ABSTRACT

In Access network we had know *Local Area Network (LAN)*. As far as network growth and needed for mobile users access network so *Wireless Local Area Network (Wireless LAN/WLAN)* appears where the connection between users through the air with using radio frequency (RF).

In *Core* network, MPLS are developed for reducing complexity of forwarding in IP networks. MPLS integrated *label swapping* mechanism in second layers and *routing* in third layers for faster to send the packet. It is introduces *forwarding* mechanism to determines label for the packet when enters the network.

In this final task, analyst performance of QoS LAN and wireless LAN user access networks for Voice over IP (VoIP) traffic with data and video background traffic on MPLS and non-MPLS backbone networks and also for different size background traffic on MPLS backbone networks and wireless LAN user access networks, where for non-MPLS using OSPF routing. This analysis do by simulate network plan using software. The QoS performance parameters are throughput, packet loss, delay, jitter and link utility.

The analysis of simulation result shows that with using MPLS in *backbone* network, forwarding packet gives a significant improvement of QoS performance such as throughput, packet loss, delay, jitter and link utility rather than non-MPLS (OSPF) backbone network. Beside that for Wireless LAN user access network gives good performance too, appropriate with International requirement standard and the result closest to LAN performance, with maximum throughput 138.30 Kbps, minimum paket loss 0.27 %, minimum delay 18.02 ms, minimum jitter 2.82 ms and maximum utilitas link 82.42 %. So, with using MPLS as backbone network and Wireless LAN as user access network, the users can do VoIP, video and data transfers with better performance and flexibility.

Key Word: Multi Protocol Label Switching (MPLS), Wireless LAN, Voice over IP (VoIP), QoS, OSPF, LAN.