

Abstract

Trend changes in the use of data services from voice services sharply increasing annually. ATM technology is no longer able to handle user requests for data due to the limited bandwidth and capacity utilization are less than the maximum, thus demanding operators need to upgrade the quality of its network with better technology. XL AXIATA been replacing ATM with IP-based technology which offers greater bandwidth capacity and flexible. One of the services that require large data capacity is a video call. So in addition to a large bandwidth for video calls, user distance-change to the node B needs to be reviewed to determine its effect on the quality of service. By knowing the effects of changes in user distance to node B, the operator can maintain the quality of their networks to serve users well.

In this final project the effect of changing the distance the user is known to the node B for Video Call service in IP-based 3G network in terms of KPI parameters. Modeling is use scenarios used to change user distance to the node B by 4 scenarios such as near the cell as far as 300 m, center of the cell as far as 600 m, the middle of the cell as far as 1000 m, and the cell edge as far as 1400m. Software used is OPNET modeler 14.5 educational version. The parameters used in the analysis of such end-to-end delay, packet delay variation, throughput, packet loss, and the uplink transmission power.

From the analysis in this research, the performance of services for video calls on IP-Based 3G network with end-to-end delay values at worst, above 150ms, at a distance of 1400m of 184.983ms. Value of packet delay variation is worse in the 1000m distance of 0.0030182. Throughput value at worst, under 10kbps, are at a distance of 1400m at 13,327.20 bps. Packet loss values at worst, above 3%, there is at a distance of 1400m at 0.085%. While the uplink transmission power value indicates the change of distance by 2.66 x 300m to 1400m distance.

Keywords: QoS, *Video Call*, IP Node B, UMTS