ABSTRACT

Software define network (SDN) has an important component that is responsible for all rules in managing and distributing information to all network devices, namelycontroller. As for the performance of acontroller influenced by the topology, configuration and programming language used. One ofcontroller the most commonly used is the Pox controller which provides an efficient way to implementprotocol OpenFlow. In addition, the concept of SDN can be applied to various computer network mechanisms, one of which is onvirtual local area network (VLANs). Therefore, this study aims to analyze the performance of the POX Controller on SDN-based VLAN networks through parametersquality of services (QoS) includesthroughput, delay, jitter andpacket loss. Observations were made by simulating SDN-based VLAN networks with the Mininet emulator. The first test was carried out using 2 scenarios, where the first scenario used 4 pieceshost and 1 switch, and the second scenario uses 8 pieceshost with 1 fruitswitch. Each scenario is addedbackground traffic with variations of 20 to 100 MB using TCP and UDP protocols. The second test is carried out by measuring the response time of the Pox controller to connect to the VLAN network. In the first test, the UDP protocol value is in the parameterthroughput and produces better values than UDP, but on parameters delay, jitter andpacket loss value on the TCP protocol is better. And the result of the overall value of QoS (Quality of Service) that isthroughput, delay, jitter andpacket loss shows that it complies with the TIPHON TR 101 329 standard. The response time for the Pox controller to connect to a VLAN network is 1 second.

Keyword*: Software Defined Network*, VLAN, Pox Controller