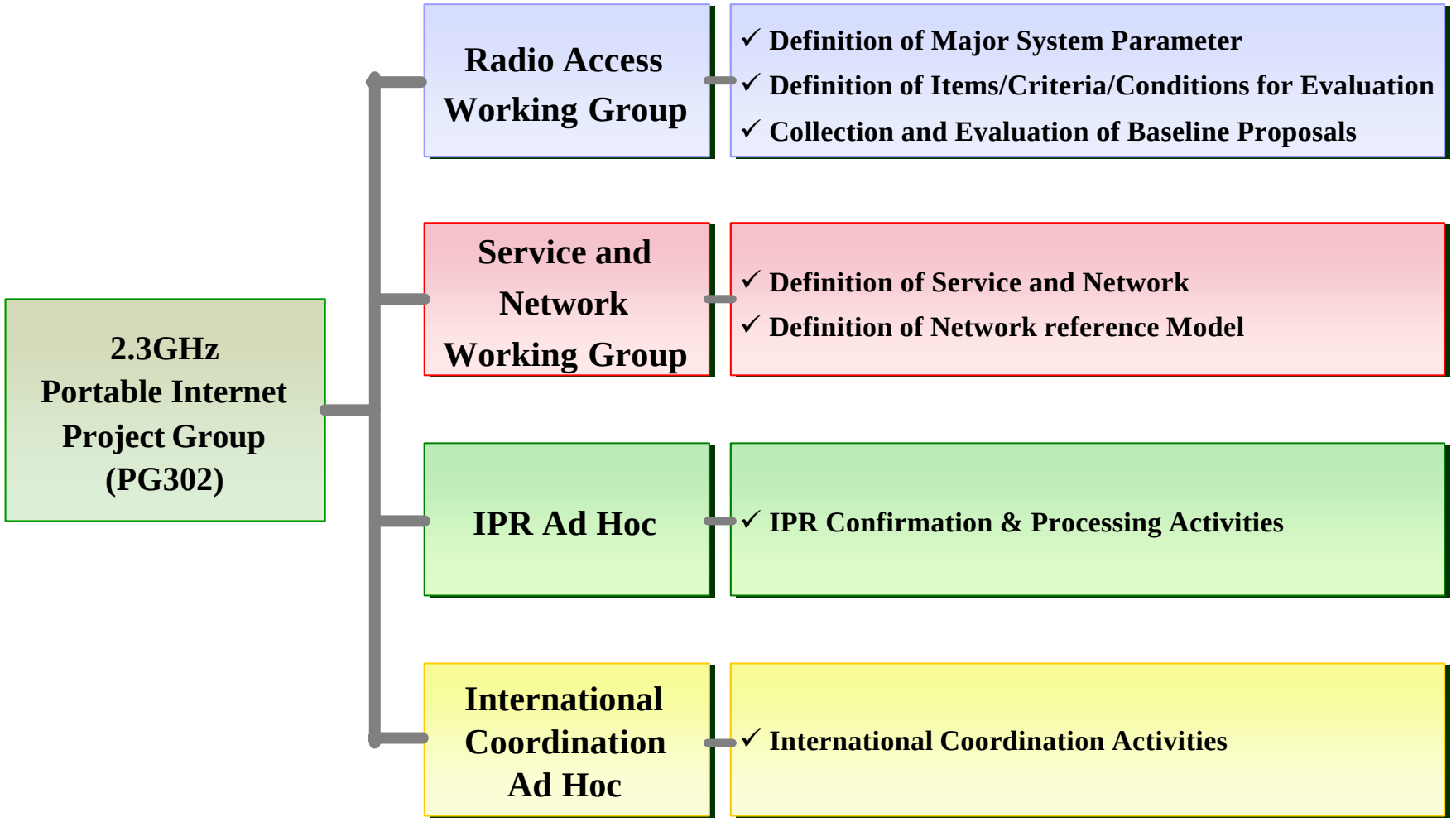
IV. Establishment of Project Group (PG302)

Establishment of PG302 for WiBro standardization

- Technical Assembly(TA) of TTA standardization committee approved the establishment of 2.3GHz Portable Internet Project Group(PG302, renamed from PG05) in June, 2003
- The first meeting was held on 30 July, 2003 and The Chairman was elected.
- The second meeting was held on 5 September, 2003 and approved the followings
  - The establishment of 2 Working Groups and 2 Ad Hoc
  - The Goal of PG302 Activities & Timeline is as follows.

Time	Goal (Phase 1 Standardization)
3Q 2003	**Definition of Target Requirements** - Minimum Service Requirements - Minimum System Requirements
4Q 2003	**Preparation of the Draft Standard** - Definition of major system parameters - Definition of items/criteria/conditions for Evaluation - Collection and Evaluation of Baseline Proposals - Selection of Baseline Proposal(s) **IPR Confirmation and Processing Activities** **International Cooperation Activities**
1Q 2004	**Completion of Draft Standard**
2Q 2004	**Approval and Notification of Standard**

IV. Committee Structure and ToR of PG302



* ToR : Terms of Reference

V. Decision of PG302

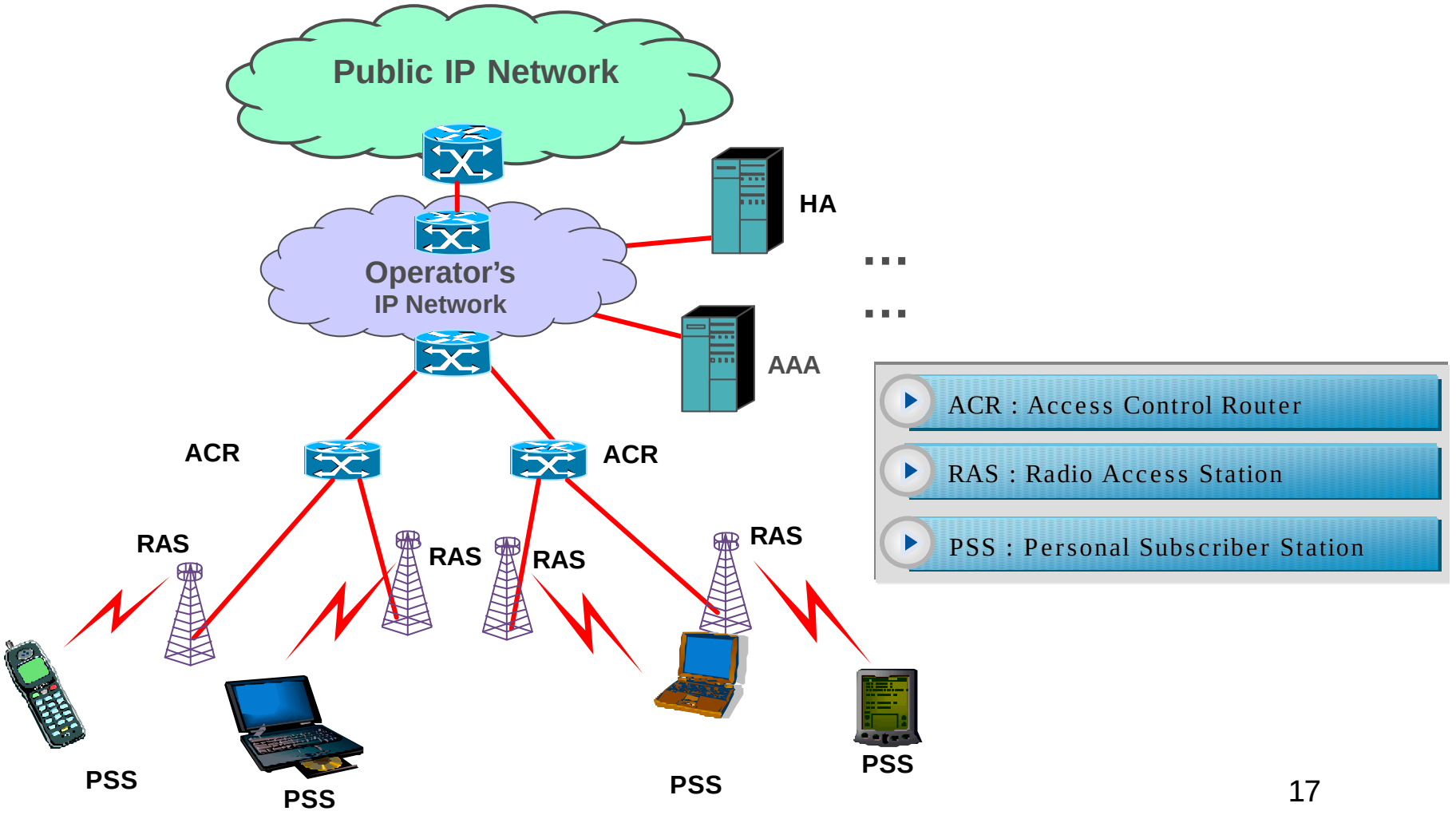
Major Decision (Phase I Standardization)

- The PG302 Meeting of Jan 31, 2004 approved the Major System Parameters & Radio Access Requirements as follows

Major System Parameters		Radio Access Requirement	
Duplexing	TDD	Frequency Reuse Factor	1
Multiple Access	OFDMA	Mobility	= 60 [Km/h]
Channel BW	10 [MHz]	Service Coverage	= 1 [Km]
		Spectral Efficiency [bps/Hz/cell(sector)]	Max. DL / UL = 6 / 2 Aver. DL / UL = 2 / 1
		Handoff	= 150 [ms]
		Throughput (per user)	Max. DL / UL = 3 / 1 [Mbps] Min. DL / UL = 512 / 128 [Kbps]

V. Decision of PG302 (cont'd)

Network Architecture of WiBro (Phase I Standardization)



V. Decision of PG302 (cont'd)

Progress

- **PG302**
  - selected two baselines for WiBro (March, 2004)
  - and then, approved one baseline as Draft between two baseline (April, 2004)
- **The Draft for WiBro in circulation to members of TTA.**
  - May 3 ~ May 30, 2004 (during 4 weeks)
- **PG302 selected the Draft as a Draft Standard for WiBro**
  - June 7, 2004
- **And, Radio & Broadcasting Technical Committee(TC3) of TTA selected the Draft Standard.**
  - June 9, 2004
- **Finally, The Draft Standard was approved as a Standard (phase I) for WiBro in Technical Assembly(TA) of TTA.**
  - June 25, 2004

VI. Future Plan of PG302 (Phase II)

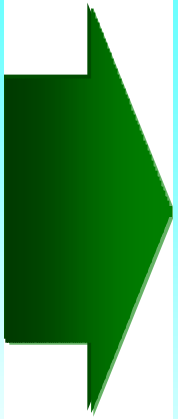
Phase II Standardization for advanced WiBro started from 3Q 2004.

Time	Goal (Phase II Standardization)
3Q 2004	• Definition of Service and System Requirements • Determination of scope of technologies for improvements of system capacity • Harmonization and collaboration with IEEE 802.16 • Preparation of detailed guideline for IPR Processing
4Q 2004	• Design of Evaluation Criteria of technologies for improvement of System Capacity • Proposal and Evaluation of technologies for improvement of System Capacity • Preparation of Evaluation Methodology for functional improvement for System • Harmonization and Collaboration with IEEE 802.16 • IPR activities (Patent issue of factor technology, Patent Forum etc.)
1Q 2005	• Proposal and Evaluation of technologies for improvement of System Capacity • Proposal and Evaluation of technologies for improvement of System Function • Preparation of the Draft Standard • Harmonization and Collaboration with IEEE 802.16 • IPR activities (Patent issue of factor technology, Patent Forum etc.)
2Q 2005	• Completion of Draft Standard • Harmonization and Collaboration with IEEE 802.16 • IPR activities (Patent issue of factor technology, Patent Forum etc.)

VII. Summary

Korean Market Needs

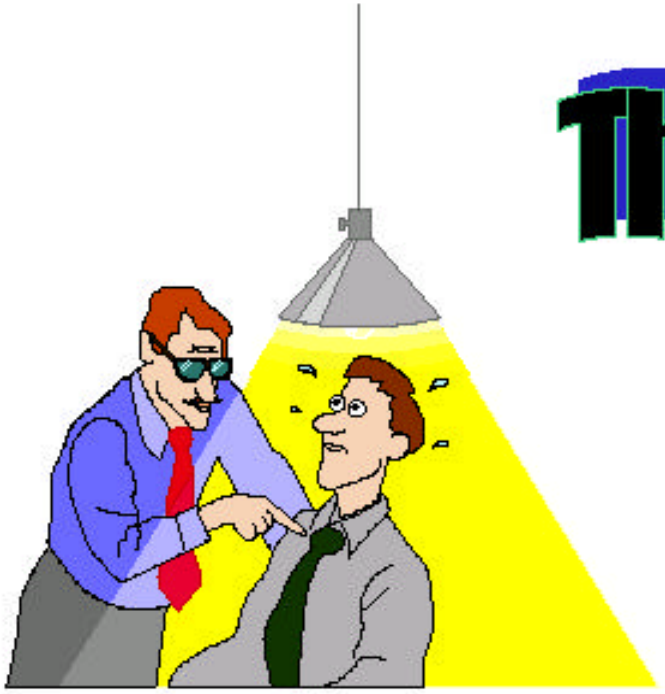
- Current Wireless Service Market
  - ✓ Mobile phone: Expensive charge, low data rate
  - ✓ High speed internet : Fixed service
  - ✓ WLAN : Limited coverage
- High expectation lies on WiBro service to provide lower price and better data rate



Considerations for WiBro

- Low Cost, High Performance
- Mobility for Data
- Full Coverage over a Whole Service Area
- Global Standardization
- ◆ TTA WiBro Phase I Standard Set by June, 2004
- ◆ TTA WiBro Phase II Standard in Process

Questions
Comments
Information



Thank you!