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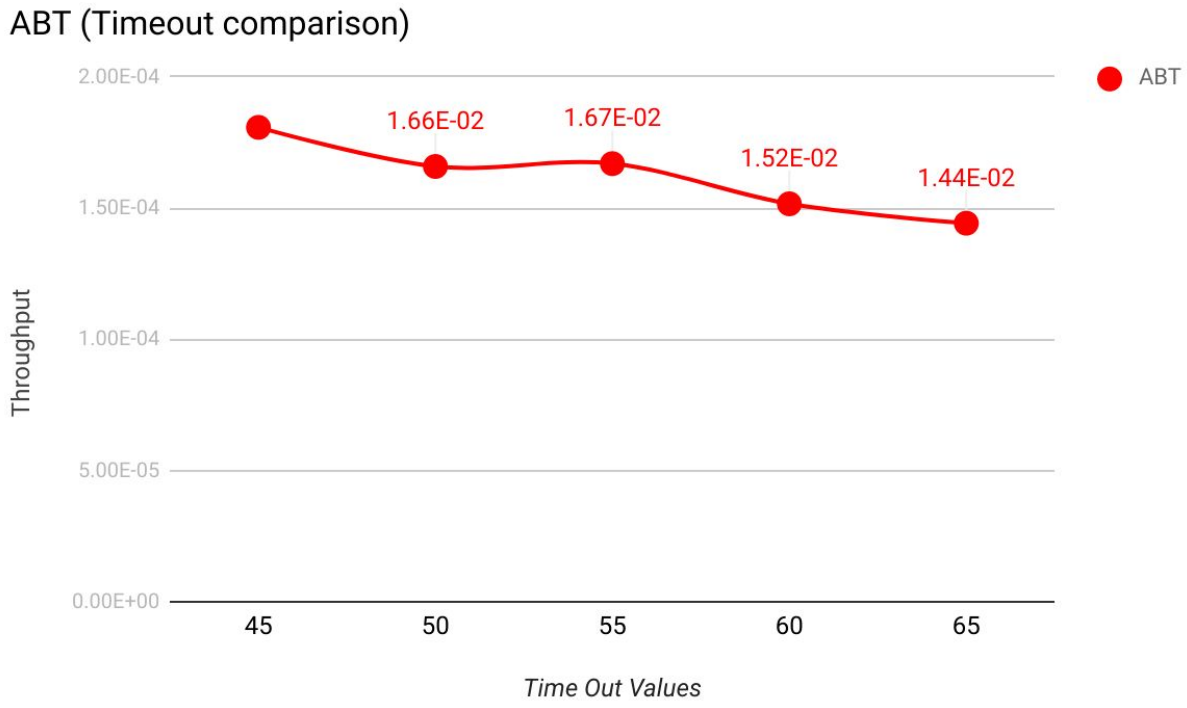
I have read and understood the course academic integrity policy.

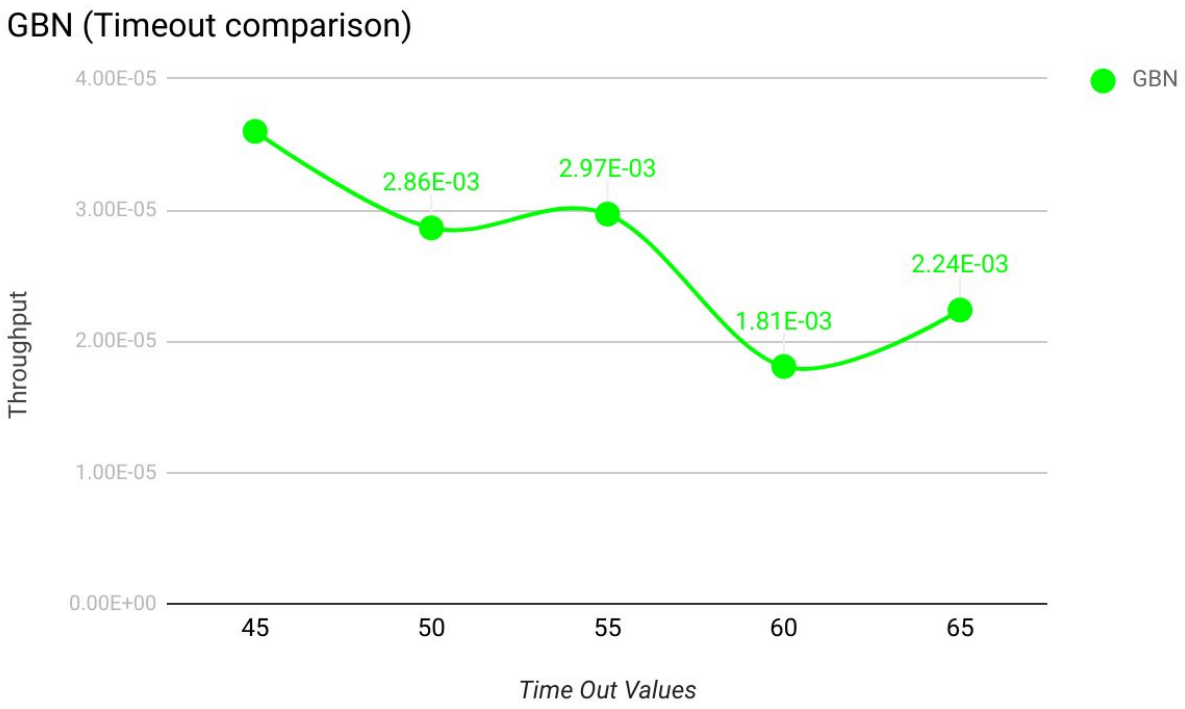
<u>Time-out Reason -</u> Reason for selecting 55.0 [used same value in both the protocols because I wanted to compare both of them at same values] as my timeout for both ABT/GBN was that I wanted a time-out which is more than the transmission time used (50), so that each message gets enough time to go through the simulation.

So I tried 55,60 and 65 as my values. 50 and 55 had comparable results but at 60 my implementation started dropping throughput, so I decided on 55 as my timeout value.

Here are the graphs showing different timeouts used (x-axis) vs throughput (y-axis) :



<u>Optimal time-out value as per this graph : 55.0</u>



Optimal time-out value as per this graph : 55.0

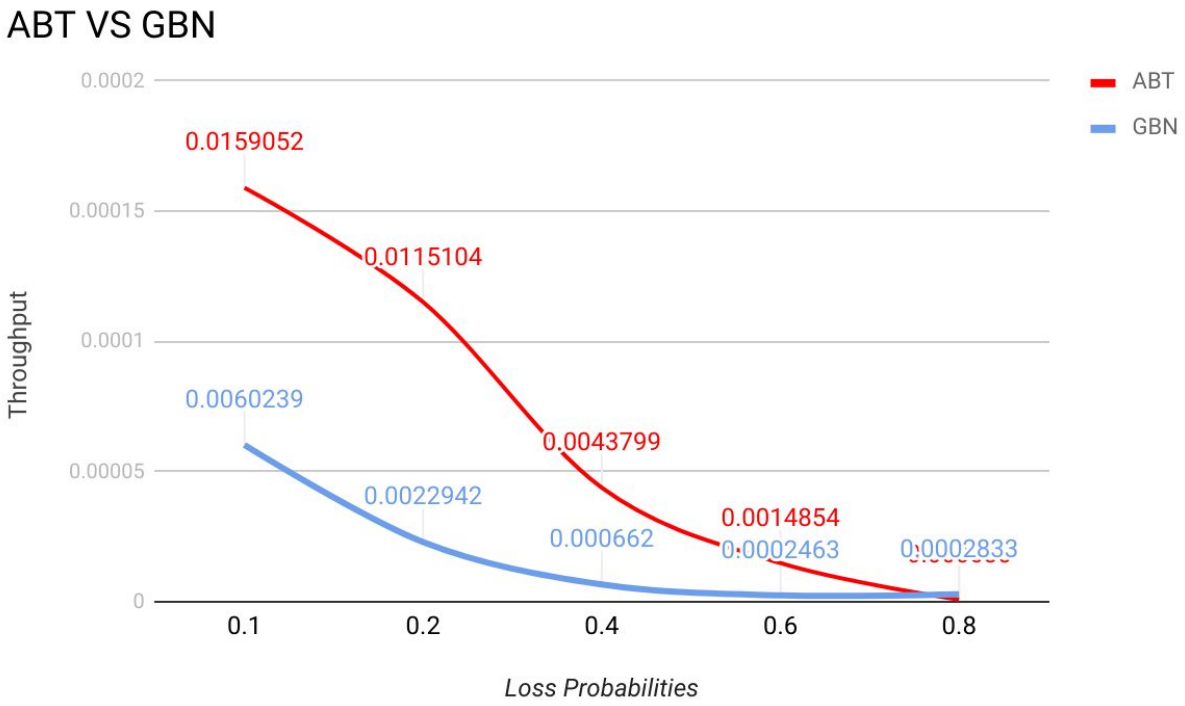
ABT VS GBN -

Experiment 1

With loss probabilities: {0.1, 0.2, 0.4, 0.6, 0.8}, compare the 3 protocols' throughputs at the application layer of receiver B. Use 2 window sizes: {10, 50} for the Go-Back-N version and the Selective-Repeat Version.

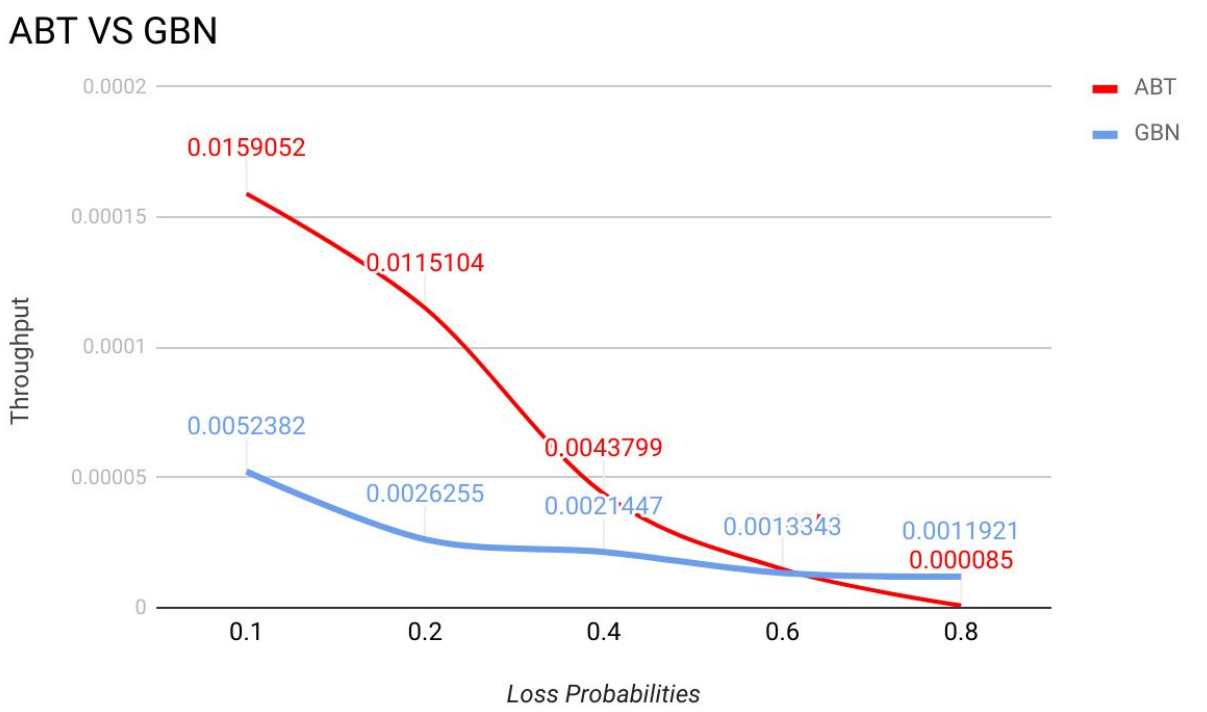
Expected Graphs

Window size: 10; X-axis: Loss probability; Y-axis: Throughput (ABT, GBN and SR) in one graph/plot.



With more loss, the performance of GBN is comparatively better than ABT because multiple messages can be sent which increases the number of delivered messages per unit time considerably. But for major portion ABT is better than GBN (for window-size 10) because of its simple implementation which creates less congestion in the network.

Window size: 50; X-axis: Loss probability; Y-axis: Throughput (ABT, GBN and SR) in one graph/plot.



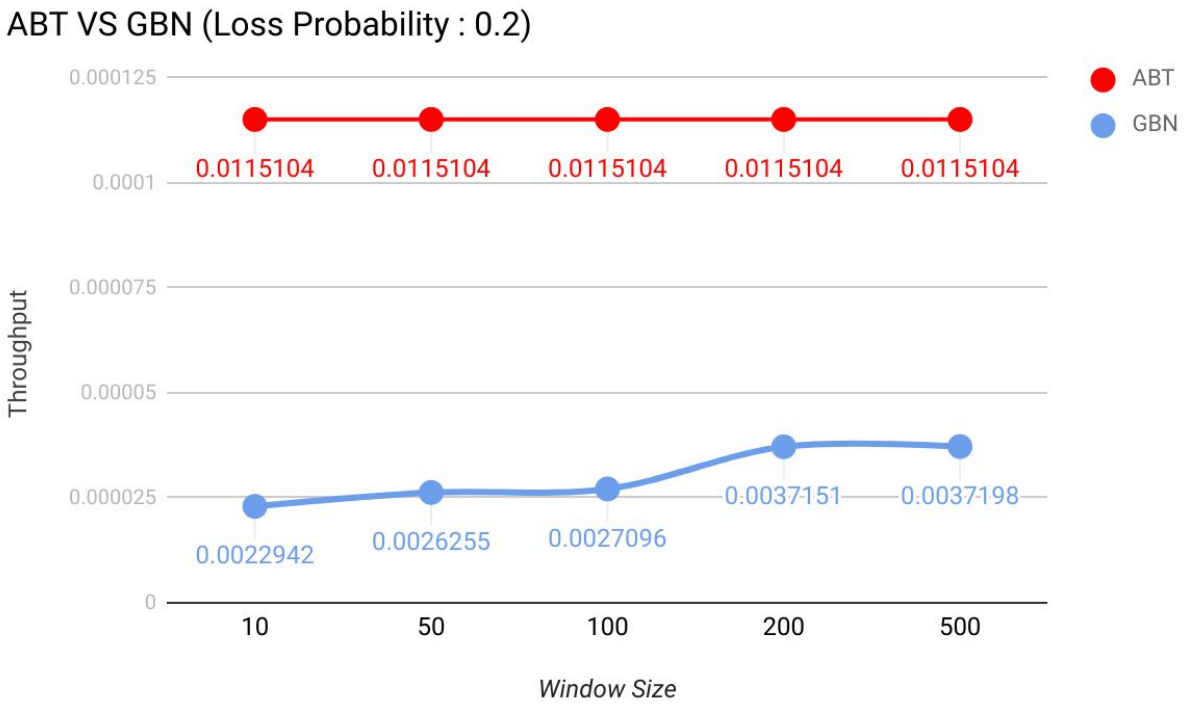
With the increase in window-size to 50, GBN's performance increases considerably for large loss in comparison to ABT. But this graph again shows that GBN is not good when there is less loss in the medium/network as even for small loss, it has to send all the packets.

Experiment 2

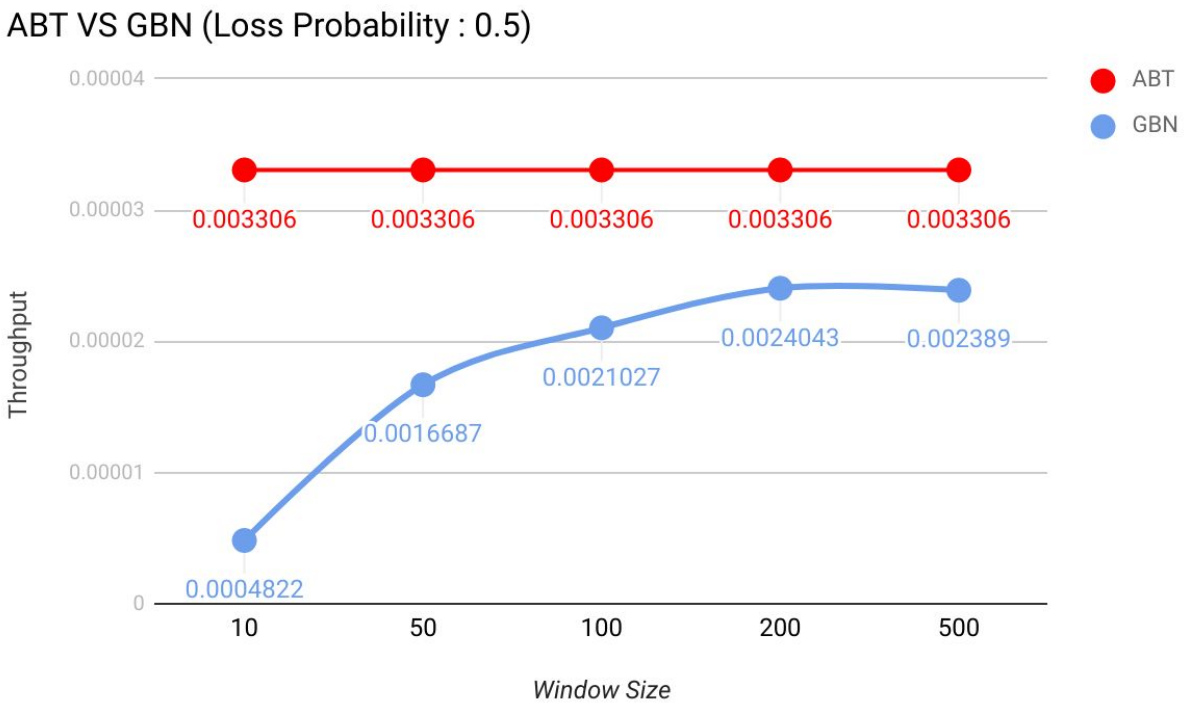
With window sizes: {10, 50, 100, 200, 500} for GBN and SR, compare the 3 protocols' throughputs at the application layer of receiver B. Use 3 loss probabilities: {0.2, 0.5, 0.8} for all 3 protocols.

Expected Graphs

Loss probability: 0.2; X-axis: Window size; Y-axis: Throughput (ABT, GBN and SR) in one graph/plot.

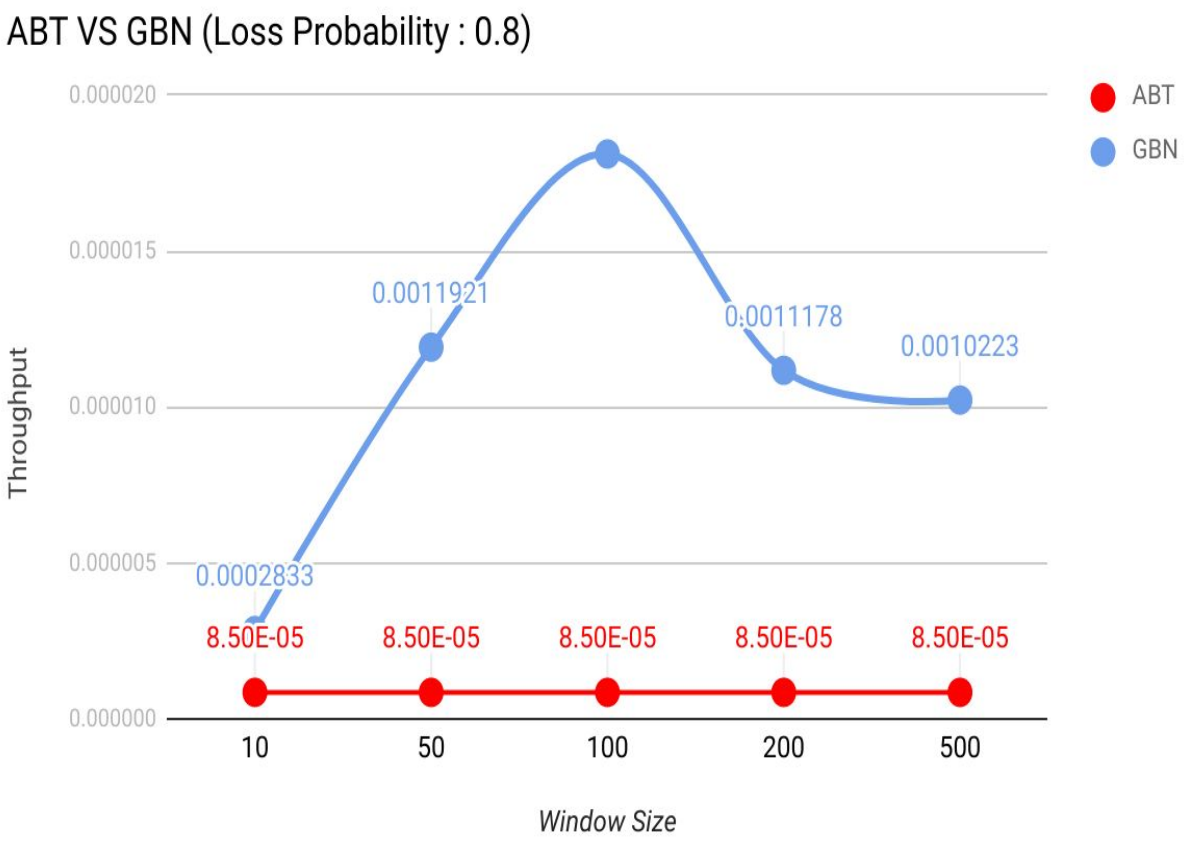


Loss probability: 0.5; X-axis: Window size; Y-axis: Throughput (ABT, GBN and SR) in one graph/plot.



From the above 2 graphs we can figure out that for small losses, ABT performs better than GBT.

Loss probability: 0.8; X-axis: Window size; Y-axis: Throughput (ABT, GBN and SR) in one graph/plot.



But for higher losses as we can see from the graph, GBT performs much much better than GBT.