

ABSTRACT

Computer network is certainly included an important information and data, information must be accessible through a computer network that can guarantee security, speed, convenience, and accuracy. There are three main aspects when talking about data security: 1. Privacy or Confidentiality, 2. Message Integrity, 3. Authentication, With this problem we need a system that can maintain the security of data so that information can be spread safely. VPN (Virtual Private Network) is a communication technology that allows user connected to public networks and joining local networks, VPN provides network security on communication between server and client or client to server.

This study aims to make a simulation and analysis of PPTP (Point-to-Point Tunneling Protocol) VPN-based Virtual Private Network based on the OS OS using GNS3 application by assuming a server and four clients working on the channel. The main objective of this study is to design and implement a VPN system by comparing Normal and PPTP VPN, and testing the QoS of a VPN system created by comparing the Normal and PPTP VPN systems. The simulated channel will be tested for quality and performance by using QoS which is reviewed with the Wireshark application to see packets that pass through the channel and analyzed the results of the PPTP protocol on the channel, quality testing is tested using the

Conclusions of research, design and simulation of VPN channels that are made can run normally with overall quality standard 2.6875 With TIPHON standard QoS testing, system functions are made to run well by displaying QoS (Quality of Service) with an average value of throughput the delivery from the client to the server is 50.81434 bytes / s which shows a good index, the average delay that occurs in sending from the client to the server is 28011.6625 ms which shows a bad index, with an average jitter 0.019410733 ms which shows a good index, and the average packet loss at the time of packet delivery is 0%, which indicates a good index. Comparison of VPN channels and normal channels results are quite satisfactory, The results of the channels created can be used properly and are expected to be implemented later on.

Keywords : *Virtual Private Network, Virtual Private Network Server, Point-to-Point Tunneling Protocol, communication channel, Quality of Service.*