**Abstract**

**TCP is running at the transport layer which is generally used for sending data packets, but TCP in Congestion conditions that burden TCP, throughput generated is not optimal. TCP only applies one path when there is a connection, so it is very vulnerable when Congestion occurs which causes Packet Loss, the data transfer communication will end. To overcome this condition, Multipath TCP is needed from the development of TCP. Multipath TCP can overcome this by using a redundant method that is using an active interface with sending simultaneously at the same time, for the Wired network at the same time which must be simulated first before being implemented. The trial uses activity result data (Througput and Packet Loss). In the NS-2 simulation results and Matlab animation of the data apply the redundant method for simultaneous data transfer. Network test results NS 2 cable simulation and Matlab animation can be used using Multipath TCP to increase verification greater than TCP based on the results of several RTT Delay trials, obtained optimal results on the 25 ms RTT Delay according to the Multipath TCP throughput of 132,676 Kbps and TCP 40.01 Kbps on data transfer. While the lowest packet loss on TCP Multipat Delay 15 RT RT Ms is 5.60% and the highest on the 15 Ms RTT Delay on the TCP network is 54%.**

**Keywords: Multipath TCP, TCP, Wired, Throughput, Delay RTT, Packet Loss, NS 2, Matlab.**