

A Review paper on Quality Oriented video delivery over Wi Max Network

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Abstract: Today in the field of technology the demand of high-speed data rate, quality of service with mobility is increasing day by day. WiMax (Worldwide Interoperability for Microwave Access) is one of the technologies which based on IEEE 802.16 provides the higher bit rate and higher speed as per the user needs. It is also a component of 4G technology. which support many Interactive services such as video conferencing, Voice over IP .In this paper the focus is on various constraints that affects the metrics of performance of video quality at different loads in Wimax network.

Keywords: Wimax, Wimax Architecture, Video Quality Measurements.

I Introduction

Wi Max provide higher data rates over long distances.it also supports two types of accesses which are point to point and point to multipoint access. Wi Max is much faster than a commercially available wireless broadband network.it is used for a very long distance to exchange or provide information which is known as Metropolitan Area Network(MAN) Technology. Wi Max has two parts which are as follows:

Transmitter: A single Wi Max tower can provide coverage to a very large area as big as 3000 square Miles.

Receiver: The receiver \$ antenna could be a small box or they could built into a laptop.

Architecture

There is a simple architecture of the Wi Max is available which is known as three layered structure because it contains three layers which are as follows:

- a) Physical Layer
- b) MAC Layer
- c) Convergence Layer

These three layers has its own work which is different from each other. This architecture is also known IEEE 802.16e which is based on the IEEE standard.

a) Physical Layer:

- I. Connections are established between the subscribers.
- II. Modulation
- III. Error checking between connections.

b) MAC Layer:

- I. Decision making of sending data or receiving data of layer.
- II. Point to multipoint Access.

c) Convergence Layer:

All the functions are performed by this layer.

II WiMax Network Features

There are many features of the Wi Max network which are different from other network. The key features are as follows:

- a) Flexibility
- b) Higher Bandwidth
- c) Wider Area Coverage

Wi Max provides up to 75 mbps bit rate and range within 50 kilometers in LOS .It uses different types of applications for UL and DL which are Up Link and Down Link respectively

III .Major Principles for Wi Max

Wi Max network is based on different types of principles which are as follows:

- a) IP Connectivity
- b) Interworking
- c) Spectrum
- d) Topology
- e) Mobility Management

a) IP Connectivity:

Supports the mixture of internet protocol version 4 (IPV4) and Internet protocol version 6(IPV6)

that interconnects on the client servers and application servers.

b) Interworking:

Enable integration and interworking with wifi, 3GPP, 3GPP2 and IP addresses.

c) Spectrum

It able to connect /deployed on both licensed and unlicensed spectra.

d) Topology

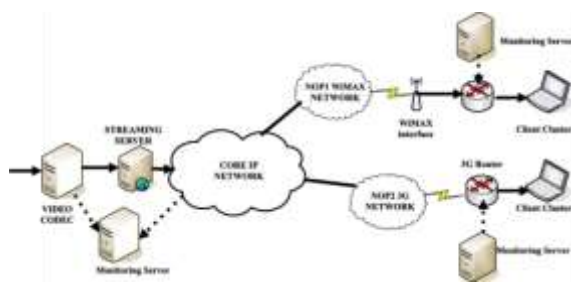
Wi Max supports for different Radio Access Network topologies.

e) Mobility Management

Possibility to extend the fixed access.

IV Video Quality Measurement

During the past few years, Worldwide Interoperability for Microwave Access (WiMAX) has earned a rapid rise in popularity as Mobile data usage has been on rise such as video conferencing and IPTV, Video-On-Demand (VOD), and video calling, online multimedia gaming. By several studies it is predict that there is increase in mobile video data traffic by 2018 about 15-20 times. Due to this increasing demand the quality of service of video get affected resulting in problems ie interrupted streaming, large session setup delay, and reduced video quality. There is some important parameters which affect the system performance leads the system to suffer degradation in quality of service QOS such as Pausing of playback due to Buffer Starvation, Macro blocking, Full Loss of Picture, Poor transmission delay, Packet delay ,packet Loss.



The metrics of QOS used in evaluating the video applications in / WiMAX network are:

- 1) Latency: In wimax telecommunication latency is the time delay from sender side of the first bit packet until it reach the destination .
- 2) Jitter: jitter means variation of delay from sender to destination side.

3) Packet Loss Rate: During transmission number of packets lost over network which occur due to congestion.

4) Mean Opinion Score (MOS): After compression or transmission a numerical indicant of the perceived quality of received media.

5) Packet Delivery ratio: It is ratio which signifies how many packets reach to the Destination.

6) Throughput: In WiMax network no of packet reached the destination measure in packet per second .

V CONCLUSIONS

Wi Max supports OFDM which is orthogonal frequency division multiplexing. Modulation is also possible here because Wi Max also support the flexibilities. In video streaming if we take the worst case scenario for deploy the large coverage then we use more transmission power for the large coverage. Wi Max network needs to efficient handoff mechanisms.

VI. REFERENCE

- [1] " Enhanced QoS support in OFDMA-Based WiMAX Systems" An international journal of advanced computer technology, 5 (4), April-2016 (Volume-V, Issue-III)
- [2] "Hongfei Du, Jiangchuan Liu and Jie Liang, "Downlink scheduling for multimedia multicast/broadcast over mobile wimax: connection-oriented multistate adaptation", *IEEE Wireless*
- [3] T. Jiang, W. Xiang, H. Chen and Q. Ni, "Multicast Broadcast Services Support in OFDMA-Based WiMAX Systems [Advances in Mobile Multimedia]", *IEEE Commun.Mag.*, vol. 45, no. 8, pp. 78-86, 2016
- [4] **J. Antoniou, A. Neto, S. Sargento, F. Pinto, "Session and Network Support for Autonomous Context-Aware Multiparty Communications in Heterogeneous Mobile Systems", *International Journal of Handheld Computing Research*, vol. 1, no. 4, pp. 1-24, 2014.**
- [5] "Segmented video distribution over WiMAX: Proposed approach and experimental methodology <http://ieeexplore.ieee.org./stamp/stamp.jsp?arnumber=5475982>
- [6] TSiva, B., Reddy, K. and Lakshmi (2015) „Adaptive modulation and coding with channel state information in OFDM for WiMAX“, *I.J. Image, Graphics and Signal Processing Image, Graphics and Signal Processing*, 1(1), pp. 61–69. 10.5815/ijgisp.2015.01.08
- [7] E.Guainella.,M.Katz (2015), WiMAX technology support for applications in environmental monitoring, fire prevention and telemedicine.,VoL
- [8] Irfanullah, Amjad Ali, Abdul Qadir Khan, Rehanullah Khan, Akhtar Khalil Sarhad , "WiMAX based audio/video transmission", *International Journal of Computer Science Issues*, vol. 10, issue no.1, January 2013.

- [9] Bhushan Jichkar , "The design and implementation details of an application based on WiFi technology for Wi-Fi enable devices", IJERA, vol. 4, issue 1, January 2014.
- [10] Nalini Bagal, Shivani Pandita , "A Review: Real-Time Wireless Audio- Video Transmission", IJETAE, vol. 5, issue 4, April 2015.
- [11] Scott. Bicheno, "Telecoms.com intelligence annual industry survey 2015," Telecoms.com, February. 2015
- [12] Tzu-kai cheng., Feang-Ming Yang., (2008), Scalable Video Coding for AMC with Mobile Media Based Multicast over WiMAX 802.16e VoL 1
- [13] C. Huang, S. Huang, P. Wu, S. Lin and J. Hwang, "OLM: Opportunistic Layered Multicasting for Scalable IPTV over Mobile WiMAX", *IEEE Transactions on Mobile Computing*, vol. 11, no. 3, pp. 453-463, 2012.
- [14] X. Wang, P. Huang, J. Xie and M. Li, "OFDMA-Based Channel-Width Adaptation in Wireless Mesh Networks", *IEEE Trans. Veh. Technol.*, vol. 63, no. 8, pp. 4039-4052, 2014.
- [15] G. Araniti, M. Condoluci, A. Iera, A. Molinaro, J. Cosmas and M. Behjati, "A Low-Complexity Resource Allocation Algorithm for Multicast Service Delivery in OFDMA Networks", *IEEE Trans. on Broadcast.*, vol.60,no.2,pp.358369,2014.