ABSTRACT

SDN has many advantages also has several problems, one of which is a link failure or a disconnected link when sending data between hosts. Communication between the data plane and the control plane is needed to detect, calculate, and insert rules for creating new paths. Communication between data plane and control plane causes latency or delay when the link failure occurs and when the new route construction is done, this potentially affects all packages become lost when the link failure occurs and before the construction of the new route is created and then forwarded to the data plane .

In this experiment applies a failover mechanism on the SDN by using reactive forwarding feature and the Dijkstra's algorithm in ONOS controller, applied to different topologies and network parameter test. This method applies two scenarios, that is failover mechanism using reactive forwarding and using Dijkstra's algorithm. Each scenario is carried out by applying two types of topologies, that is 2-D Mesh and Full-Mesh.

From the experiments it can be obtained that with the failover mechanism, the problem of the disconnected path can be resolved due to a backup path (secondary path). There is a difference in value of Round Trip Time (RTT), round trip time values tend to be greater in scenarios using reactive forwarding. The difference of round trip time values are due to in dijkstra's algorithm scenario, the backup path is determined by the biggest bandwidth size and by the smallest hop count on the reactive forwarding scenario. The result is by using the Dijkstra algorithm, when the bandwidth size is different, can reduce round trip time values so that the latency become shorter.

Keywords : *Software Defined Network*, ONOS *Controller*, *Failover*, *Latency, Round Trip Time, Reactive Forwarding, Dijkstra's Algorithm*.