

---

---

## ABSTRACT

Nowadays the development of VoIP technology is rapid along with computer technology in high scalability. IP network traditional give user best effort services which all of the packet is not differentiated and give the same behavior in forwarding. This makes network loads limited in bandwidth and buffer spaces. VoIP is a real time communication based on IP which depend of high QoS (Quality of service). There is methods of QoS that often uses is Differentiated Service (Diffserv) and MPLS (Multi Protocol Label Switching) to manage QoS in queueing and traffic engineering.

In this final task, the research wants to analyze some of parameter in QoS, i.e : delay, throughput, jitter, packet loss, packet receive, MOS value through some scenario based on both of QoS methods with variable background traffic in one period until further analyze about the highest performance according to diffserv and MPLS methods.

From the simulation, the value of delay 36.828 s/d 50.887 ms, packet loss 0.252 s/d 0.357 %, packet receive 99.62 s/d 9.748 %, MOS 4.176 s/d 4.205 and throughput 8.3072 s/d 12.0912 kbps which has highest performance in diffserv methods, in other hand the value of jitter 3.336 s/d 4.92 ms in MPLS methods. So, for implement, diffserv methods is more recommended than MPLS.

**KEYWORD** : *Delay, Jitter, Packet Loss, packet receive, MOS, DiffServ and MPLS*