ABSTRACT

Container is an operating system virtualization technology that focuses on application cloud and data center cloud, communication between docker containers requires a technique that can be isolated with others. In the cloud data center there are hundreds to millions of hosts that must be isolated between users which are public. Solution to this problem by implementing the tunneling protocol. Tunneling protocol is a protocol that can run on layer 2 based virtual network overlays that can pass above layer 3 so that it logically forms a tunnel that can isolate traffic between users in virtual based virtual network overlays.

This Final Project conducts research on the performance of tunneling NVGRE, VXLAN, GENEVE and STT protocols that can be used in a data center cloud using a virtual switch Open vSwitch for communication tunnel end points between Veth virtual container and Ethernet as virtual networking combined with Open vSwitch. This study aims to look at the performance of the four tunneling protocols for communication between docker containers using jitter test parameters, delay, throughput, packet loss so as to get the most optimal tunneling protocol.

From the results of the research, tunneling protocol performance for communication between docker containers in virtual network overlays has been obtained in terms of STT tunneling protocol throughput, with an average value of throughput use of 946.9 Mbps, VXLAN has a value of 893.8 Mbps, GENEVE has a value of 893 Mbps, NVGRE has a value of 918. Mbps. In terms of STT tunneling protocol delay, with an average delay value of 0.12 ms, VXLAN is 0.22 ms, NVGRW is 0.506ms and GENEVE is 0.222ms. In terms of NVGRE tunneling protocol jitter with an average jitter value of 0.0.029 ms while STT performance is 0.079 ms, VXLAN is 0.052 and GENEVE is 0.045. and in terms of packet loss to the four tunneling protocols by 0%

Keywords: Virtual Network, Tunneling Protocol, network overlay, Veth