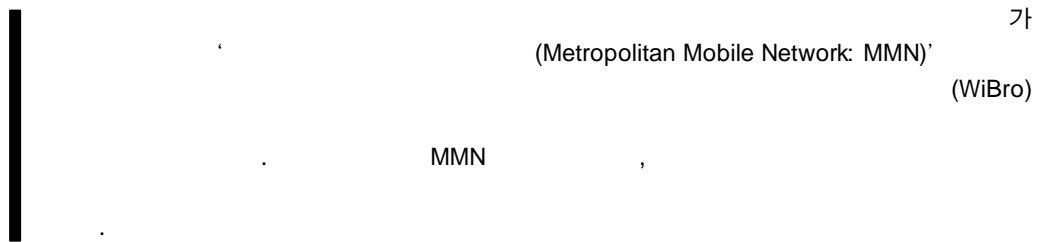

Trend of Technology Development of MMN in Wireless LAN

(S.K. Kim) BcN
 (H.S. Kim) BcN
 (K.I. Kim)
 (S.H. Kim)
 (Y.B. Kim) KT
 (H.T. Hwang) KT



I.

가

- : 가 가 , 가
 - : 2.3GHz 10MHz 가
- OFDMA(Orthogonal Frequency Division Multiple Access)/TDD(Time Division Duplex)

[1],[2].

(QoS)

가

II. (MMN)

ETRI ArrayComm[3], Flarion[4], Navini[5]

MMN / IP

가

MMN

1~2

가 1

MMN

가 가

가 1.

가

MMN (1)

4

(Metropolitan Mobile Network: MMN)[6]

MMN

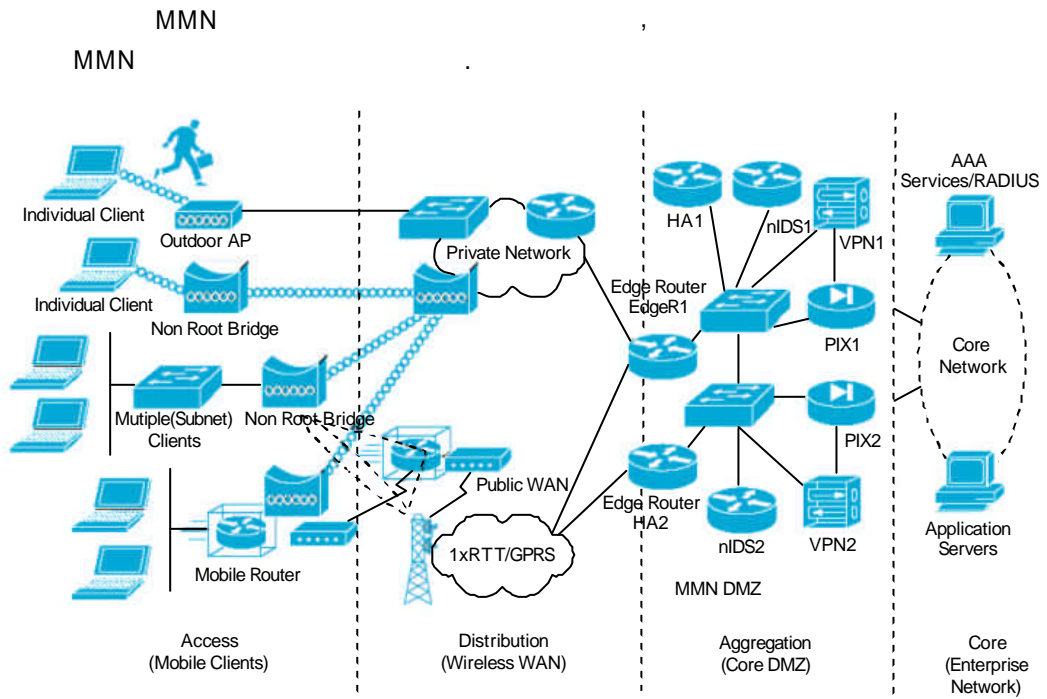
1)

: IP

가 가

MMN

2) (Aggregation):



(1) MMN

3) (Distribution): , 가 , 2.

MMN

4) (Access):

MMN

< 1 >

가.

가

MMN

2.4GHz

1300

가

/

[7] 5GHz

1400

[8]가

< 1 >

MMN

802.11a/g

3200

[9]

< 1 >

1300 /	? ? point-to-point, point-to-multipoint ? 54Mbps ? 40km 11Mbps ? 100km/h 12~24Mbps
1400	? point-to-point, point-to-multipoint ? 54Mbps ? 5.8GHz ? ? ? LOS(Lint of Sight)가 가 ? QoS - , , 가 , 24 VolIP 가 ? 802.11 ? 가 가 : , PAgP(Port Aggregation Protocol), Fast EtherChannel 가 가

< 2 >

3200 /	? , 가 ? IP , , 가 ? ? IP , 802.11g



가 < 2>

가.

1996

RF

AAA(Authentication, Authorization, Accounting)
RADIUS, TACACS+
Cisco Secure Access Control Server
(ACS)

9,600bps

Verizon Cellular Digital Packet Data (CDPD)

14.2kbps

Cisco
Works Wireless LAN Solution Engine(WLSE)가
WLSE ACS

911

가

250

MMN

MMN

3.

MMN

802.11a/b/g

Mobile IP(MIP) Cisco 3200
. 802.11

802.11b

AP

9

CDPD

350

가

AP

100km

Secure Access Control Server

IEEE 802.11p(Wireless Access for
Vehicular Environment), 802.11r(Fast Roam-
ing), 802.11s(Mesh Networking)

PIX® Firewall

MMN

4.

MMN

MMN

가

가 .
2)

III.

MMN ,
MMN
MMN

- :
- : 가 ,
- :
- : QoS
- :

MMN .

1)

IEEE 802.11

MMN

• (Throughput)

가 MAN

10MHz

MMN

가
WiMAX[10]
[11].

70Mbps
3.4bps/Hz , MMN 802.11a
20MHz 50Mbps
2.7bps/Hz , IEEE
802.11a 2.4GHz ISM

MMN

가가

가

1~2

가 1

• (Scalability)

가

MMN

1/10

IEEE 802.11a , 20MHz
CSMA MAC

가가

(Return On Investment: ROI)
(Total Cost of Ownership: TCO)

10

MMN

1.5~20MHz

TDMA MAC

가 ,
1,000

AP

가

MMN

< 3>

		MMN(IEEE 802.11a)	(802.16e)
		20MHz	10MHz
		50Mbps	70Mbps
		~2.7bps/Hz	~3.4bps/Hz
		CSMA(Carrier Sense Multiple Access) 10	TDMA(Time Division Multiple Access) 1,000
		100m	1km
		100m PHY MAC layer	, FEC, ARQ, , , DFS
		가 . MAC	MAC
		(BW contention)	(BW allocation)
	QoS		가

MMN

- (Coverage)

1km
 , FEC, ARQ, , , DFS
 가
 MMN
 가
 MAC
 802.11a 100m 가
 , PHY MAC
 , 802.11 MMN
 MAC
 . MMNs (QoS) 802.16

- (Differentiated Services)

TDMA 가
 가
 QoS 가 , MMN 2006
 QoS 가 ,
 , MMN IEEE
 가 (< 3>). 802.11 IEEE 802.16
 IEEE 802.16 MMN

IV.

MMN ,

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