

# ITU-T Workshop on Bridging the Standardization Gap and Interactive Training Session

## Mobile WiMAX Service experience

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Nadi, Fiji, 4-6 July 2011



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- II. **kt Global WiBro Biz**
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# I. **kt WiBro Services In Korea**

# Introduction of kt Group

## I. kt WiBro Services in Korea

kt, Korea's top integrated wired/wireless service provider, has been the leader in the development of the information & communications business in Korea.



**CEO** Suk-Chae Lee

**Established** December 10, 1981

**Revenue** USD 17.8 Billion

**Operating profit** USD 1.8 Billion

**Stock listing** Korean, New York, London

**Credit rating** A3(Moody's), A-(S&P), A(Fitch Ratings)



**32,000**

No. of Employees



**17.6mil.**

Telephone  
Subscribers



**7.4mil.**

Broadband  
Subscribers



**16.0mil.**

Mobile  
Subscribers



As of Dec. 2010

**2.1mil.**

IPTV  
Subscribers

Source: Korea Communications Commission / kt IR Dept.

# What is WiBro?

WiBro is service brand name of Mobile WiMAX, which is fully compliant with IEEE 802.16e TDD OFDMA Standards

WiBro can provide full mobility within urban area through open IP based network with various types of terminals

## Mobility

- Vehicle Speed (120km/h)
- Outstanding Performance while on the Move

## IP

- Internet Service
- Various Terminals (PC/PMP/PDA/Phones etc)

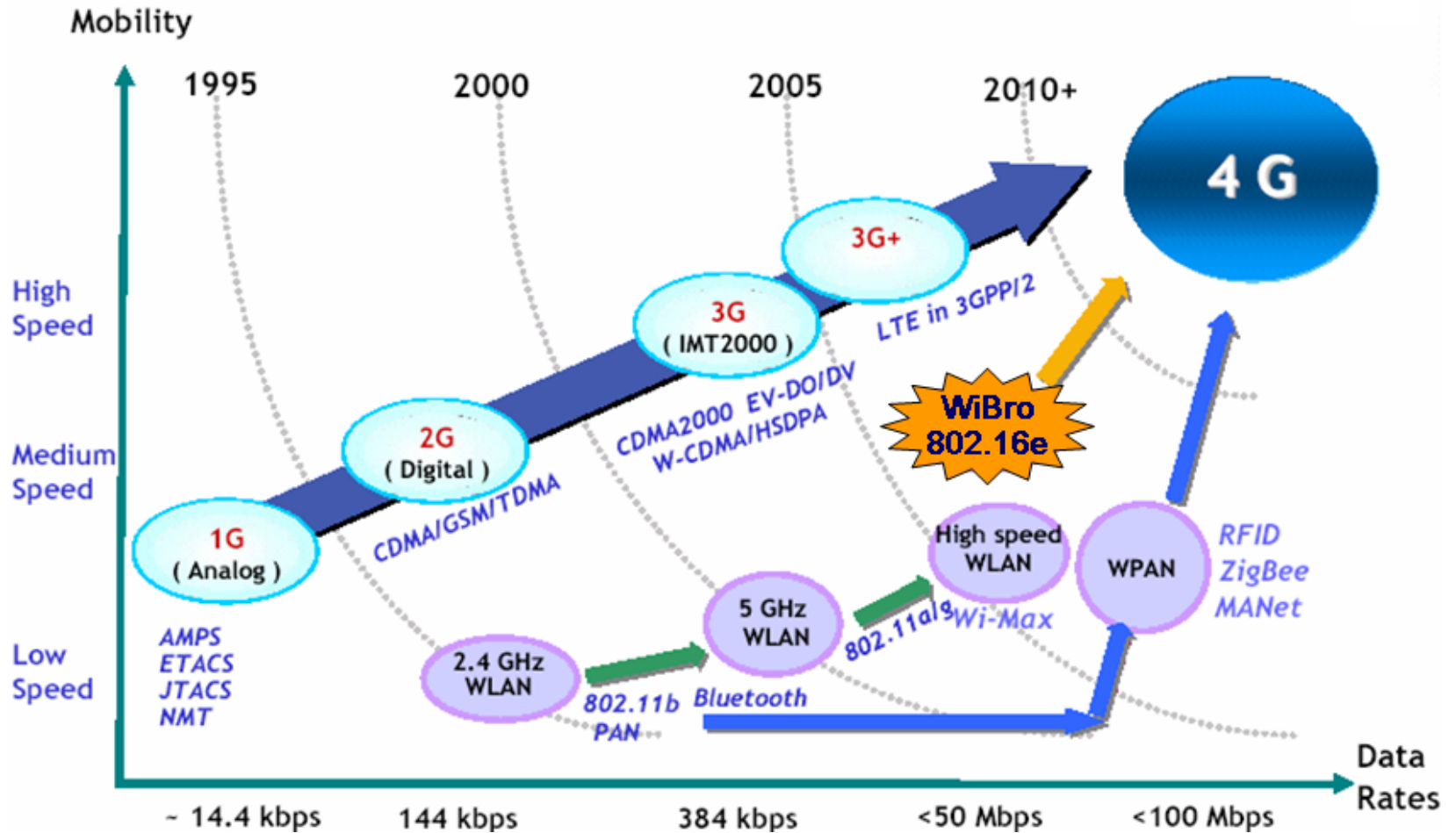
## Broadband

- 3Mbps per User
- High Uploading Capability



# WiBro Positioning

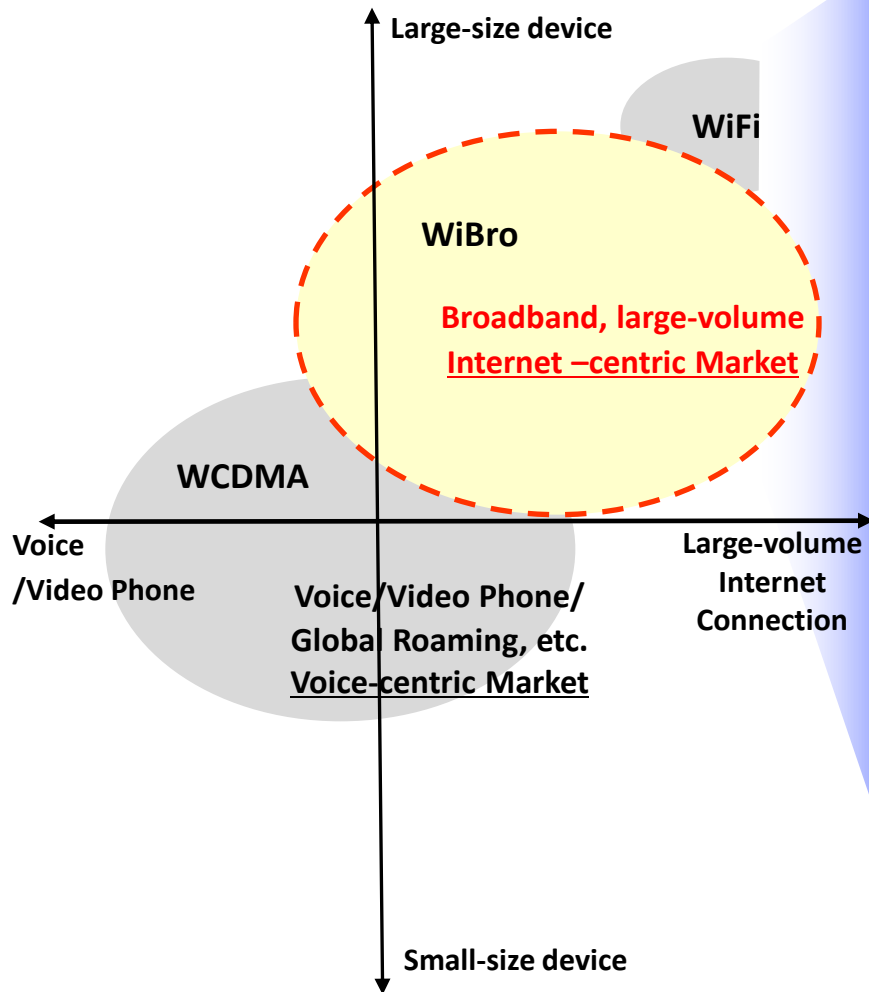
I. kt WiBro Services in Korea



# WiBro Target Market

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## Customer



Mass



**Web access**

Students, Businessman,  
Heavy data user



**Smartphone/Smartpad**

Students, Businessman,  
Trendy mobile internet user

Vertical



**Enterprise solution**

B2B salesman

Global

**Roaming, Rental**

Business traveler

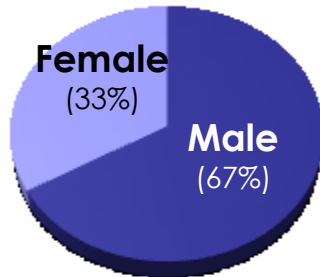
# WiBro Customer Status

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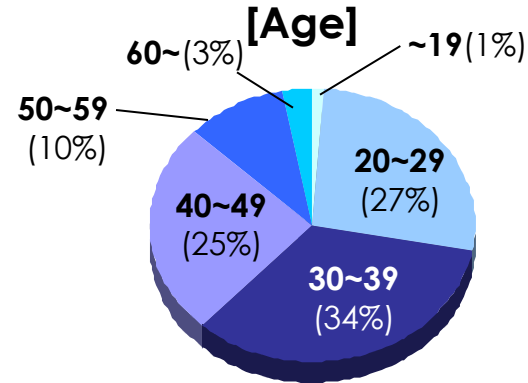
Number of Subscribers: about 0.3 million

Subscribers distribution

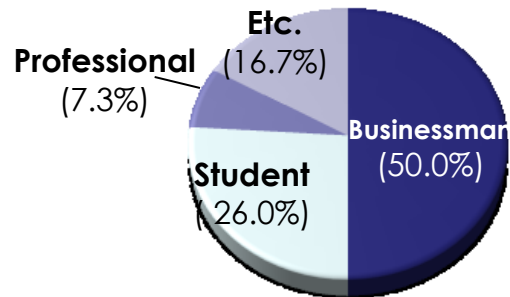
[Gender]



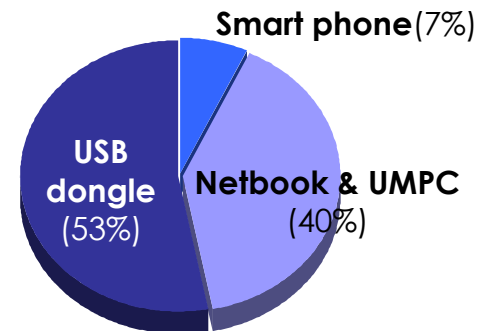
[Age]



[Occupation]



[User device]





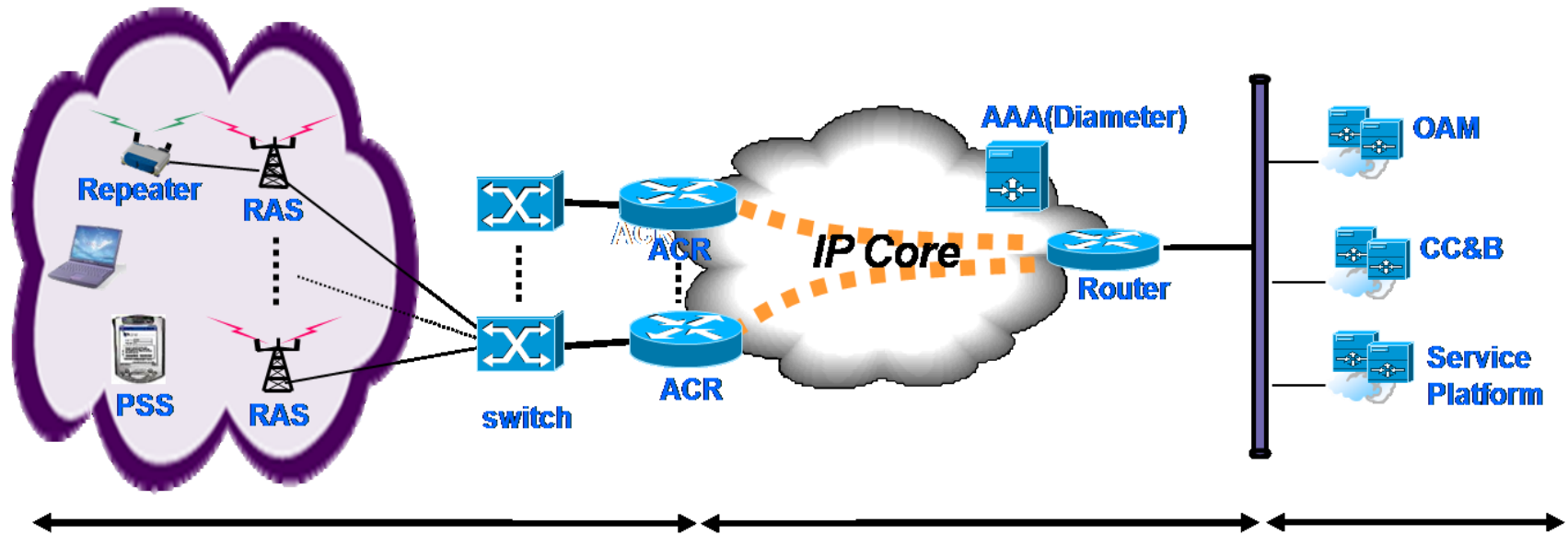
# WiBro Mobile Devices

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# WiBro Infrastructure

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## Access Network

## Internet Back Bone

## Server Farm

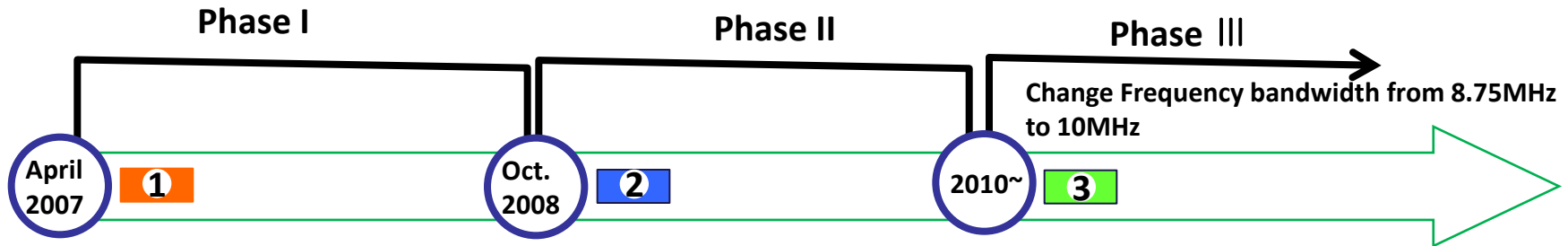
PSS	Portable Subscriber Station - WiBro Terminal - Mobile Station (MS) for mWiMAX
RAS	Radio Access Station - Base Station (BS) for mWiMAX
Repeater	Covering shadow area
Switch	Concentrating RASs to an ACR

ACR	Access Control Router - ASN-GW for mWiMAX - IP connectivity and Handover - Security and QoS, etc.
AAA	Authentication, Authorization and Accounting Server

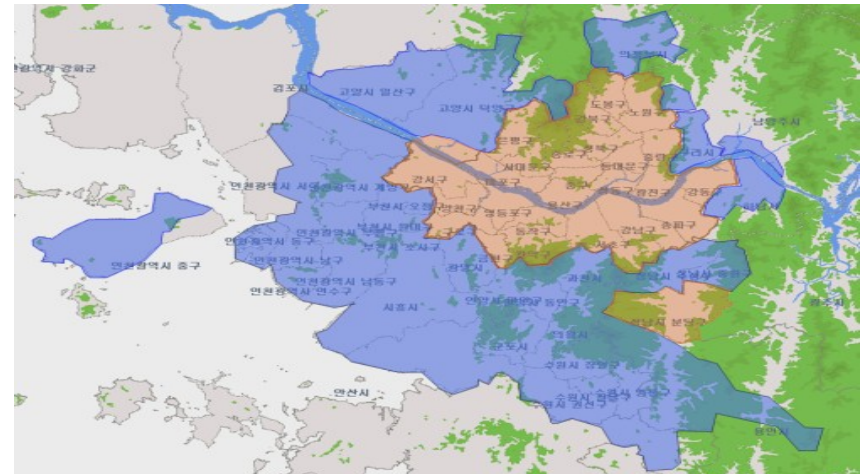
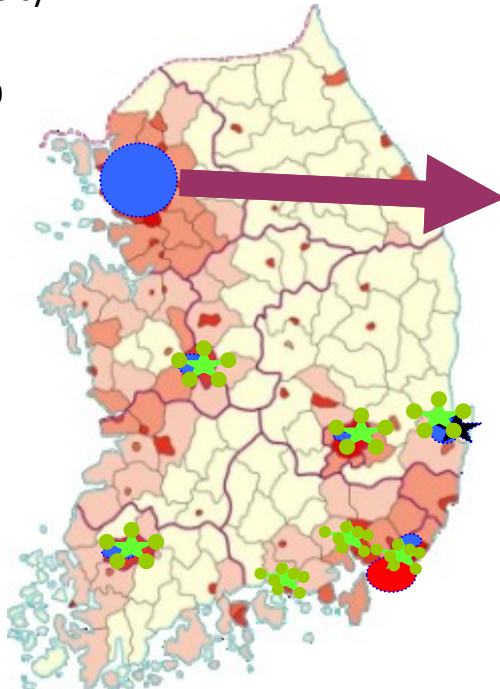
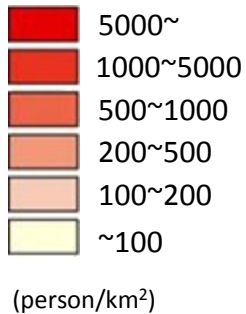
OAM	Operation and Management - NMS
CC&B	Customer Care & Billing Server - OSS/BSS
Service Platform	Application Server - Messaging - Presence, etc.

# WiBro Network Strategy

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Phase III  
Population density



- 1** Deployed the network in Seoul
- 2** Expand coverage to suburb from Seoul
- 3** Constructing metro zones

WiBro covers **75%** of total population in Korea

# WiBro Current Coverage

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Service continuity across networks to get synergy  
Being connected any time, any where

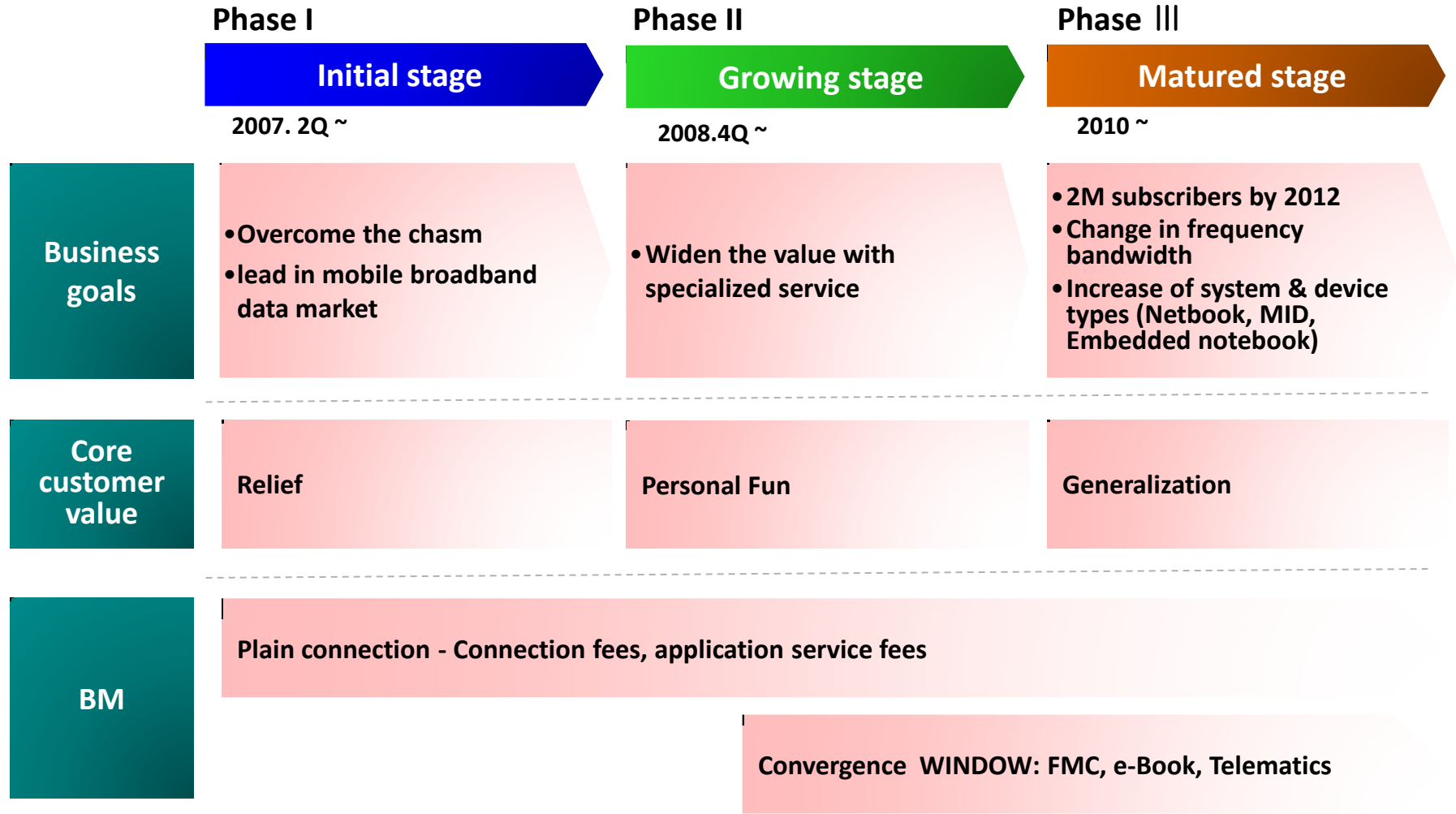
Indoor/Hot Spots

Anywhere



# WiBro Business Phase

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**Mobile WiMAX meets the trend of mobile broadband usage**

**Demand for the personal broadband increases**

**Mobile WiMAX has great chances in vertical/M2M markets**

**Not just the personal broadband but beyond**

**kt would like to share our valuable experiences**

**Helping Mobile WiMAX to grow globally**

# Service Example – WiBro Telematics

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Provide vehicle safety/management information, internet connection, real-time navigation, M-IPTV service to driver and passenger

## Basic Service

### Vehicle Safety Service

- Theft alarm, theft trace, SOS, report the usage of airbag

### Vehicle Management Service

- Remote diagnostics, management of supplements, remote door control, parking positioning

### Internet Connection

- Provide WiFi connectivity (500MB/month) for WiFi enabled user devices (I-Pod Touch, Laptops, etc.)

## Additional Options

### Car Navigation (AVN)

- Real-time navigation, Partial map, Caution update, real-time gas price, mash up service

### m-IPTV

- m-IPTV(VOD), DMB, etc.

### Car Portal Service

- Latest news (voice & text), audio book, music portal service, etc.



# Service Example - WiBro Navigator

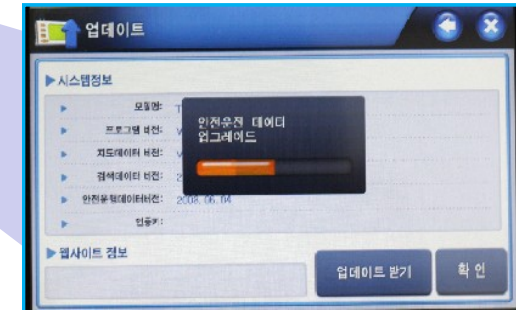
## I. kt WiBro Services in Korea



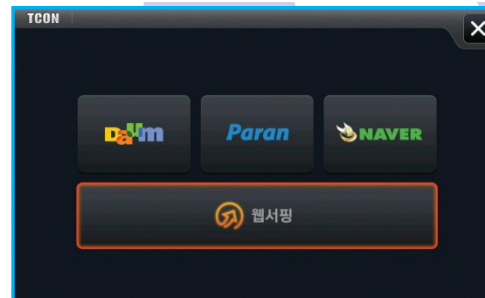
Real-time Functions



Traffic Information



S/W Undate (Upgrade)



Web Browsing



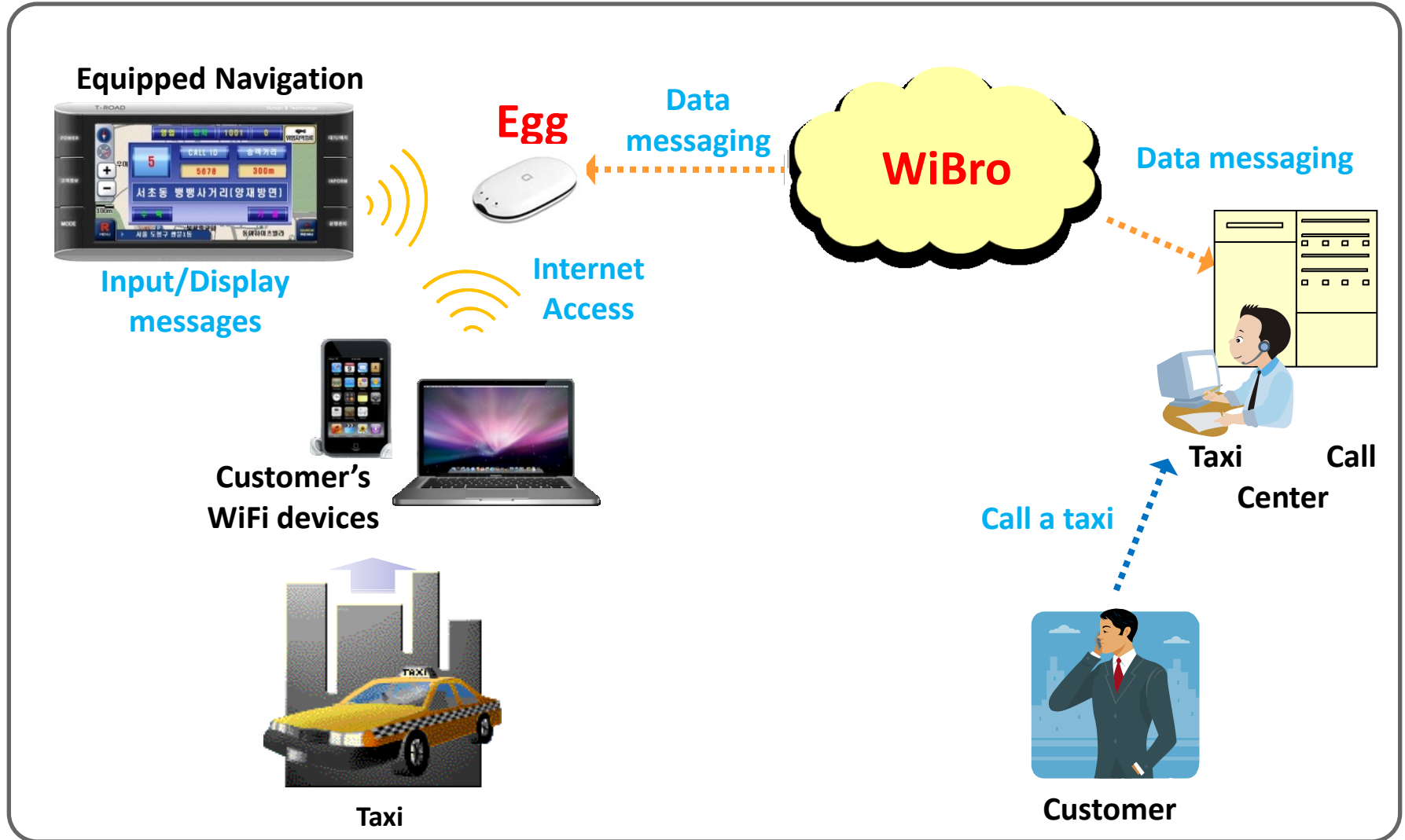
Gas Prices near by



# Service Example – WiBro Egg Taxi

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## Wireless communications through Egg in taxi



## **II. kt WiBro Global Biz**

Mobile WiMAX(802.16e) service is increasing.



Mobile WiMAX Deployments Map(April,2011)  
<http://www.wimaxmaps.org>

### Consulting Experience

- Vast experience in Mobile WiMAX fields
- Broadband Internet Business Consulting
  - Rwanda, Stanford University (USA)
  - Tunisia, Sudan, Japan, Malaysia, Saudi Arabia, etc.
- WiMAX Forum Board Member and Working Group activity
- Deployment
  - Super-iMAX in Uzbekistan in 2008
  - NTC in Vladivostok, Russia in 2008

### First Mobile WiMAX Operator

- **World's First Mobile WiMAX operator**
- Know-How
  - Planning
  - Deployment
  - Operation
- Commercial Service Experience

### Customized Solutions

- kt's WiMAX Solutions
  - Mobile WiMAX Systems (Femto BS, Pico BS, Micro BS, Macro BS, Various MS..)
  - Cell Planning Tool(CellTREK)
  - AAA,BSS(Billing Support System)
  - Applications Service Platform (Mobile IPTV, Mobile VoIP, Mobile CCTV, W-Navigation..)

# Global adoption

Network deployment in developed & developing countries  
Market expansion through global roaming



**WOA** : The global alliance for Mobile WiMAX operators

# Global Alliance Partners

## II. Global WiBro Biz

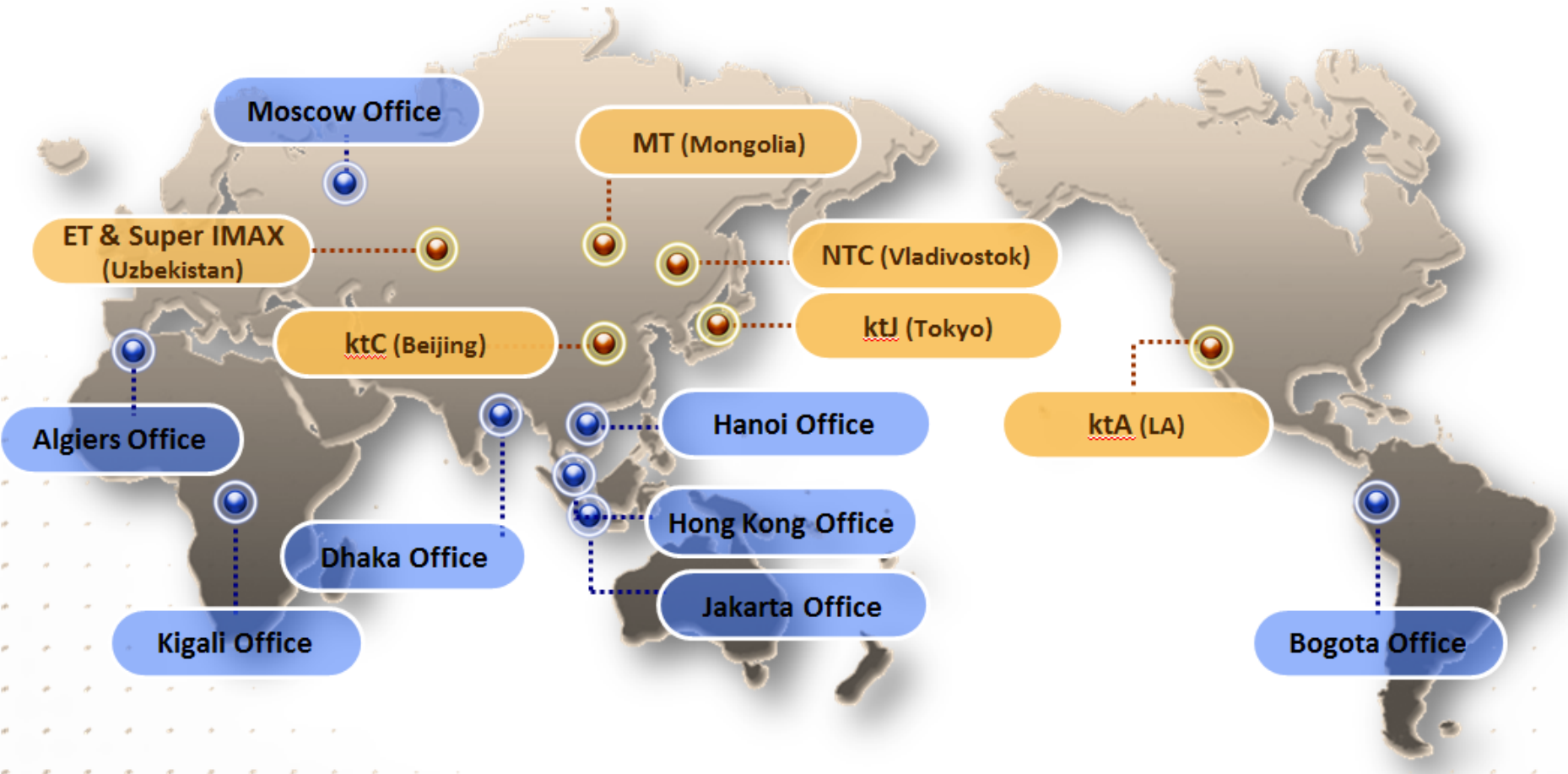
kt has broadened the area of alliance with the global leading companies.



Source: kt Corporate Center

# Global Business – Overseas Presence

kt operates 15 overseas branches and subsidiaries.



- Overseas Office (Jakarta, Hanoi, Dhaka, Moscow, Algiers, Kigali, Hong Kong, Bogota)
- Local Corporation/Capital Investment (China, Mongolia, Japan, USA, Uzbekistan, Russia)

# III. kt WiBro R&D



## G20 mobile IPTV Service

### Main



### G20 members' Real-time channel



### Video on Demand



### G20 information & Tourism



### Galaxy Tab

Android2.2  
CPU 1GHz, 7"

### Galaxy K

Android2.2  
CPU 1GHz, 3.7"

KT demonstrated G20 Mobile IPTV service to G20 representatives at the G20 summit held in Seoul, November 2011

## Olleh mobile TV Service

### Main

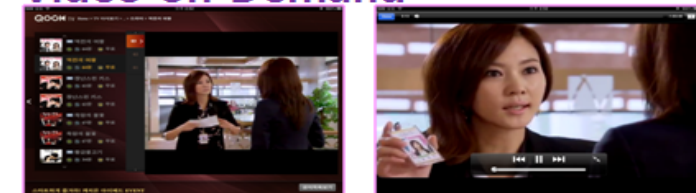


### ipad

### Real-time channel



### Video on Demand



Olleh mobile TV is a wireless IPTV service offering same contents as Olleh TV(wired) via ipad or Galaxy Tab

## For Home Space

### ■ WiBro Femto Base Station

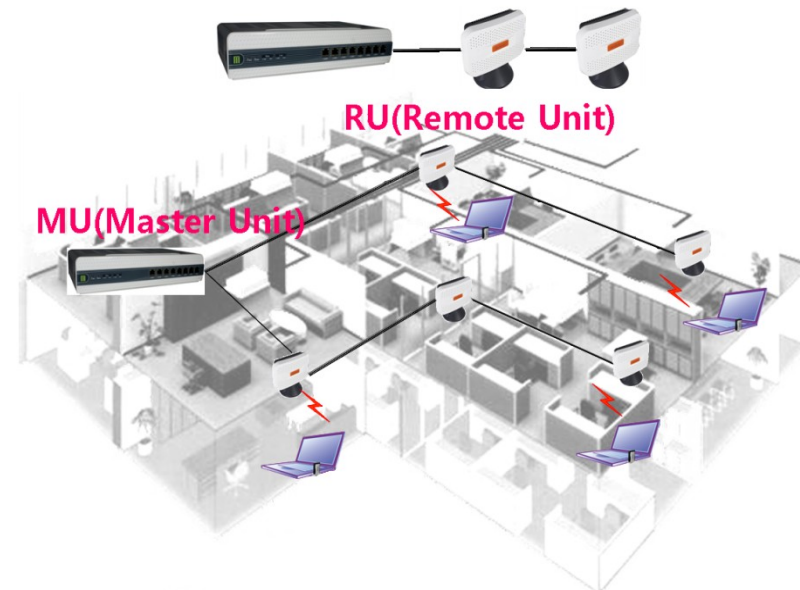
- Wave-II, MBS
- Operation Frequency : 2.3GHz(8.75MHz)/2.5GHz(10MHz)
- NWG ASN Profile : Profile-B or Profile C
- 1FA/Omni(100mW Output Power)
- Sync. : IEEE1588 Slave, Indoor GPS, WCDMA based Sync.
- Active 5 Users / 1 Femto BS



## For SOHO Space

### ■ WiBro UTP Relay Base Station

- Wave-II , MBS
- Operation Frequency : 2.3GHz(8.75MHz)/2.5GHz(10MHz)
- NWG ASN Profile : Profile-B or Profile C
- 1FA/Omni(100mW Output Power)
- Sync : IEEE1588 Slave or GPS
- Remote RF Scheme(max 32RUs/1MU)
- UTP Relay with PoE(Power over Ethernet)
- Active 30 Users / 1 MU



## For Building Space

### WiBro Picocell Base Station

- Wave-II, MBS
- Operation Frequency : 2.3GHz(8.75MHz)/2.5GHz(10MHz)
- NWG ASN Profile : Profile C
- Handover : Inter FA / Intra FA Handover Support
- 1FA/Omni(3W Output Power)
- Active 50 Users / 1 Pico-RAS



## For Outdoor Space

### WiBro Micro Base Station

- Wave-II, MBS
- Operation Frequency : 2.3GHz(8.75MHz)/2.5GHz(10MHz)
- NWG ASN Profile : Profile C
- Handover : Inter FA / Intra FA Handover Support
- 1FA/Omni(10W Output Power)
- Coverage : 2Km (Suburban)
- Active 50 Users / 1 Pico-RAS





❑ Korea-Australia-New Zealand (KANZ) Broadband Summit (2011.4, Australia)



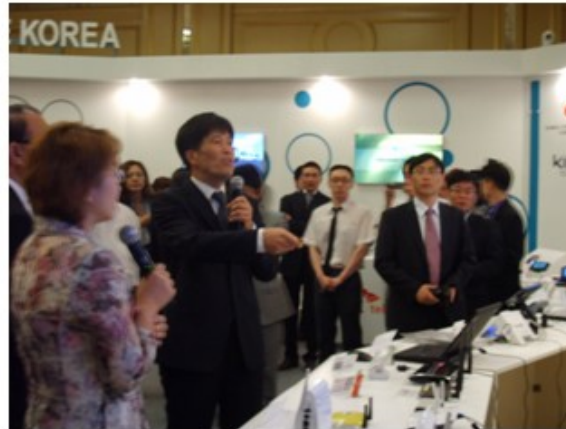
❑ Ecuador-Korea Communications Convergence Forum (2010.9, Ecuador)



❑ Egypt-Korea Communications Convergence Forum (2010.6, Egypt)



❑ India-Korea Communications Convergence Forum (2010.2, India)



❑ Kazakhstan-Korea Communications Convergence Forum (2009.7, Kazakhstan)



❑ Cable TV Show in Japan(2009.6, Tokyo)

# Thank you

“ World Best Network Company ”



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