ABSTRACT

Currently, people need to be connected to the internet. Starting from people who have to do all activities that are usually outside the home, now have to do it at home using *virtual meeting*. All these community activities give many problems to conventional networks that require *network engineer* to configure individually on each network device.

One of the problems found is the loading of traffic on the network. To overcome these problems, this study proposes the use of OSPF *Loop Free Alternate* routing on P4. P4 (*Programming Protocol-independent Packet Processors*) is a *statically-typed* programming language in which P4 can write programs and determine how the *pipelines* in *switch* work and how packages can be proceed.

In this final project, simulation and analysis of *routing* has been carried out on a programmable network infrastructure based on P4 language. In *routing* OSPF LFA and *routing* IP *fast* using P4, obtained the average value of QoS in scenario 1 *Throughput* fast IP routing 2.93 Mbps and OSPF LFA 3 routing .07 Mbps, for *Delay* fast IP routing 0.42ms and OSPF LFA routing 0.10ms, for *Jitter* fast IP routing 0.219ms and OSPF LFA routing 0.0231ms and for *packet loss* fast IP routing and OSPF LFA routing 0% and in scenario 2 *Throughput* fast IP routing 2.83 Mbps and OSPF LFA routing 2.95 Mbps, for *Delay* fast IP routing 0.013ms and routing OSPF LFA 0.011ms, for *Jitter* fast IP routing 0.237ms and OSPF LFA routing 0.0228ms and for *packet loss* fast IP routing and OSPF LFA routing 0%

Keyword : P4, *Open Shortest Path First*, *Software Defined Network*