ABSTRACT

OpenFlow is a standard protocol in the network based-on SDN that separates the control and forwarding functions so it can perform centralized control of the network and facilitate network management. Raspberry Pi is a mini PC that uses the Linux operating system as the PC in general. Based on the results of research conducted by Hyunmin, and other Developing a Cost-Effective OpenFlow Testbed for Small-Scale Software Defined Networking comparing Net-FPGA and Raspberry Pi as SDN devices. The result indicate that Raspberry Pi worthed for small-scale SDN.

SDN also conducted research on the Raspberry Pi as the control and forward function, but there are obstacles existing port on Raspberry Pi only accommodate one link and less suitable for use as a Switch. In this study, carried out using the small scale SDN network implementation Open vSwitch as switch installed on the TP-Link WR-1043ND v2 using openwrt as firmware that has 5 ports and Raspberry Pi mounted Ryu SDN Controller as a controller and centralized control.

The results of implementation computer network based-on SDN for small scale at the this final project shows the performance that average bandwidth is 95,163 Mbit/sec, the average throughput was 90,693 Mbit/sec, the average delay is 19,212 ms, average jitter is 1,954 ms, and the average packet loss is 4.3%.

Keywords: Software Defined Network, OpenFlow, Open vSwitch, Raspberry Pi, TP-Link WR-1043ND v2