SYSTEM LAB (CS 588) ASSIGNMENT 3
PROJECT REPORT

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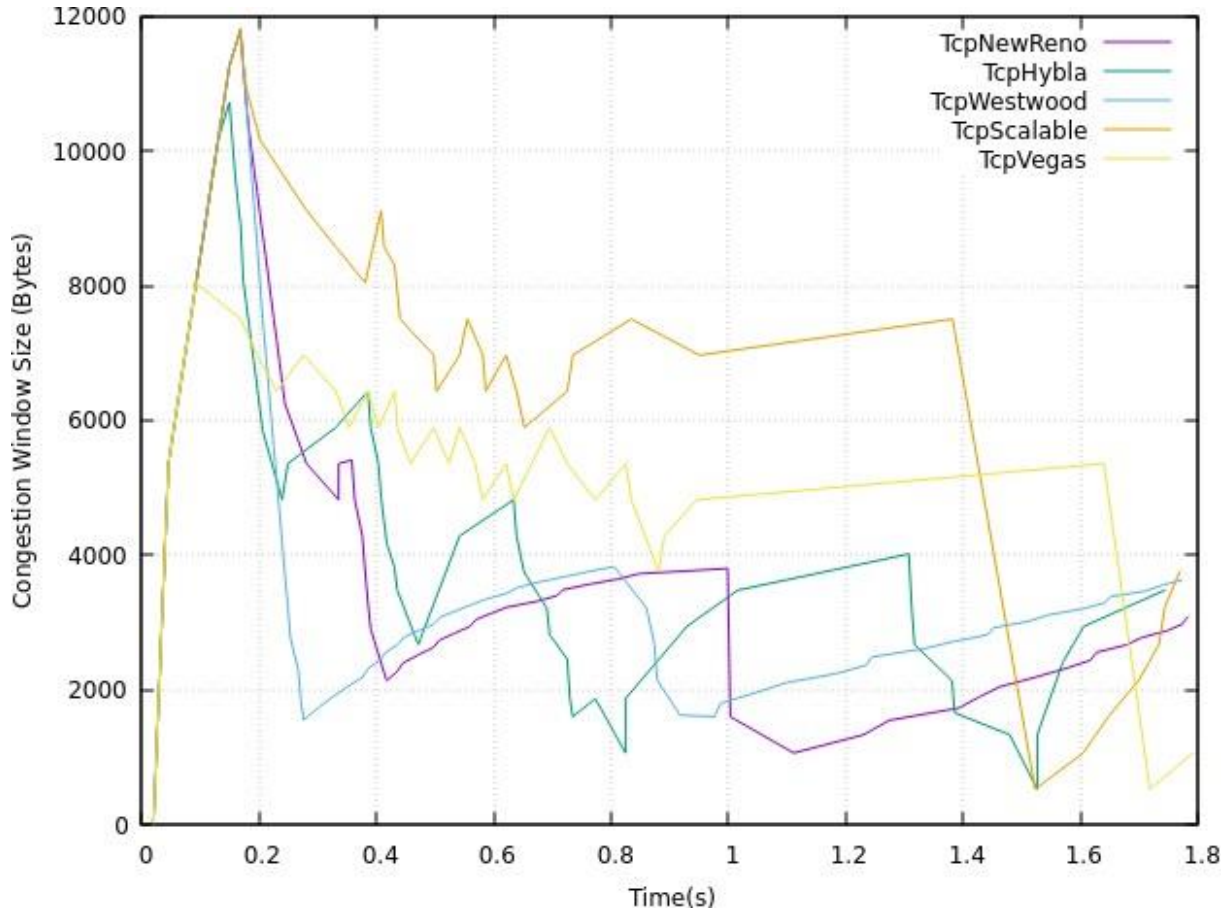
1. TCP CONGESTION WINDOW W.R.T. TIME GRAPH



Following are some of the observations we can infer from the congestion window size graph for the 5 TCP congestion control algorithms:

(i) TCP New Reno: As can be observed in the graph, in TCP new reno the congestion window size continues to increase until a packet is dropped and then the window size falls drastically.

(ii) TCP Hybla: TCP Hybla is quite similar to TCP new reno in its behaviour as is apparent in the graph. However, one difference is that TCP Hybla increases its window size at a higher rate as compared to TCP new reno.

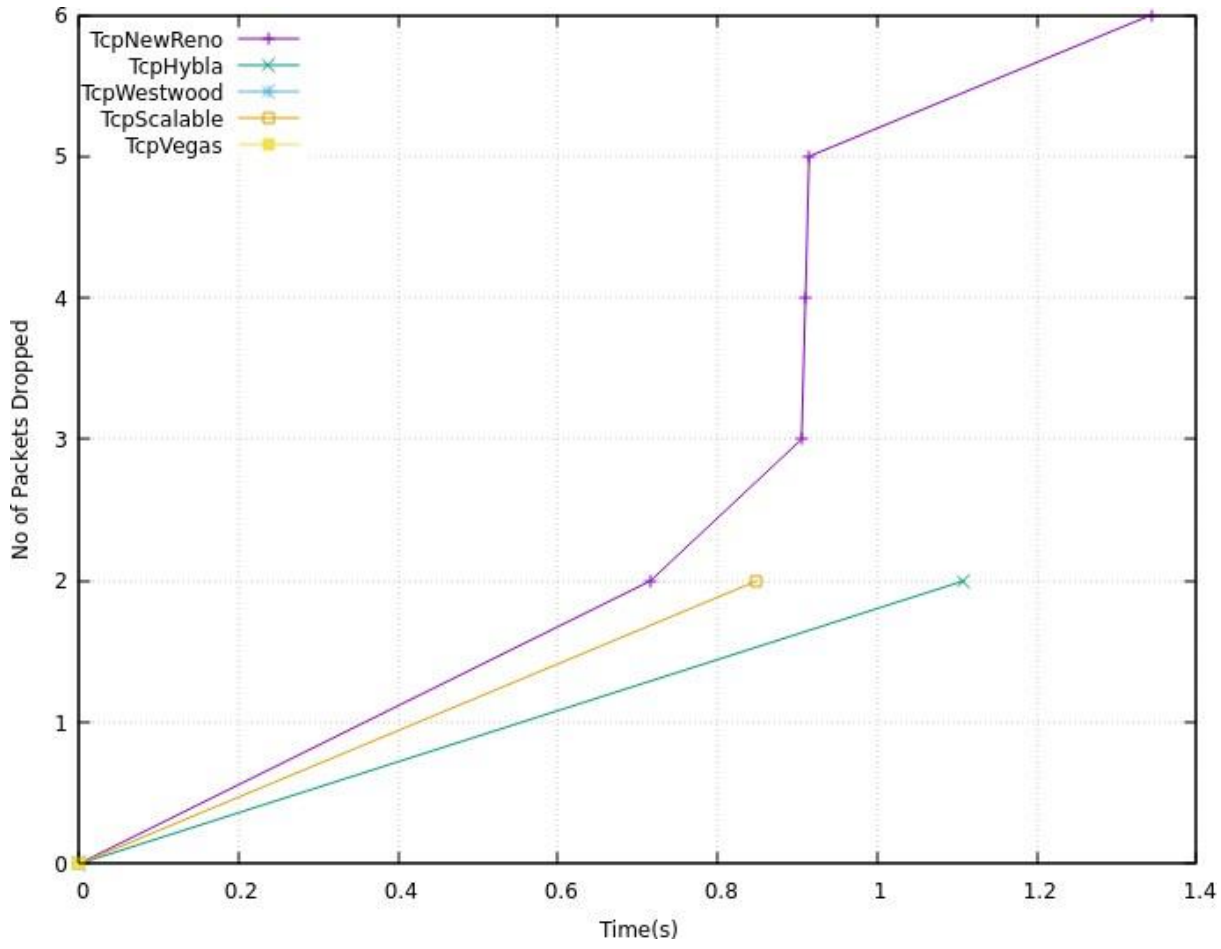
(iii) TCP Westwood: By definition, TCP Westwood is nothing but a modification to the TCP Reno algorithm which was the predecessor to the TCP new reno

algorithm. Thus, it is not surprising that there is a lot of similarities between the new reno and westwood plot. One difference we have observed from the graph is that the transitions in TCP westwood plot is smoother than that of TCP new reno.

(iv) TCP Scalable: TCP Scalable is a relatively new algorithm that has been developed recently. Its main objective is to minimise the huge change in congestion window size when packets dropping occurs. In most of the traditional TCP congestion algorithms, the congestion window is halved when a packet is dropped. To overcome this drawback, TCP scalable decreases the window size by a factor of ⅛ instead of halving. This results in a much more uniform plot for TCP scalable compared to other algorithms as can be observed in the graph.

(v) TCP Vegas: In the graph, it can be observed that the TCP Vegas does not increase its congestion window size to a very large value. It is because in TCP vegas, congestion is detected not by dropped packets but by observing increase in RTT value. Thus, the TCP vegas plot shows more consistent congestion window sizes compared to other algorithms.

2. CUMULATIVE TCP PACKETS DROPPED W.R.T. TIME GRAPH



3. CUMULATIVE BYTES RECEIVED W.R.T. TIME GRAPH