COL 334 Assignment-4 3-11-2022

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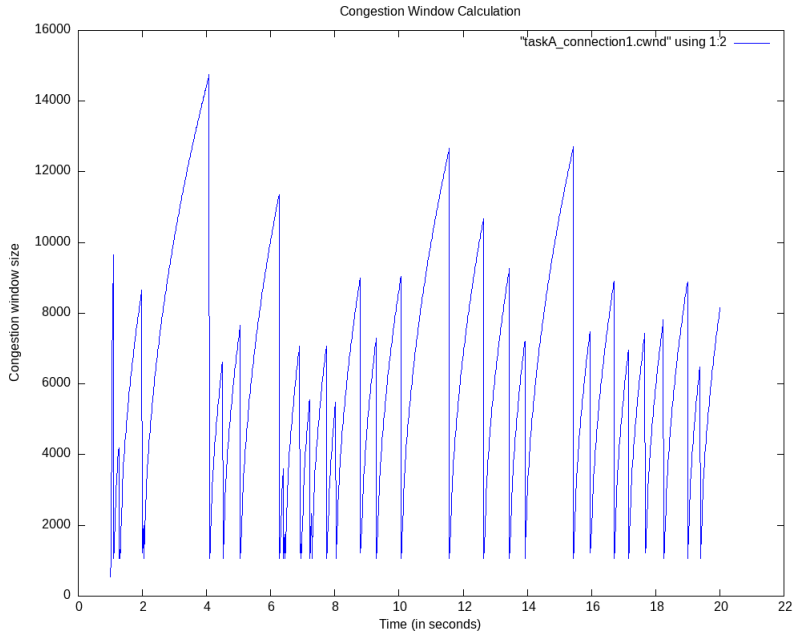
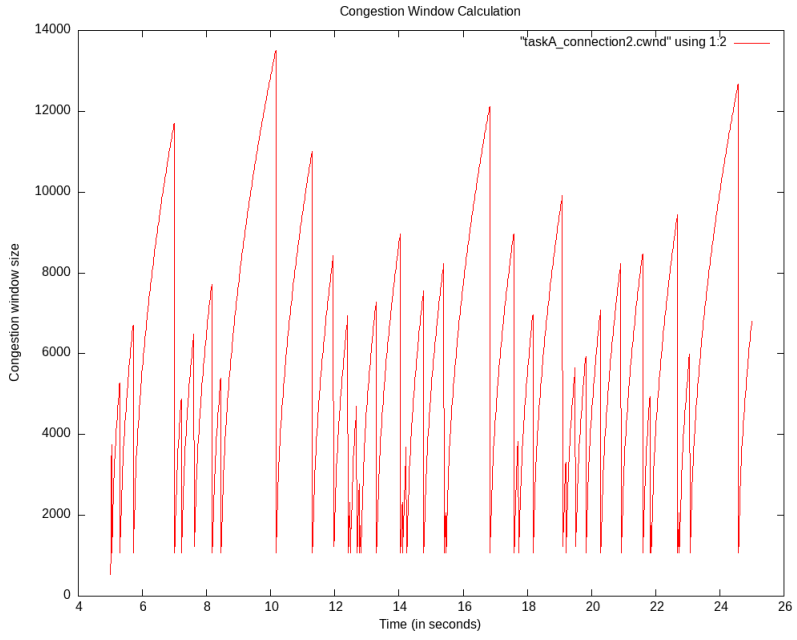
1 Part A:

Congestion Window size vs time from t=1 sec to t=30 sec for TCPNewReno (Configuration 1) :

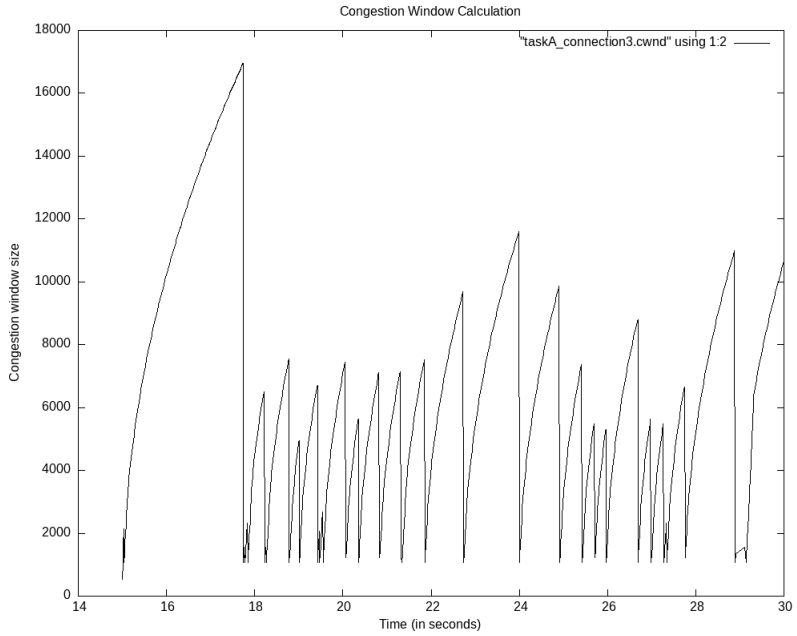
Connection 1



Connection 2

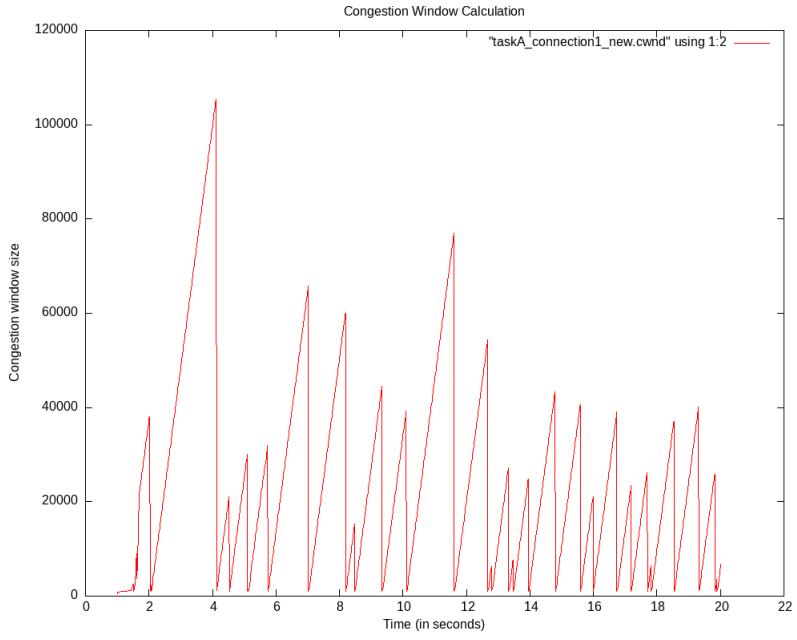


Connection 3

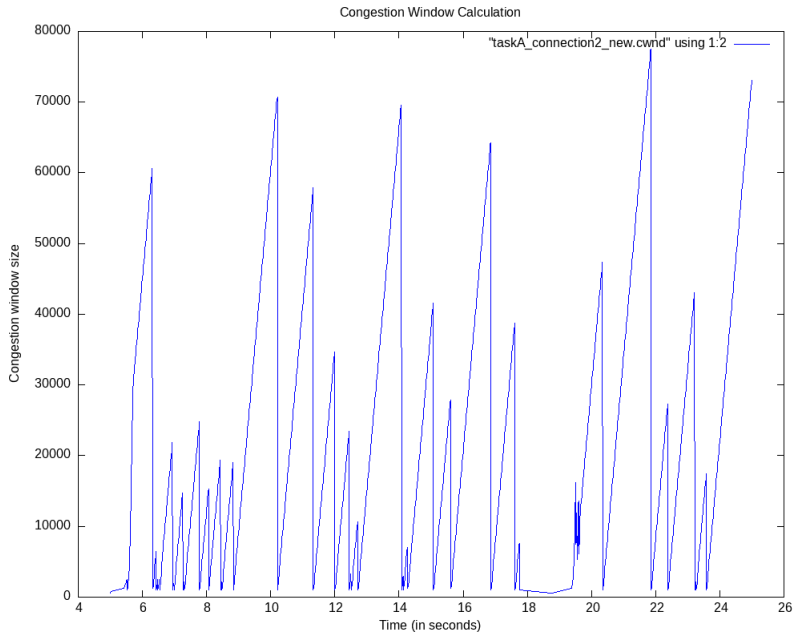


Congestion Window size vs time from t=1 sec to t=30 sec for TCPNewRenoPlus (Configuration 2):

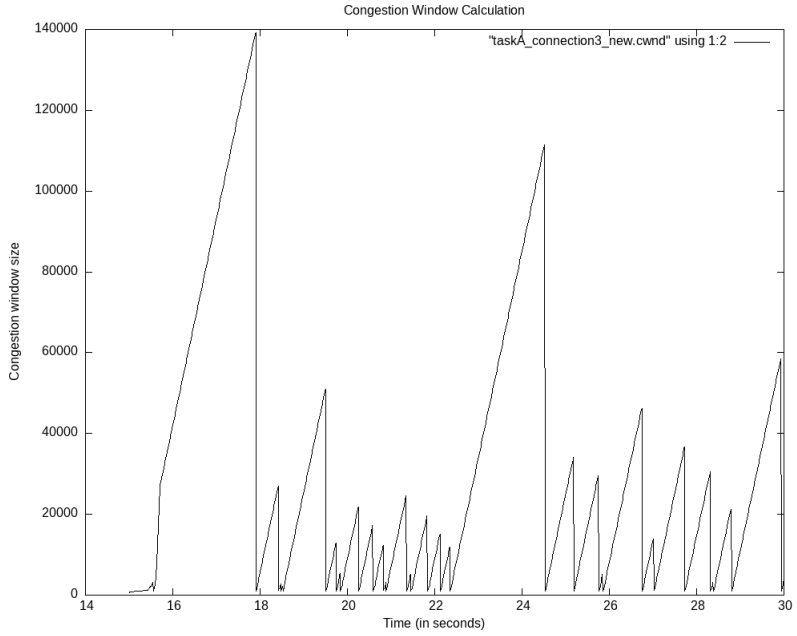
Connection 1



Connection 2



Connection 3



Protocol	number of packets dropped
TcpNewReno	76
TcpNewRenoPlus	80

Observation :
The number of packets dropped is same in both the configuration . This means that both the protocols have almost similar behaviour in our network topology. Since the application data rate is small compared to the channels data rate so there is very little congestion in the topology and thus, no difference in the performance is present for both the protocols.

For TcpNewReno , the congestion window is updated as ,

$$Cwnd = Cwnd + MSS \times \frac{MSS}{Cwnd}$$

The Slow start function is updated as ,

$$Cwnd = Cwnd + MSS$$

For TcpNewRenoPlus , the congestion window is updated as ,

$$Cwnd = Cwnd + \frac{(MSS)^{1.91}}{Cwnd}$$

The Slow start function is updated as ,

$$Cwnd = Cwnd + 0.51 \times MSS$$

The maximum window size of configuration1 is larger than configuration2 because congestion window is updated more fastly in configuration1 than configuration2.
The Slow start phase in TcpNewRenoPlus is also smaller than TcpNewReno. This means RTT congestion window in TcpNewRenoPlus increases by half the congestion window size TcpNewReno.

taskA.cc was the file submitted to setup the configuration and to use different protocols in sending packets.
pcap files for both the configurations was shared with appropriate names.
All the plots was taken by generating seperate files named .cwnd and plots were taken with the help of gnuplot.
I created three sinkaddresses at single sink node, and three Tcp sockets with required protocol.
I also add my files TcpNewRenoPlus.cc,TcpNewRenoPlus.h at required fields and added file names in wscript.