

ABSTRACT

Currently internet usage is increasing. But it also must be balanced with good network performance and availability to be more efficient. SDN network is a new architecture on a network that separates the control plane function and data plane. So that in its management can be more efficient and simpler than conventional networks. One of the parameters to provide efficiency on an SDN network is in the selection of the path used. One of them uses the segment routing method, with the segment routing later can reduce the rules contained in the forwarding table, so that the process of sending data becomes more efficient. In this research we will simulate the use of segment routing and compare them with network performance without using the segment routing rules on SDN using ONOS as the controller. The topology used is leaf spine. The parameters to be measured are Resource utilization and QoS. In this research memory usage in the segment routing is 84% and 50% for without segment routing . For CPU usage 32% for segment routing and 54% for without segment routing . For packet loss on VoIP and video services by using segment routing as much as 1,2% while without using segment routing as much as 1,3%. In testing the delay, throughput and jitter on VoIP and video services using the segment routing the value is greater than without segment routing.

Keywords : *SDN, ONOS, Segment routing , Resource utilization and QoS*