ABSTRACT

WiMAX (Worldwide Interoperability for Microwave Access) is a broadband wireless access technologies (Broadband Wireless Access), which have high speed access with wide area coverage. WiMAX works in the Metropolitan Area Network (MAN).

WiMAX provides four types of services namely : Unsolicited Grant Service (UGS), real-time Polling Service (rtPS), non real-time Polling Service (nrtPS), and Best Effort (BE). Quality of service is dependent on the parameters of QoS (Quality of Service) for each type of service. belonging to the QoS parameters are as follows: *throughput*, *delay*, and *packet loss*. Each of these types of services provided by WiMAX has a different QoS parameters. To improve the QoS performance, needed a scheduling algorithm. The scheduling is run on the MAC (Medium Access Contol) layer.

In this final task, experiments conducted is the influence of increasing the number of users and the influence of user speed on the WiMAX network for video and VoIP applications. Scheduling algorithms used in these experiments are Weighted Fair Queuing (WFQ). From the results of an experiment to increase the number of users with algorima WFQ on video services obtained the worst performance occurs when users amounted to 50 with *packet loss* 60.1242%, *throughput* 178 133 Kbps and *delay* 1316.72 ms, for VoIP service when the number of user 50 *packet loss* 0 %, *throughput* 4.9392 kbps dan *delay* 2.96967 ms. In the experiment on the influence of user speed for video services, the worst performance occurs when the user move with the speed of 60 km/h, with *packetloss* 6.02318 %, *throughput* 419.813 Kbps, dan *delay* 588.967 ms, for VoIP services with *packetloss* 0 %, *throughput* 5112 Kbps, and *delay* 2.97492 ms.

Keywords : *Weighted Fair Queuing*, QoS, *video, VoIP, packet loss, throughput, delay*