ABSTRACT

Ethernet network has limitation in case of routing scheme, where the Ethernet uses Spanning Tree Protocol (STP) scheme as routing scheme which is only uses one single path on routing decision. The routing mechanism like STP that only deploy one single path can affect the performance, less maximize bandwidth utilization and also provide high delay that caused by congestion that occur in the network. Routing mechanism is required and importan in network. Therefore, we need a routing mechanism that can maximize available bandwidth utilization and provide low delay, where one of solution is multipath routing as routing mechanism, because multipath routing in case of routing scheme use more than one path that available in the network, therefore it can provide higher throughput, and also can provide lower delay than single path routing mechanism.

In this final project will create multipath routing algorithm with load balancing and admission control technique on Ethernet network with Software Defined Networking (SDN) paradigm. According to Open Networking Foundation (ONF), SDN is separation between control plane dan data plane, where in implementation uses Ryu as an OpenFlow controller, where Ryu is one of kind of controller that used in SDN. OpenFlow is a protocol that used for communication between OpenFlow controller and Openflow switch. Mininet as a simulator that used for simulate multipath routing algorithm.

From Mininet simulation will test impact of giving threshold on admission control, network performance such as QoS parameters (delay, packet loss, throughput) and resource utilization at controller, corresponding to scenario that has defined before.

Key Words: Multipath Routing, OpenFlow, Software Defined Networking, Ethernet