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## ABSTRACT

In the Internet Protocol (IP) multimedia, various alternative development that aims to offer more optimal and efficient use of networks for customer satisfaction. One of them is supporting the quality of service using traffic engineering technology internet Differentiated Service (Diffserv).

To meet QoS performance, setting the priority of data traffic is always in the last sequence, whereas the majority of traffic on the IP network is the data traffic. Therefore, to do engineering on data traffic so that QoS performance quality is maintained.

In general engineering that can be performed on data traffic, among others include: the use of TCP, slow start threshold settings, and set the congestion window.

From the results of research showed that TCP Vegas provides the worst performance of the other with an average throughput value of 0.765671 Mbps, while the three other TCP provides an average throughput performance with the same value of 0.818834 Mbps. And also the network architecture of IP-DiffServ with the addition of background traffic is able to provide performance Quality of Service (QoS) traffic data more reliable than the non-Diffserv networks, until the value of retransmission of 0.000000 Mbps and the maximum throughput value of 3.059426 Mbps.

**Keywords: QoS, Diffserv, Threshold**