

ABSTRACT

Load balancing is a process that divides, distributes, and balances the traffic load on the network path, either one path or more than one path, so that the process can prevent a traffic load on one network path. On the other hand, etherchannel is a technology or technique used to combine more than two physical interfaces into a logistics path to improve network performance capabilities. This study aims to implement a load balancing process with etherchannel technology on the Telkom Purwokerto Institute of Technology campus, especially in the TT, IoT, and DC buildings, where learning activities and the connectivity of the academic community are very high. This study uses the LACP protocol as the routing protocol used on the etherchannel and then a comparison is made between network connections when implementing load balancing by breaking the etherchannel path. The test scenario uses the client-server concept with data exchange services using D-ITE with several different file size variations to determine the value of the parameters that will be included in the jitter, throughput, and delay analysis. Based on the simulation results in this test scenario, data transmission of 1 MB, 5 MB, 10 MB, 15 MB, and 20 MB will be tested on 4 lines, 3 lines, 2 lines, and 1 etherchannel line by measuring service quality. From these tests, it shows that the jitter values in the TT, DC, and IOT buildings when the etherchannel path scenario is carried out in the network simulation experience significant differences where the 4-lane scenario when viewed from the delay and throughput parameters has a better value than the other etherchannel path scenarios. And for jitter, there is no visible difference in each scenario of the etherchannel path, but it increases with the size of the data being tested.

Keywords: LAN, VLAN, Load balancing, Etherchannel, D-ITG, QoS.