

Chapter 1

Problem 3

Part a

The 2 initial RTTs that must be taken will take 100ms. We add this to $8000000/15000000$ (packet size/transmit speed). This means that it will take roughly 0.63 seconds to transmit the packet.

Part b

We must find the number of packets that will be sent in the network. With a packet size of 1KB, a 1000KB file will take 1000 packets to send. A wait of one RTT after each packet would add an additional 50,000ms to the total time, meaning that the total time will be 50,630ms (or 50.63 seconds).

Part c

Since we need to send 1000 packets to send a 1000KB file, it will take $\frac{1000}{20} \cdot 50ms = 2500ms$ to send the file.

Part d

It would take us 9 round trips to send all 1000 packets. With an RTT of 50ms, it would take 450ms to send a 1KB file.

Problem 5

Problem 16

Part a

Part b

Part c

Problem 18

Part a

Part b

Part c

Problem 21(a)

Problem 26

Part a

Part b

Part c

Part d

Chapter 9

Problem 4

If you submit an invalid command to SMTP, you get back a status code of 500 and a message stating that the command submitted does not work.