ABSTRACT

Along with the development of the world of the IT industry, virtualization technology is slowly being used to build network infrastructure called Network Function Virtualization (NFV). This technology runs on a hypervisor that is used to manage management of hardware. one component of NFV is VNF. NFV requires a system that can be used to maintain NFV network performance, one of the factors that can affect NFV performance, namely from the security side.

In NFV, network devices are run on a server so that, a firewall is needed in NFV because if an attack occurs on the network it will interfere with existing network components. There are two kinds of virtual firewalls that are used, namely Pfsense and Fortigate. The two virtual firewalls will run on the VMware ESXi hypervisor. This study aims to determine the performance of Virtual firewalls in the face of SYN DoS attacks. And firewall failover capabilities and firewall detection against port scanning.

Based on the results of testing and analysis it was found that for throughput parameters under normal Pfsense conditions the highest value was 177.60 MB / s while in SYN DoS attack Fortigate has better performance with a value of 66.46 MB / s. For failover metrics Fortigate has the best packet loss and failover delay value of 2.75% and 1,687 seconds. Whereas for FTP services and web Pfsense it is superior in normal conditions while in Fortigate attacks it has better performance. For port scanning Fortigate has a perfect score with a maximum score of 20.

Keywords: Network Function Virtualization, virtual firewall, hypervisor