

## ***ABSTRACT***

In the conventional network, routing protocols become an essential part in managing the network. Configuring routing protocols on the conventional network is still inflexible, inefficient, and individually configure every intermediate device [1]. Seeing the condition of the network, a new technology called Software Defined Network (SDN) was developed with an infrastructure that separate control plane and data plane and can integrate many varieties of OpenFlow standard devices from different vendors [1]. SDN technologies that can apply routing protocol conventional is RouteFlow. Routing Information Protocol (RIP) which is the first IPv4 routing protocol and developed into RIPv2 whose performance in terms of convergence and scalability is still low. The differences infrastructure between SDN and conventional network can affect the performance of the RIPv2 routing protocol. Therefore in this final project analyze RIPv2 routing protocol by simulating it on SDN using RouteFlow.

In this final project, the designs and simulations to analyze the performance of RIPv2 routing protocol on SDN using 2 software that supports the formation of SDN infrastructure consisting of RouteFlow (controller) and mininet (network emulator). The analysis process is done based on parameters convergence time, routing overhead, QoS, and memory utilization.

The analysis results of RIPv2 routing protocol simulation on SDN obtained the parameter value of convergence time is close to the value of the timeout timer (corresponding to the previous research for 1 link failure) and continues to increase every additional switches. The parameter value of the routing overhead and memory utilization every additional switches isn't too large accoring to the characteristics RIPv2. Furthermore, for services of data, VoIP, and video that is passed on the network for each additional switch generates QoS parameter values : For delay, jitter, and PLR meets the criteria and standards ITU-T G.1010 when given the traffic background 0 - 90 Mbps. And for throughput in accordance with the configuration of the D-ITG throughput when given the traffic background 0 - 90 Mbps.

**Keywords:** SDN, routing protocols, RIPv2, performance, RouteFlow