

ABSTRACT

.The rapid development of technology in the field of networking makes the network easier to configure than the previous technologies. One of them is the concept of NFV (Network Function Virtualization) aimed at accelerating the implementation of new network services to support business strategies and revenue growth for the telecommunications sector in particular. In general, NFV aims to replace the function of the existing physical router device into a virtual router device and can be run on any virtualization server. From various vendors, Cisco devices are the most widely used network devices in the telecommunications world.

In this study, a combination of Cisco virtual routers will be tested on a virtualization platform based on parameters of throughput, packet loss, jitter and scalability or the addition of network hops. The virtualization platform or commonly called hypervisor used is a type 2 hypervisor, QEMU, because it is open source and widely used in both educational and enterprise environments.

From the results of the tests performed, throughput has increased according to the amount of traffic flowed. The maximum link between host and router has a maximum capacity of 1000 Mbps with the maximum throughput recorded is 778.6 Mbps. The jitter parameter test results vary with the range of values between 0.026 ms to 0.098 ms and meet Cisco standards. Whereas packet loss parameters that can be received to run various services are <1%. The packet loss test results have a value ranging from 0% to 2.471% caused by the ability of virtual links created by qemu and the ability of virtual network interface cards.. For scalability parameters, the more network hops, the lower the performance obtained. When tested with more than 1000 Mbps of traffic, throughput has a saturation or maximum value, the packet loss is higher, but the jitter is at a very good level and meets the standards.

Keywords : Virtualization, Hypervisor, Network Function Virtualization, QEMU