

ABSTRACT

At this time, technology that connects various computers in the world can exchange information and data, and can be used to communicate with each other in the form of images, sound and video. The development of a very fast computer network can send voice traffic through a computer network or better known as VoIP (Voice over Internet Protocol). In VoIP there are problems that often occur such as, voice performance is measured based on delay, the delay will increase substantially to 500 milliseconds on the internet network. Simulation configuration compiled in this thesis using a server computer that functions as a VoIP server, 1 computer as a GNS3 simulation using 5 routers, R1 as CE, R2 as PE, R3 as P, R4 as PE, R5 as CE, R1 to R5 will be configured ISIS and two computers as a client. The purpose of this thesis is to simulate VoIP services in MPLS-TE networks using GNS3 emulators and test the performance of QoS measurement results using Intserv methods such as delay, throughput, jitter and packet loss on MPLS-TE networks. From the results obtained, the network performance can be said to be very good because the QoS value is still in accordance with TIPHON standardization. For the best results on each parameter tested in VoIP service with a throughput parameter of 85.608 kbps, for a delay parameter of 0.555 ms, for a jitter parameter of 0.014 ms and for a packet loss parameter obtained with a value of 0% of the value obtained in packet loss can be concluded to be good because no package was wasted.

Keywords: VoIP, MPLS TE, QoS, IS-IS,