ABSTRACT

Worldwide Interoperability for Microwave Access (WiMAX) holds an important role in wireless broadband communication technologies for voices and data services. In accordance with IEEE 802.16 standards on network topology Point to Multipoint (PMP), a central BS can manage multiple simultaneous independent SSs. This would require the effectiveness of traffic scheduling algorithms on the Medium Access Control (MAC) layer of WiMAX, so the system can meet the needs of different types of QoS services efficiently in accordance with the priority user requests.

Algorithm Adaptive Proportional Fairness (APF) is a development of algorithms Proportional Fairness (PF) who was adopted from the IEEE 802.11 WLAN standard. APF algorithm supports real time traffic, especially VoIP and has been adapted to IEEE 802.16 WiMAX standard that can be done in an efficient traffic scheduling for QoS demand.

In this final task will discuss about the comparative performance of the scheduling algorithm associated with the performance of WiMAX networks are algorithms Proportional Fairness (PF) and the Adaptive Proportional Fairness (APF). The parameters will be used, among others throughput, packet loss and delay queue. Simulation is done with two scenarios, namely increasing the number of users and the addition of channel capacity. From the results of the first scenario ie increasing the number of users, the best performance of two algorithms occurs in the number of user 10, (the smallest amount of users on the simulation) with a delay PF APF 4.1127 ms and 4.1052 ms delay, throughput PF 477 867 Kbps (video) 6.5688 Kbps (VoIP) and APF 477,867 Kbps (video) 6.9422Kbps (voip), packetloss PF 0% (video & voip) and APF 0% (video & voip). The second scenario is the addition of channel capacity, best performance occurred in a total capacity of 15 MB (total capacity The biggest channel in the simulation) with a delay of PF and APF 5.0858 ms 6.0764 ms, PF 477 867 Kbps throughput (video) 5.3111 (voip) and APF 470.8867 Kbps (video) 6.1212 Kbps, packetloss PF 0% (video) 1.4432% (voip) and 0 % (video & voip) . Simulation results show that the APF algorithm is superior in performance compared to PF voip data, although the algorithms are fixed in accordance with IEEE 802.16 standards.

Keywords: Proportional Fairness, Adaptive Scheduling Algorithm, QoS, MAC Layer