

ABSTRACT

Mobile telecommunications services is now more diverse. This is in accordance with the demands of customers who want a variety of services, such as triple play services which is a combination of voice, data and video. However, customers also demand good service quality. From the development of customer demand, developing LTE (Long Term Evolution). LTE is a network based on Internet Protocol (IP) standardized by 3rd Generation Partnership Project (3GPP) which is expected to accommodate the demands of the customer to provide good service performance, with a variety of services. Scheduling is a different treatment to packets that come in accordance with the priorities of the scheduling algorithm. At this time, most of the studied scheduling algorithms only consider the maximum throughput and fairness regardless of the type of traffic. In fact, not all users require equal throughput. What is needed is the suitability of delay control for each traffic while considering throughput.

In this final assignment is studied LTE network performance to support triple play services by analyzing the value of QoS parameters like delay, Packet Loss Ratio (PLR), throughput and fairness index. To measure the QoS parameters, it is simulated scheduling MLWDF (Modified Largest Weighted Delay First), PF (Proportional Fair), and EXP (Exponential Proportional Fair) with the type of service and number of different services offered in the LTE network.

In this study, the results for All VoIP scenarios, All videos, and All BE, all scheduling algorithms provide satisfactory performance, because it can meet the standards set. As for the scenario Mix, for VoIP traffic, which gives a satisfactory performance is MLWDF and EXP algorithms. On the number of users 100, the value of MLWDF delay is 68 ms, PLR by 2.15%, and throughput of 11.127 kbps. For the EXP value 67ms delay, PLR 2.62% and 11.051 kbps throughput. While the PF algorithm provides poor performance began on the number of users 50, because the delay value reached 5.022 s. For video traffic, the number of users 100, there is no algorithm that gives a satisfactory performance. However, the PF algorithm gives the worst performance with a value of 20.18 s delay, PLR and throughput of only 56.8% 78.201 kbps. As for the BE traffic, for a small number of users, EXP algorithm gives the largest throughput, which is 13.571 Mbps per user.

Keywords: LTE, scheduling, QoS, triple play services, MLWDF, PF, EXP