

ABSTRACT

On communication packet based, performance and utility network became one of the main focuses in the design of the network. This is the reason for growing method of forwarding packages such as MPLS. MPLS is expected to be the solution to increase the performance of the network packet transfer speeds on the network. In addition to the speed of data transfer, quality of service and reliability aspects also become important when communicating in a network.

Network Function Virtualization (NFV) has caught the attention of academicians and industry as technology shifts are important in providing telecommunications services. Talk about routing (MPLS) on the core network, NFV has the ability of flexibility in terms of the capacity of a device which increases the efficiency of network performance NFV itself in its use. This research aims to know the performance of NFV QoS and CPU Usage are compared with conventional devices. In this final task implemented technology NFV by applying MPLS routing method on the network by using a Virtual Router as the MPLS Router for Voice and Video Streaming services.

From the results of testing and analysis it can be concluded that the network NFV better than the Conventional network, due to the nature of NFV (flexible) so it can create a virtual machine from the function side of compute, network, and storage so that allow changes to the QoS parameters and CPU Usage compared with Conventional network. .Conventional networks tend to be better than with the NFV network testing QoS parameter (delay, jitter, packet loss, and throughput) for a delay with the value of 0.01% (VoIP) and 1.89% (Video streaming). For the throughput value of 10.34% (VoIP) and 0.87% (Video streaming). As well as on both the examined produce average jitter < 1ms. Furthermore the CPU Usage of the network has a low yield NFV compared to conventional network with value improvement of 62.54%. And the results of MOS on the network and conventional NFV without background traffic and with background traffic generates the value of "Good" and "Good enough".

Keywords: *NFV, MPLS, Virtual Router, Voice Service, Video streaming Service*