

Integration of Wireless Network in WiMAX and Wi-Fi Wireless Technology Communication

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Abstract: The present paper provides the conceptual framework of next three generation of wireless technologies: *Wi-Fi, WiMAX and MBWA* the formally, in which expertise or combination of two expertise provide a key for making of a wireless network. Every expertise are assessed founded on presentation, exposure zone, dependability.

Keywords: MBWA, wireless, dependability.

Introduction: Mostly that is used in succeeding group wireless expertise that is planned explicitly aimed at mobile data admittance, aiming wireless access in portable atmosphere. The three expertise are *wi-fi*, *wimax* and *mbwa*. *Wi-Fi* is a name given to *IEEE 802.11* normal which is taking several working collections of which *ieee802.11p* is one. The *ieee802.11p* normal also contains better safety, mobile process, and credentials. The unique functioning cluster is increasing the *ieeestandard*. The *ieeestandard* is endeavouring toward normalise the expertise wireless network facility for portable operators whereas upholding a linking speed on speed upto 93 m/h. A standard based expertise that allow the distribution of last mile *wireless broadband access* as an another to cable and DSL arrange for fixed, itinerant, portable and ultimately mobile wireless broadband lacking the need for straight LOS to improper position. Present *WiMAX* review delivers up

to *40Mbps* in characteristic *3-10 km* improper position area. The technologies goal to deliver broadband wireless access to domestic zones and slight commercial initiatives, in accumulation to providing internet access in nations without any wired network organisation. Now wireless expertise requirements to be examined from two viewpoints: access network and backhaul network.

Benefits: Publics whose effort needs them near a car itinerant dwelling to any other place would catch inordinate assistances in actuality talented to admittance Internet whereas moving. The permit such as somebody to contact their concern correspondence and halt linked healthy access collections and take files. This would permit individual fundamentally to make a portable workplace. For instance develop supplementary portable to complementary dependent on automated statistics also diplomacies, this nature of system mean to develop vital. The Wireless networks are informal to set up and cheap.

flowing cinematic also extra influential requests. Intended for actual period requests similar vocal sound, potential dangerous. Dormancy ought to be reserved underneath *20 ms*, everything overhead that would permit placement of supplementary topographies.

Methodology:

I. Performance

Performance is evaluated from unhurried bandwidth and inexpression. Recital is an significant portion it controls pardon request canister to run network. A squat bandwidth canister individual viably provision humble facts such manuscript collections. A complex bandwidth jerry can hypothetically provision

II. Exposure Zone

Reporting part remains assessed after unhurried aloofness desired flanked by improper positions, the quantity of strategies essential to provision that organisation, in addition to the expertise devours the aptitude to button off among improper places lacking damage of exposure. The detachment desired glowing the aptitude toward button off among improper places remained found the earlier investigation accompanied all expertise besides the quantity of improper places mandatory be situated approximation found permissible distance among them.

Attention zone remains significant distinguishing for its control exactly how huge an adjoining can be area of wireless. The wireless expertise cubicle attention part are significant through esteem toward price, meanwhile workers canister decrease their preliminary assets expenses.

III. Reliability

Dependability remains branded via normal digit of released sachets, typical quantity of separates, also the expertise pretentious through ecological issues i.e. contour of vision. Dependability are significant since than hypothetically distress that operative of request. Certain requests possibly will need a dependable linking. The link are nothing consistent, packages may

wi-fi remain established via the functioning collection also existed primarily intended towards inside on close by variety but then has newly offered keen on flexibility. That one comprises permitted and stipulations. *The wireless Technology* is the leading extraordinary speed wireless expertise positioned zones i.e. airport, offices, homes, and hotspots. However, the W-Fi technology is partial via range; consumer necessity persists inside *300 to 1000 feet* of an improper place.

WiMAX

The WiMAX remains that the newest wireless expertise toward the permitted via *IEEE 802.16* at work clusters. The typical for one to many connection of wireless interacting. It's planned bring to preceding mile broadband connect to separate homespun or commercial places also in this fact tariffs is similar per cable and DSL tariffs. The firms are in suspense will remain a spare intended for the mature inheritance wire link. Now detail, it is understood by way of *wi-fi* standby designed for a strengthened broadband linking. It consumes the aptitude to permit operators link *wi-fi* Internet facility breadwinner straight after the

be released; hurry of complex linking resolved reduction. That the unfavourably affect the recital requests, thus warning that kinds of bids that canister remaining use.

IV. Safety

Safety are assessed after smooth data decomposition also expedient validation on condition that through every expertise. Maximum requests determination necessitate a protected linking now direct towards communicate profound material. They would not neediness toward depiction the latent of life different otherwise material being observed by illegal persons. Linking with the firm's interior complex resolve necessitate a protected link.

V. Flexibility

Flexibility remains rapidity movable contact topic expertise canister link also endure associated lacking facility disruption. Obviously, the *wi-fi* technology vehicular situation determination need toward the portable. The linkage necessity withstands linking on vehicular haste.

wander external for residential area or commercial workplace.

WiMAX technology is a PMP expertise the activate between *10 to 66ghz* also *sub 11ghz* wavelength. On advanced occurrences, streak of vision remain to prerequisite as well as well-matched through expertise is asynchronous transmission approach also internet protocol. It may be delivered facility completed objectivities *30 miles*. The normal protections in cooperation of *MAC* as well as *PHY* layers for mutual immovable and portable process trendy accredited occurrence groups. *WiMAX* established keys contain much compensation, healthy security topographies, decent excellence of facility.

MBWA

MBWA remain existence established by the *IEEE 802.20* at work cluster also immobile beginning. The aforementioned envisioned toward portable broadband expertise, directing extraordinary hustle portable linkages. The normal remains precisely directing design of a dependable, wireless power of speech. It pursues to improvement actual period statistics communication tariffs in wireless *MANs* to hurry that competing DSL also restraint inspirations. It remains being intended to functioning in insignificant portions of field, significance the essential station bandwidth stands lesser.

Overall Comparison

Even if the vital expertise is the identical, the prime variance among *WI-FI* and *Wimax* are in attention zone. *WI-FI* existed actually enhanced intended for inside use also tiny assortments. *WI-FI* might remain a decent result aimed at appeal group, determination over windows, a secure receiver and also the source is famous toward the given aloofness gone.

WI-FI improper places cannot provision by way of various operators as *Wimax* improper places. *WI-FI* remained individual intended to provision 1 to 10 client improper place with a secure network magnitude of 20 mhz. *Wimax* existed intended to provision 500 client per improper location.

Wimax use approved range while *WI-FI* use uninhibited range. *Wimax* uses individual of the unrestricted rate of recurrence, then provisions double other rate of recurrence that remained approved. Consequently, the incomplete in its aptitude for accepted extended collection. For example you produce additional users; the bandwidth is separated up between the operators.

CONCLUSIONS

WI-FI & *MBWA* are not traditional similar. *WI-FI* remained primarily planned then considered meant for

covered practice through a slight quantity of operators per improper place. *MBWA* remains planned & deliberate explicitly for wi-fi technologies; therefore it is integrally accomplished of a superior moment frequency, superior exposure zone, & provision for affecting items at superior rapidity.

However, *Wimax* remained not primarily planned through flexibility in concentration. Flexibility remained additional enhancement; consequently *Wimax* is not enhanced for movement. *MBWA* is a fresh schedule plan, preliminary since scrape enhanced for extreme movement. Consequently together expertise must compensations, difficulties, contingent arranged the planned request.

Clearly *MBWA* provisions advanced haste. *MBWA* is stated awake to 150 MPH comparative to the aerial, whereas *Wimax* is single stated aimed at vehicular speeds & mechanism up to about 90 MPH in imitation. *MBWA* delivers identical short in expression but the considerable inferior factstariffs than *WiMAX*.

Performance

	BANDWIDTH	LATENCY	MAX. BIT RATE
Wi-Fi 802.11p	20 MHz at 54 Mbps	50 MS	54 MBPS
WiMax 802.16e	14 MHz, > 5 MHz at 70 Mbps	25-40 MS	100 MBPS
MBWA 802.20	1.25 MHz (downlink) 16 Mbps at 5 MHz (uplink) < 5 MHz at 3.2 Mbps	10-30 MS	16 MBPS

Mobility and Coverage Area

	RANGE	MOBILITY
WI-FI 802.11p	Up to 1000 FEET	< 100 MPH
WIMAX 802.16e	Up to 30 MILES (LOS) Up to 5 MILES (NLOS)	< 75-93 MPH
MBWA 802.20	Up to 9 MILES	< 155 MPH

Reliability & Security

	<i>Range</i>	<i>Security</i>
<i>WI-FI 802.11p</i>	<i>NLOS</i>	<i>WEP</i>
<i>WIMAX 802.16e</i>	<i>NLOS LOS</i>	<i>Implemented</i>
<i>MBWA 802.20</i>	<i>NLOS</i>	<i>Implemented</i>

REFERENCES

[1] *Benefit and security issues in wireless technology: wi-fi and*

Wimax.<http://ijiracce.com/upload/2013/june/27benefit.pdf>.

[2] *wi-fi and Wimax: A comparative study.*<http://arxiv.org/ftp/arxiv/papers/1302/1302.2247.pdf>.

[3]<http://www.aprcot.net/apriocot2012/data/assests/pdf>.

[4] *ieee standard 802.16e -2005. Part16: air interface for fixed & mobile broadband wireless access system amendment for physical and medium access control layers for combined fixed and mobile operation in licensed band. December 2005.*

[5] *ETSI TS 102177 version 1.3.1, February 2006, Broadband and radio access network; Hiperman; Physical layer.*

[6] *Y. Xiao, Wimax-MobileFi: advanced research and technology. Auerbach publication, 2008.*

[7] *NuaymiLoutfi, 2007, Wimax expertise for broadband wireless access wiley, London.*

[8] *R.B. Marks, K. Stanwood, D. Chang, etal.,ieee standard for local and metropolitan area networks, part16: air interface for fixed broadband wireless access system, October 2004.*

