ABSTRACT

SDN is a flow-based forwarding. Flow-based forwarding can result an additional time in packet delivery. While the telecommunications network requires high network availability. So the choice of flow entry rules placements models is crucial to consider.

This final assignment was made to choose best flow entries rules placement models of OpenFlow protocol in Software Defined Network using *Opendaylight* as an SDN controller. Analysis is done by measuring flow setup time, CPU Utilization and also measuring network downtime and packet loss when there is a link failure on the network. Testing is done by doing a number of virtually simulated scenarios.

Based on the research, it can be concluded that the proactive flow placement model is better used in network models with high complexity or networks that have dynamic changes, with a flow setup time of 0.075 seconds and network downtime of 3.25 seconds when there is a link failure. However, the proactive flow placement model has overhead such as high CPU utilization, which is 82.71% and many use memory switches due to installed flow entries for all possible transmissions on the network. While the reactive flow placement model is 13% more efficient in switch memory usage and 48% less CPU utilization but it does not have a flow setup time as fast as proactive flow so it will be better to use it on less complex network models or fixed networks.

Keywords : *Software Defined Networking, OpenFlow, flow-based forwarding, flow entry, OpenDaylight.*