

# ReliableUDP Report

Martin Fracker

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## Goodput vs. Window Size

With a window size of 1, we get a rate of  $\alpha$ . All other things remaining constant, in class we discussed that the rate  $\alpha$  under ideal conditions, i.e. no loss, should double whenever we double the window size. This is roughly what I observed as can be seen in Figure 1.

## Goodput vs. RTT

With an rtt of 10ms, we get a rate of  $\alpha$ . All other things remaining constant, in class we discussed that the rate  $\alpha$  under ideal conditions, i.e. no loss, should halve whenever the rtt is doubled. This is roughly what I observed as can be seen in Figure 2.

## Dummy Server

I can get up to .6 Gbps with the standard packet size. If I use 9KB packets, I can reach about 3 Gbps. My CPU configuration is an Intel 4770K overclocked to 4.0GHz. I suspect that my program is not as efficient as it could be.

## Loss in the Reverse Direction

I stabilized at around 9.3 Mbps with  $p=0.1$  in the reverse direction. I stabilized at around 9.3 Mbps (the same) with no loss in either direction. My protocol exhibits similar performance in both cases due to cumulative ACKs. Neither case causes any timeouts or retransmissions.

## Receiver Window Change Advertisement

It appears the receiver window goes straight into congestion avoidance. The upperbound on the receiver window is 80000.

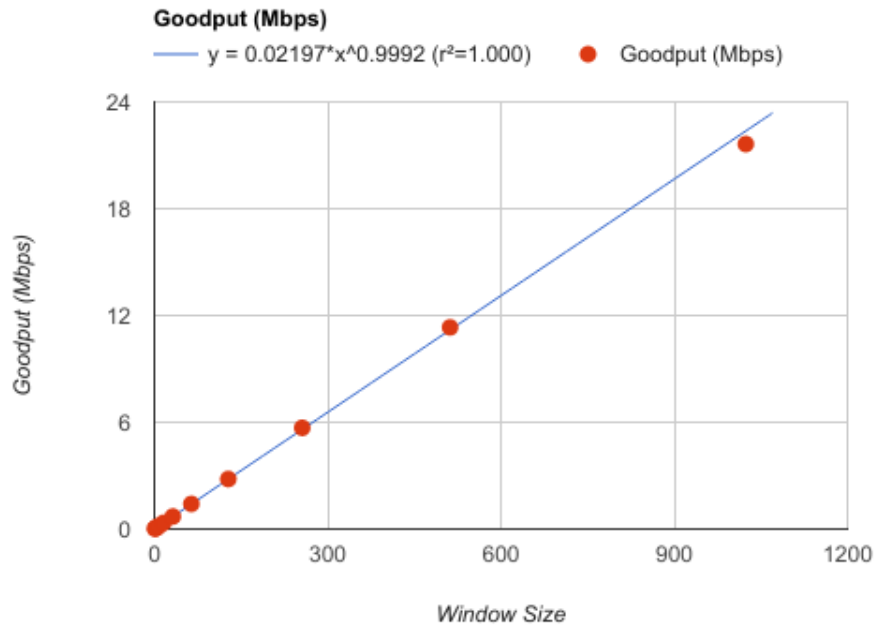


Figure 1: The goodput is shown to roughly scale exponentially with window size.

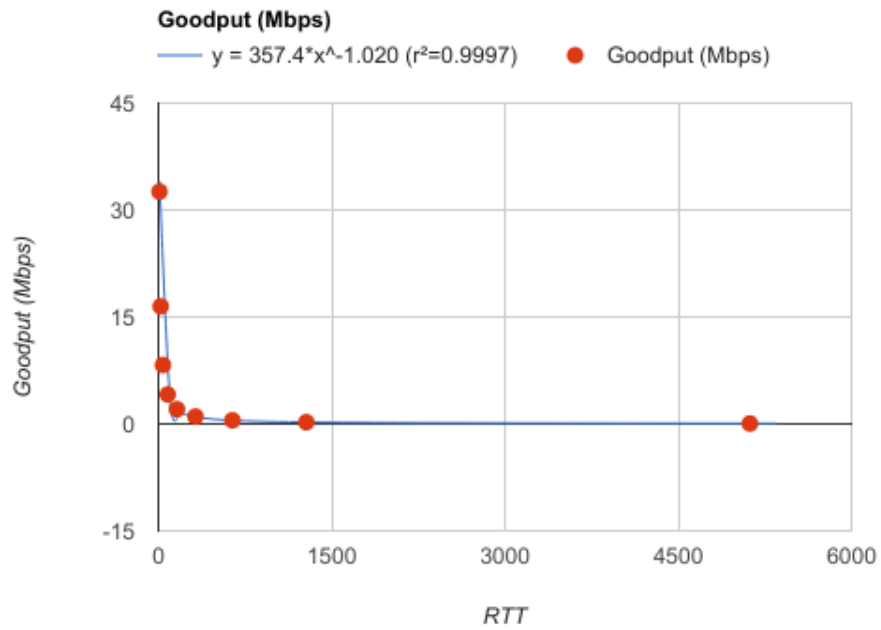


Figure 2: The goodput is shown to decrease very quickly as rtt increases.