

**PERFORMANCE EVALUATION OF VOIP BASED ON DIFFERENT QOS
AND VOICE CODECS OVER MOBILE WIMAX NETWORKS**

By

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Because of its extensive scope zone, ease of sending and fast information rates, the Worldwide Interoperability for Microwave Access or WiMAX is a promising innovation for giving remote last-mile network. Voice over Internet Protocol (VoIP) is one of the quickly developing advances and is relied upon to supplant the traditional circuit exchanged voice administrations. VoIP is likewise viewed as one of the executioner applications for WiMAX which requires watchful outline of QoS designs.

The fundamental point of this exploration is to examine and investigate the execution of VoIP on portable WiMAX systems. This has been done through the examination and investigation of a few angles identified with the WiMAX system and VoIP designs, for example, WiMAX benefit classes, portability, number of hubs and VoIP Codecs. The explored parameters include: throughput, mean supposition score (MOS), jitter and postponement. The outcomes were acquired through the plan and reproduction of various WiMAX arrange situations utilizing NS-3 Modeler. Results demonstrated that UGS benefit class has the best execution parameters serving VoIP. It is additionally watched that the G.723.1 codec has bring down deferral and higher MOS in the interim supporting insignificant transfer speed utilization.

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APPROVAL

The project paper was submitted to the senate of Infrastructure University Kuala Lumpur (IUKL) and has been accepted as partial fulfillment of the requirement for the degree of Master in information technology. the members of the project examination committee were as following:

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DECLARATION

I declare that the project report is my original work except for quotations and citations which have been duly acknowledged. In addition, I declare that it has not been previously, and it is not concurrently, submitted for any other degree at Infrastructure University Kuala Lumpur or at any other institutions.

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CHAPTER 1

INTRODUCTION

1.1 Background

In Sengupta, S., Chatterjee, M., & Ganguly, S. (2008). Despite the growing popularity of data services, voice services still remain the major revenue earner for network service providers. The two most popular ways of providing voice services are packet switched telephone networks (PSTNs) and wireless cellular networks. The deployment of both of these forms of networks requires infrastructures that are usually very expensive.

Alternative solutions are being sought which can deliver good-quality voice services at a relatively lower cost. One way to achieve low cost is to use the already existing IP infrastructure. Protocols that are used to carry voice signals over the IP network are commonly referred to as voice-over-IP (VoIP) protocols. Supporting real-time applications over the Internet has many challenges. In Zourzouvillys, T., & Rescorla, E. (2010). The first WiMAX systems were based on the IEEE 802.16-2004 standard.

This targeted fixed broadband wireless applications via the installation of Customer Premises Equipment (CPE). In December 2005 the IEEE completed the 802.16e-2005 amendment, which added new features to support mobile applications. Mobile WiMAX extends the original OFDM PHY layer to support multiple-access by using scalable OFDMA. Data streams, to and from individual user equipment, are multiplexed onto groups of sub channels on both the downlink (DL) and uplink (UL). By adopting a scalable PHY architecture, mobile WiMAX is able to support a wide range of bandwidths. The scalability is implemented by allowing the FFT size to vary between 128, 512, 1024, and 2048 to support channel bandwidths of 1.25 MHz, 5 MHz, 10 MHz, and 20 MHz respectively.

In this theory we introduce an executive examination of VoIP focuses on analysis of quality of service as implemented by the WiMAX networks. First, it presents the

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