ECE 50863 HOMEWORK 1

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QUESTION 1

(a) Time for one packet = Transmission delay + Propagation delay

= (Packet size/Bandwidth) + (RTT/2)

= s

= 30.3 ms

Time for all packets = 30.3 x (1000 KB/1 KB) = 30.3 s

Time for initial handshake = 2 x RTT = 100ms

Total time = 30.3 + 0.1 = 30.4 s

(b) Time for one packet = Transmission delay + Propagation delay + Wait time

= s

= 80.3 ms

Time for all packets = 1000 x 80.3 ms + 2 x 50 ms = 80.4 s

QUESTION 2

(a) RTT >= 2 x Propagation delay

RTT >= 2 x (385x106)/(3x108) = 2.56s

(b) Delay x Bandwidth = 2.56x109 Gb

(c) This is the maximum number of bits that could be sent in a packet

(d) Time for the request (assuming packet is very small) = RTT/2 = 2.56/2 = 1.28 s

Time for the data = Transmission delay + Propagation delay

= (25x10 6/ (1/8)x109) + 1.28 = 1.48 s

QUESTION 3

QUESTION 4

QUESTION 5

QUESTION 6

QUESTION 7