

Abstract

IPv6-over-IPv4 tunnel is one of transition mechanisms used to assist in the migration from IPv4 to IPv6. This mechanism is used as a way to overcome the unprepared existing infrastructure in response to the migration process. IP Security (IPSec) is one example of a protocol that can secure the tunnel. The use of this protocol will have an impact on network performance in the delivery of data packets.

The tunneling scenario that will be used is a host-to-host by applying IPSec transport in use. The system will be divided into two, tunnel without IPSec and tunnel with IPSec. Each system will be tested using delivery the ICMP packets to observe the overhead and video streaming to observe the changes in performance. Observation of the performance is done by observing the throughput, delay, and packet loss by performing the experiment five times.

The performance of the system using IPSec was experiencing a decreased in throughput, delay and packet loss from the system without IPSec. The use of AH and ESP protocols together result in the greatest changes. The reason is the overhead generated by the merger of the two protocols is greater than the use of each protocol. These overhead differences affect the throughput. In addition, the encryption and decryption process in the delivery of data packets will affect the delay and packet loss that produced.

Keyword: *IPv6-over-IPv4 tunnel, IPSec, AH, ESP, overhead, troughput, delay, packet loss, video streaming.*