ABSTRACT

IP Multimedia Subsystem (IMS) emerge within the concept of multimedia, mobile and data communication. IMS is the international standard which is promoted by Third Generation Partnership Project (3GPP) Release 5, acts as an control domain for multimedia services in third generation mobile system or commonly known as Universal Mobile Telecommunication System (UMTS).

The implementation of Quality of Service (QOS) in IMS using Differentiated Services (DiffServ) in UMTS network will create a new dimension in networking as a whole, for DiffServ is usually implemented in IP network QOS management. DiffServ is an IP based QoS which differentiate traffic into several service classes and treat each and every one of them differently. These service classes are designed in accordance to Per Hop Behavior (PHB) Group for DiffServ which is standardized by Internet Engineering Task Force (IETF) [1].

This research will analyze the traffic modeling and WLAN access interworking with UMTS core network, IMS, and application server, related to the service classes such as conversational, interactive, and background. These models will combined with the increase of users, DiffServ Implementation, and the change of user location, including roaming and home network which will be impacted the change of *end-to-end delay*, *jitter*, *response time*, and *throughput.*

The simulation results show us that the increase of users, DiffServ Implementation, and the change of user locations, including roaming and home network, force the change of *end-to-end delay*, *jitter*, *response time*, and *throughput.*

Key Words : NGN, IMS, QoS, Diffserv, and UMTS