

Abstract

As the number of Internet users continual to grow exponentially, traffic congestion also increases and therefore reliable traffic is required. Meanwhile, traffic congestion control is taking place to ensure that the traffic is reliable.

To make sure traffic congestion controls function properly, there are two pairs of congestion control algorithm. There are Slow Start and Congestion Avoidance, and Fast Retransmit and Fast Recovery. The first pair is used to control the growth of the traffic, whereas the second pair is used to monitor the traffic after loss segment(s) occurs.

Currently, there are several algorithms for performing traffic congestion control. Among them are Tahoe, Reno, NewReno and SACK. These are all TCP versions and have their own strengths and limitations.

The objective of this thesis is to develop a new TCP/IP component, NewReno, into the UM developed network simulator, UMJaNetSim; then evaluate and analyse the strengths and limitations of the three well known, Tahoe, Reno and NewReno to perform network congestion control.

The aim of this thesis is to study and simulate the TCP with IP architecture for its implementation, in performing congestion control. Since UMJaNetSim has Tahoe and Reno components, the NewReno component is developed to enable the simulation of TCP with IP architecture. The simulator supports TCP with IP topology.

This thesis manages to integrate NewReno into UMJaNetSim. It was expected the performance of NewReno is the best as compared to Tahoe and Reno.