

ABSTRACT

Nowadays, corporate companies usually has several branch offices that dispersed geographically. Communication between these office is very essential to meet challenging need in the business environment. Using private Data connection would be expensive to be implemented, thus using ISP network would be economically viable. But using ISP network would mean sharing with other user, that would degrade the performance and security. To resolve these problems a technology called VPLS is being used. VPLS is a VPN based technology which that route data by Mac-address, thus allowing each branch office to be connected as a single network.

According to IETF, there are two methods of VPLS, namely BGP-VPLS and LDP-VPLS. It is essential to understand which of these methods that is better in term of Quality of Services (QOS).

This paper tried to answer the question above by implementing BGP and LDP VPLS in a small PC-Router network using Mikrotik Operating System. Several QOS standards such as delay, jitter, throughput, RTT, Retransmission, and packet loss, is being measured in this experiment. The result of the experiment is as follows :

1. Measuring VoIP delay resulted that LDP-VPLS is smaller by 3.16% than BGP-VPLS.
2. Measuring Throughput on FTP, LDP-VPLS has greater throughput of 26.1%, which is better than BGP-VPLS.
3. Testing RTT, shows that LDP-VPLS time is 19.41% faster compared to BGP-VPLS.
4. Packet Loss testing shows that LDP VPLS has 16.86% less than BGP-VPLS.
5. Retransmission test, shows that LDP-VPLS has 16.46% less than BGP-VPLS.

The result of the experiment shows that LDP-VPLS is better that BGP-VPLS in terms of Quality of Services.

Keyword : VPLS, BGP, LDP, L2VPN ,Throughput, Delay, Packet Loss, Retransmission.