Quiz 2

Due Mar 24 at 2:15pm **Points** 7 **Questions** 2
Available Mar 24 at 2pm - May 3 at 9:15am **Time Limit** 15 Minutes

Instructions

Please provide as many details as possible, so we may give your partial credits (in case the final answer is not correct).

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	15 minutes	7 out of 7

Correct answers are hidden.

Score for this quiz: **7** out of 7
Submitted Mar 24 at 2:15pm
This attempt took 15 minutes.

Question 1 — 5 / 5 pts

Suppose two hosts A and B are separated by 20,000km and are connected by a direct link with the *link transmission rate* R = 200Mbps. Suppose the propagation speed over the link is $2.5*10^5$ km/sec, then:

a. **What is the propagation delay between A and B (1 point)?**
b. **Consider the traffic flow from A to B. If the package size is L=10Mbits, what is the transmission delay for sending the packet down to the link A to B? (1 point)**
c. **Consider the traffic flow from A to B. If the package size is L=1kbits and average package arrival rate a=2,000 packages per second, what is the traffic intensity? Will there be significant queuing delay (3 points)**

Note that in the questions, we consider 1k=10^3, 1M =10^6.

Your Answer:

a). Propagation delay = Distance / Propagation speed

20,000 / (2.5 * 10^5 km/sec)

Propagation delay = 0.08 seconds or 80 milliseconds (ms)

b). Transmission Delay = Length / Size of the packet

10 / 200 (mbps) = 0.05 seconds or 50 milliseconds (ms)

c). Traffic Intensity = (Package Size * Average Package Arrival Rate) / Link Transmission Rate

Traffic Intensity = (1* 2,000 packages/sec) / 200Mbps

= 0.01 or 1%

Question 2

2 / 2 pts

Consider 1 client and 1 server with 1 path between them. The path consists of 5 links with transmission rates as R_1=10Mbps, R_2=20Mbps, R_3=50Mbps, R_4=100Mbps, R_5=2Mbps. What is the throughput the server can achieve? (2 points)

Your Answer:

The maximum throughput that the server can achieve is limited by the link on the end-end path that constraints end-end throughput (bottleneck link) which could also be termed as the link with the lowest transmission. In our case that would be R5 = 2mbps.

Quiz Score: 7 out of 7