ABSTRACT

At this time the development of computer networks is very rapid and increasing the complexity of the network, with the challenge arises a technology namely Software-Defined Network (SDN). SDN is the latest breakthrough in modern network modeling where control planes and data planes have been created separately. SDN *networks, especially using Open Network Open System (ONOS) controllers, do not provide a firewall to protect their networks from attacks.*

In this study with this problem, we designed a system that improves the security system of a computer network by using a firewall placed on a web server connected to the SDN network. Then do the test by attacking the web server that has been installed firewall with a denial of service (DOS) attack. In this study the controller used is an ONOS controller.

In this final project has successfully designed a stateless firewall on the SDN network. To determine the effect of stateless firewall performance, test simulations are conducted between scenario 1 and scenario 2 using throughput parameters, response time, packet loss, and CPU ustilization. Throughput test results, in scenario 2 is more optimal with values when the client makes 100 requests, 200 requests, and 300 requests of 4.09 KB / s, 8.42 KB / s, and 8.58 KB / s. The results of the response time test, in scenario 2 is more optimal with values when the client makes 100 requests, 200 requests, and 300 requests of 7.63 s, 5.5 s, and 5.42 s. Packet loss test results, in scenario 2 is more optimal with values when the client makes 100 requests, 200 requests, and 300 requests of 13.75%, 16.9%, and 18.55%. Cpu utilization test results, in scenario 2 is more optimal with values when the client makes 100 requests, 200 requests, and 300 requests of 5.06%, 5.6%, and 6.02%.

Keywords*: Software-defined network (SDN), firewall, ONOS controller, Denial Of Service (DOS).*