

## ABSTRACT

In packet network, performance becomes a thing that should be cared. A performance depends on several factors, one of it is the routing protocol. The routing protocol which is usually used for interdomain routing is OSPF. More numbers of hardware in a network make the network routing configuration getting bigger, and it could affect the network performance.

This final project would simulate the implementation of OSPF over SDN network. RouteFlow used as the control plane and Mininet used as the data plane. The analyze of network performance was also done in simulation process. This would help to find network convergence time, overhead traffic, and quality of service.

Of the results, the values of the four QoS paramaters were still below the ITU-T G.1010 standard. The average delay were 4,8ms of data, 4.7 ms of VoIP, and 6.76 ms of video. The requirement which is suggested by ITU-T are below 15s for data, below 150 ms for VoIP, and below 10s for video. The average jitter were 0.27 ms of data, 0.27 ms of VoIP, and 0.59 ms of video. The standard for the jitter is below 1 ms for the VoIP, and there are no requirements for both data and video. The packet loss were 0% of all types of traffic until traffic background 75 Mbps was given. The requirement are 0% for data, below 3% for VoIP, and below 6% for video. The average throughput were 38.23 kbps of data, 73.25 kbps of VoIP, and 5347.26 kbps of video. The throughput values fullfill the standard value which for data is not given, VoIP is around 4-64kbps, and video 16-384 kbps. The network convergence time result was in range of 4.117-4.167 seconds. The overhead traffic results showed bigger values when new switch was added. The average overhead traffic ad were 0.137 MB (5 switches), 0.453 MB (9 switches), and 0.673 MB (11 switches).

**Keywords:** OSPF, SDN, RouteFlow, routing