

## ABSTRACT

In general, technology is used by everyone to facilitate all activities and needs. Software Defined Network created with different basic concept with traditional network. The separator between control and forwarding layer in different devices allows the administrator to customize the control plan. With the implementation of OpenFlow protocol on SDN, then there is an opportunity to apply a routing in the SDN network from source to destination.

Different with traditional network, control dan forwarding layer located in one infrastructure where is network administrator should arrange one by one device from different vendor to manage network. Research using single board computers on network technology provides an opportunity to apply the network architecture model. Raspberry Pi has enough ability to implement SDN model. Therefore one of the problems that occur in traditional networks is difficulty to compiling a complex network to be managed easily in accordance with desire of the administrator. And to solve the problem, Network Defined Software method is used to make network management more centralized and efficient.

From the results of research performance SDN-application on Raspberries Pi. Monitoring system on Raspberry does not take up a lot of resource, will only increase when there is a refresh process ( $< 10s$ ) in web monitoring that displays data on the device. Testing QoS bandwidth (throughput) at 5 m get 14.8-15.7 MByte with average 14.69333333 Kbytes, then 10 m get the range value of 14.7 MByte with average -15,9 14.72 MByte, and 20 m with a result of 14.8-15.7 Mbyte average 14.73666667. For results of QoS, Transfer Rate and Data testing parameters meet the third reference to ITU-T G. 1010, average value entered in the category of Being that is 50, so  $<$  Rapsberry Pi can be used on a network that is designed.

Keywords : SDN, Network Managment, RaspberryPi, flow-based