

ABSTRACT

IPv6 have more benefit in handling the data packet better than IPv4, such as fragmentation process only happen in the source node, while in the router side there is nothing until the packet processing in the router can happen faster.

MPLS are developed to reduce complexity from forwarding mechanism that are done by network based on IP routing. In MPLS, The analysis from header layer network only be done once a time when the packet go inside the MPLS network. After that, the packet will be passed on through the shortest path (LSP) that is being built by routing protocol. After that every router in MPLS network that accept the packet don't have to analysis the header network layer but only to change the label in the packet header with new label and continue through the LSP which exist.

This final task have purpose to analyzing and comparing of network performance of IPv6 over MPLS and IPv6 network based on delay and throughput for HTTP,FTP and TELNET application.

The result of the data simulation analysis show that applying MPLS in IPv6 router show result reduction of delay. Reduction of delay on network condition for handling small data traffic for HTTP is 0,007%,FTP are 0,008% until 0,009% and telnet are 0,008% until 0,009%. On network condition for handling large data traffic for HTTP is 19,329%, FTP is 23,345% and telnet is 24,666%.

Applying MPLS in IPv6 router show result increasing of throughput. Increasing of throughput on network condition for handling small data traffic (1MB) for HTTP are 1,849% until 1,851%,FTP are 2,221% until 2,281% and telnet are 2,281% until 3,521%. On network condition for handling large data traffic (2000MB) for HTTP are 1.321% until 2,589%, FTP are 1,620%% until 3,155% and telnet are 1,669% until 3,915%.