

ABSTRACT

Nowadays, many operators of cellular networks that try to reduced VoIP traffic over their network since it destroys their revenue. But, a deployed IMS network will put operators into a position where they have a secured and chargeable environment at hand. Since the IMS acts as overlay architecture for IP access networks, any communication media that supports IP data transfers on top of it would be a candidate for transporting the signaling and the media flows.

IMS is the concept of an Internet Protocol (IP) that enables a variety of services voice, data, and video are connected in the same network and can can combine PSTN, cellular and internet technology within single platform based on SIP. In this thesis, evaluation of QoS performance and analysis is interesting to see how well they are suited to transport IMS services and considered current mobile access network technologies like EDGE ,HSDPA and its extension LTE 4G.

To ensure the triple play services delivery meets the better expectations of end users, factors affecting QoS on SIP Registration, SIP Invite and Call Session must be properly considered. This thesis will give a study of a the IMS Session especially on QoS' metric which will serve us to accomplish the QoS measurement within various access network in the case of Triple Play sessions (video call, voice call, and instant message) carried over : EDGE , Wireless LAN 802.11g,HSDPA and LTE 4G.

The test results stated that the entire access network has QoS performance on control plane and user plane that can be accommodated by the ITU-T standards. Wifi, LTE and HSDPA have excellent quality in IMS networks, while EDGE has the lowest performance and almost equivalent to other network access to its instant messaging service. The result shows that the value of a call setup delay for Wifi 0.009822531 ms or 0.73 times lower then the CSD LTE aggregate. CSD HSDPA aggregate value is 0.018337193 ms or 1:38 times higher Compared to CSD LTE. The highest value for the CSD is EDGE with 0.043958333 ms or 3.3 times higher than the CSD LTE.

Keywords: QoS, SIP, IMS, Call Setup Delay, EDGE, Wireless LAN, HSDPA, LTE 4G.