UNIVERSITI TEKNOLOGI MARA

THE FEMTOCELL - MACROCELL DEPLOYMENT TOWARDS THE QOS PROVISIONING IN LTE NETWORK

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ABSTRACT

Long Term Evolution (LTE) is a radio access technology proposed by 3GPP (3rd Generation Partnership Project) which capable of enhancing the performance of wireless system. However, fulfilling the indoor service requirements by providing the LTE coverage is not enough since it is very difficult for the network operators to maintain high QoS in the building. Hence, the deployment of Femtocell which complements the existing Macrocell network via Digital Subscriber Line (DSL) is the best solution to address the issue. LTE-Sim is used to simulate the LTE-Femto network scenario and three packet scheduling algorithms; PF, MLWDF and EXP/PF were selected for downlink transmission to analyze the performance metrics of the triple play applications. Simulation results have shown that there are several packets scheduler's that are in compliance to the 3GPP standard. For instance, MLWDF delivers the highest throughput value of VoIP and video whereas EXP/PF for the best effort flows. On the other hand, PF algorithm is not recommended for scheduling real-time traffic as it delivers the worst results for throughput and delay. However, it performs well for best effort flows. Nevertheless, in order to provision the value of throughput and delay which satisfy the QoS, the number of active Femtocells in the network should be above 19.

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