

ABSTRACT

Broadband Wireless Access (BWA) is a technology that is expected to grow rapidly in Indonesia as an archipelagic state because the cost is cheap, fast and easy installation, and will not damage the existing beauty. One standard IEEE 802.16e BWA is a technology that has been the underlying access network, ie mobile WiMAX. As one of the many advantages possessed by this technology is the guarantee of QoS (Quality of Service) at the MAC level. To support the required QoS optimization scheduling mechanism and a queue in a network system, precisely at the Base Station (BS) in charge of allocating bandwidth.

Mobile WiMAX is capable of supporting real time services and non real time, such as Unsolicited Grant Service (UGS), extended real time Polling Service (ertPS), real time Polling Service (rtPS), non real time Polling Service (nrtPS), and Best Effort (BE). Each service type requires a different bandwidth allocations. Therefore BS requires a scheduling algorithm that supports QoS requirements of each service.

In this final task to compare two scheduling algorithms, ie algorithms smoothed Round Robin (SRR) and Deficit Round Robin (DRR) by building simulation modeling of scheduling that is implemented in IEEE 802.16e WiMAX network using software Network Simulator 2 (NS-2) and accompanied by analysis QoS at the user side. Some QoS metrics to be measured and analyzed is the throughput, packet loss, delay, and fairness.

Overall the simulation results show that the SRR algorithm provides better performance than the DRR algorithm, if implemented on the Mobile WiMAX network, especially for the downlink direction. Packet loss and delay values generated by the algorithms are still quite good by the standards of ITU-T, whereas the value of interclass fairness is not high enough because of the scheduling mechanism of DRR and SRR algorithms is to prioritize traffic in real time services. For the analysis based on QoS class, a class of service would achieve maximum throughput and the greatest delay at the dominant class in a traffic network. Meanwhile, if evaluated based on user mobility, if the user movement further away from BS and if the higher the speed the movement of the user, then the resulting throughput will be smaller while the packet loss and delay, which is produced will be greater, and on the contrary.

Keywords : *WiMAX IEEE 802.16e, scheduling algorithms, SRR, DRR, Network Simulator 2*