

CS420 Computer Communication and Networks

Assignment 6

Assigned: 11/4/15

Due: 11/12/15 11:59 PM

1. Calculate the sender utilization of a link that connects two devices at 10 Mbps, in which the length of the link is 10 km and the frame size is 1 Kilobits. Assume Stop-and-wait protocol for the reliable data transfer protocol (i.e. rdt 3.0). You may ignore the transmission time for the ACK frame in Stop-and-wait. Assume that the speed of light in the medium is 2×10^8 m/sec. (3 pts)
2. In question (1), what should the window size be to achieve maximum sender utilization? (3 pts)
3. Question P31 from chapter three of the required textbook (3 pts).
4. Host A and B are communicating over a TCP connection in which the maximum segment size is 1024 bytes, and the receiver window size is 4KB. If A has transmitted 2048 bytes which have been successfully acknowledged by B,
 1. What are the value(s) of the sequence number(s) for the packet(s) that A sends to B, if the application running at A writes 8 KB data?
 2. What is the value of the acknowledgement field for the last packet that B sends to A, assuming that B's receive window is full? (6 pts)
5. Question P33 from chapter three of the required textbook. (3 pts)
6. Question P40 (c), (e) and (i) from chapter three of the required textbook (6 pts).
7. Question P46 (a), (c) from chapter three of the required textbook (6 pts).