NETWORKS LAB REPORT

Assignment 3

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CS12B025

Selective repeat protocol was implemented over UDP. Selective ack was used for acknowledgements. Window is shifted in the sender, after all the packets in the window are sent and acknowledged. Reciever also shifts the window when all the packets are received. It is assumed that Acks are not dropped.

The following parameters were analysed for various experiments.

1) RTT
2) Retransmission ratio

The experiments were performed for N=1000, B=100, Window size = 8, number of bits in sequence number =5.

Packet Generation rate:

There wasn't much difference between the packet generation rate given and the final value. It means, the buffer didn't get full in many cases.

Average packet length:

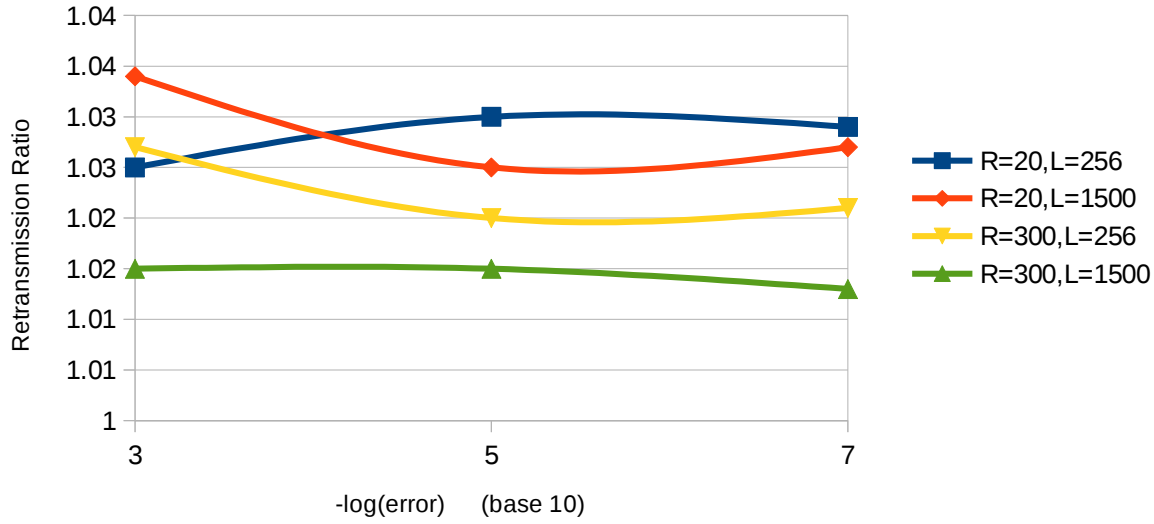
For Max packet length of 1500, avg packet length was around 750,while for Max packet length of 256 it was 150 bytes.

Retransmission Ratio:

As the error rate increases, retransmission ratio should increase. In this case where the packet drops are simulated probabilistically, we donot expect max packet length to affect our retransmission ratio. Retransmission ratio also doesn't depend very much on packet generation rate. In reality a longer packet is more error prone. From our experiments we find that, our expectations weren't true in all cases. It might be due to network lags/drops or bcoz we are sending too few packets to get a proper estimate. The retransmission ratio was very random when I tested for small values of N. It might be due to the behavior of rand() function as well.

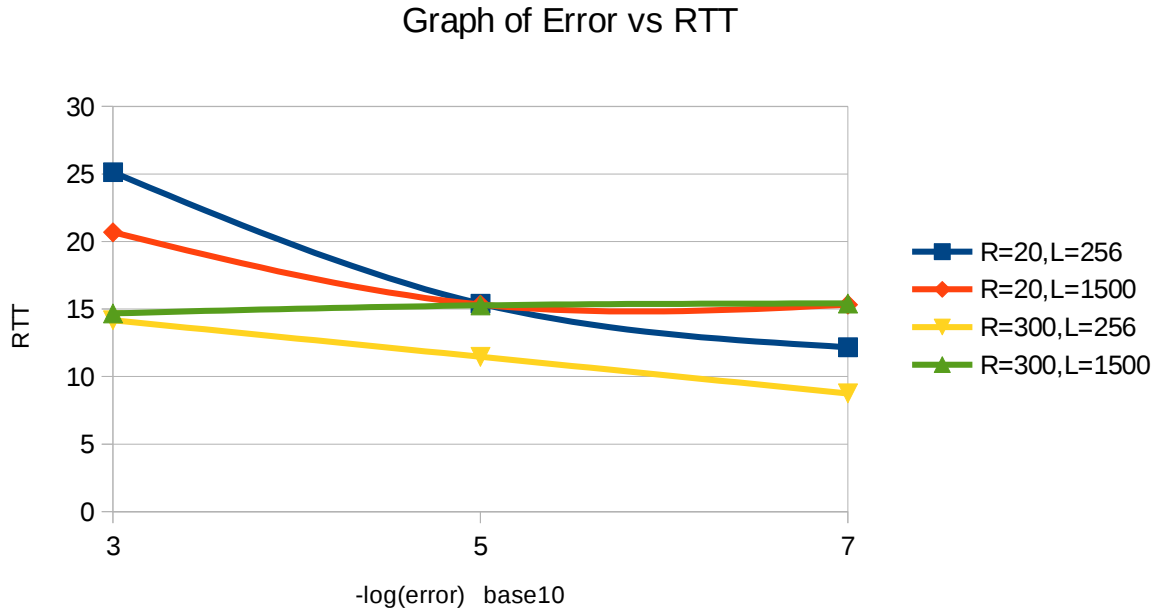
Round Trip Time:

As error rates increase, round trip time increases. We observe an increase in RTT with error rates. We also observe that as the packet generation rate was increased, RTT decreased. Maybe the lower network layers have buffers and send packets in groups, such buffering might have increased the efficiency when packet generation rate is high.



Retransmission ratio

error	R=20,L=256	R=20,L=1500	R=300,L=256	R=300,L=1500
0.001	1.025	1.034	1.027	1.015
0.00001	1.03	1.025	1.02	1.015
0.0000001	1.029	1.027	1.021	1.013



RTT in milliseconds

error	R=20,L=256	R=20,L=1500	R=300,L=256	R=300,L=1500
0.001	25.13	20.68	14.173	14.683
0.00001	15.4	15.335	11.468	15.271
0.0000001	12.174	15.321	8.753	15.414