

Sample Questions on Transport Layer + IP Layer

Q1) Figure 1 shows the trace of Congestion window for a particular TCP implementation. Would it be a TCP Reno or TCP Tahoe? Why?

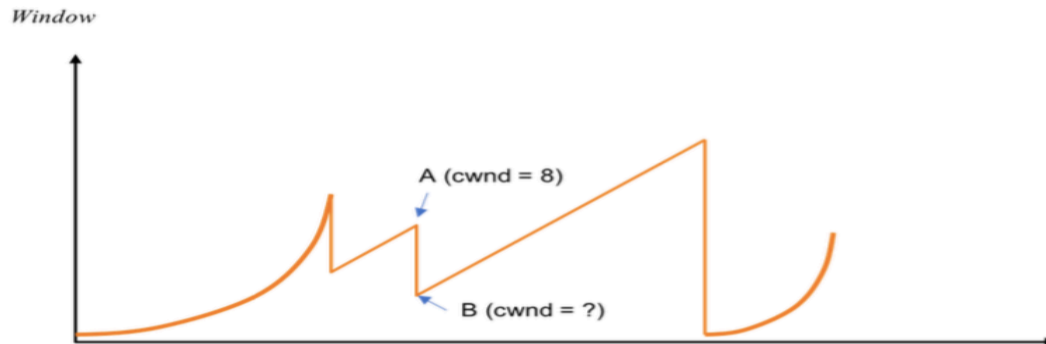


Figure 1. TCP Congestion Window trace

Q2) In Figure 1, what would be the value of TCP Congestion window at point B?

Q3) Figure 2 shows congestion window traces for both TCP Tahoe and TCP Reno where up to transmission round of 8, both follow the same blue curve, but after that TCP Tahoe follows the blue curve and TCP Reno follow the black curve.

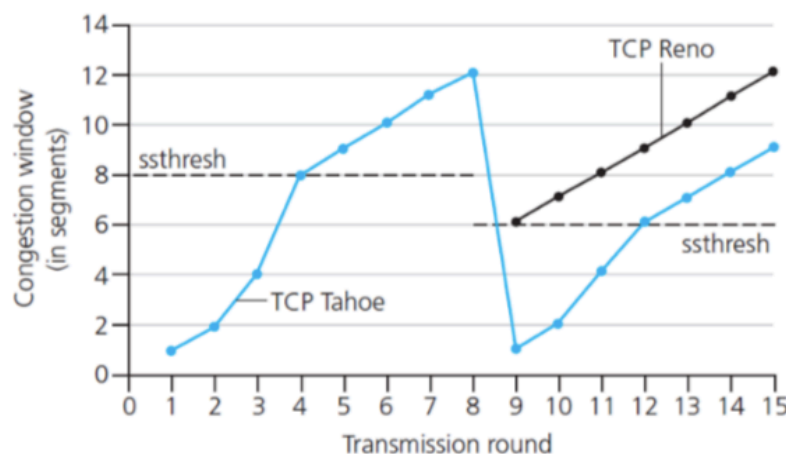


Figure 2: Congestion window trace for TCP Tahoe and TCP Reno

Answer the following Questions:

- a) What has happened at transmission round No 8?
- b) Identify the regions where Slow Start (SS) and Congestion Avoidance (CA) are in operation?
- c) How many total segments has been transferred by TCP Tahoe and TCP Reno at the end of round 15?

Q4). IP Packets on a certain network can carry a maximum of only 500 Bytes in the data portion. An application using TCP/IP on a node on this network generates a TCP segment with 1,000 Bytes in the data portion. How many IP packets are transmitted to carry this TCP segment, and what are their sizes (including the header)?

Q5). Suppose datagrams are limited to 1,500 Bytes including headers (based on MTU of 1460 Bytes) between source Host A and destination Host B. Assuming a 20-byte IP header, how many datagrams would be required to send a file consisting of 4 million Bytes.