Abstract

Nowadays the development of the Internet increases rapidly, so that the availability of the Public IP address (Internet *Protocol*) becomes less and rare. for resolving the problem, IPv6 were developed . However, IPv4 and IPv6 are not backward compatible. MPLS is a packet labeling and forwarding technology that are widely used by ISPs and enterprises as their *core network*s. In order that IPv6 packets can be passed over MPLS/IPv4 *network*, the scientist have developed various transition method such as CE-CE GRE and 6to4 *tunnel* also dualstack 6PE. From the testing and analysis, the results showed that pure MPLS/IPv4 still has better performance in *throughput*, *delay*, *jitter packet loss*, and downtime, followed by 6PE, 6to4 and GRE *tunnel* methods.