ECE358: Computer Networks
Winter 2016
Project 2: Data Link Layers and ARQ Protocols

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1.

i)When BER is 0 the following is the result

Since both ABP and ABP_NAK return the same result, only one line is shown.

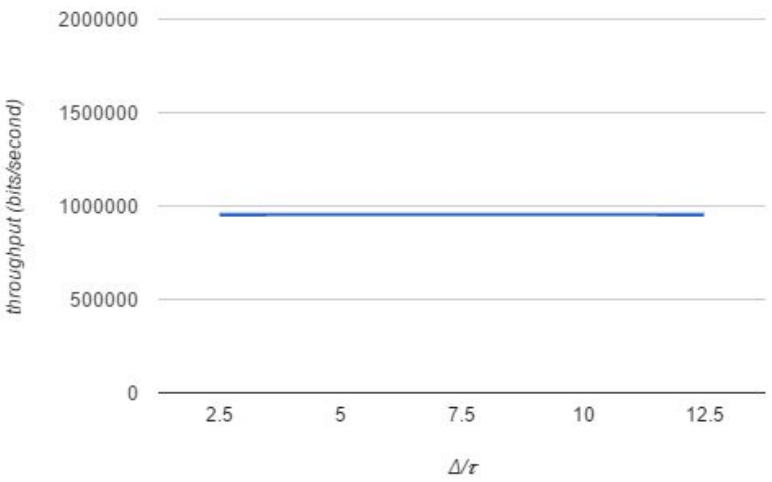

Figure 1.1.1 $2\boldsymbol{\tau}$ = 10ms

The throughput stays constant at 954441 bits/second.

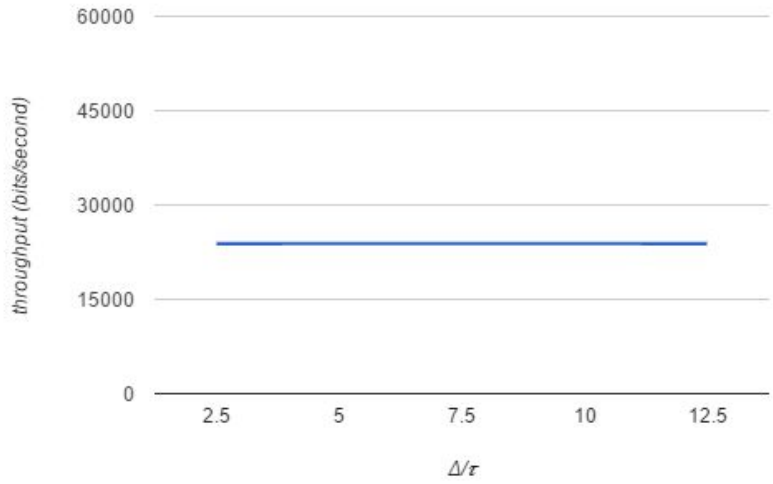

Figure 1.1.2 $2\boldsymbol{\tau}$ = 500ms

The throughput stays constant at 23877.1 bits/second.

ii)When BER = 1e-5

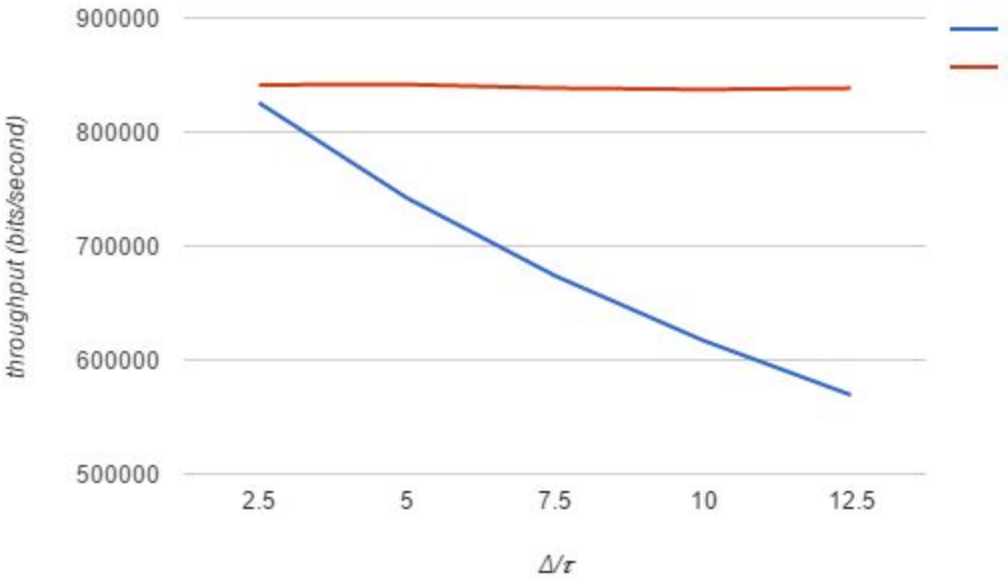

Figure 1.2.1 2τ = 10ms

The red line is result from ABP_NAK and the blue line is from ABP, as we can see ABP_NAK is not affected at all by the timeout duration since it retransmits as soon as a NAK is received.

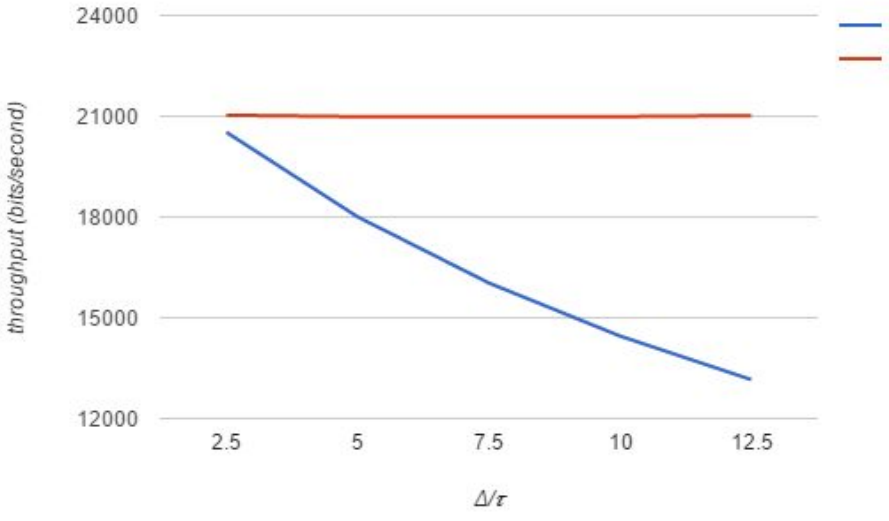

Figure 1.2.2 2τ = 500ms

When BER = 1e-4

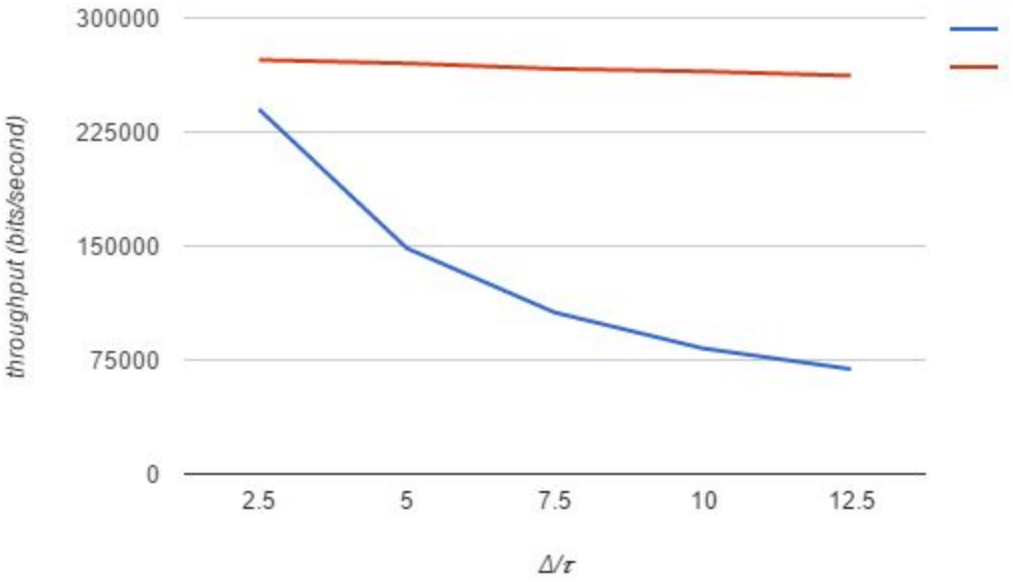

Figure 1.3.1 2τ = 10ms

The red line is result from ABP_NAK and the blue line is from ABP

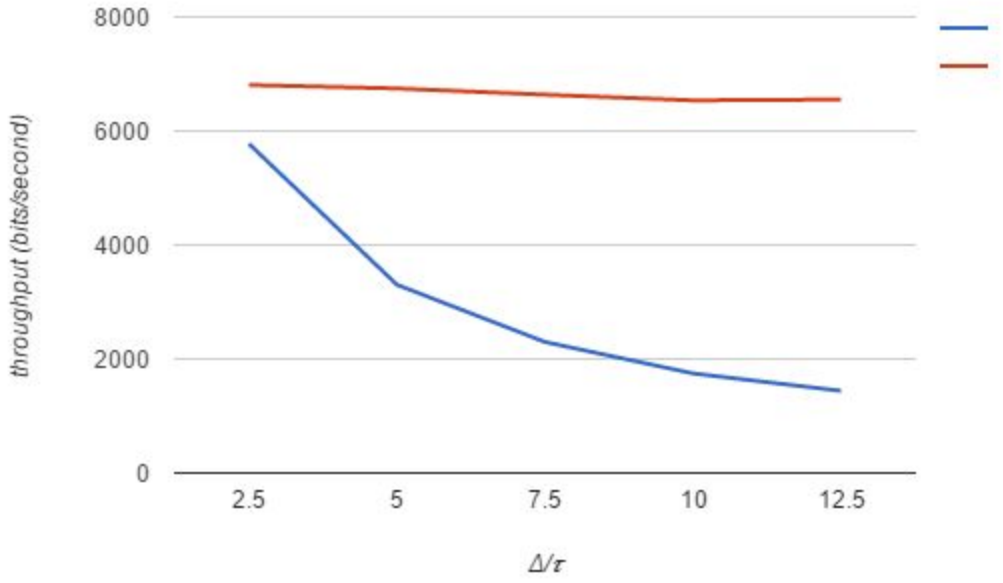

Figure 1.3.2 2τ = 500ms

3. GBN results
With BER = 0

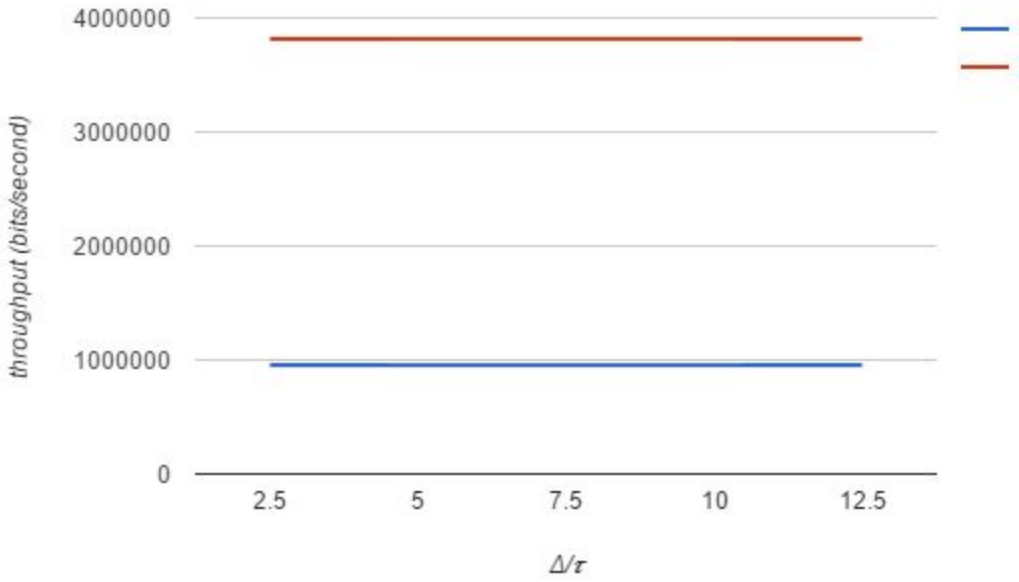

Figure 3.1.1 2τ = 10ms

As we can see GBN has a much higher throughput with BER=0 than ABP

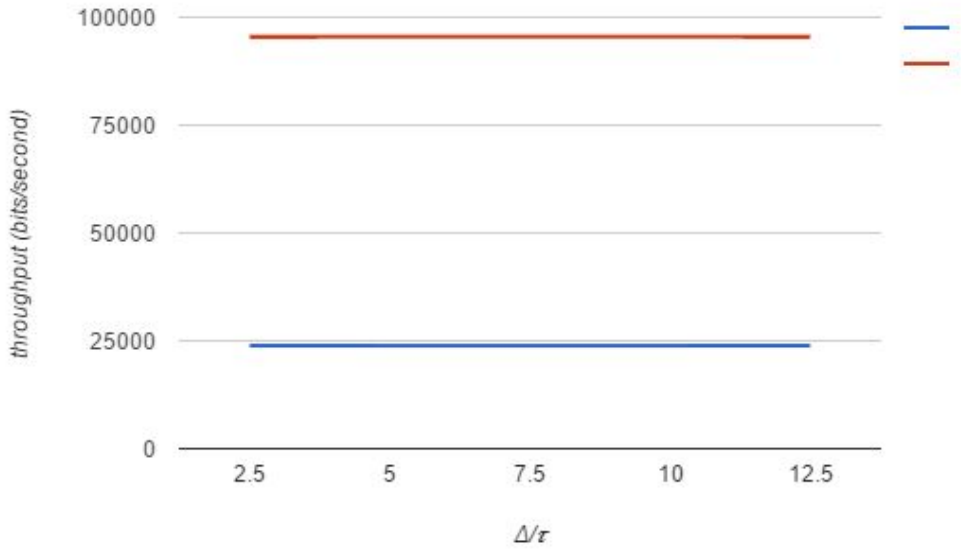

Figure 3.1.2 2τ = 500ms

Unfortunately I did not get GBN to work with non-zero bit error rates.