# ABSTRACT

Application of Internet Protocol networks destined to flourish because of technology improvement. IP based services is growing and well integrated. For good integration, one of the factors that discussed most is the performance of the network.

Tunneling can be one solution to increase performance. Tunneling provides a mechanism to transport packets of the protocol within another protocol. A protocol referred to as the protocol passenger transported, and the protocol used to carry the passenger protocol referred to as the transport protocol. Generic Routing Encapsulation (GRE) is a tunneling mechanism is provided which uses IP as the transport protocol and can be used to carry many passengers of different protocols. Tunnel acts as a virtual lane point-to-point which has two end points, namely tunnel source and tunnel destination on each endpoint. This feature uses MPLS via Generic Routing Encapsulation to MPLS packet encapsulation in IP tunnels. Encapsulation of MPLS packets in IP tunnels to link virtual point-to-point across non-MPLS network.

Test parameters are throughput , RTT Delay , and Packet Loss shows decreasing in performance when GRE tunnel is applied . The reduction in performance is caused by the use of the resource on the network when interkey exchange when network builds GRE tunnel . However, a decrease in performance may not occur when the absence of background traffic so that the resource still has much room to be used .



*Keywords: Throughput, RTT Delay, Packet Loss, GRE, MPLS-VPN, FTP*