ABSTRACT

In order to enter the era of globalization, in the period of fast or slow, the entire network will be based on IP. Quality of Service (QoS) is an important thing to consider in a communication system. Many of the considerations that need to be in a good quality score on the network. Procurement of large bandwidth is one alternative, but it is becoming ineffective because traffic is passed does not continually have a large amount of traffic. To improve network performance that can be done for example by using Multi Protocol Label Switching Differential Service (MPLS Diffserv) and Generalized Multi Protocol Label Switching (GMPLS). These methods support to improve QoS in VoIP communications.

This final project will implement MPLS DiffServ technology and GMPLS in a small network using GNS3 software as a router of MPLS Diffserv and GMPLS with VoIP communication is used with the addition of UDP background traffic scenarios with different sizes.

The Purpose of this thesis is to compare the QoS performance of MPLS Diffserv with GMPLS method in VoIP communication. From the results of the implementation of QoS parameter values obtained for both methods obtained the delay in the range 0 - 30.17 ms, jitter in the range 0 – 6.06 ms, packet loss at range 0 - 0:53% and throughput at range 0 - 20.71 Kbps. This indicates that the network performance has been well built and fit for VoIP services.

Keywords: *QoS, VoIP, MPLS Diffserv, GMPLS, background traffic*