ABTRACTION

This report presents a simulation and analysis of the Quality of Service (QoS) design of the UAV communication network to the Pustekbang-Brin server using L2TP type VPN tunneling. The design of the UAV communication network was made using a VPN as a tunneling liaison between the UAV and the control center at Pustekbang-BRIN. This project was created using GNS3 software using hardware in the loop simulations technique (involving real devices in the simulation). The topic that will be discussed in this report is the quality of L2TP type VPN services using QoS analysis. QoS parameters used to analyze data transfer are packet loss, delay and jitter. The communication protocols used in this test are User Datagram Protocol (UDP), Transmission Control Protocol (TCP), and Internet Control Message Protocol (ICMP). The data is obtained by using a network traffic monitor named Wireshark. From the results of data analysis, packet loss data on the ICMP protocol is 0% with an average total delay of 4.28 ms and an average total jitter of 3.85 ms. Furthermore, the TCP protocol obtained an average total packet loss of 0.81%, an average total delay of 5.14 ms and an average total jitter of 0.01 ms. In the UDP protocol, data packet loss is obtained by 0.42%, the average total delay is 2.71 ms, and the average total jitter is 0.14 ms. Based on these results, sending data using the UDP protocol is better than the TCP protocol on QoS.

Keywords : QoS, GNS3, VPN, L2TP, BRIN