

ABSTRACT

In conventional networks, routing protocol configurations are very inflexible, inefficient and configurations are performed on each device. This is of course not able to meet the current operational demands which on average have a large network and network devices that have different specifications. Software Defined Network (SDN) appears as a hope of finding conventional network difficulties. The new SDN paradigm makes adjustments between the control plane and the forwarding plane. With the openflow protocol Communication between the control plane and the data plane can run. RouteFlow is a software-based component that can implement conventional routing protocols on SDN networks. Open Shortest Path First version 3 (OSPFv3) which is a routing protocol that has the ability to protect network topology quickly in a large network. OSPFv3 Routing Protocol is applied to SDN technology using RouteFlow with the aim of facilitating network connections with centralized systems. In this research, conventional network and SDN network are designed. The conventional network uses 8 Cisco 7200 RouterOS devices and 8 Hosts and simulated in the GNS3 application, while the SDN network uses 1 Controller, 8 OpenFlow 1.3 switches and 8 Hosts which are simulated in the Mininet emulator. The execution of this final project simulation can prove the performance of the POX Controller on OSPFv3 routing on the SDN network. This network performance will be proven by sending packets from one user to another and viewed in terms of Service Quality (QOS), namely throughput, delay, packet loss, and jitter. It was found that the delay and jitter on the SDN network is much smaller than conventional, the throughput on the SDN network is greater and SDN has no packet loss while on the conventional network it has 31.494% packet loss in sending UDP packets..

Key word : Software Defined Network (SDN), OSPFv3, POX Controller