ABSTRACT

Together with the advance of age and internet, cause the sum of user that connected to internet largely developed. And by that increase of user then the network need to be extended. IPv6 which expected can fulfill network demand cause another problem, an interworking network to connect existing IPv4 network and newly IPv6 network. This is happen cause the use of IPv6 can't be done in direct and comprehensive.

Interworking network that will be construct in this final project are using NAT-PT and TRT methods and implemented in freebsd 4.10 operating system. NAT-PT were apply with the kame kernel extension that use to upgrade freebsd kernel while TRT are an application integrated on freebsd for translation process, TRT are using pseudo device called faith.

In this final project shows an interworking network between IPv4 and IPv6 network build using NAT-PT and TRT translation methods that works on freebsd 4.10 and apply for video streaming application. On the interworking network, session initialization can only be done by IPv6 host. By the streaming process, data were taken and measured to analyze network performance to know QoS parameter such as delay gateway, delay inter arrival time, delay jitter and throughput.

Measurement were done on 3 scenario that is NAT-PT IPv6-to-IPv4, NAT-PT IPv4-to-IPv6 and TRT IPv4-to-IPv6. On delay gateway measurement, NAT-PT IPv6-to-IPv4 has the smallest value 0,019 ms and followed by NAT-PT IPv4-to-IPv6 2,196 ms and TRT IPv4-to-IPv6 2,296 ms. On throughput measurement the biggest one is NAT-PT IPv4-to-IPv6 scenario 0,772 Mbit/s and then NAT-PT IPv6-to-IPv4 0,701 and the smallest is TRT IPv4-to-IPv6 0,69 Mbit/s. On delay inter arrival time measurement the biggest value is NAT-PT IPv6-to-IPv4 15,638 ms and followed by NAT-PT IPv4-to-IPv6 0,967 ms and the smallest one is TRT IPv4-to-IPv6 0,82 ms. The last is delay jitter measurement who has the smallest one is Nat-PT IPv6-to-IPv4 scenario by 0,002 ms and second one is NAT-PT IPv4-to-IPv6 1,728 ms and the biggest one is TRT IPv4-to-IPv6 1,918 ms.