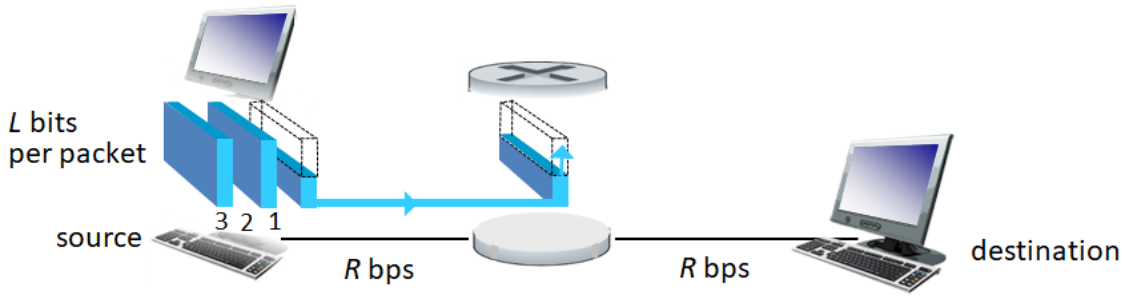
CSCI361 Writing Assignment 1

Problem 1: Consider the following network, where ONLY transmission delay is considered.



a. What is the total delay to send one packet from the source to the destination?

b. What is the total delay to send two packets back-to-back from the source to the destination?

c. What is the total delay to send P packets back-to-back from the source to the destination?

d. Now assuming that there are N links between the path from the source to the destination (instead of 2 links shown in the figure), what is the total delay to send P packets back-to-back from the source to the destination?

Problem 2: Assume that we are sending a 30 Mbit MP4 file from a source host to a destination host. All links in the path between source and destination have a transmission rate of 10 Mbps. Assume that the propagation speed is $2*10^8$ meters/sec, and the distance between source and destination is 10,000 km.

a. Initially suppose there is only one link between source and destination. Also suppose that the entire MP4 file is sent as one packet. How much is the transmission delay?

b. Referring to the above question, how much is the propagation delay?

c. Now suppose there are two links between source and destination, with one router connecting the two links. Each link is 5,000 km long. Again suppose the MP4 file is sent as one packet. Suppose there is no congestion and ignore router processing delays, so that the packet is transmitted onto the second link as soon as the router receives the entire packet. How much is the end-to-end delay?

Problem 3: Consider sending a packet from a source host to a destination host over a FIXED route. List all the delay components in the delay from the source end to the destination end. Which of these delays are constant and which are variable?

Problem 4: Explain what is Denial of Service attack and the steps taken to conduct a distributed denial of service attack.