

ABSTRACT

Virtualization is a new revolutionary approach in networking industry, its make possible to build several virtual machines (VM) in one physical hardware. In virtualization practice, one VM might be connected to others, but not all of VM in one environment must be connected. In data center case, which has so many tenant on it, it is requires each tenant be isolate with others due the privacy and security issues. One of the solutions which can address these issues is tunneling protocol. Tunneling protocol is a layer-2-in-layer-3 protocol which can isolate tenant traffic in virtualize environment.

In this final project research conducted about the performance of tunneling protocol on overlay virtual network, because there are some performance trade off issues to implement this tunneling protocol. The tunneling protocols are virtual extensible local area network (VXLAN) and network virtualization generic routing encapsulation (NVGRE). Both of tunneling protocol use virtual switch Open vSwitth (OVS) as tunnel end point. This final project research aims to determine the performance of the tunneling protocol with throughput, delay, jitter, and vCPU Usage parameter.

From the the result, can be conclude that both of tunneling protocol VXLAN and NVGRE can be implement in virtual environment. For the throughput performance result, NVGRE has the highest value of 771,02 Mbps and the VXLAN got 753,62 Mbps. For the delay NVGRE got 2.24 ms and VXLAN got 2.29 ms. For the jitter, NVGRE has better rate value of 0.361 ms, than VXLAN value of 0. 348 ms, and the vCPU usage performance, has the highest performance too that value is 60.57%. So on overall performance NVGRE has the better performance than VXLAN.

Key word: virtual network, tunneling protocol, overlay network