ABSTRACT

The IPv4 addressing standard will be replaced by the Internet Protocol Version 6 (IPv6) addressing standard, due to the decreasing number of IPv4 addresses. Tunneling technology is a solution to connect IPv4 addressing with IPv6 into the same network. Generic Routing Encapsulation (GRE) is a tunneling method developed by Cisco and provides encapsulation for various layers of network protocols on point to point networks. GRE tunnels are built between the origin router and destination router so that packets that are forwarded through the tunnel have previously been encapsulated by the new header. This simulation study is to determine the quality of VoIP services using the GRE 6 Tunnel method by testing the Quality of Service (QoS) parameters. This research simulation is carried out with a local network and uses static routing. QoS measurements based on test scenarios conducted 30 times of experiments with a duration of 1 minute. The highest value of the throughput parameter is at 33 seconds with the result of a value of 150 bits / second. The highest value on the delay parameter is at 28 seconds with a value of 0.076 ms, the delay value obtained in this study can be said to be good because the ITU-T standard of less than 150 ms is quite good. The highest value in the jitter parameter is at 52 and 55 seconds with a value of 0.032 ms, the value of jitter in this study is still fairly good on the TIPHON standard because it is less than 10 ms. As for the packet loss parameter, it gets a value of 0% because there is no data lost during the test, the value obtained from this study in the ITU standard is less than 1%, indicating good.

***Keywords**: GRE 6 Tunnel, VoIP, QoS , IPv6*