

Case Studies: FMC services based on dual mode phone

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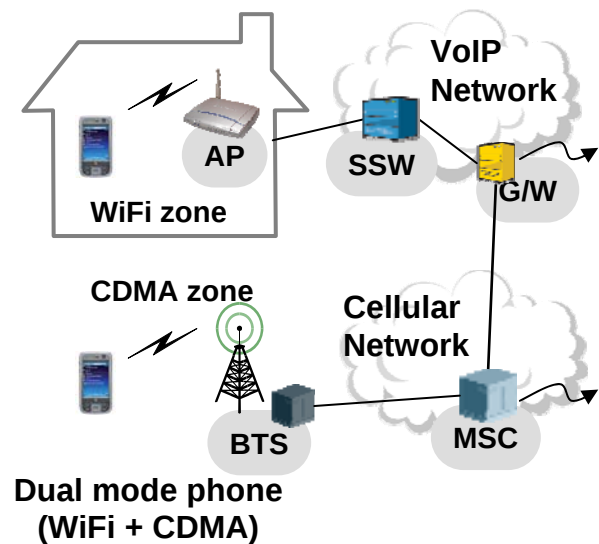
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1. Introduction

FMC Concept & Features

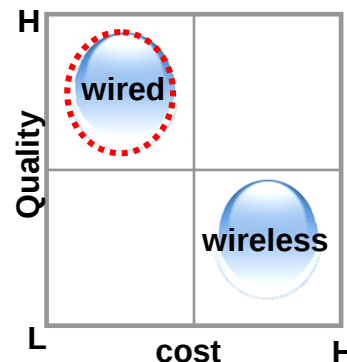
- FMC provides the advantages of wired and wireless services using dual mode phone

FMC Concept

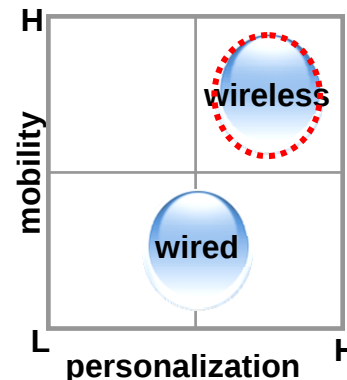


☞ Customers use a handset indoors and outdoors in the same class with mobile phone

Service Features



- Wired services are high quality, low cost
- High voice quality and rapid connection rate
- Various open contents and convenient UI (User Interface)



- Wireless services are superior in mobility and personalization
- High portability/mobility and use anytime
- Wireless provides personalized services

FMC Features

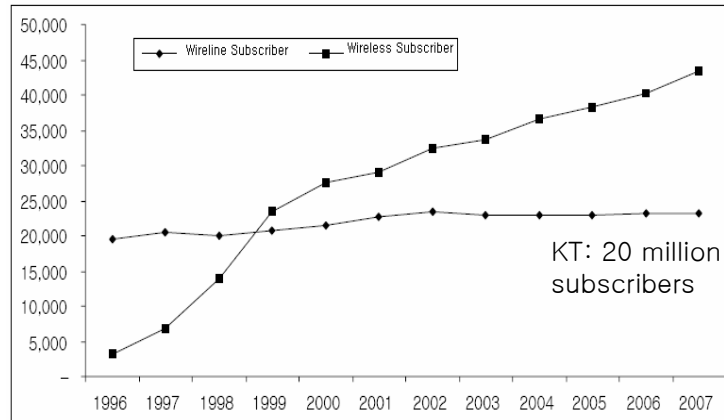
- The advantages of wired and wireless services
- Low cost
- High speed data service
- New business which utilizes the H/G*

*H/G(Home Gateway) is a device ensuring connectivity between the home network(s) and the external world represented by a WAN

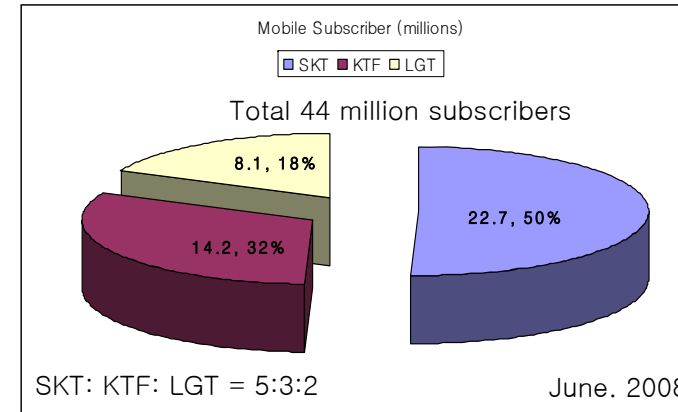
2. Why FMC?

National Telecommunication Market

- Subscriber growth is saturated and voice revenue is tied up

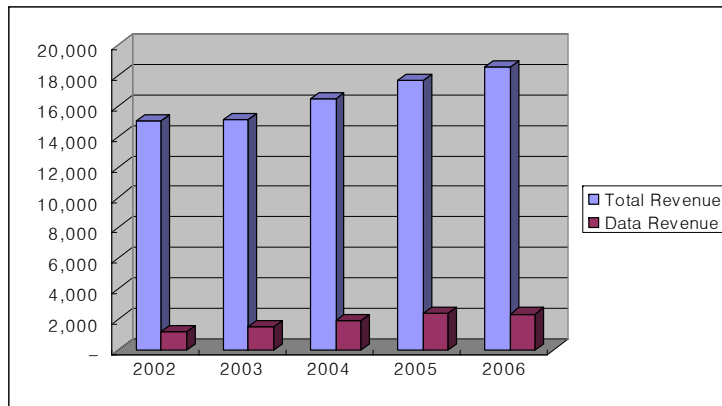


[Fixed and Mobile Subscribers]

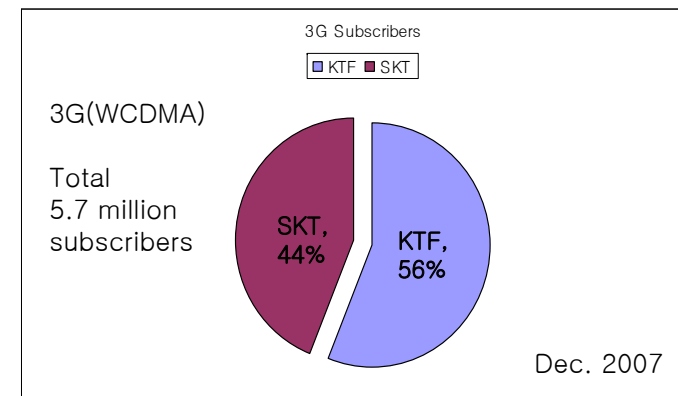


[Ratio of Mobile Subscribers]

- Mobile Operators expected that Data Revenue would be growing, but not yet



[Revenue of data in mobile]



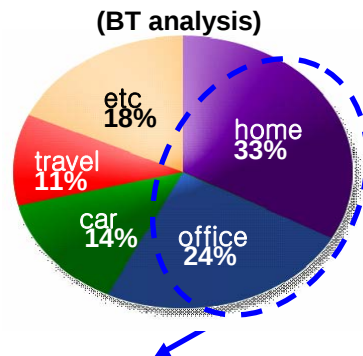
[3G Subscribers]

2. Why FMC?

User's Behaviors

- Higher growth rate of mobile penetration
 - More convenience of using mobile phone
 - Higher communication expense of household economy

Usage frequency of mobile phone



Usage of mobile phone more than 57%
in the fixed area such as home and office

(Unit : Billion Won, %)

	2007	2008	rate
Telecomm- Service	342,603	360,761	5.3
(Wireline)	(141,152)	(140,697)	-0.3
(Wireless)	(201,451)	(220,064)	9.2

Growth on sale in the aspects of communication business,
But slowdown in sales of wireline telephone service

- The ratio of household communications costs ('97 : 2.9% → '07 : 6%,
₩126,100 per month (OECD average * 3.5))

Communication expense
of household economy
- NIDA(2007)

	expense	rate
Fixed	₩20,700/month	16.4%
Broadband	₩22,200/month	17.6%
Mobile	₩83,200/month	66%

User's main
consideration

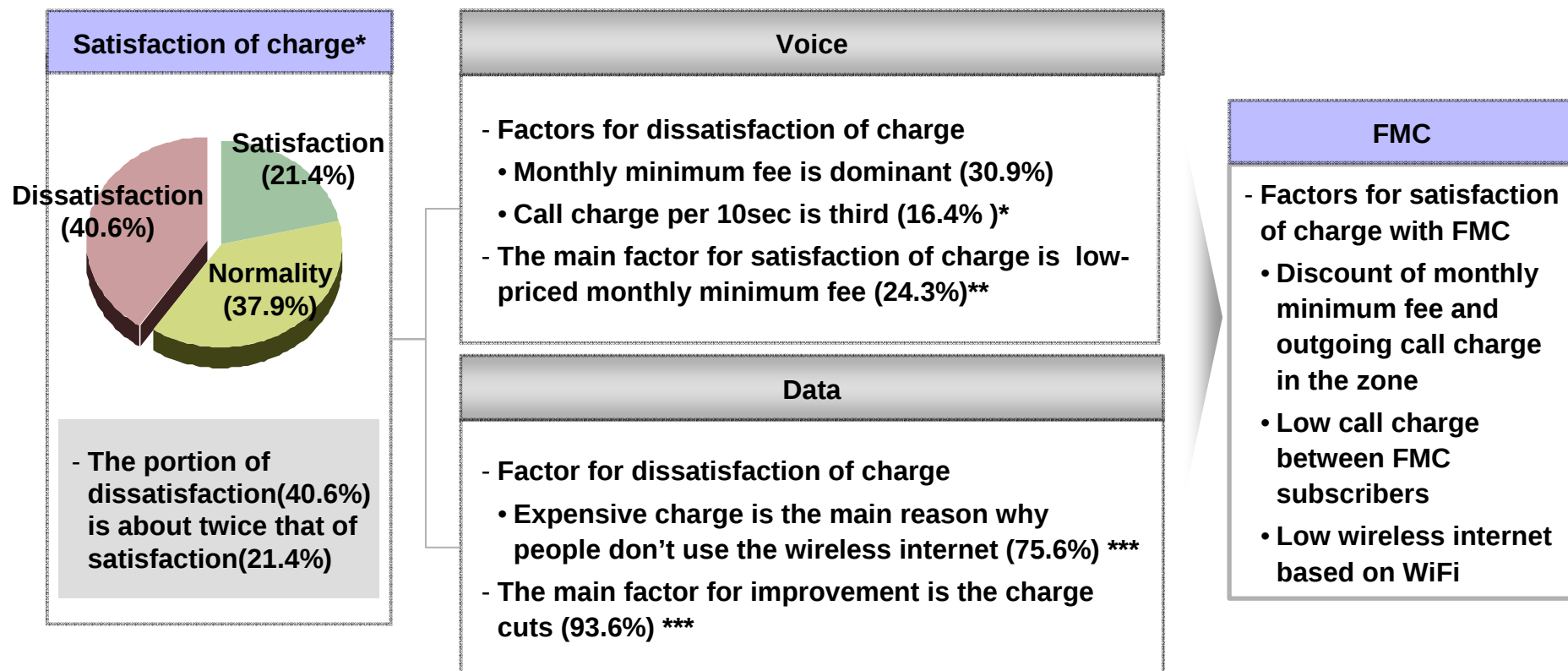
- Convenience of use such as phone book, etc.
- Good quality of Voice
- Low cost of communications

2. Why FMC?

User's Expectations

- Main dissatisfaction factors → high call charge and expensive wireless internet
- FMC satisfies user's needs with cheap VoIP call and free wireless internet in WiFi Zone

Needs of users on mobile communication service



* Mobile Consumer Trends 2007, Marketing Insight

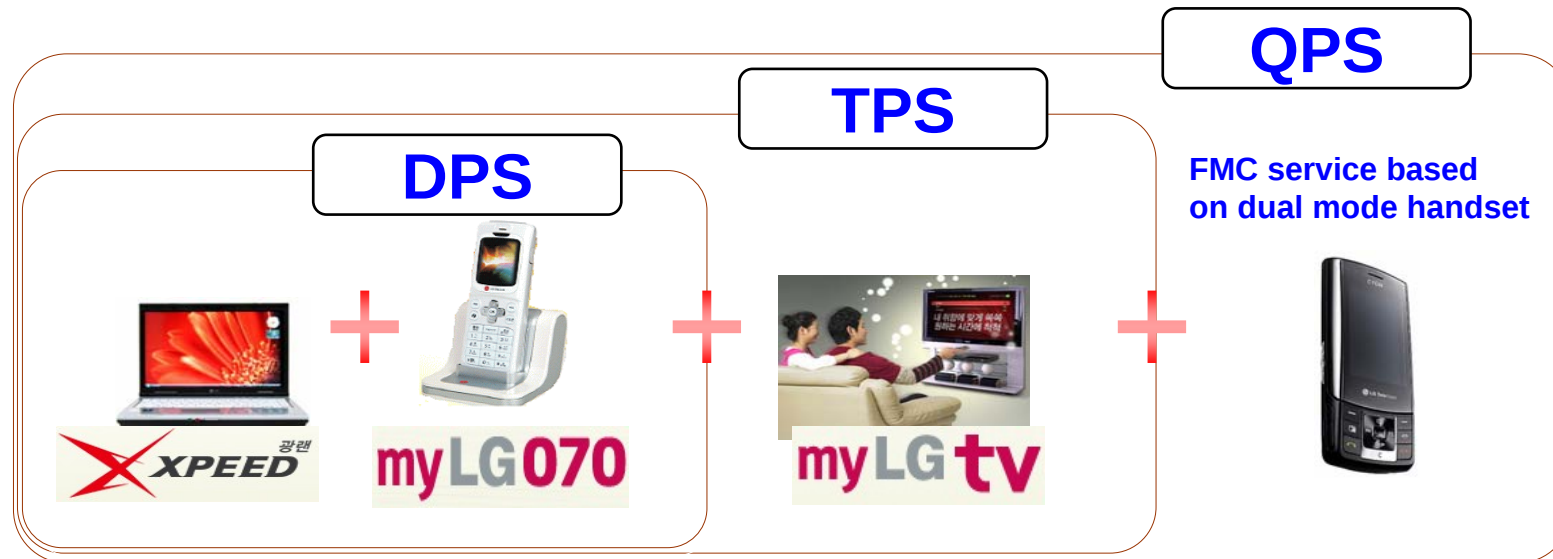
** 2007.11. LGT customer survey

*** 2006 research on the actual condition of wireless internet, NIDA

2. Why FMC?

LG DACOM

- Synergy with TPS services in LG Dacom.
 - 1.8 million subscribers in broadband internet services in May. '08
 - 0.8 million subscribers in internet phone services 'myLG070' in July '08



~2006

2007

2008

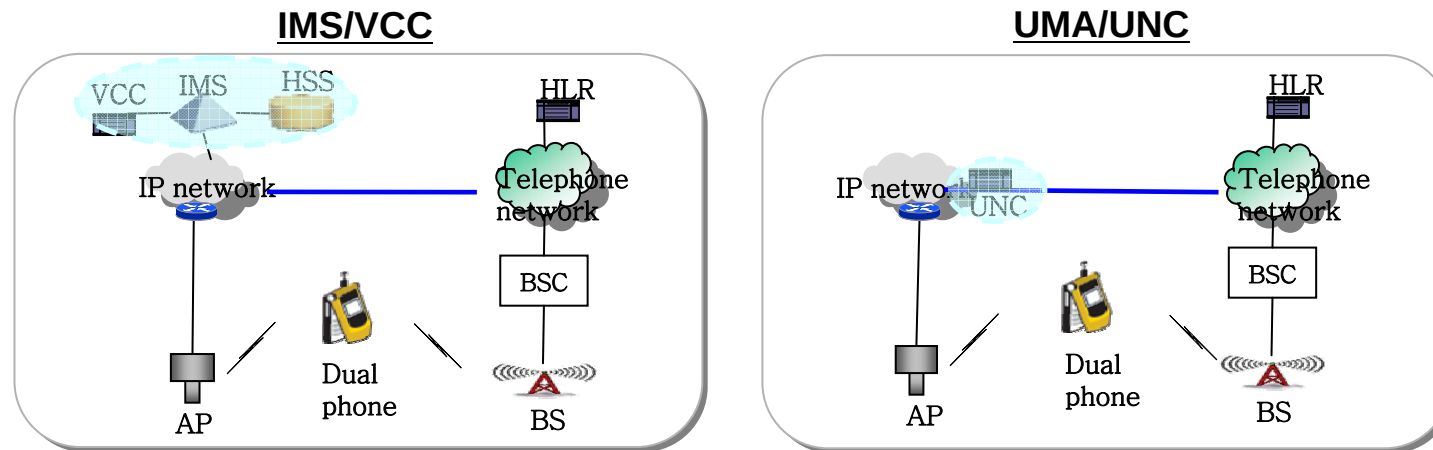
2009~

- **Single communication service**
 - Release of broadband internet service 'Xpeed'
- **Combination of services**
 - Release of internet phone 'myLG070' in June
 - Release of IPTV service 'myLGtv' in December
- **TPS services**
 - Extension of myLG070 (0.8 million in July), Extension of myLGtv
 - Trial FMC services
- **QPS services**
 - Release of FMC services (4Q)

3. FMC Technologies

Handover technologies

- IMS/VCC and UMA/UNC are applicable to interworking between heterogeneous networks for seamless services of voice calls with dual mode handsets
- IMS/VCC is a suitable model for wireline telecommunication industry
 - Easy to provide supplementary services independent of the network structure

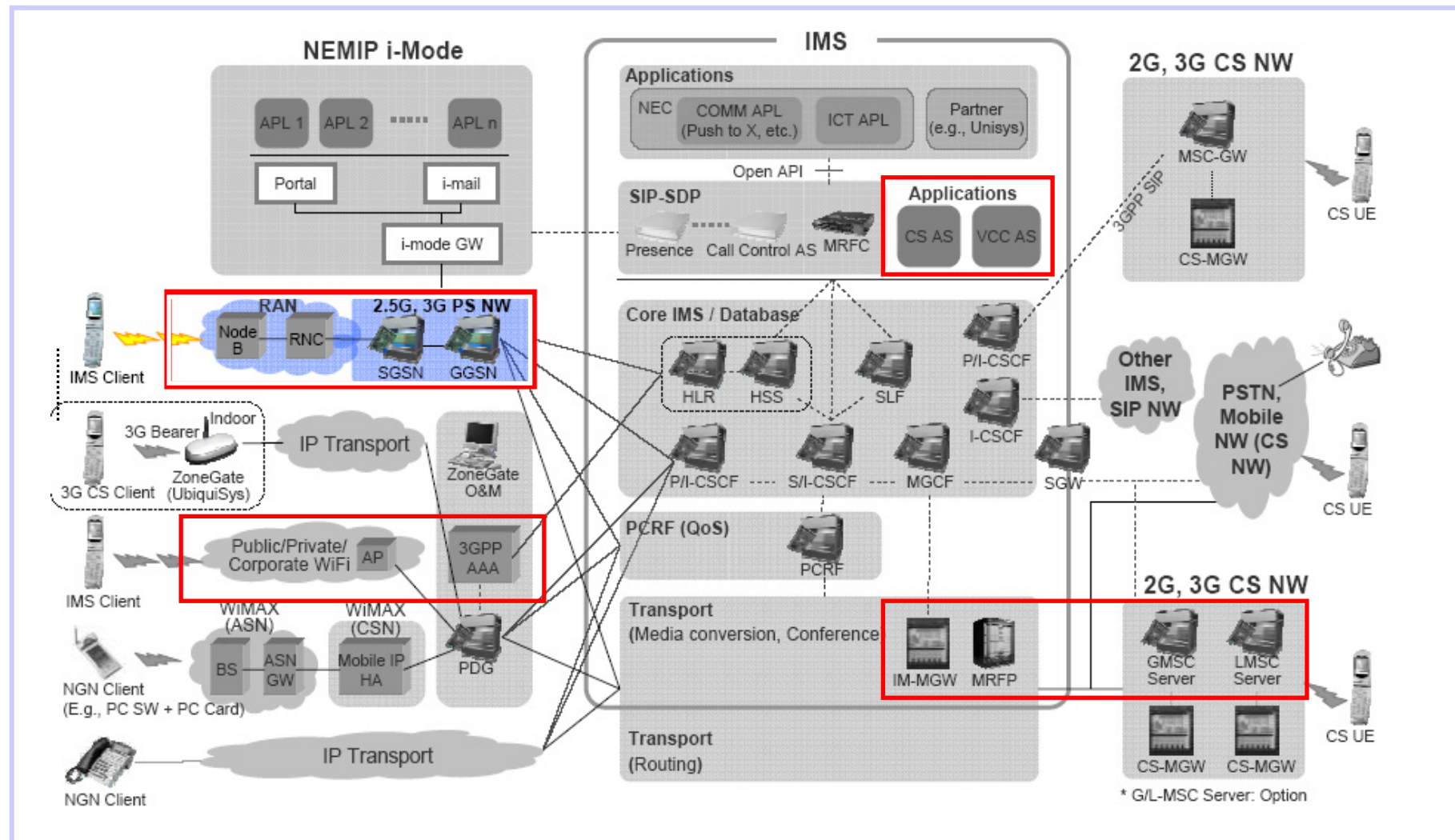


	IMS/VCC	UMA/UNC
N/W structure	• Based on IMS Platform (Independent of networks) • Loosely coupled	• Supplementing UMA (AP) / UNC and interworking with wireless communication networks • Tightly coupled
Example	• Local (KT : preparation) • Global (Cingular, Verizon)	• Local (none) • Global (BT Fusion II)
Applicability	• Providing various interworking model with wireless communication networks • A suitable for wireline telecommunication industry	• A model for wireless communication industry • Absence of solutions for CDMA

3. FMC Technologies

FMC Architecture

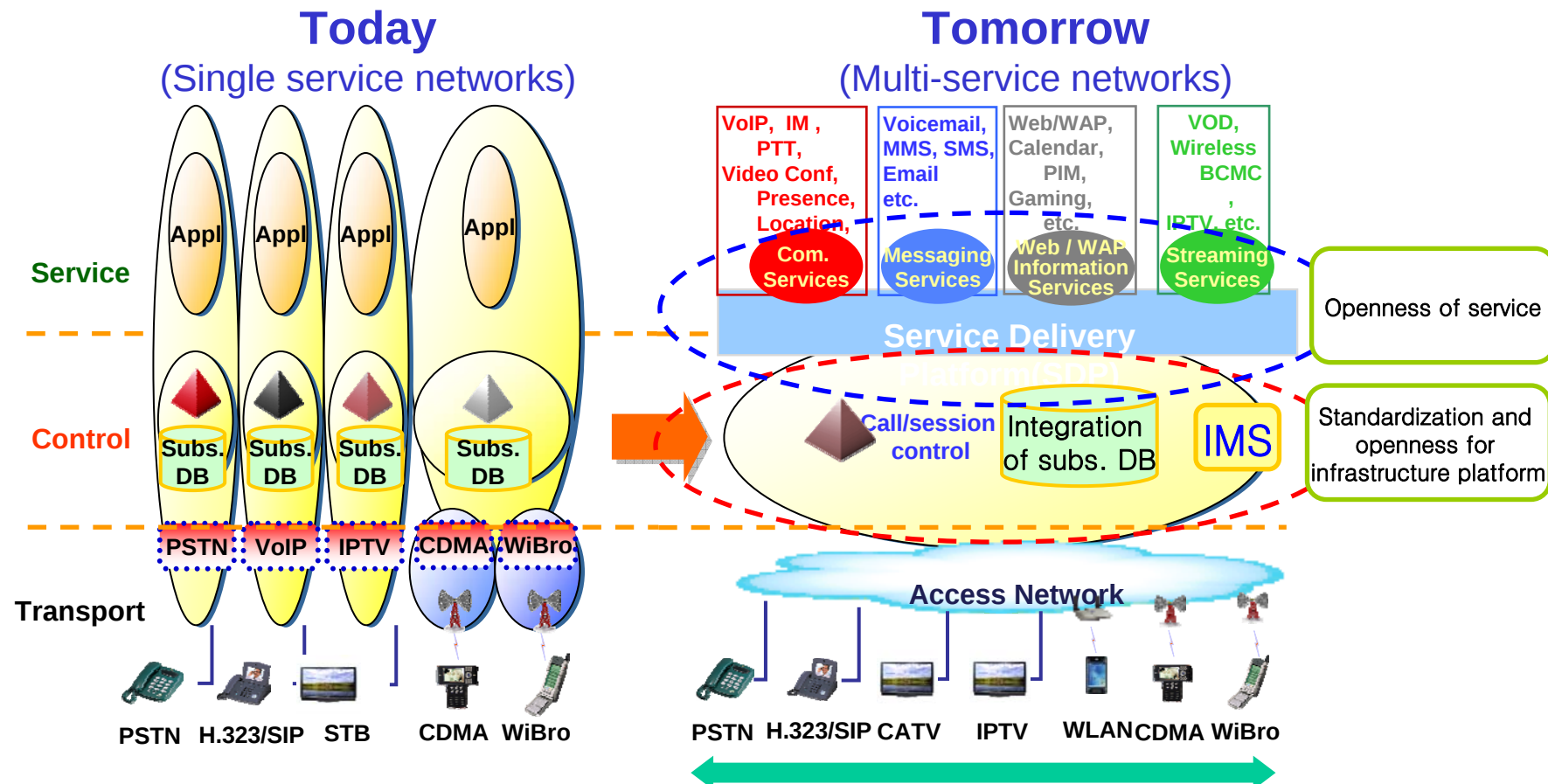
- IMS provides hiding access network , flexibility of service, and convergence services



3. FMC Technologies

Application platform

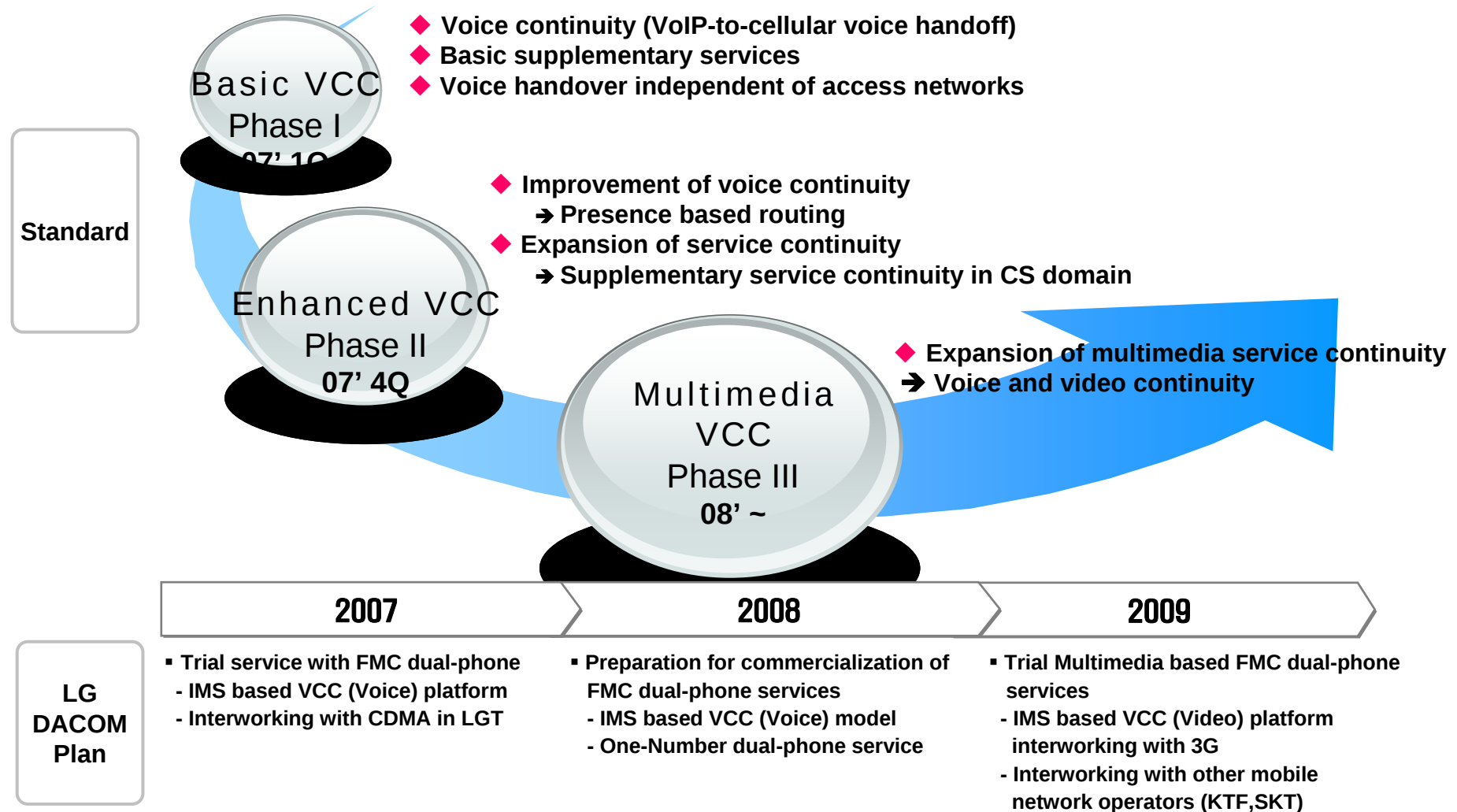
Shared value	• Openness of services • Standardization and openness for infrastructure platform
Application	• New added value in integrated subscribers • Convergence services of IT and other technologies • Reduction of time-to-market and difficulties for new applications



3. FMC Technologies

Evolution and Execution Plan of VCC

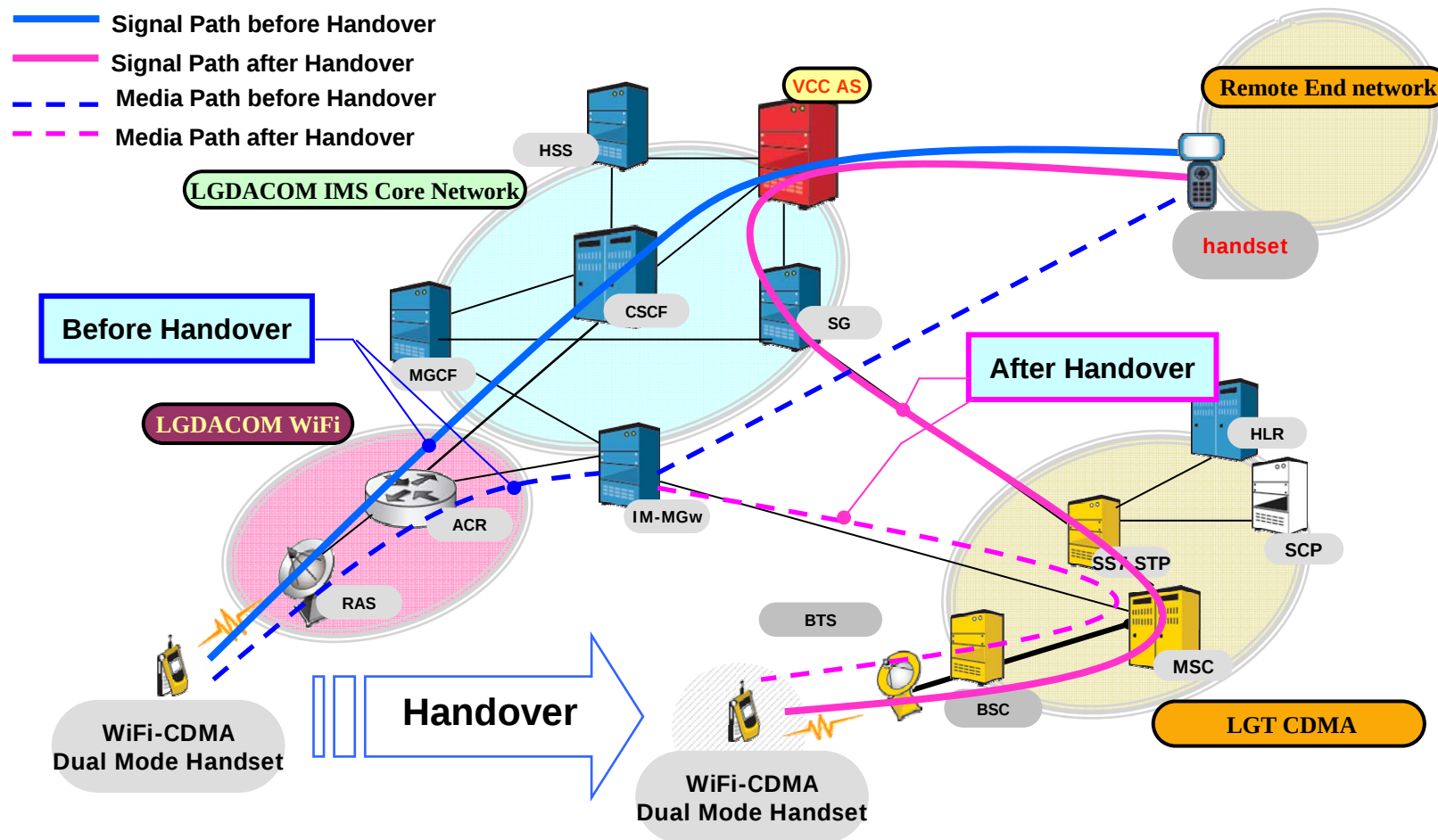
- Trend of standard : Handover of voice calls → continuity of multimedia services
- LG DACOM : Development of multimedia based FMC services according to the evolution of VCC



3. FMC Technologies

Seamless Handover Scheme

- Seamless handover for voice call based on IMS/VCC
 - Roaming between WiFi and CDMA
 - Seamless Handover between WiFi and CDMA during Conversation

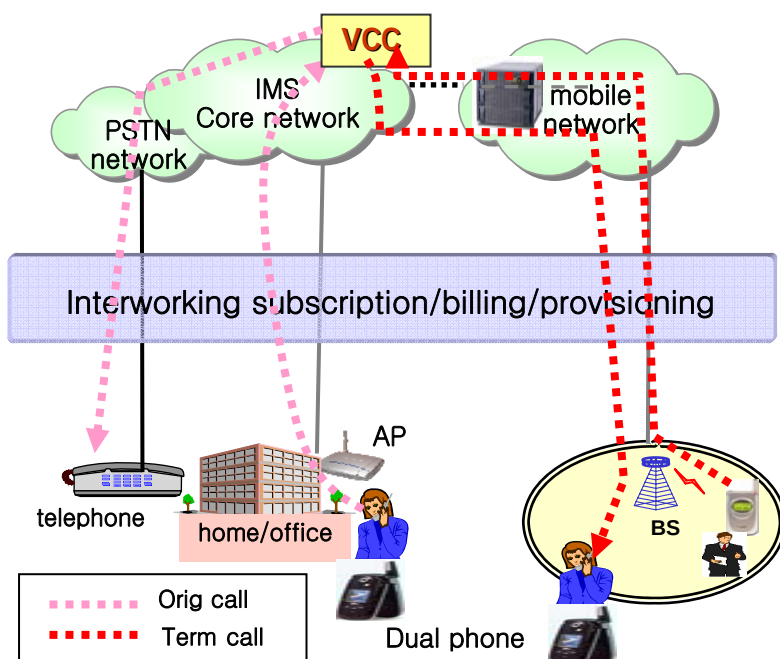


4. Case Studies

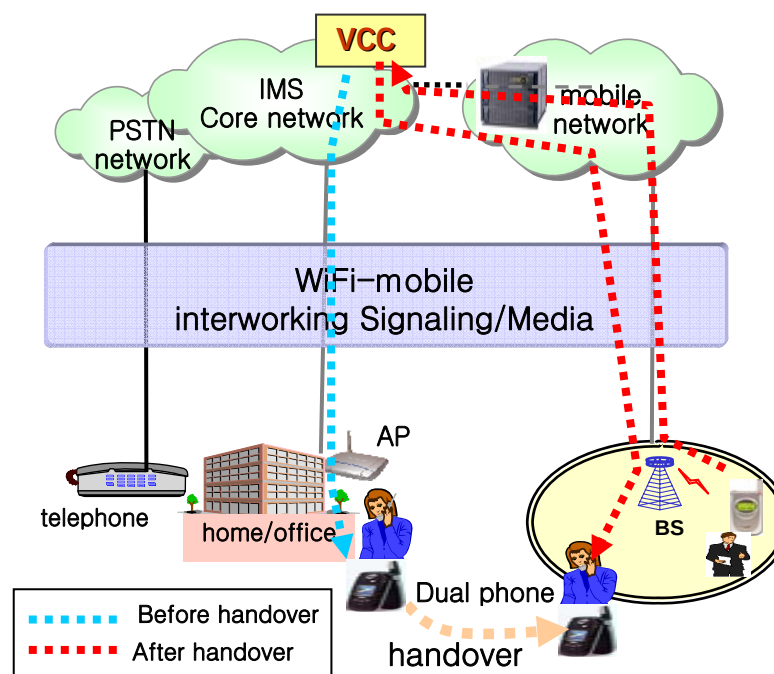
Service Features

- Needs of dual mode services
 - Low cost of internet phone + cellular phone
- Convenience to users with a dual mode handset
 - One-Number/One-Bill : a unique one-number for each dual phone (cellular and internet phone)
 - Seamless handover between wired-WiFi and mobile networks during conversation

One number/One-Billing



Seamless Handover

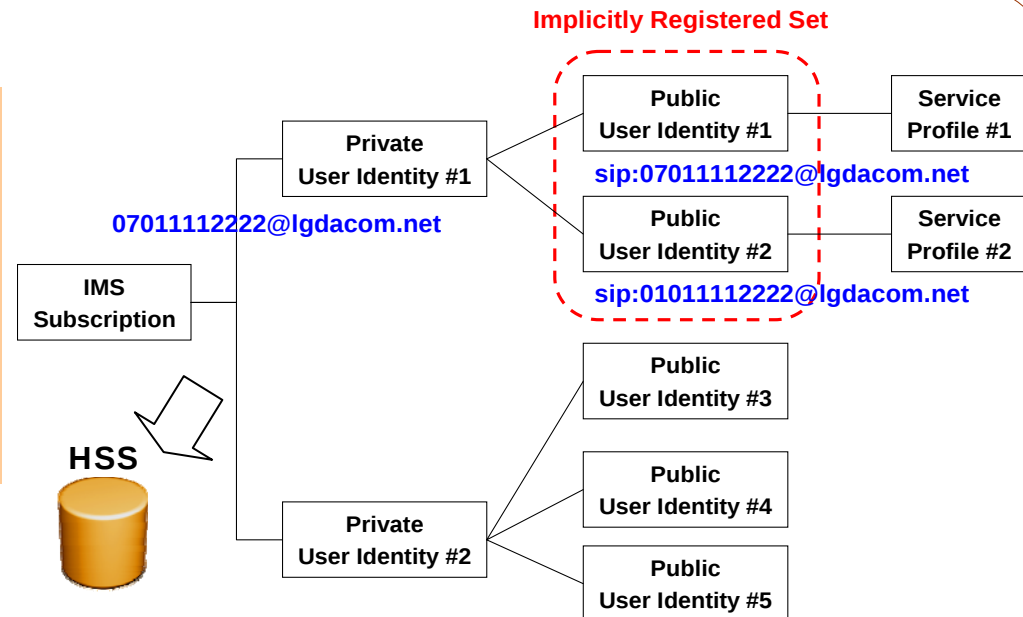


Users are accustomed to using a single number

HSS* of IMS infrastructure provides a single number for each subscriber

Number Management

- Private User ID consists of several Public User IDs
- Public ID field contains the internet and mobile phone number
- P-Asserted ID field is used for Caller ID



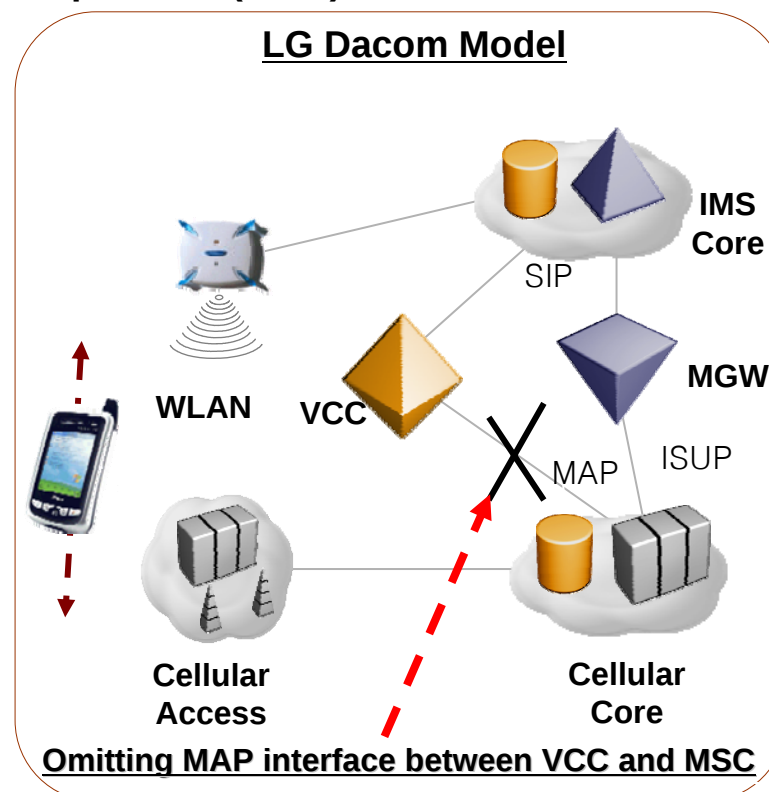
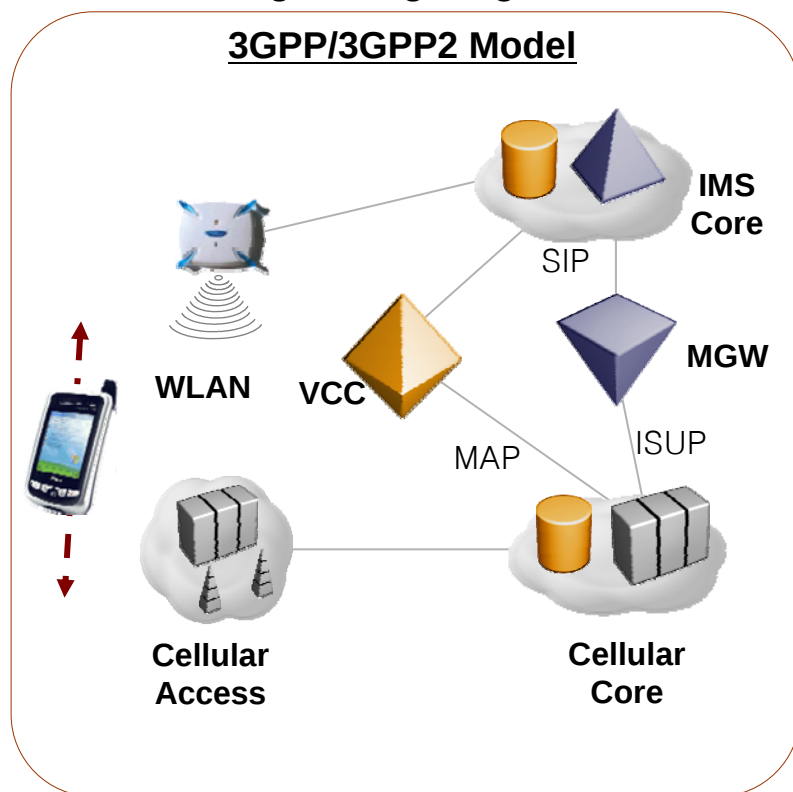
- Usage of two numbers yields two billing → VoIP billing and mobile billing
- One mobile number is used for VoIP and mobile call
→ One billing number for each subscriber

* HSS (Home Subscriber Server) : management profile of subscribers and services

4. Case Studies

Cooperative Model with Mobile Network Operator

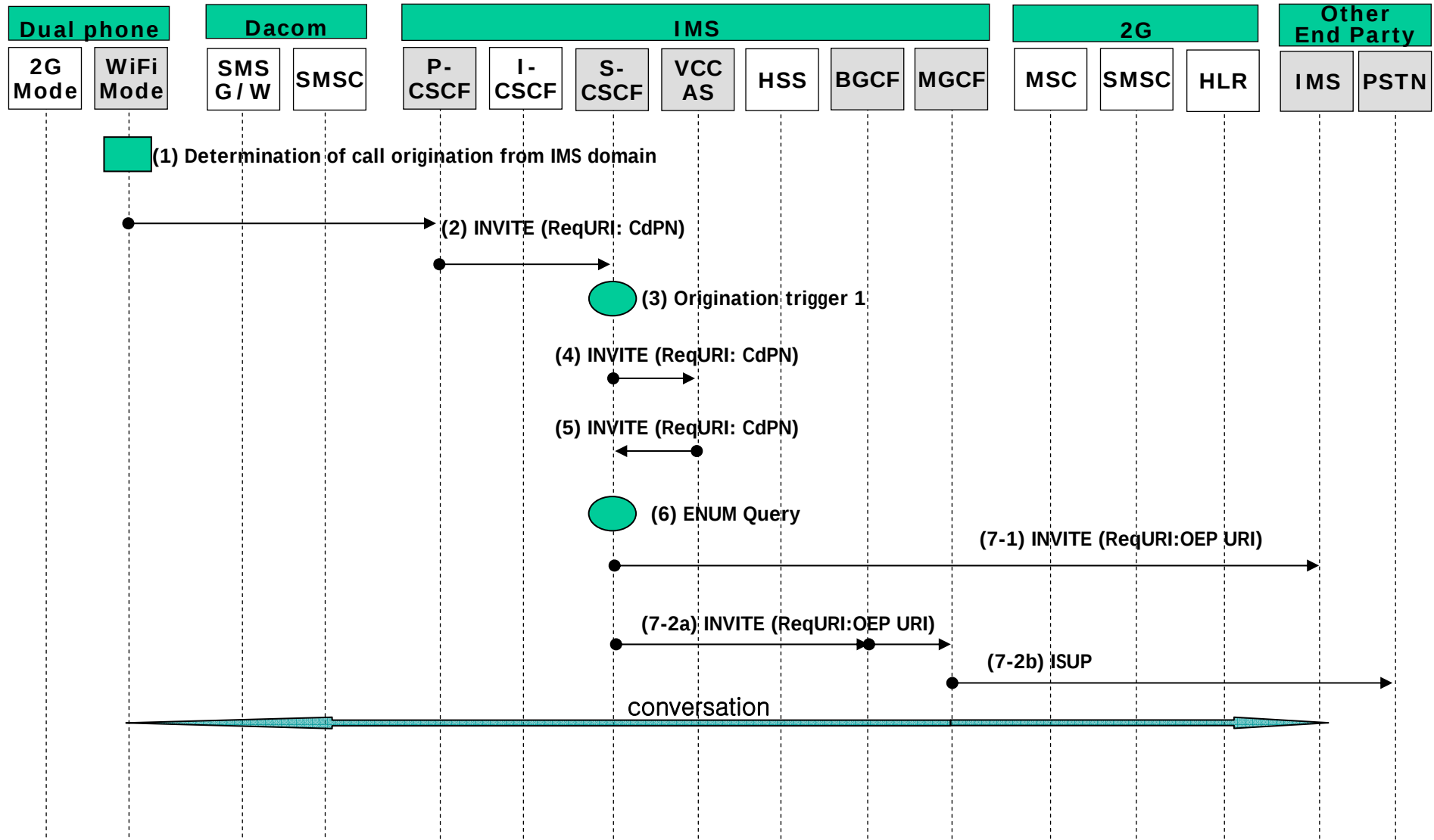
- Features of new cooperative VCC model (LG DACOM proprietary)
 - Supportable for WiFi to CDMA handover, but not supportable for CDMA to WiFi handover
 - Reduction of negotiating range with mobile network operators (MNO) for FMC services



	3GPP/3GPP2 Model	LG Dacom Model
CS to WiFi Handover	O	X
WiFi to CS Handover	O	O
MAP interface between VCC and MSC	O	X
Coupling with MNO	Tightly-coupled	Loosely-coupled

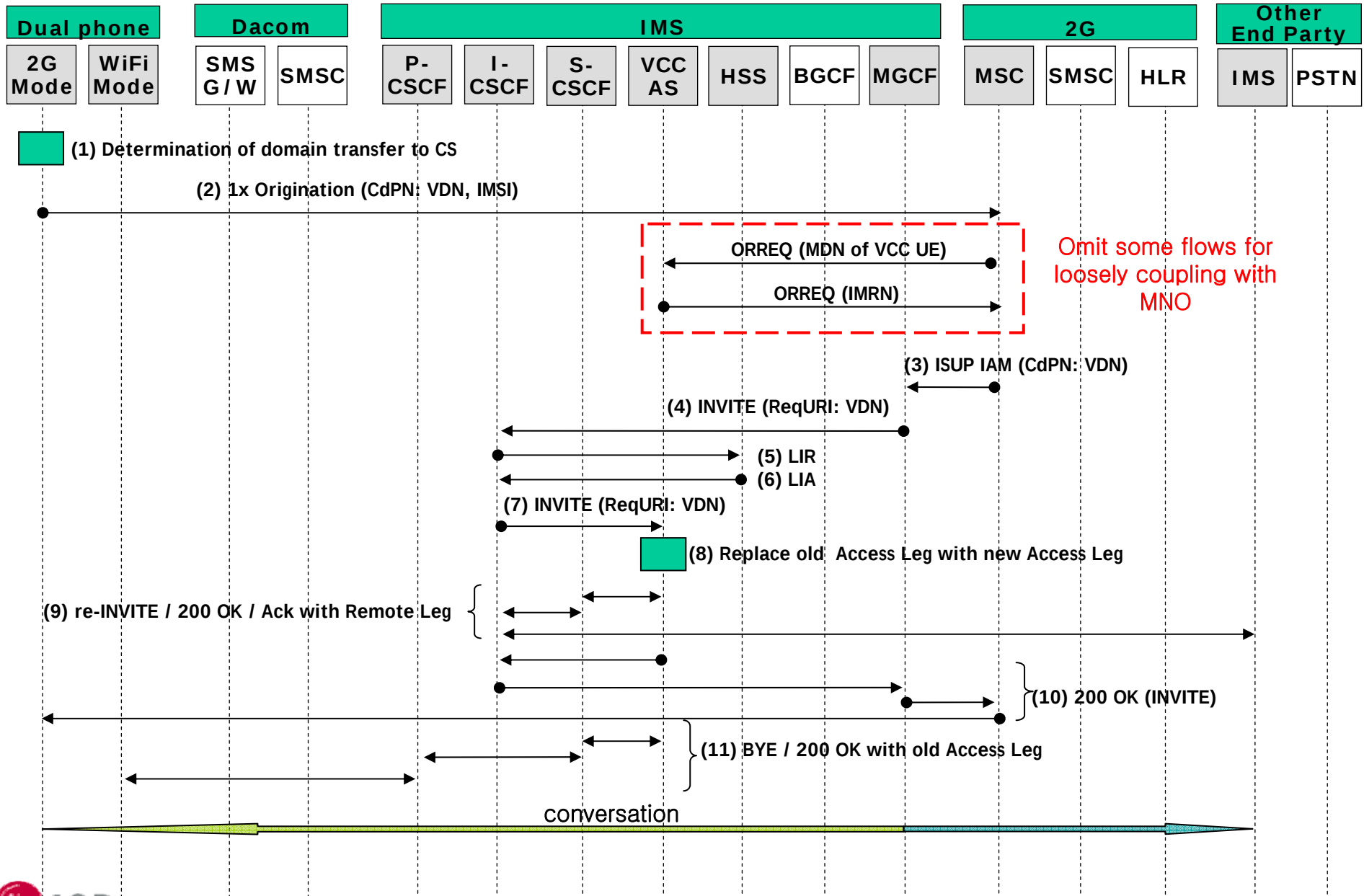
4. Case Studies

Call Origination by Dual phone on WiFi Zone



4. Case Studies

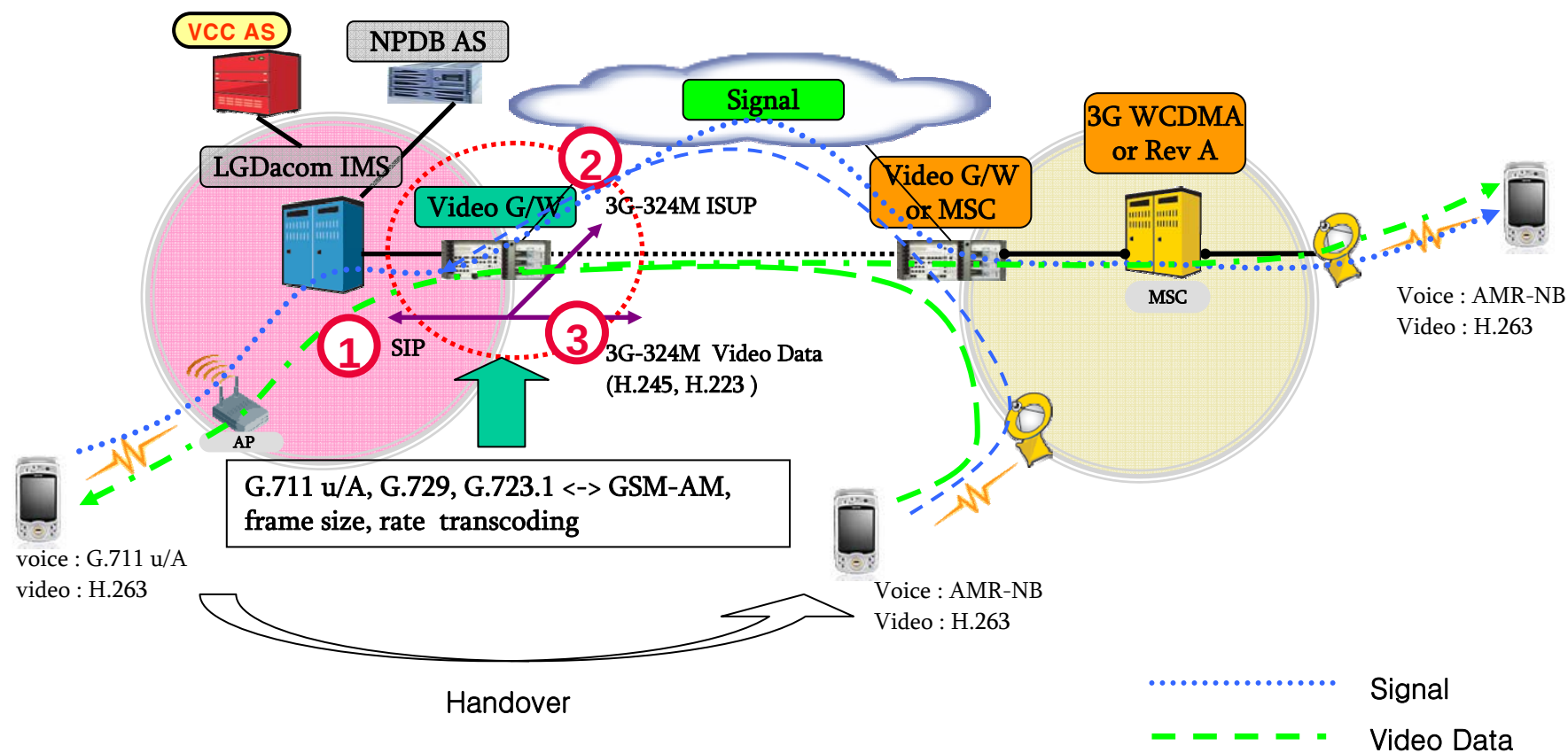
Domain Transfer (WiFi Zone -> 2G Zone)



4. Case Studies

Multimedia Service Continuity Model with 3G

1. Interworking with IMS/VCC and Video G/W using SIP signaling
2. Interworking with Video G/W and 3G MSC using 3G-324M
3. Transcoding for Voice/Video Traffic and capability negotiation in Video G/W



5. Conclusion

- Needs of FMC Services
 - High cost for communication services and FMS trend in mobile networks
- IMS infrastructure suitable for convergence services and FMC platform of IMS based VCC
- Expansion of QPS based business foundation
 - Verification for FMC services
 - Preparation for openness of service framework

QPS based business foundation

Needs of FMC services

- Defensive measure of fixed network operators for FMS
- Low cost for communication services
- Coverage extension of VoIP services

Solution for development of FMC services

- Handover with IMS based VCC technologies
- New platform for FMC services

Methodology of FMC solution

- Open FMC platform based on IMS
- Cooperative FMC model with mobile network operators
- Verification of FMC services with BcN trial services

Shared value of FMC services

- Standardization and openness of infrastructure
- Openness of services for SDP
- Flexible service model

Thank you!