Abstract

With the depletion of the availability of IPv4 addresses, IPv6 must be deployed immediately. However, this transition cannot be done in a short time and at the same time globally because it will pose a problem to the existing IPv4 network connectivity. One of the transition technique little by little without disrupting the existing IPv4 infrastructure is IPv6-over-IPv4 tunneling transition technique by using Generic Routing Encapsulation (GRE) mode mechanism developed by Cisco Systems.

Building the IPv6-over-IPv4 transition infrastructure is not enough. There is a need for treatment to ensure the quality of the system. Moreover, the widespread demand for multimedia services requires real-time Quality of Service (QoS) to ensure good services carried by the infrastructure. Therefore, QoS is a mandatory feature in the IPv6-over-IPv4 infrastructure. To meet these needs, IPv4 and IPv6 supports the application of Differentiated Services (DiffServ) QoS for each packet.

This final assignment tried to implement the DiffServ QoS in transition infrastructure system of IPv6-over-IPv4 with GRE tunnel mode. The results are that DiffServ QoS can be implemented in the infrastructure system and DiffServ QoS is able to provide better real-time service according to some tested QoS parameters.

Keywords: IPv6, Tunneling, Generic Routing Encapsulation, Quality of Service, Differentiated Services