KCC + SWCC 2005

<   >

BcN

2005.07.08

BcN

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KT 마케팅연구소

I. BcN

1. BcN

2. BcN (   )

I. BcN

1. BcN

1. BcN (Broadband convergence Network,   )

θ   ITU-T   NGN   :

, QoS

NGN

(generalized mobility)   ,

.

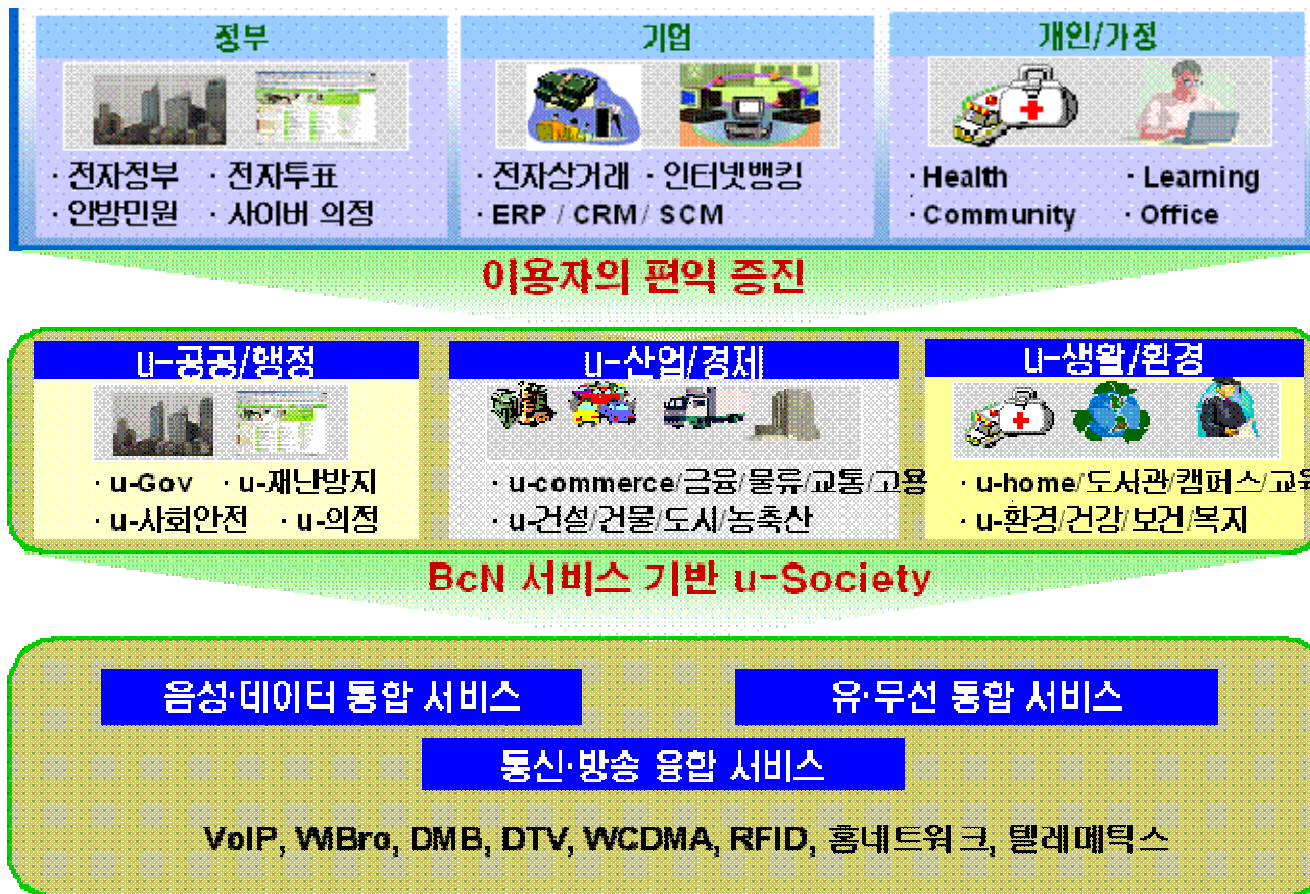θ   ETSI   NGN   :
   - NGN   :

API

θ   MIC   BcN   :
   θ   .   .

,   ,

(Open API)

(Security),   (QoS), IPv6

,

(Seamless)

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4/46

θ   BcN   (, 2003.10   )
- ·   ,   ,   (,   ,   )
- ·   ,   (   )
- ·   (   )

정부 | 기업 | 개인/가정
· 전자정부 · 전자투표 | · 전자상거래 · 인터넷뱅킹 | · Health   · Learning
· 안방민원 · 사이버 의정 | · ERP / CRM / SCM | · Community · Office

이용자의 편익 증진

u-공공/행정 | u-산업/경제 | u-생활/환경
· u-Gov   · u-재난방지 | · u-commerce/금융/물류/교통/고용 | · u-home/도서관/캠퍼스/교육
· u-사회안전   · u-의정 | · u-건설/건물/도시/농축산 | · u-환경/건강/보건/복지

BcN 서비스 기반 u-Society

음성·데이터 통합 서비스   유·무선 통합 서비스

통신·방송 융합 서비스

VoIP, WiBro, DMB, DTV, WCDMA, RFID, 홈네트워크, 텔레매틱스

(BcN   , BcN   , 2005.2)

θ   IT 839   *   2   IT 839   – MIC

IT 839
IT   8   ,
3   ,   ,   ,
9   ,   ,   IT

8

1.   2.3GHz
2.   DMB(/   )
3.
4.
5.   RFID
6.   W- CDMA
7.   DTV
8.   (VoIP)

9

1.
2.   TV
3.
4.   IT soc (system on chip)
5.   PC
6.   SW
7.
8.
9

3

1.   (BcN)
2.   U-   (USN)
3.   IPv6

BcN

θ   /   BcN
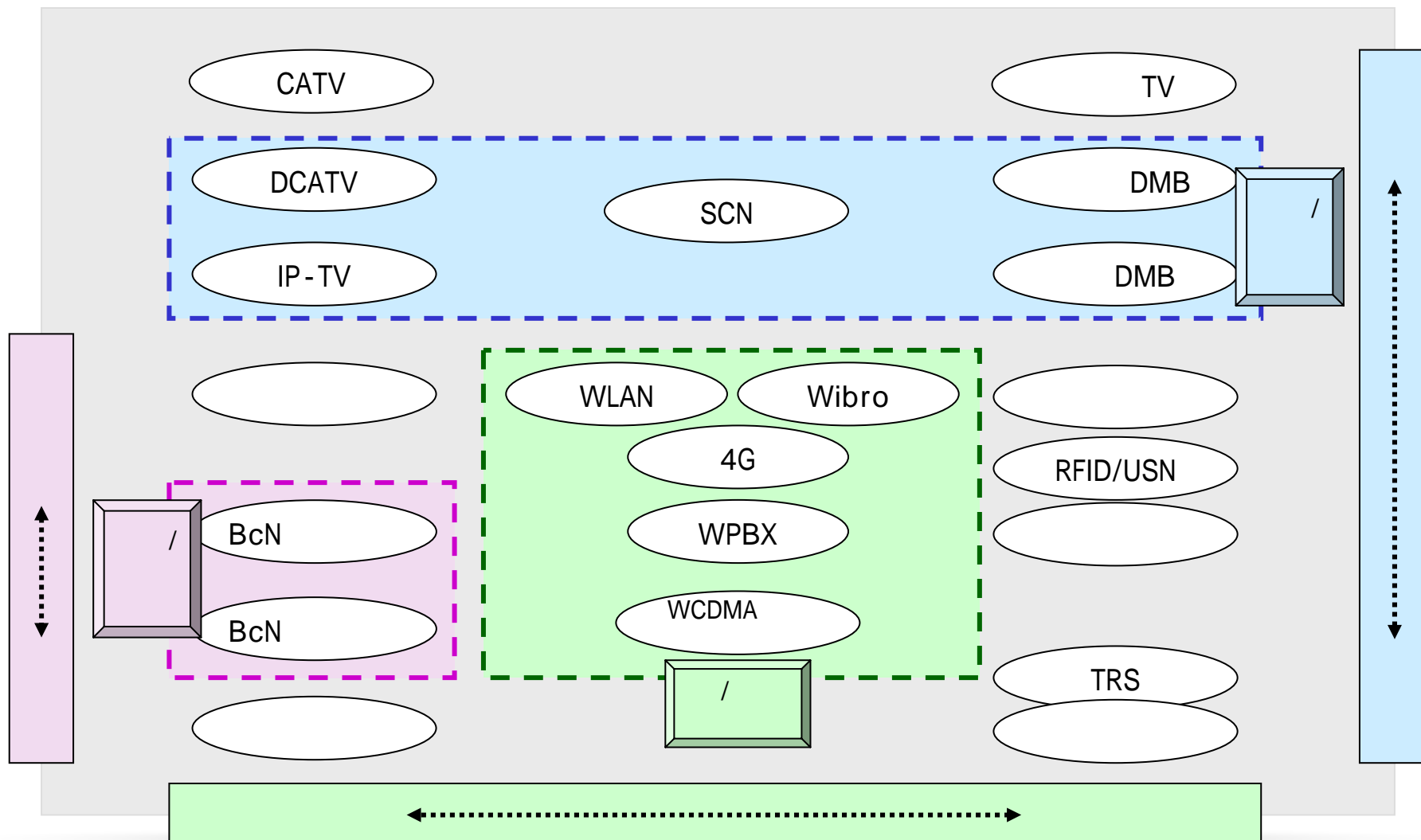
θ   KT BcN   (   )

	기본서비스	
	영상통화 부가 서비스	, , , ,
	메시징 서비스	
	컨텐츠 서비스	, B- learning , B-
	생활편의 서비스	B- , ,
	기업형 서비스	, IP- PBX
	개방형 서비스	, Community, Massaging,
		TV- Poll , T- commerce , Infotainment , PVR , VoD , e- learning
	/	
	RFID, IPv6,	RFID/USN , IPv6
		PSTN /PSTN

θ   SKT BcN   (UbiNet)

	MMoIP 기본서비스	
	MMoIP 부가 서비스	, , , Virtual PBX
	MMoIP 응용서비스	Presence & Availability, (IM, MMS), Push
		, WCDMA , IP , OSA
		, HD VOD/TV,
	DMB	,
	DTV	SCN (Satellite Cable Network)
	IP-TV	HD VOD (IP-TV), ,
	IPv6	IPv6 , IPv6 WLAB ad-hoc networking,
	USN (RFID)	
	(ZBPS)	ZigBee LBS

θ   BcN   (   )

	BcN음성전화	CID, , , , 3
	BcN영상전화	CID, , , , ,
	멀티미디어 메신저	, ,
	홈시큐어 서비스	
	IP BS	WPBX
	DCATV ( )	, T-Gov, HD VOD
	IP-TV	HD IP-VOD, TV
	IPv6	IPv6 CDMA
	URC	/

1. BcN

2. BcN

3. BcN

　　3.1

　　3.2

　　3.3

　　3.4

　　3.5

　　3.6

θ

구분		1단계(~2005년)	2단계(~2007년)	3단계(~2010년)	비고
서비스제어 계층		Softswitch(CSC,MGC) 의 제어	Telematics,RFID 응용서버 등장	응용서버들 간의 연동	
전달망 계층		BcN Core망의 등장, 가입 자망 접속 SEN (Service Edge Node) 도입	BcN Core망의 확대 Label Switch 중심	통신/방송/인터넷의 전달망 통합	기존망의 존속 가능성이 있음
가입자 망계층	무 선	CDMA2000, WCDMA, WLAN망 각기 존재	Wibro망의 본격 등장	4G의 등장,공통 AN (Access Node)으로 통합	기존망은 비중 축소가 예상
	유 선	Ethernet, xDSL, HFC 등 통신과 방송이 개별 망으 로 존재	PON, AON의 도입으로 통신 방송 융합 (FTTH 확대 구축)	PON, AON의 확대 통신방송융합망 (FTTH 고도화)	유선, 무선, 방송 가입자망이 Access Node 에서 통합
	방 송	지상파/위성 DMB, IP방송 구축	양방향 서비스 도입 (통신방송 연동/융합)	HDTV급, 이동 서비스 보편 화	
홈.단말 계층		Ethernet, IEEE1394, PLC 등 개별망으로 존재	단일 홈 백본망 홈게이트웨이로 통합	유비쿼터스 도입	
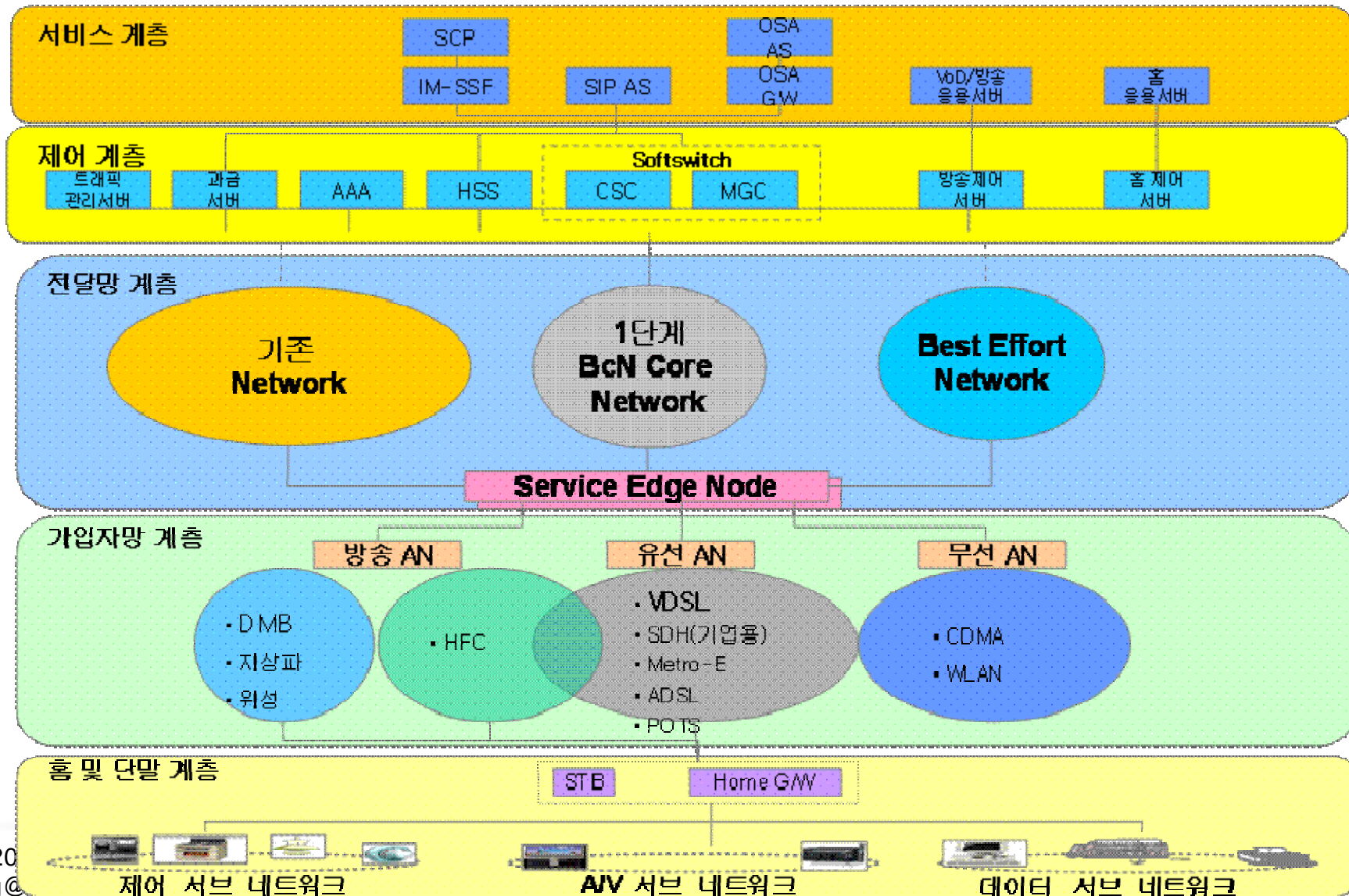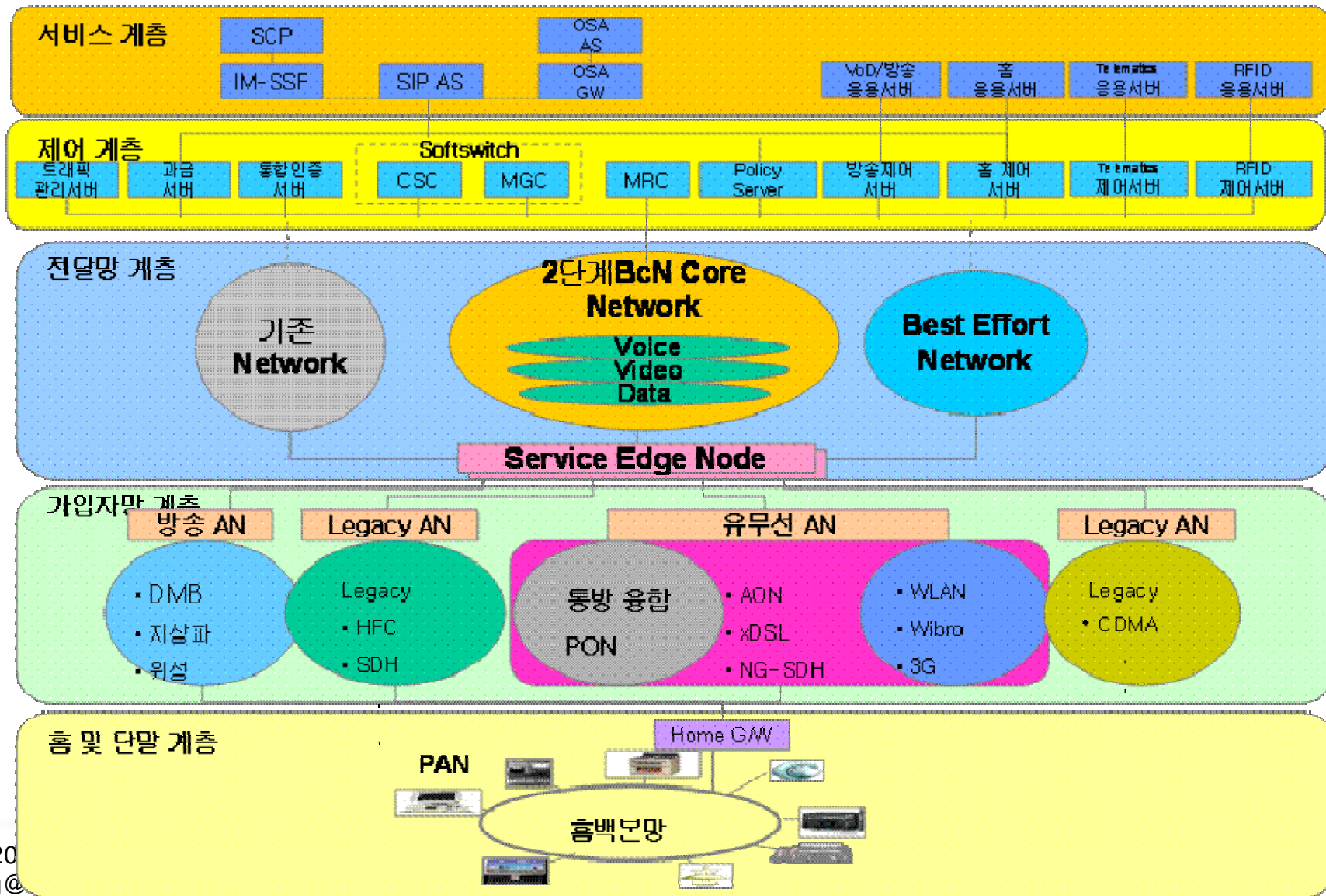
θ   1

θ 2

3.1

θ   1

,

,

θ   2

DMB, IP-TV

-                    (
)

-

(QoS, policy)

3.1

θ 3

RFID/USN

	SCP		OSA AS		
IM-SSF	SIP AS	OSA GW		VoD/	Telematics	RFID/USN

			Softswitch							
			CSC	MGC	MRC	Policy Server				RFID/USN

3.2
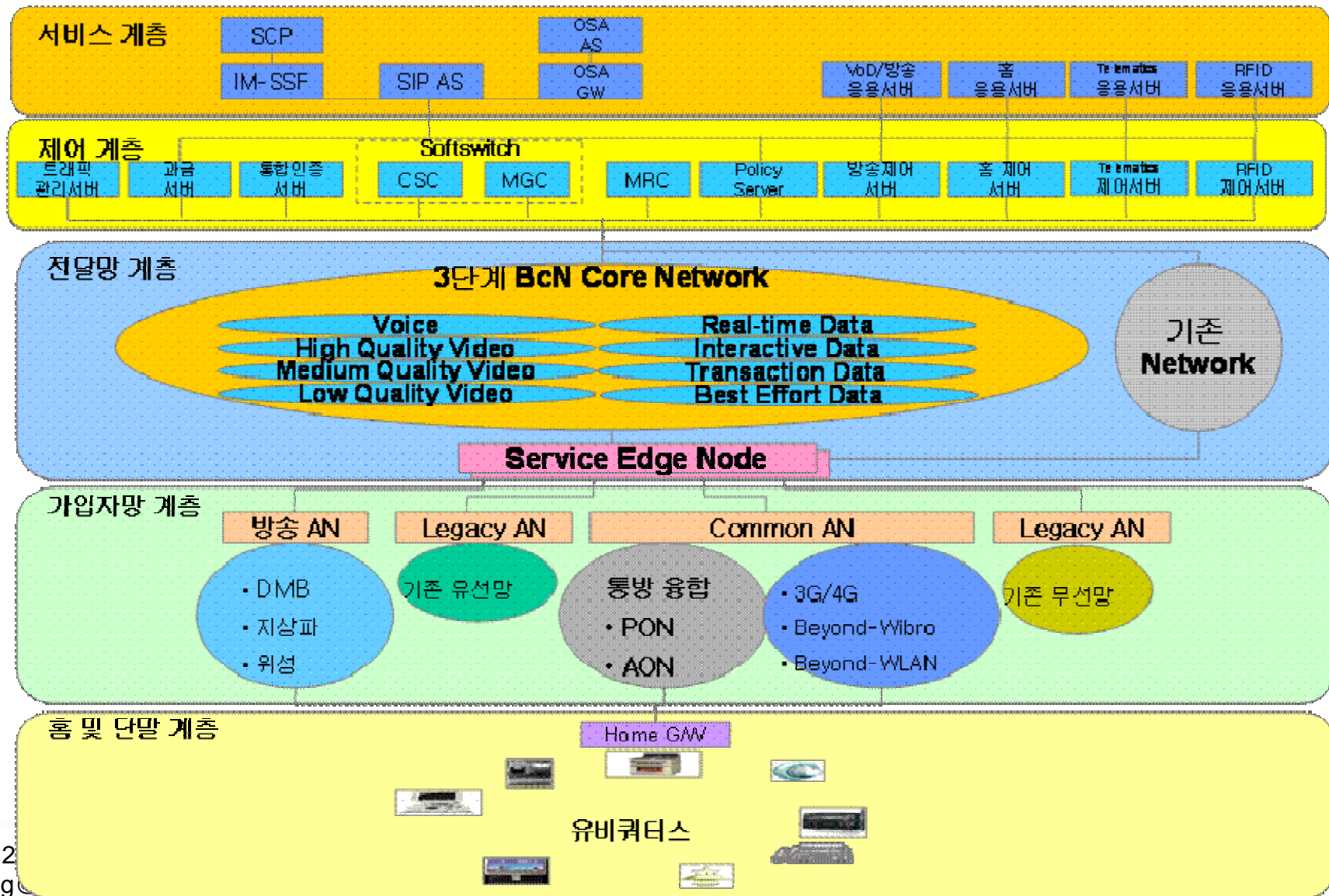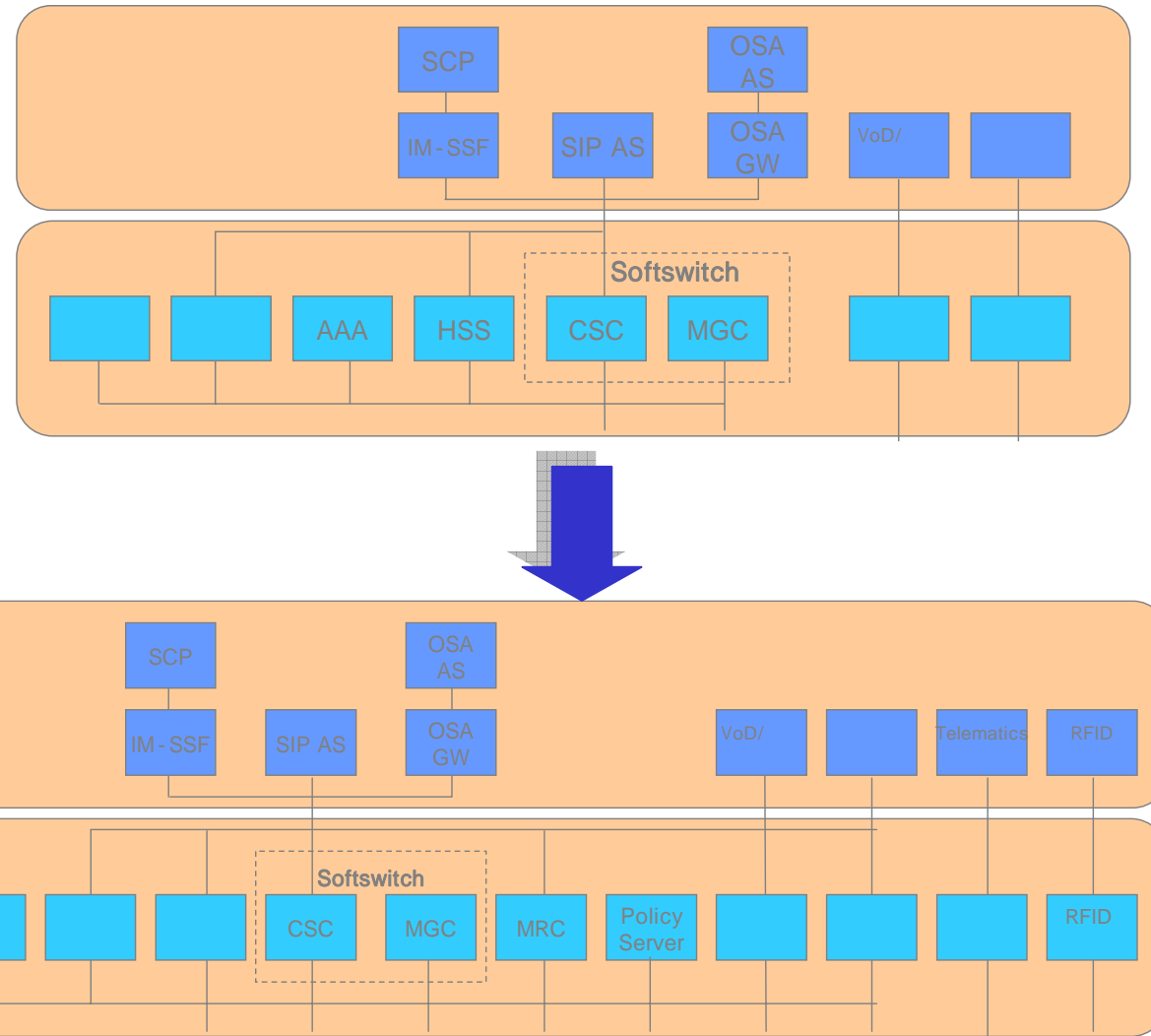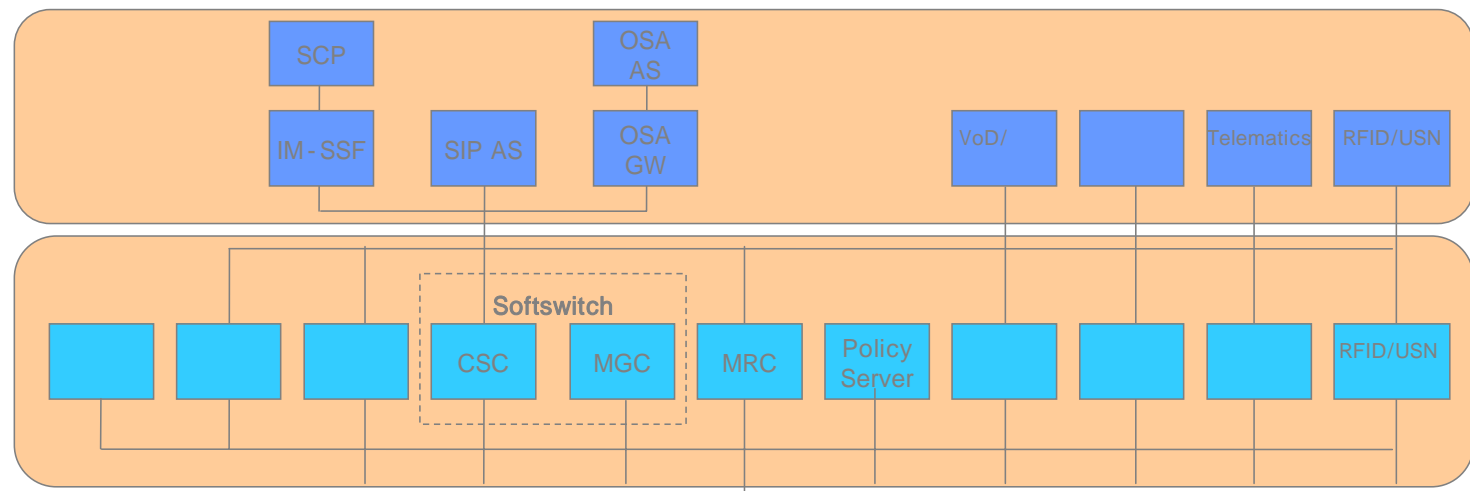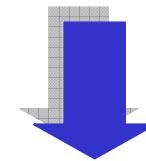
θ 1

QoS   BcN

IPv6
Service edge node:
        core
        BcN

θ 2

MPLS

     voice, video, data
BcN
IPv4, IPv6 dual stack
Service edge node:

Top diagram:

WCDMA
CDMA
Wireless LAN
xDSL
Ethernet
HFC
FTTx
POTS

Service Edge Node

1 BcN Core Network

Best Effort IP Network
Broadcast Network
Packet switched Network
Circuit Switched Network
Leased Line Service

Service Edge Node

Other Network

Bottom diagram:

WiBro
WCDMA
CDMA
Wireless LAN
xDSL
Ethernet
HFC
FTTx
POTS

Service Edge Node

2 BcN Core Network
Voice
Video

Network

IP Network

Service Edge Node

Other Network

3.2

θ   3

Label switch

IPv6

Service edge node: u-

WiBro		
WCDMA		
CDMA		
Wireless LAN		
xDSL		
Ethernet	Service Edge Node	
HFC		
FTTx		
POTS		
4G		
U-sensor Network		

3   BcN Core Network

- Voice
- High Quality Video
- Medium Quality Video
- Low Quality Video
- Real-time Data
- Interactive Data
- Transaction Data
- Best Effort Data

Network

Service Edge Node

Other Network

Ⅱ. BcN

3.3

θ 1
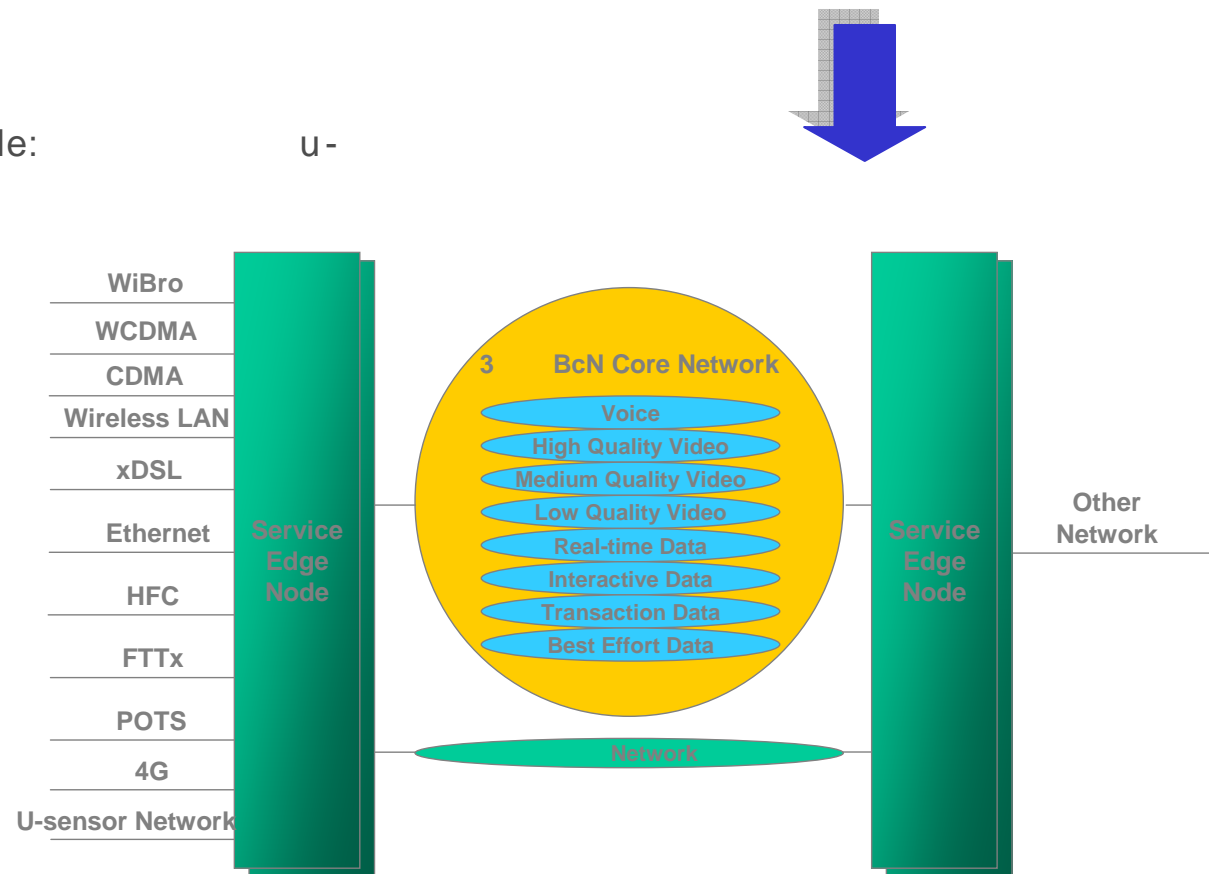
(MMoIP,

SD)

SW(L3 switch):

, ,

Service edge: ,

, &

θ 2

FTTH FTTC

IPv6

PON (TDM, WDM), AON

〕 ATM xDSL ◊ IP xDSL

〕 HFC ◊ PON

〕 FTTH

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Ⅱ. BcN

3.3

θ   3
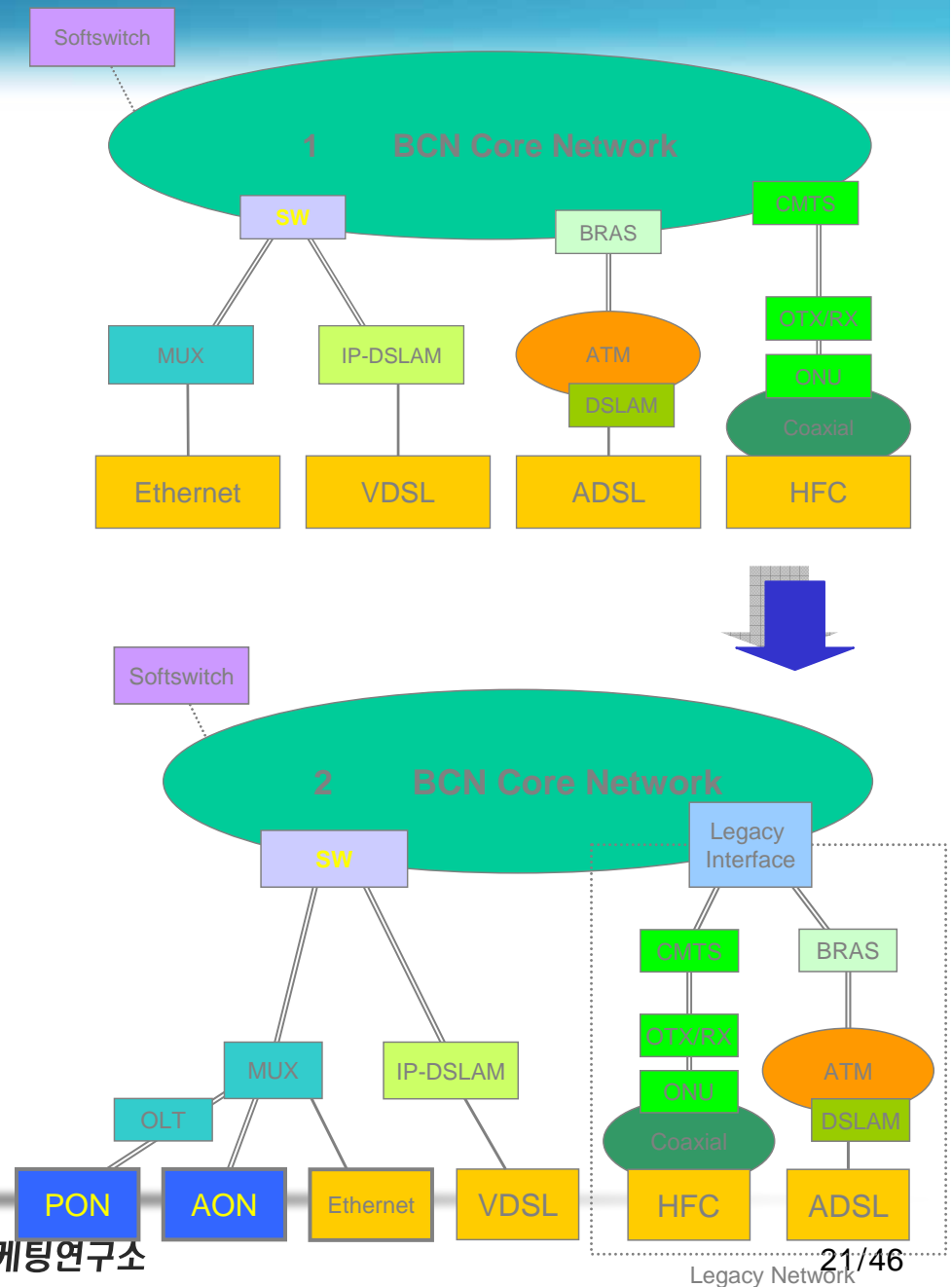
FTIH   (100 Mbps)

3   : IPv6

Service edge: ,   ,   &

II. BcN

3.4
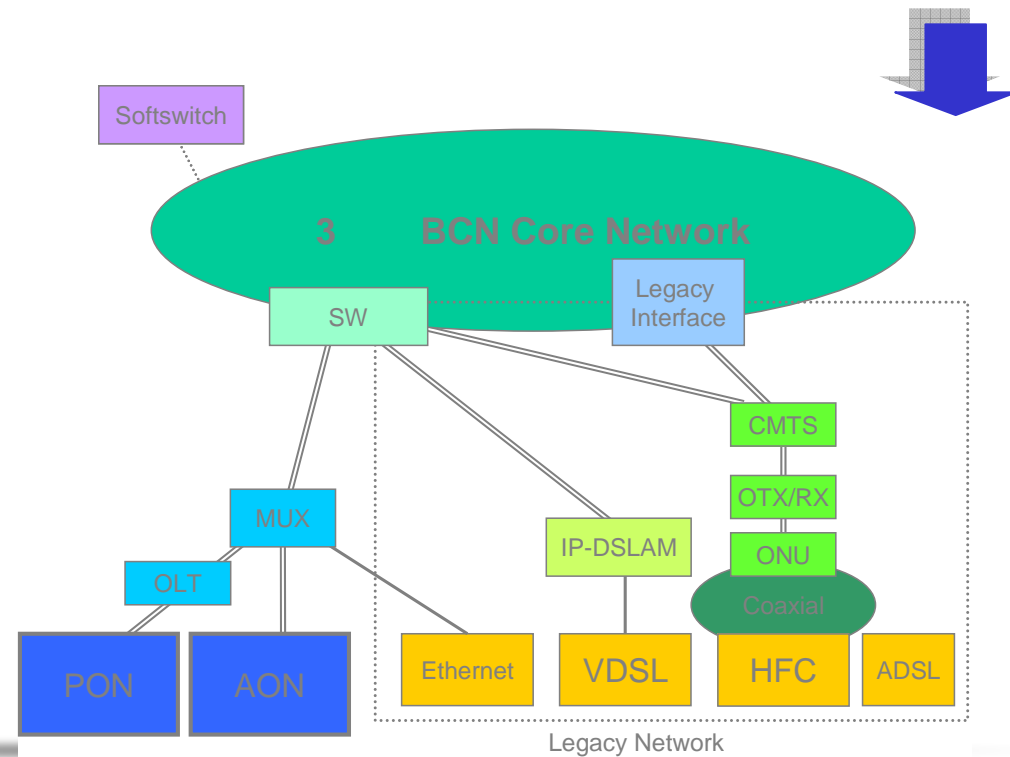
θ 1

cdma 2000 1x EVDO
wcdma
WLAN   IP

BcN   ,   ,

θ 2

Cdma2000   WCDMA   IMS
                VoIP, MMoIP   ,
HSDPA
WLAN: mobile IP,   , FA
   IP
Wibro:

1   BcN Core Network

PDSN	GGSN
	SGSN

BSC	RNC

cdma2000   WCDMA   WLAN

2   BcN Core Network

AGW (PDSN)	GGSN	ACR	FA
	SGSN		

BSC	RNC

cdma2000   WCDMA   WiBro   WLAN

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II. BcN

3.4
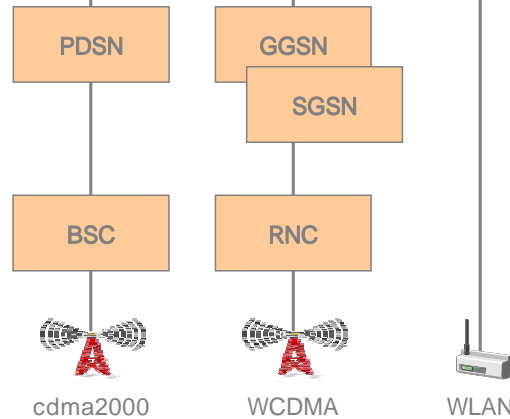
θ 3

3G   IMS release 6

Wibro: VOIP, MMOIP

WLAN: 1Gbps

4   :   ,

Common access network: 3G, beyond Wibro,   WLAN, 4G

4   ,

vertical handover   (   )

II. BcN

3.5
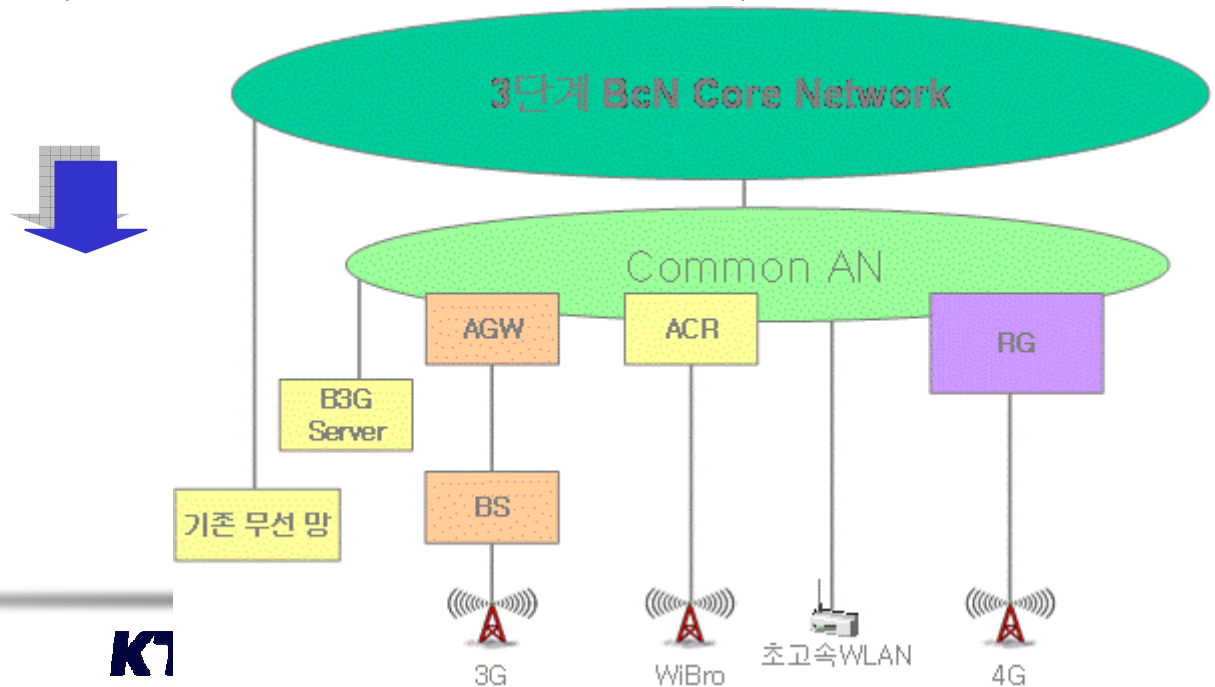
θ 1

　　　　　　　　　, IP
　　DMS　,　　DTV,　　DTV
E-PON
DCATV

　　　　DTV,　　DTV

θ 2

　　　　　　　　　,
(T-Commerce, T-Government),
All digital
Overlay EPON: DCATV　　( )
　　　　( )
　　　　/　　DMB,
　　/　　DTV

3.5
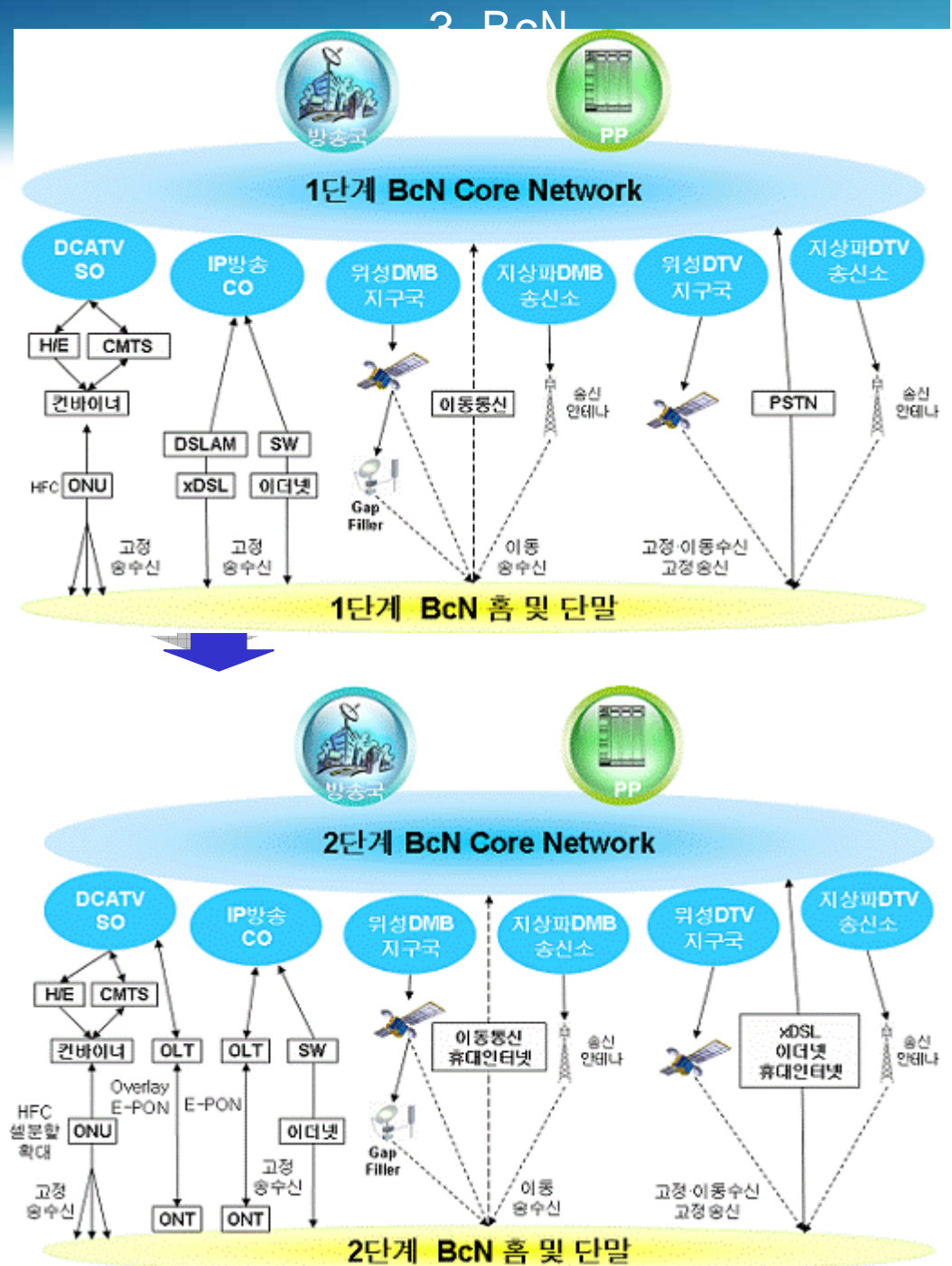
θ   3

(1:1), IP   TV, 100 Mbps   (TV
STB)

Overlay WDM-PON   ◊   1Gbps

(DMB ⇓◊ DCATV ⇓◊   )   :   ,

,

3.6

θ   1

⌉   AV   :
⌉   :
⌉   :
1
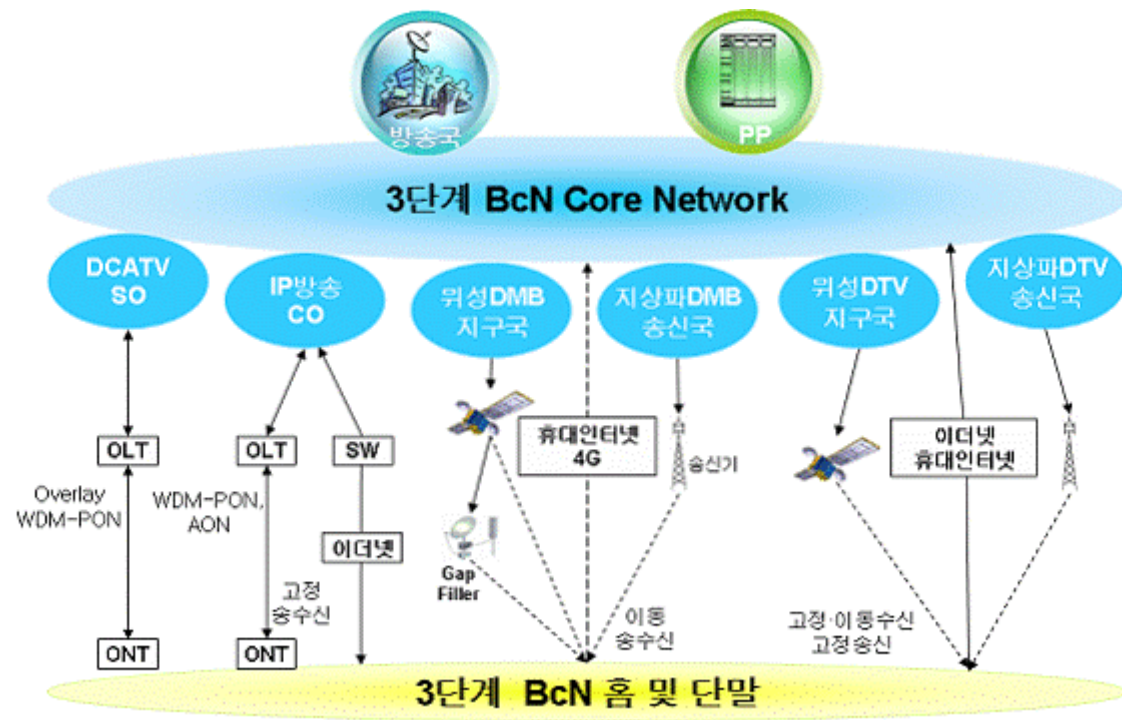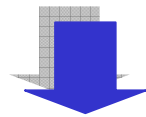
: Ethernet, IEEE1394, PLC,
Home PNA, WLAN

θ   2

:
,   Personal Area
Network (PAN)
2   GW: 1   GW +

:   PAN

3.6

θ 3
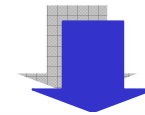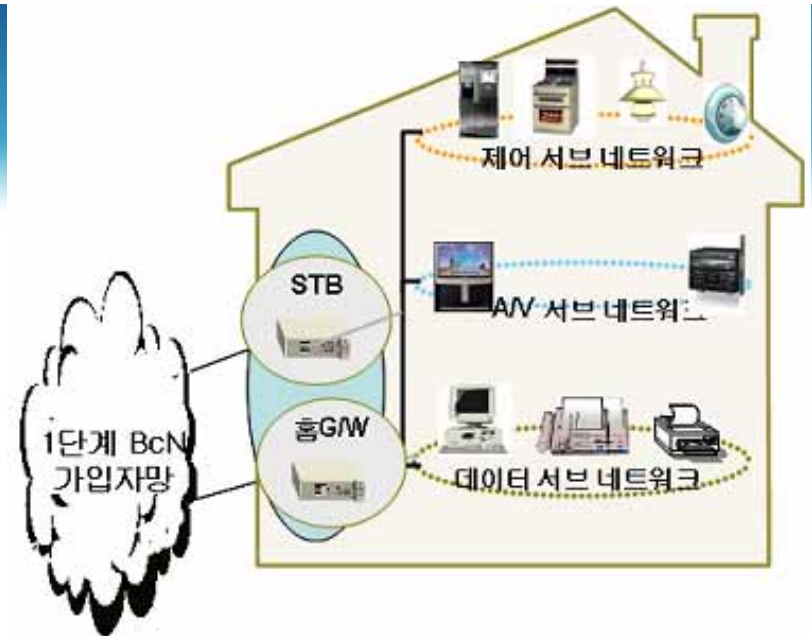
:
:   ,   ,   ,   , AV
:   ,   ,   TV off

θ BcN

    All IP   :   ,
               :   DTV,   DTV,
     DMB
    BcN   :   , DMB, WLAN,

               :   ,

               :   ,   ,   ,

    BcN   :

1. ITU-T FGNGN (NGN Focus Group)

2. ITU-T SG11   (   )

3. MSF (Multi Service Forum)

4. 3GPP IMS (IP Multimedia Subsystem)

NGN FG Release 1 Scope
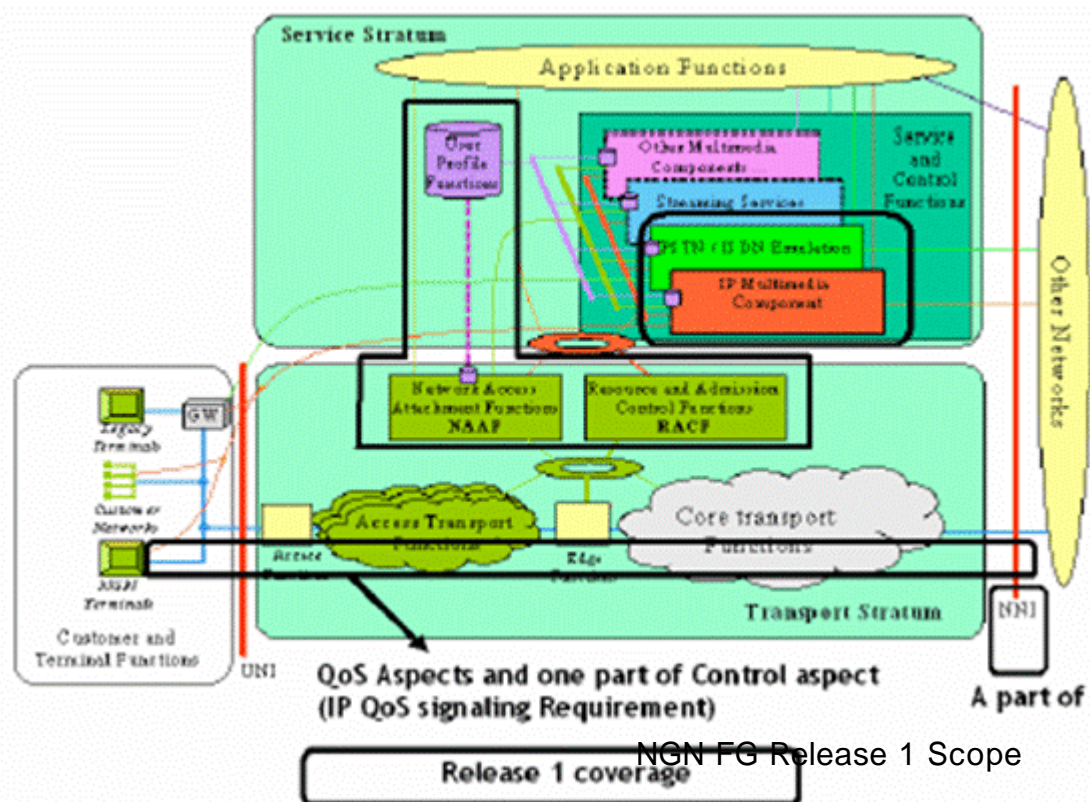
1. **ITU-T FGNGN**

θ **NGN architecture overview (v5.0)**

Service stratum: service and control functions

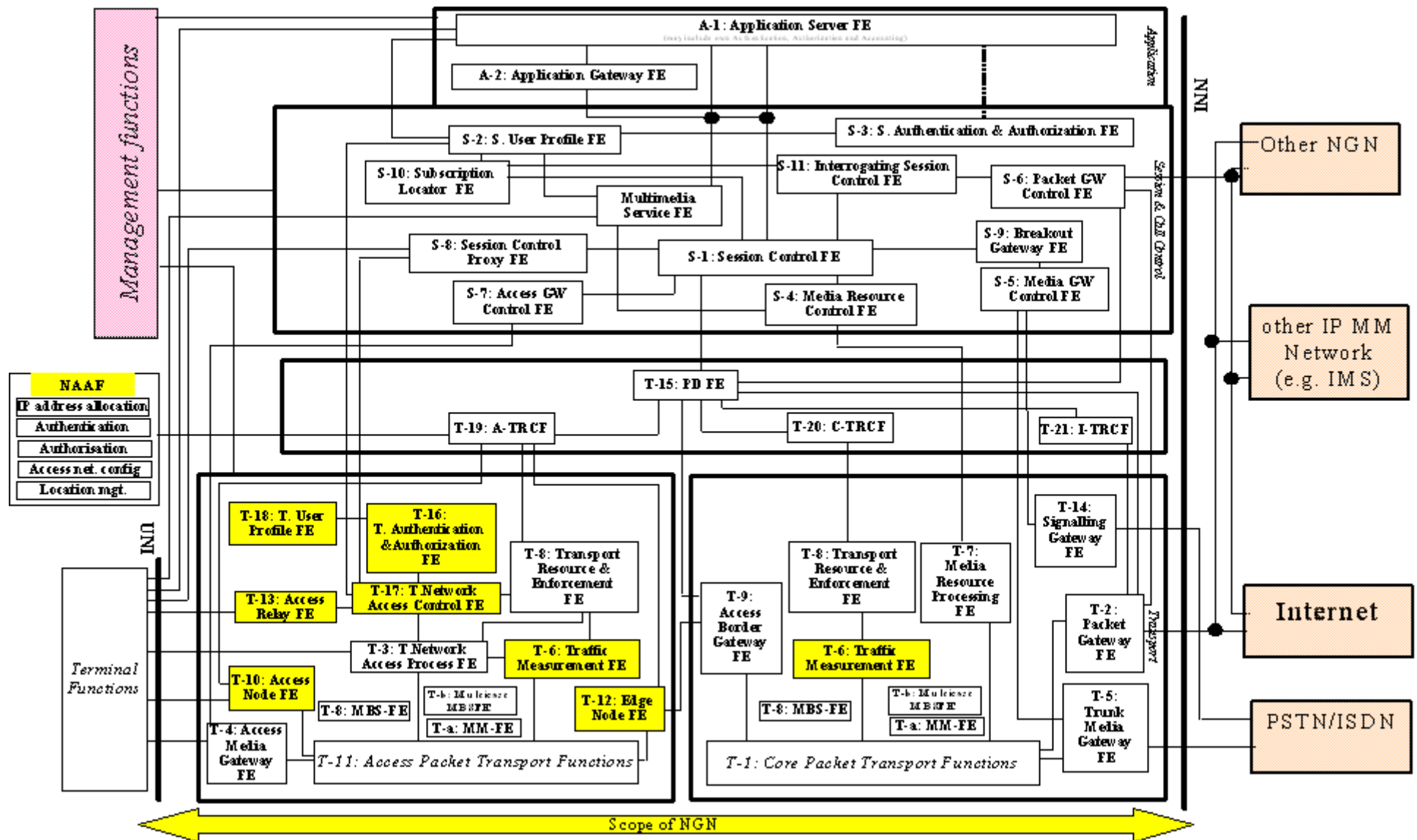Transport stratum: access transport functions, core transport functions
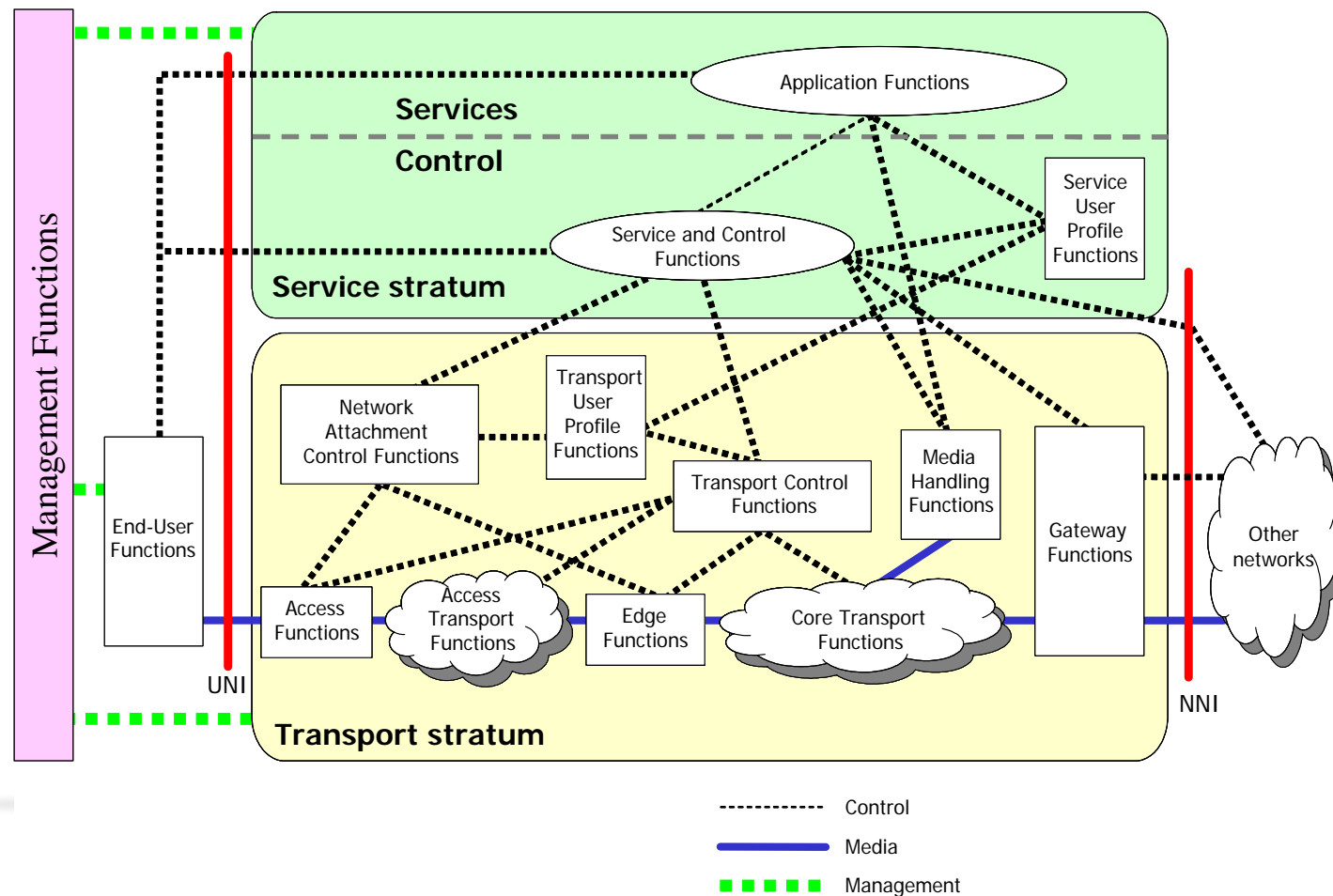
θ   NGN Functional Architecture

θ NGN R1 Services (1/2)

PSTN/ISDN Simulation Service	- Number Identification supplementary Services
	  - Direct-Dialling-In (DDI)
	  - CLIP/CLIR
	  - TIP/TIR
	  - Malicious Call ID (MCID)
	  - Anonymous Call Rejection (ACR)
	- Call Offering supplementary services
	  - Call Transfer (CT)
	  - Call Forwarding Busy/No Reply/Unconditional(CF/CFNA/CFU)
	  - Call Deflection/Barring (CD/CB)
	  - Line Hunting (LH)
	- Call Completion supplementary services
	  - Call Waiting (CW)
	  - Completion of Calls to Busy Subscriber (CCBS)
	  - Follow Me (FM)
	- Multiparty supplementary services
	  - Call Hold (HOLD)
	  - Message Waiting Indication (MWI)
	  - Three Party Service (3PTY)

PSTN/ISDN Emulation Service	- PSTN/ISDN Replacement - Support for legacy terminal equipment connected directly & indirectly to the NGN

θ **NGN R1 Services (2/2)** (ITU-T NGN FG, 2005.3)

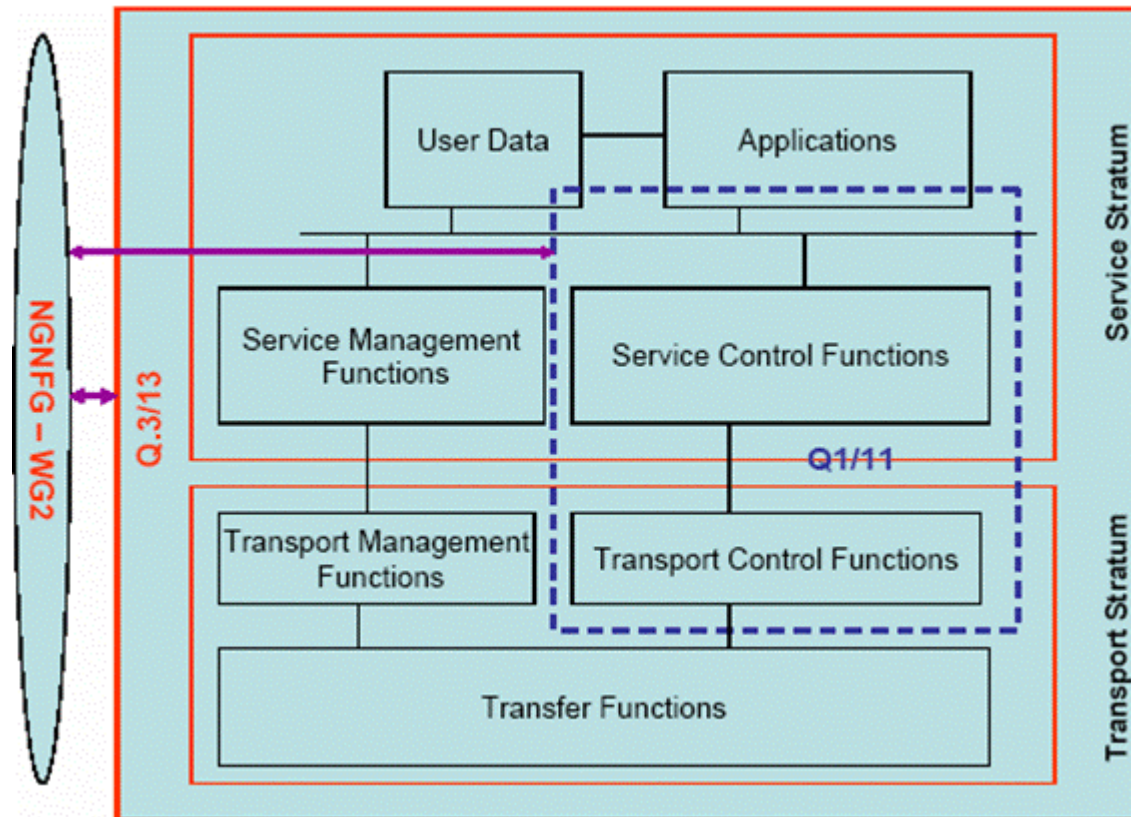|	
Multimedia Services	- Real-time Conversational Voice Services - IM (Instant Messaging) - Push to talk over NGN (PoN) - P2P interactive MM services (video telephony, white boarding, etc) - Collaborative interactive comm services (MM conferencing with file sharing & application sharing, e-learning, gaming) - Messaging (SMS, MMS) - Group messaging (Instant & Deffered) - Content Delivery Services (Radio & Video Streaming, MoD, VoD, TV Channel Distribution, Financial Info Distribution, Professional & Medical Image Distribution, Electronic Publishing) - Push Services - Broadcast/Multicast Services - Hosted & Transit Services for enterprises (IP Centrex) - Information Services (Cinema Ticket info, motorway traffic status, advanced push services,..) - Presence & General Notification Services - OSA based services
Other Services	- Data retrieval applications (tele-software) - Data communication services (data file transfer, electronic mailbox and web browsing) - Online applications (online sales, e-commerce, online procurement for commercials) - Sensor Network services - Remote control/tele-action services (home applications control, telemetry, alarms etc.) - Over-the-Network Device Management
Public Services	- Lawful Intercept　　　- Malicious call trace　　　- User identity presentation and privacy - Emergency Communications　- Users with disabilities　- Carrier selection　- Number portability

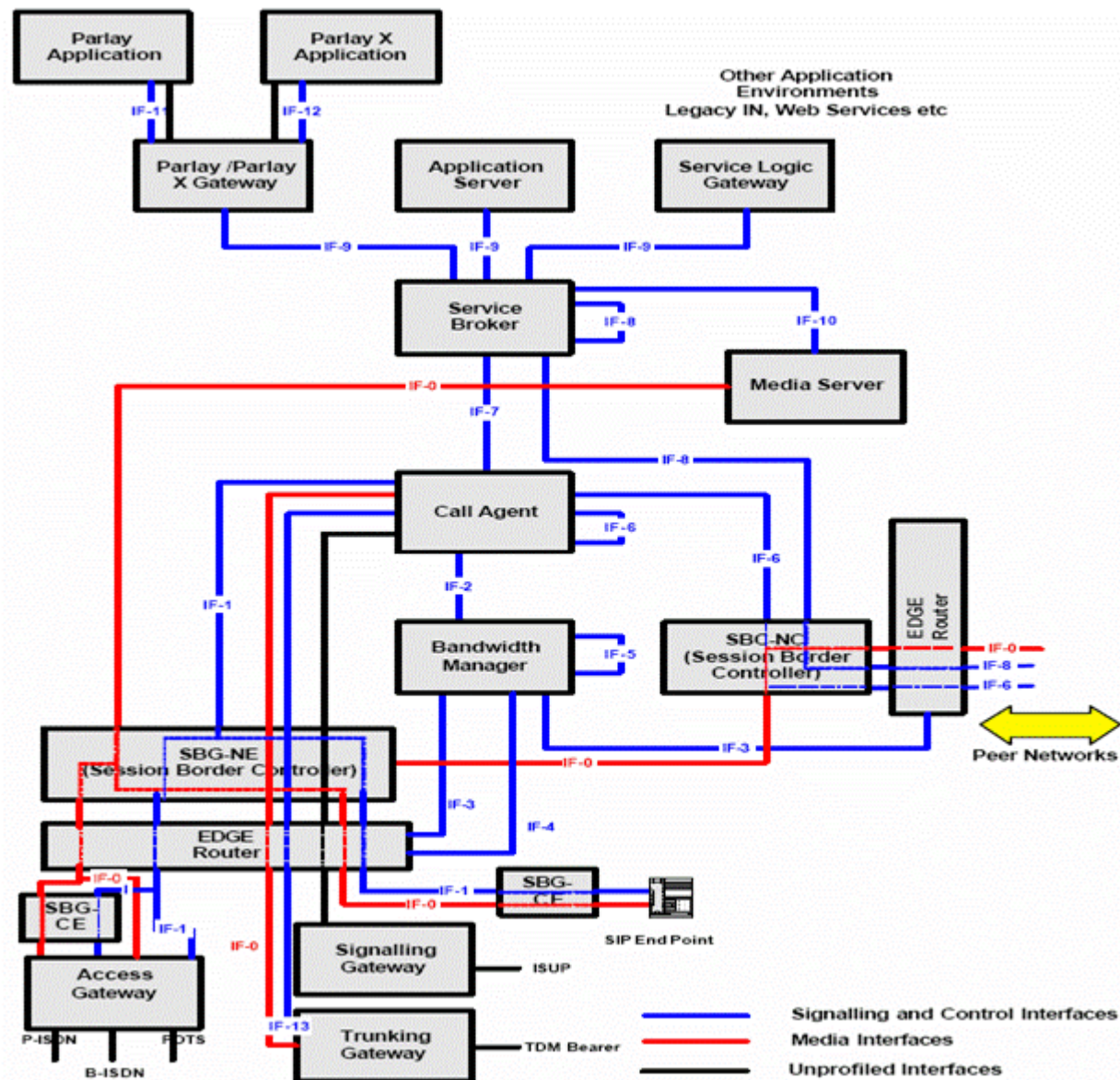θ   ITU-T SG11 (   )
　　　- FGNGN
　　　-

θ MSF Release 2 (NGN)

θ   MSF   NGN

| Interface	Description	Protocols
IF- 0	Media interface	RTP
IF- 1	User Agent or Media Gateway to Call Agent	SIP, MGCP, H248
IF- 2	Call Agent to Bandwidth Manager	SIP, NRCP
IF- 3	Bandwidth Manager to Edge Router or Session Border Controller	H248, COPS- PR
IF- 4	Bandwidth Manager to Core / Edge Router	Under Study
IF- 5	Bandwidth Manager to Bandwidth Manager	NRCP
IF- 6	Call Agent to Call Agent	SIP, SIP- T
IF- 7	Call Agent to Service Broker	SIP
IF- 8	Service Broker to Service Broker	SIP
IF- 9	Service Broker to Application Server	SIP
IF- 10	Service Broker to Media Server	SIP
IF- 11	Parlay Gateway to Parlay Application	PARLAY API
IF- 12	ParlayX Gateway to ParlayX Application	PARLAY- X API
IF- 13	Trunking Gateway to Call Agent	MGCP, H248

θ   MSF   3GPP IMS

3GPP IMS Architecture
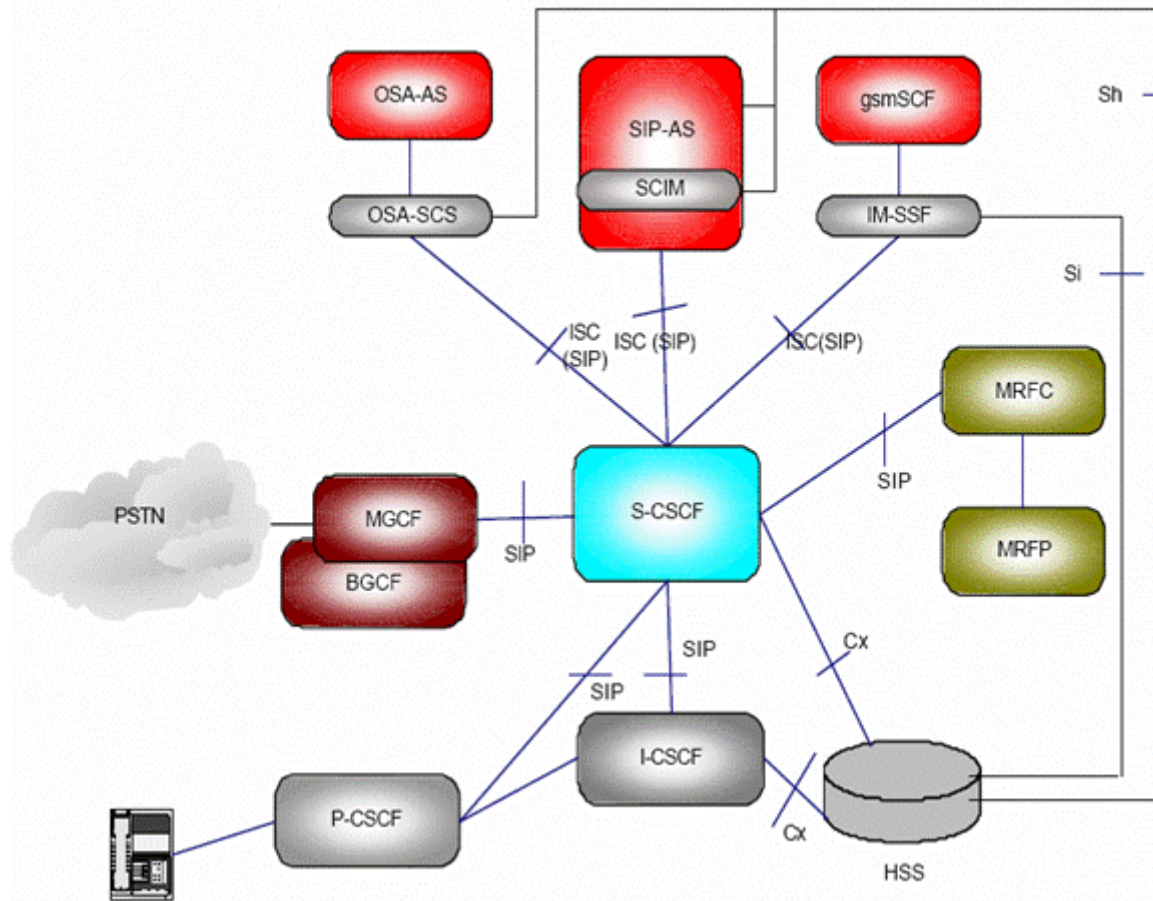
| 3GPP IMS	MSF
MGCF	Call Agent
BGCF	Call Agent
P- CSCF	to be determined
I- CSCF	to be determined
S- CSCF	Service Broker / Call Agent
HSS	
MRCF	
MRPF	Media Server
IM- SSF	Service Logic Gateway
gsmSCF	
SIP AS	Application Server
SCIM	Service Broker / Application Server
OSA SCS	Parlay API/Parlay X Gateway
OSA AS	Parlay Application Server

θ   3GPP IMS Release 5

-   User Identity   : : Public/Private User Identity, SIP-URI, TEL-URI, ISIM
-   IMS   : IMS   , IMS   ,   ,   , SIP
-   IMS   : CSCF   filter criteria   IMS   /   . IM-SSF   CAMEL
          . OSA-GW   OSA
-   QoS   : QoS preconditions, PDF   QoS /
-                 : IMS   , Message Integrity protection, IMS network domain
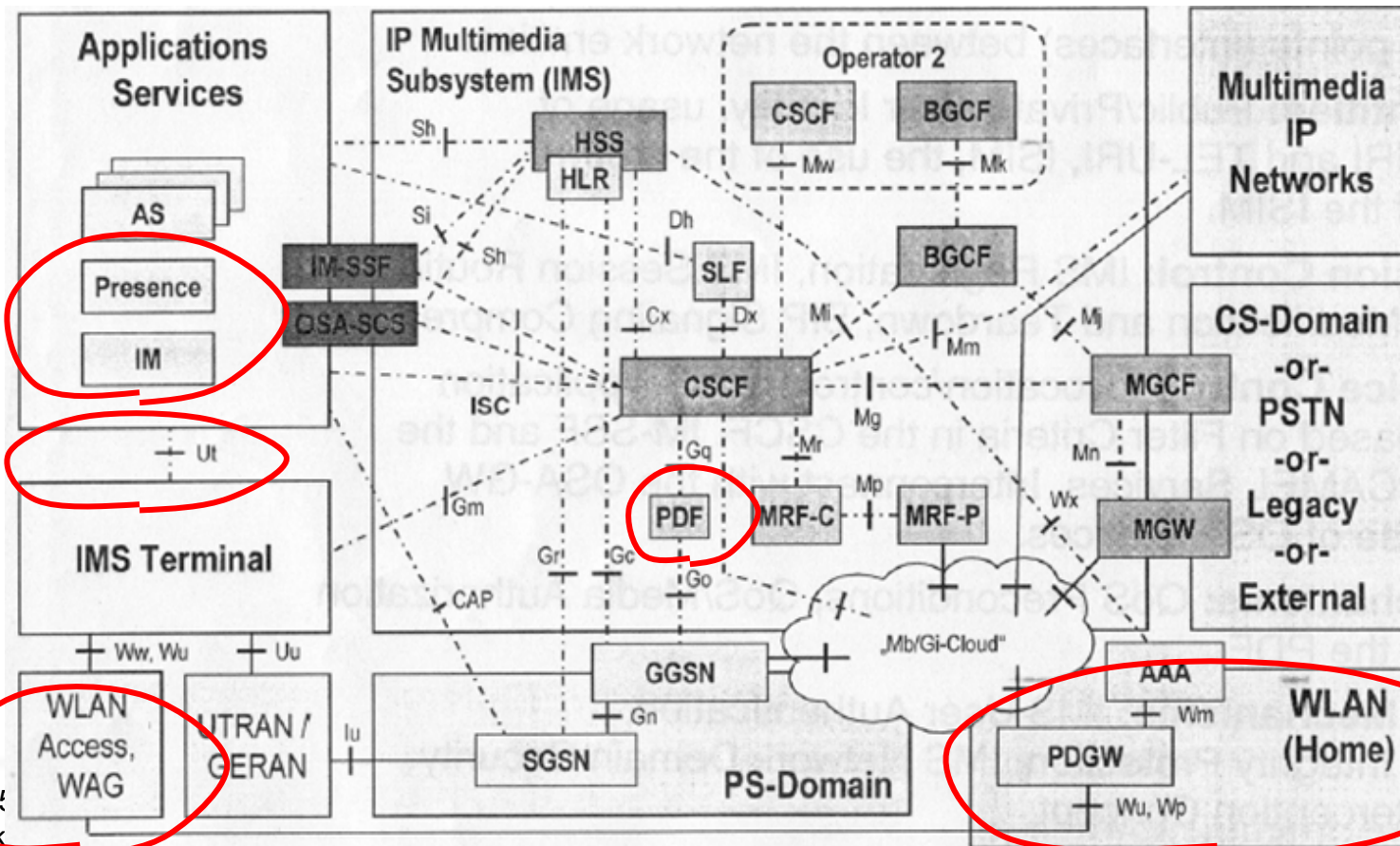 security, lawful interception concept
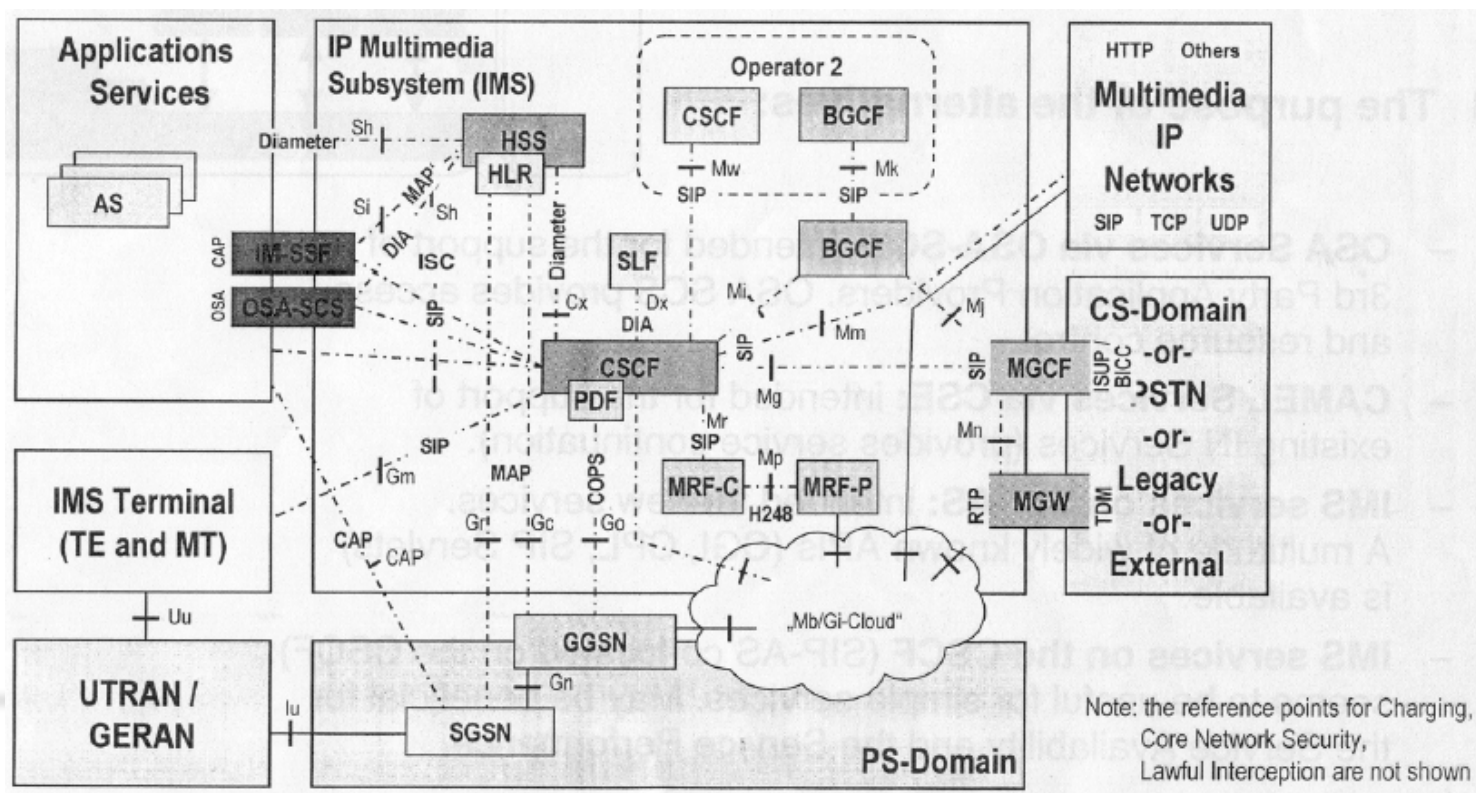
θ   **3GPP IMS Release 6**

- Rel 5

- : Presence, Instant Messaging, Conferencing, Group Management, IMS VoIP Optimized UTRAN-RAB

- : CS/PSTN , WLAN access to IMS, SIP client

- IMS : , group identity

- : SIP confidentiality protection, public key infrastructure , Ut interface (–) security
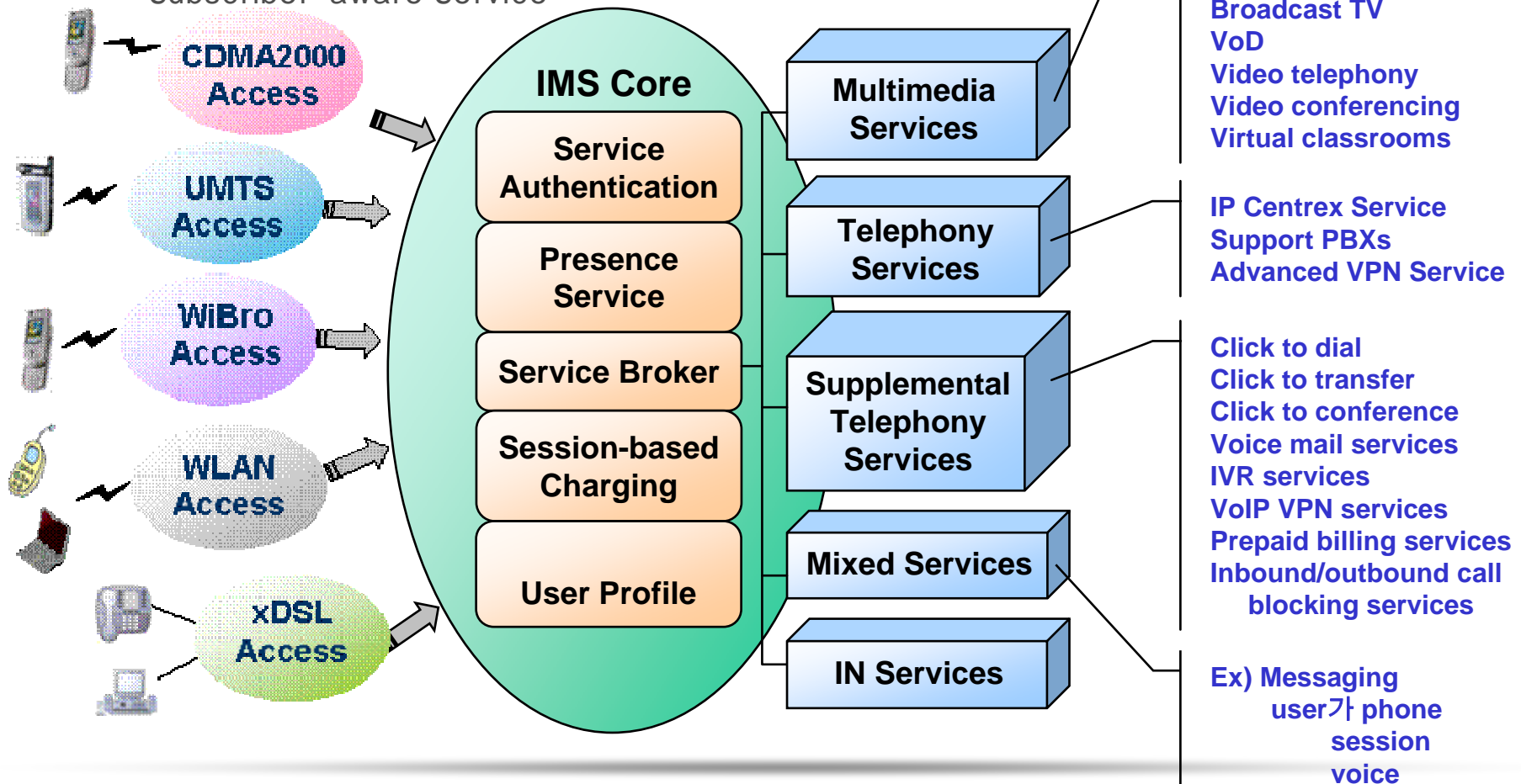
θ   IMS services

- Access
- Access
- Subscriber- aware Service

CDMA2000 Access

UMTS Access

WiBro Access

WLAN Access

xDSL Access

IMS Core

- Service Authentication
- Presence Service
- Service Broker
- Session-based Charging
- User Profile

Multimedia Services

Telephony Services

Supplemental Telephony Services

Mixed Services

IN Services

Instance Messaging
Push-to-Talk
Video Streaming
Multimedia Messaging
Broadcast TV
VoD
Video telephony
Video conferencing
Virtual classrooms

IP Centrex Service
Support PBXs
Advanced VPN Service

Click to dial
Click to transfer
Click to conference
Voice mail services
IVR services
VoIP VPN services
Prepaid billing services
Inbound/outbound call
    blocking services

Ex) Messaging
    user   phone
        session
        voice

1.

2.

3.

* BcN   ?

θ

  -

  -   QoS   (E-Commerce, Secured banking)

θ   /

  -       +   ,   +   ,   +
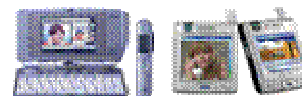
θ

  -

  -        3rd Party   /

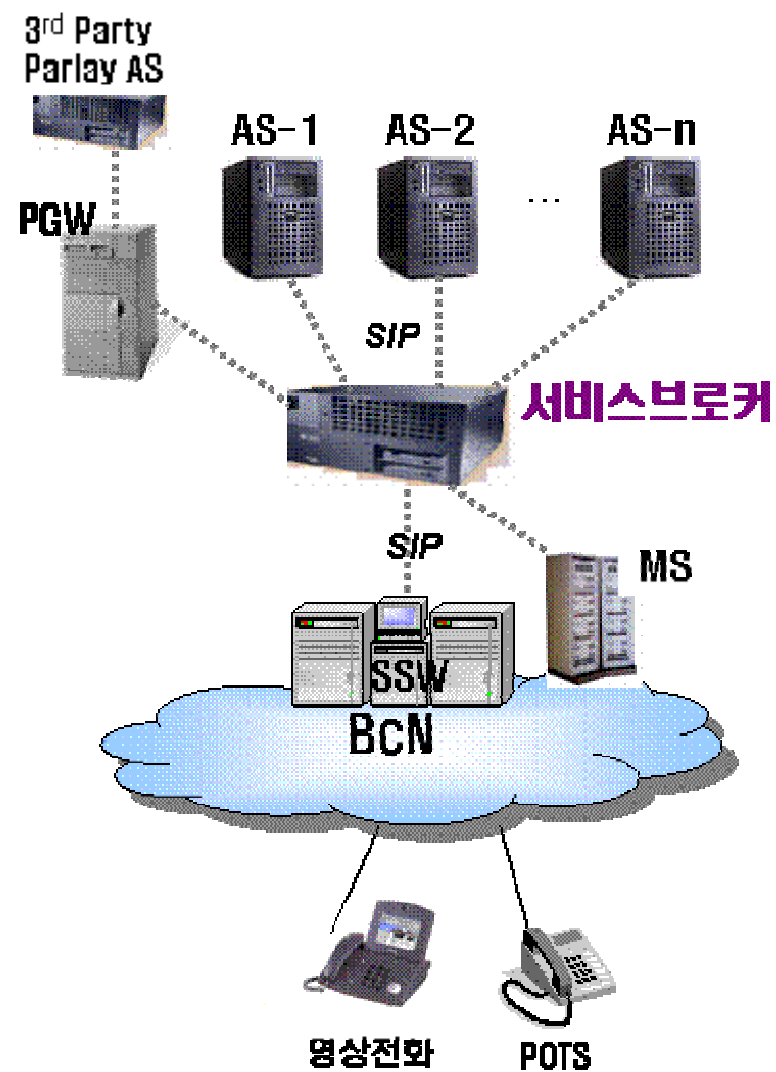   ,   ,

            UI   (1 mm ?)

            (USN)

                   ,   …

| LCD영상전화기 | STB형 | 소프트폰 | 휴대폰/PDA | 코덱 카메라 PC폰 | URC로봇 |

θ BcN

θ   BcN

  -                          ,   ,

      \
      \   ,

Portal (SSO   )   DB   BcN
                            (user profile)

BcN

AS   DB
                              (service profile)

BcN Network   Softswitch
                        (   )   AS

MGW

BcN   DB
                              (service profile)

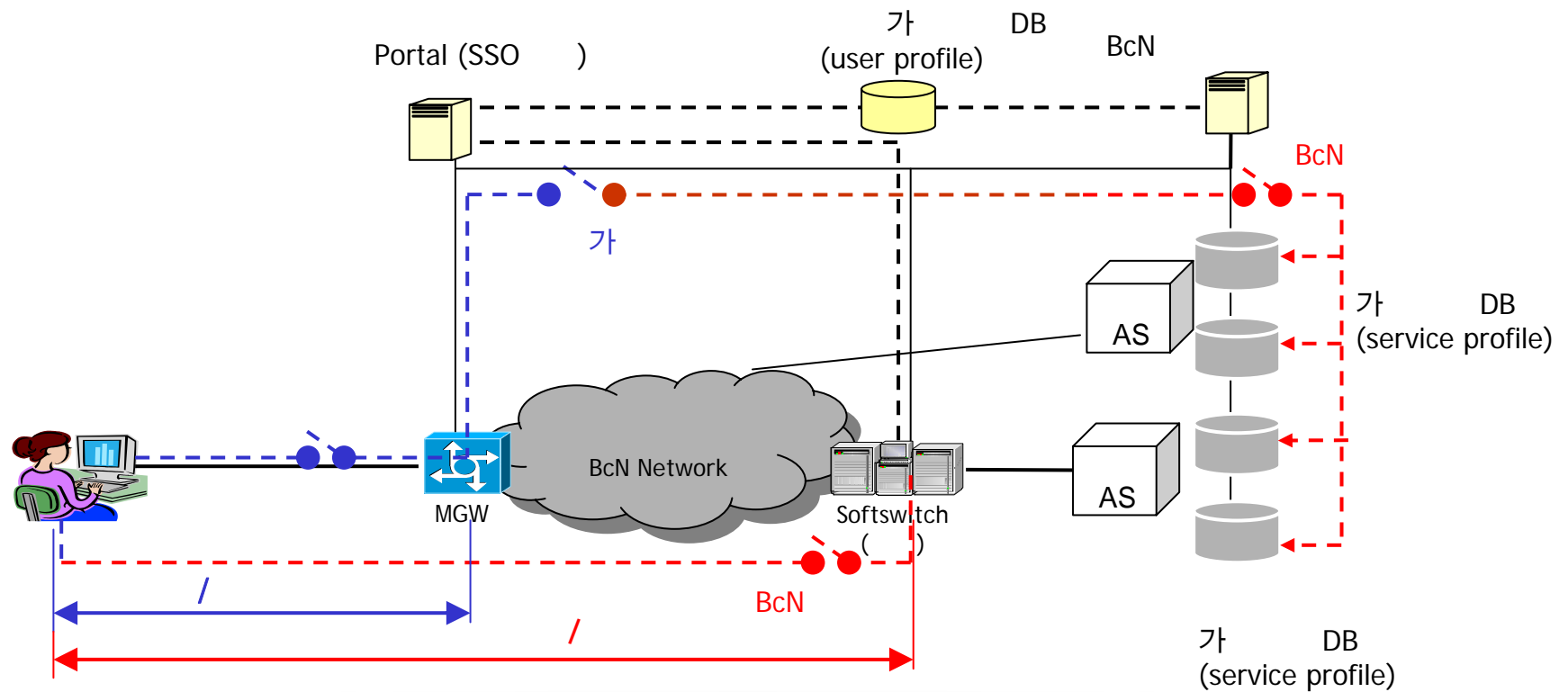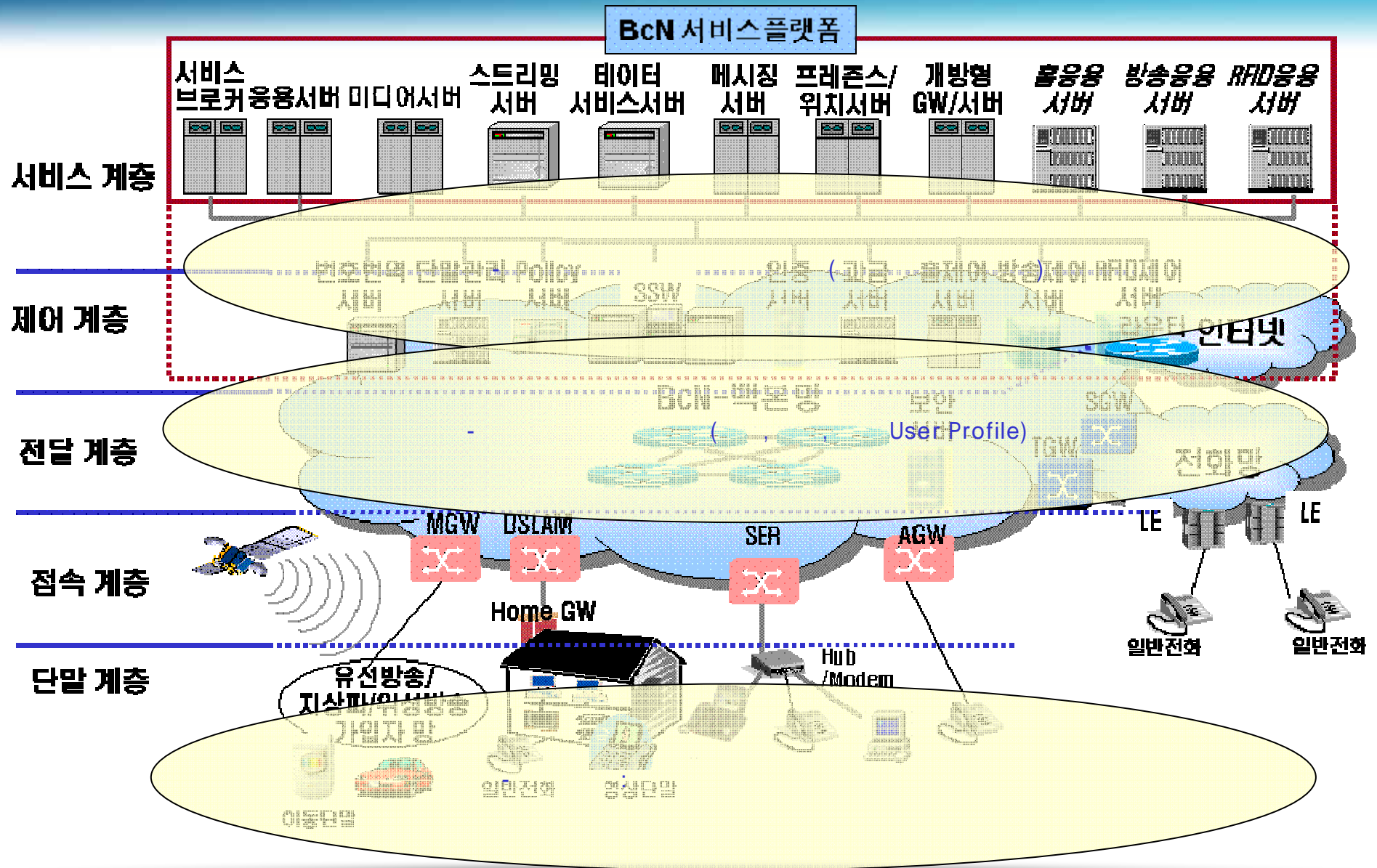# V. Summary

1. BcN

2.   BcN   ,

3.

   θ vs. 3rd party

4.   ,   ,