

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 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 *pakat 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.