ABSTRACT

Telkom University as one of the leading universities in Indonesia continues to strive to improve its quality and capacity in the world of education, one of which is information technology infrastructure. Currently, Telkom University Jakarta Campus has five study programs with a student body of until 1400 students. Telkom University Jakarta Campus plans to add one building unit that will be used by the S1 SI study program. With the new building (Building C), it is necessary to have reliable and interconnected IT infrastructure facilities that make it easier to manage and maintain. The EoIP tunneling method is one of the technologies that is suitable for integrating each building. For this reason, this study discusses the design of simulation and network integration with EoIP tunneling using PnetLab. In addition, test parameters are used to ensure that the network simulation design runs according to the configuration made

In addition to using EoIP tunneling, the design is also combined with peer to peer between buildings according to existing conditions. The main configuration is carried out in the form of routing, adding ip addresses for interfaces, creating VLANs, and using rules on NAT firewalls. It aims to make each building connected and connected to each other. After the entire set of configurations has been completed, testing is carried out using parameters as a measure of design success. The parameters are ping, traceroute, QoS in the form of packet loss, jitter, and throughput.

The final results of the study show that the design has been successfully run and obtained test results on packet loss, jitter, and throughput parameters with the category of "Good" with the indeks value 3,3. In the testing of pings and traceroutes carried out, the results were obtained that each device and interface can ping and traceroute to a predetermined destination.

Keywords: *EoIP tunneling, peer to peer, ping, traceroute, and QoS*