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Csc 4220

Homework 1

September 14, 2017

1.

Location: Douglasville, GA.

Fiber Optic:

Provider: AT&T

Download speed: 1Gbps

Upload speed: 1Gbps

Cost: $80/month (plux tax)

DSL:

Provider: AT&T

Download speed: 10-24 Mbps

Upload speed: 0-2.9 Mbps

Cost: $40/mo (plux tax)

Cable:

Provider: Xfinity (Comcast)

Download speed: 25Mbps

Upload speed: 2.5 Mbps

Cost: $54.99/mo (plux tax)

2. Propagation delay = length of physical connection / propagation speed = d/s

2,500,000 meters / 270 meters/second = 9259 seconds

If, however, it’s actually supposed to be 2.5 \* 10^8, the answer would be .01 seconds.

Propagation delay does not depend on packet length, nor does it depend on transmission rate.

3.

A virus is a self-replecating infection by receiving/executing object. A worm, however, is a passively receiving object that gets itself executed. In other words, worms do not need human action (such as the downloading of an email attachment) to propagate.

4. End to end delay is the propagation delay added with the transmission delay.

Propagation delay = distance/speed = 150 km/100km/h = 90 minutes.

Transmission delay = 12/60 seconds \* 10 cars = 2 minutes.

a. 90 mins + 2 mins \* 3 toll booths = 96 mins.

b. 90 mins + (12/60 \* 8)\*3 = 94.8 mins.

5.

a. 20,000,000 meters/2.5\*10^8 meters/second (I’m assuming the 2.5 \* 108 was a typo, because that value doesn’t make any sense) \* 2000000 bits = 160,000 bits

b. 160,000 bits.

c. Bandwidth delay product is how much data can be on the line at once (or rather at any given time).