

ABSTRACT

Along with the development of science and technology right now have an impact also of using Internet as a medium to obtain or exchange information in a quick, easy, cheap and even free. Using Asynchronous Transfer Mode (ATM) network with a limited rate, it is not scalable (scalability) which need to large investment, but has a maintenance of Quality of Service (QoS). On the other hand, Internet Protocol (IP) has become the de facto standard for global data communication system has a very serious weaknesses in the implementation of QoS. Therefore, built Multiprotocol Label Switching (MPLS) protocol that can combine IP and ATM networking and take advantage of both technologies.

Parameter to determine Quality of Service (QoS) of a network among other views of the value of throughput, delay and packet loss. Parameters changed to know network performance is the number of source, value of data rate and value of packet size for both MPLS networking with ARC and MPLS without ARC method.

From the simulation shows throughput has increased along with increasing value of data rate because the number of packets lost on the wane, but it does not apply to the MPLS network with the ARC method. Then throughput decreases with increasing number of sources because of declining quality of service because of large packet loss. Then the throughput will decrease as the reduced value of packet size, because when frame size is smaller then produce more number of frames so that consequently packet loss is greater while the relationship between packet loss and throughput are inversely proportional.

Keyword : *MPLS, Throughput, Source, Data Rate, Packet Size, Adaptive Rate Control (ARC), TCP Vegas, TCP Tahoe*