

## **ABSTRACT**

*Traffic Engineering is used to balance the traffic load on various lines and points in the network. the use of TE, enables network operations to be more reliable and efficient while optimizing the use of resources and traffic performance. IMR is a Traffic Engineering method which is a service on ONOS controller that can optimize traffic. IMR reconfigures when there is a failure on the network to restore the requested connectivity without interference from the user*

*In this research, author design system that has Traffic Engineering function with the Intent Monitor and Reroute method uses an additional application Off-Platform Application (OPA) to see the effectiveness of IMR in maximizing the use of links and bandwidth on the network with the Software Defined Network paradigm. The system is designed with the aim of being able to process the selection of traffic data channels to balance the traffic load in the network. The system is designed using ONOS as SDN controller. Furthermore, the designed system is simulated on the Mininet to test the capabilities of the system by measuring several parameters including Quality of Service and Resource Utilization.*

*QoS measurements using Iperf3 and D-ITG referring to QoS TIPHON standars with background traffics of 500 mbps, 1000 mbps, 1500 mbps, 2000 mbps, and 2500 mbps with very good categories for delay, packet loss is good because the values obtained range from 0% - 3% packet loss, then throughput with very good categories . Then the data retrieval for the results of resource utilization using a monitoring system that has been applied to the network with the result that the consumption of CPU and RAM in the control plane is greater than the consumption of CPU and RAM in the data plane.*

**Keyword** : *traffic engineering, Intent Monitor and Reroute, software defined networking, ONOS*