ABSTRACT

Software Defined Network (SDN) is a new architecture in the network that separates the control plane and data plane. Aruba VAN Controller provides centralized control over a network based on the OpenFlow protocol. Spanning Tree Protocol is used to prevent broadcast storms or data looping during the data transmission process. This study analyzes the QoS (Quality of Service) on the SDN network architecture that will be built using the Aruba VAN controller. The Spanning Tree Protocol method is used in order to provide the best path in sending data packets. QoS parameter testing uses the same scenario as the previous study, which is given variations in background traffic of 50 Mbps, 100 Mbps, 150 Mbps, and 200 Mbps. Data communication uses the UDP protocol with the amount of data sent 1000 pps for 15 seconds.

The result of this research is that the analysis of the performance of the Aruba VAN controller using the Spanning Tree Protocol has been successfully carried out. The results of testing QoS parameters such as the throughput value, the Aruba VAN is 3178.271 Kbps better than the average throughput value at POX is 2009,392 Kbps, but lower than the throughput value at RYU is 3182,197 Kbps, the delay value is Aruba VAN of 0.146 ms smaller than the POX controller of 239.66 ms and greater than the delay value of 0.051 ms on the RYU controller. Furthermore, for the jitter value, Aruba VAN is better than the average jitter value at POX of 6.232 ms and higher than the jitter value at RYU which has an average of 0.014 ms. Furthermore, for the value of packet loss, background traffic variations have no effect on the packet loss value obtained in the Aruba VAN controller and RYU controller which produces a packet loss value of 0%, while in the POX controller there is still an average packet loss value of 1.743% when added background traffic in each test. The performance of the Aruba VAN controller is still better than the POX controller, but it is still not as good as the RYU controller.

Keywords: Software Defined Network, SDN, Aruba VAN Controller, OpenFlow, Spanning Tree Protocol, QoS