ABSTRACT

Software Defined Network (SDN) is a paradigm that is currently developing in the world of computer networks. With the OpenFlow SDN protocol, it separates the control plane from the data plane. However, the OpenFlow protocol still has a weakness, namely it is not able to properly define switch behavior.

To overcome this deficiency, there is a concept called data plane programmability. This concept makes it possible to modify network behavior and to develop more innovative SDN applications. One example of this data plane programmability is the Programming Protocol-Independent Packet Processors (P4). This study was conducted to compare the performance of Quality of Service (QoS) between OpenFlow-based SDN and P4-based SDN to determine the significance of P4 to influence QoS performance on SDN.

The results obtained in this final project can be concluded that the QoS performance between P4 and OpenFlow has a very small difference. Overall OpenFlow is slightly superior to P4 from the QoS parameters tested such as throughput, jitter, packet loss and delay. Based on the TIPHON standard, the resulting QoS parameter values fall into the good category. Although OpenFlow's performance is slightly better, P4 can make SDN innovations faster and also make SDN more programmable.

Keywords: *SDN*, *OpenFlow*, *P4*, *QoS*