

## **ABSTRACT**

IP Multimedia Subsystem (IMS) is a new architectural concept that appears to complement the softswitch-based NGN technology. The emergence of this new technology concepts are encouraging companies and research institutions to implement them as a software (OpenIMS). OpenIMS can be a server with various services if it's installed on a computer, but still be aware of the Quality of Service (QoS) at the Open IMS in order to obtain the good quality on the network. One way to maintain the QoS value by build a large bandwidth, but it becomes ineffective because the traffic that is passed does not continually have a large traffic values. MPLS-TE can be used to resolve the issue. MPLS-TE can utilize the optimal network utility by finding the route path that has the low link utilities, thus minimizing the occurrence of the queue on the router. If the queue on the router can be overcome it will produce a better QoS value.

In this thesis the IMS technology is implemented by Open IMS software that use to be the multimedia services server (VoIP and VoD), which will be passed on MPLS-TE network using a PC Dynamips router. Of this implementation have been analyzed the value of the Quality of service parameter and the value of the Mean Opinion Score to find out how much influence the addition of MPLS-TE technology on multimedia services based on IMS.

Of testing and analysis is obtained the results that the use of MPLS-TE network can generate QoS and MOS values more better when it is compared with the network that don use MPLS-TE. Judging from the improvement of delay by using MPLS-TE networks for VoiP services by an average of 1.265865% and 4.982533% of VoD services.

**Keywords: IMS, MPLS, MPLS-TE, QoS and MOS**