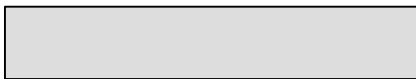


* ** *** **** *****

BcN(Broadband Convergence Network) 가 HFC(Hybrid Fiber Coaxial)
 . xDSL(x-Digital Subscriber Line) 가 HFC 가 가
 가 HFC BcN
 TV 가 , BcN IPv6
 VoIP(Voice over IP), , 가 가
 IP 가 . BcN



- I.
- II. CMTS(Cable Modem Termination System)
- III.

I.
 xDSL HFC
 UTP LAN
 . xDSL HFC
 , 가 ,
 FTTH(Fiber To The Home)
 xDSL HFC 가

* ETRI /
 ** ETRI /
 *** ETRI /
 **** ETRI BcN / /
 ***** /

HFC . xDSL
 750MHz Gbps
 , 2GHz

.....

가 . HFC

. CMTS

가 가 BcN 가

HFC

HFC 가

가 FTTH 가 . HFC DOCSIS(Data Over
Cable Service Interface Specification) 2.0 30Mbps

가 가 , 10Mbps 가 3 가

(Point-
to-Point)

가 . PON

(Passive Optical Network) . PON HFC

(Seamless)

IP

II CMTS(Cable Modem Termination System)

1. HFC

TV 97% 가 TV

HFC 가 가

가 , 가

HFC TV HFC

xDSL 가 . HFC

/ , , VoIP, NVOD(Near
Video On Demand) 가 BcN

가 [1].

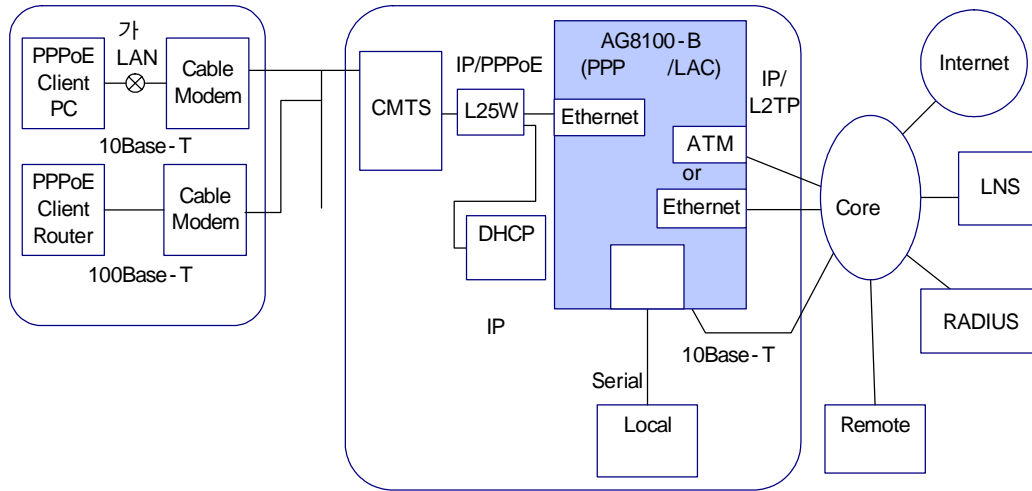
HFC
HE(Head End) CMTS 가 CM(Cable Modem)
HE CMTS [1].

2. CMTS

CMTS
BcN DOCSIS 2.0 CMTS
FTTH KT
xDSL CMTS
가 400 가 BcN 가
[2]-[4].
10Mbps , 100Mbps FTTH
가 CISCO CMTS
가 50% . CISCO 2004 DOCSIS 2.0
CMTS . DOCSIS 2.0 Broadcom CISCO, ARRIS,
ADC CMTS .
/
BcN CMTS 가
CMTS BcN 가
가 [3].

3.

CATV Network Internet Access Service Cable Modem CMTS
. LAN Cable Modem Bridge/Routing 가 LAN
, 가 Security 가 가 ,
PPPoE(Point-to-Point over Ethernet) 가 가 .
LG AG8100 B Series CMTS L2SW Ethernet



(1) CATV Network

가 Access Traffic (1)

CMTS

CATV

가 , 10GbE

QoS

Limiting 가 [5].

가 CMTS

가 Firewall 가

QoS 가 가 . < 1>

CMTS

(2) HFC

QAM Demodulation

flow QoS QoS /

DOCSIS1.x

< 1> CMTS [6]

Vendor	Product	CableLabs Qualified	Notes
Arris	C4	DOCSIS 1.1/1.0 PacketCable 1.0	DOCSIS 1.1 CMTS and router
Arris	CMTS 1000	DOCSIS 1.1/1.0	DOCSIS 1.1 CMTS in 2U design
Arris	CMTS 1500	DOCSIS 1.1/1.0	DOCSIS 2.0/1.1 CMTS in 2U design
BigBand Networks	Cuda 10000		DOCSIS pizza box CMTS
BigBand Networks	Cuda 12000	DOCSIS 1.1/1.0; PacketCable 1.0	DOCSIS 1.1 CMTS IP access switch
C9 Networks	C2000		DOCSIS 1.0 pizza box CMTS
Cisco Systems	uBR10012	DOCSIS 1.1/2.0; PacketCable 1.0	DOCSIS 1.1 CMTS IP access switch
Cisco Systems	uBR7114	DOCSIS 1.1/2.0	Compact, integrated DOCSIS CMTS for MDUs and Hotels
Cisco Systems	uBR7243	DOCSIS 2.0	DOCSIS CMTS and integrated 7200 series router
Cisco Systems	uBR7246	DOCSIS 2.0	DOCSIS CMTS and integrated 7200 series router
Cisco Systems	uBR7246VXR	DOCSIS 1.1/2.0; PacketCable 1.0	DOCSIS CMTS and integrated 7200 series router
Cisco Systems	uBR7246VXR/ MC28U	DOCSIS 1.1/2.0; PacketCable 1.0	DOCSIS CMTS and integrated 7200 series router with 2x8 DOCSIS modules
Coaxial Networks	IRIS DC1100		DOCSIS 1U Pizza Box targeted toward hospitality market
Coresma	QuarterBack		DOCSIS 1.1 -based CMTS
Motorola	BSR 10000	DOCSIS 1.1/1.0	1U DOCSIS 1.1 CMTS
Motorola	BSR 64000	DOCSIS 1.1/1.0; PacketCable 1.0	Integrated IP switch/router and DOCSIS CMTS
Motorola	DCM 2000	DOCSIS 1.0	DOCSIS CMTS in 3U design
Terayon	BW3200		DOCSIS 2.0-based pizza box CMTS

< >: Last Updated: August 19, 2004.

6MHz TV 64QAM
 27Mbps 256QAM 36Mbps
 16QAM QPSK 500kbps
 10Mbps 가 SLA(Service Level Agreement)
 가 .

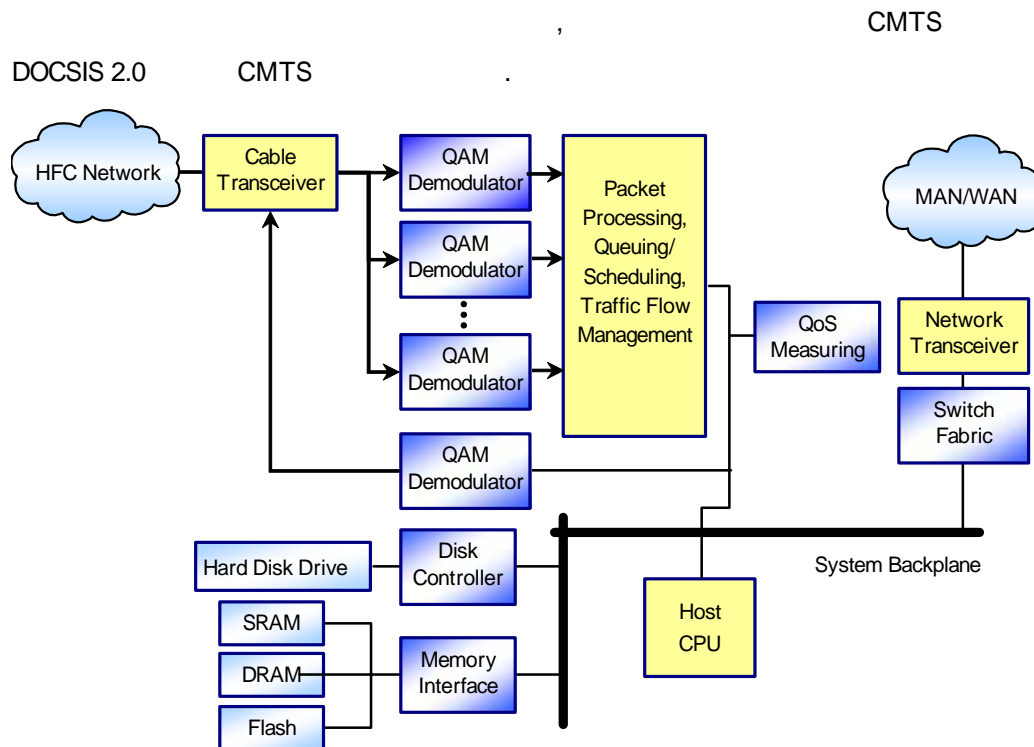
[7].

CMTS 가 LAN

[7].

- Packet Classification and Priority

- Flow and Congestion Control
- Queuing and Scheduling
- Policing
- QoS Measurement for SLA



(2) HFC Network-IP Network

4.

가

CMTS

Firewall

가

-
- DHCP Server/Relay
- User Security/Authentication
- MAC

- 가
- QoS (SLA)
-
- BOD(Bandwidth On Demand)
- MAC Filtering
- 가 MAC Filtering
- QoS
- Per flow Queuing/Scheduling
- DiffServ QoS
- IP or IEEE 802.2 QoS DOCSIS QoS
- IPv6
-
- MPLS Backbone
- Private/Public NAT
- VPN
- (TraceRoute, Ping, SLA,etc)

CMTS

/

BW(BandWidth)

CMTS 가

SLA

III

HFC

Tree & Branch

가

가 , CATV

HFC

가

, VoIP(Voice over IP), NVOD(Near Video

on Demand)

가

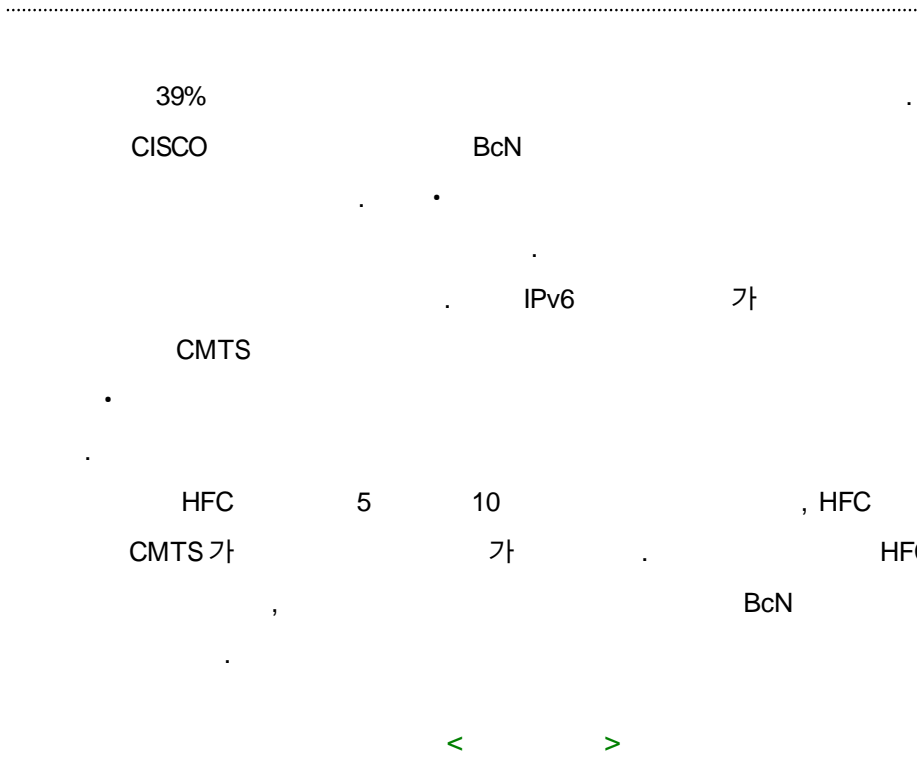
가

CISCO

(CMTS)

50%,

50%,



[1] On the NET 2003 8

[2] HSN2004 , Jan. 2004.

[3] (BcN) , Jun. 2004.

[4] 2004 , 2004.

[5] , LG- AG8100B ,
<http://ipv6.lghitachi.co.kr/product/product26.asp>

[6] Cable Datacom News DOCSIS CMTS Vendors ,
<http://www.cabledatacomnews.com/cgi-bin/advertpro/banners.pl?region=5&keyword=NULL>

[7] Xilinx CMTS , <http://www.xilinx.com/esp/wired/optical/net equip/cmts.htm>