CS 655 TCP-Geni Lab
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● Measure the values of throughput using iperf for different values of packet loss and delay. Fill the table below using the measured values as well as the calculated values.

(Values in parenthesis are calculated values of throughput you get from the equation above.)

	Loss=0.01%	**Loss=0.1%**	**Loss=1%**
Delay: 5ms	281 Mb/s (129.5 Mb/s)	140 Mb/s (40.03 Mb/s)	18.7 Mb/s (12.78 Mb/s)
Delay: 10ms	248 Mb/s (67.85 Mb/s)	46.9 Mb/s (21.37 Mb/s)	8.73 Mb/s (6.79 Mb/s)

● Comment on how close your measured throughput values are to their analytical counterparts.

Measured values are almost 1-4 times as theoretical values. In most cases, higher the lost rate, closer the two values become.

To calculate theoretical values, we use “ping” to get RTT values, in which case pc1 only sends small data to pc2 and low loss rate of packet could not embody its efficiency. Besides, the sliding window size hardly has opportunity to grow up, which limits the bandwidth as well.

● Try at least two higher packet loss values (e.g., 2% and 5%) and comment on the validity of the above analytical model.

	Loss=2%	**Loss=5%**
Delay: 5ms	6.07 Mb/s (9.15 Mb/s)	5.45 Mb/s (5.80 Mb/s)
Delay: 10ms	5.71 Mb/s (4.80 Mb/s)	2.97 Mb/s (3.03 Mb/s)

In some cases, theoretical values even become larger than measured value. Since loss rate of packet become higher and retransmission of large data need more time (compared to measurement RTT), smaller throughput seems make sense. Moreover, there are always unexpected and unknow conditions happen in the network.