ABSTRACT

The increasing use of the Internet is a challenge for scientists to maintain network performance. One way to maintain the performance of the network is through the routing mechanism because routing is the main part in providing a performance in the network. The larger the network the more complex the configuration is required. Software defined network (SDN) is a concept that separates plane data with control-plane into a device of its own known controller. So the network devices (routers, switches) just forward the command from the controller. BGP is a routing protocol that works to connect all network domains on the Internet. But like any other routing protocol, the protocol is still running on the traditional network devices, where the control plane and its data plane are in one device.

In this final project implementation of Border Gateway Protocol (BGP) routing using RouteFlow based BGP routing mechanism in Software Defined Network. Can be proven on the SDN network by implementing the network using 5 switches that have support SDN technology and each switch has a different autonomous system to connect between hosts as source and destination. And know the path used to transmit data packets from sender to receiver. As well as scenario disconnection scenarios on the network to prove the performance of BGP routing.

The result of BGP routing performance test on SDN network based on RouteFlow shows that the convergence time value is 163,441 seconds for implementation. The average value of QoS in the implementation resulted in a throughput value of 90.4 Mbps, delay of 90 ms, jitter 0.108 ms, and packet loss 0%.

Keywords: software defined network, eBGP, openflow, routeflow, convergence time