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CSC 4220

25 January 2017

HW1

1a) 6000Kbps/150Kbps\*4 links=160 users

1b) dtrans=L/R=640KB/150Kbps=5120 Kb/150Kbps=34.1s=34100ms+50ms=34150ms

1c) P=0.0008

2a) T1=S/B1+D1/V=1500B/10Mbps+D1/V=12000b/10000bps+D1/V=**1.2s+D1/V**

2b) T2=S/B2+D2/V+T1=1500B/20Mbps+D2/V+T1=12000b/20000bps+D2/V+T1

=0.6s+D2/V+T1=**1.8s+D2/V+D1/V**

2c) T3=S/B3+D3/V+T2=1500B/30Mbps+D3/V+T2=12000b/30000bps+D3/V+T2

=0.4s+D3/V+T2=**2.2s+D3/V+D2/V+D1/V**

2d) T4=T3+T1=2.2s+D3/V+D2/V+D1/V+1.2s+D1/V=**3.4s+D3/V+D2/V+D1/V**

3) *n* packets=10MB/(1500B-20B)=10000000B/1480B=6756.75676=6757 packets

dtrans=3(n-1)(L/R)=3(n-1)(S/B)=3\*6756\*1500b/2Mbps=3\*6756\*1500b/2000000bps

dtrans=3\*6756\*0.00075s=3\*5.067s=15.2s

dprop=3\*D(1,2,or3)/s=3\*1000Km/(2.5x108m/s)=3\*1000000m/250000000m/s=3\*0.004s=0.012s

Answer: T=dnodal=dtrans+dprop=15.2s+0.012s=**15.212s**

Wireshark

Q1) HTTP, TCP, IPv4

Q2) Sent at 19:40:02:319306

Received at 19:40:02:658610

Roughly 658610-319306=3.393x105ms.

Q3a) gaia.cs.umass.edu IP: 23.43.161.197

My IP: 192.168.0.110

Q3b) My computer basically went to GET data from the specified internet address in HTTP 1.1 protocol. The website responded with OK in the same format and sent the website data in text/html format to display in the browser.

Q4) Screenshot below. Proper format done and attached in Q4.oxps.

