ABSTRACT

The trend of communication nowadays leads to voice, data, and video service sent through one single carrier. This service is later known as the triple play service. The triple play service requires a communication network that has the broadband ability with QoS (*Quality of Service)* guarantee, better than other networks.

WiMAX (*Worldwide Interoperability for Microwave Access*) mobile is a new technology that has the Broadband Wireless Access (BWA). It has the ability to provide access speed, data transmission with QoS guarantees, and wide range to answer the challenge of this triple play service. Therefore, mobile WiMAX requires a good scheduling algorithm to support QoS for the triple play service.

This graduation paper carried out simulation of using different scheduling algorithms and the analysis of its influence to the QoS of mobile WiMAX. The scheduling algorithms that compared were WRR (*Weighted Round Robin*), DWRR (*Deficit Weighted Round Robin*), and CBQ (*Class Based Queuing*). The parameters measured were *throughput, delay, jitter, packet loss, queue delay,* and *fairness*. The parameters measured by simulations considering the effect of speed on mobile station, traffic variation on the network, and the influence of background traffic on the network. In the speed simulation, can be concluded that the faster user's speed then the smaller QoS value obtained. Mobile WiMAX still able to serve user's speed up to 100 km/h with the highest throughput for voice is 63355.3 bps and 1326008 bps for video by CBQ mechanism. In traffic variation simulation, obtained that CBQ mechanism has the best QoS performance for real-time services such as voice and video, while DWRR mechanism shows its performance in serving the data services such as HTTP and FTP. For background traffic simulation, can be concluded that the increase load of network effect the QoS performance. The more additional load of network, the smaller QoS value obtained. Shown by the throughput that was obtained by DWRR mechanism, it was from 1436518 bps for 30% of background traffic to 1351803 bps when the background traffic reached 50%.

Keywords: triple play, WiMAX *mobile,* QoS, the scheduling algorithm, WRR, DWRR, CBQ