

QI

- ❖ In slow start, a sender doubles its window size every RTT if all sent packets were acknowledged
- ❖
- ❖ T/F

Q2

- ❖ In steady state, a sender increases its window size by one packet for each acknowledgement
- ❖
- ❖ T/F

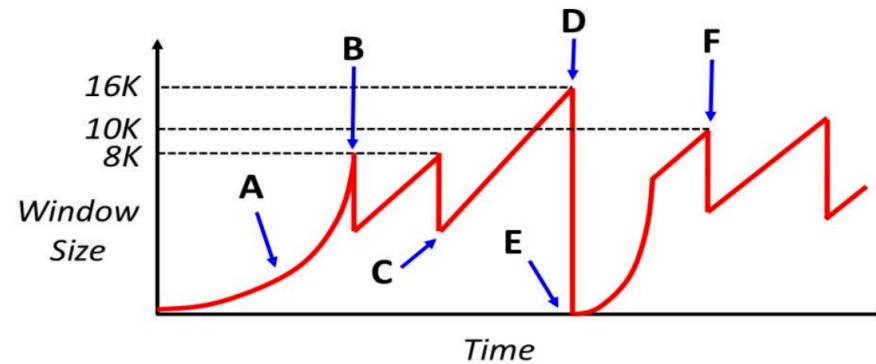
Q3

- ❖ A sender that underestimates the round-trip time of a connection may unnecessarily induce a TCP timeout
- ❖ T/F

Q4

- ❖ After detecting packet loss through a timeout, TCP halves its window size as a response to the path congestion
- ❖
- ❖ T/F

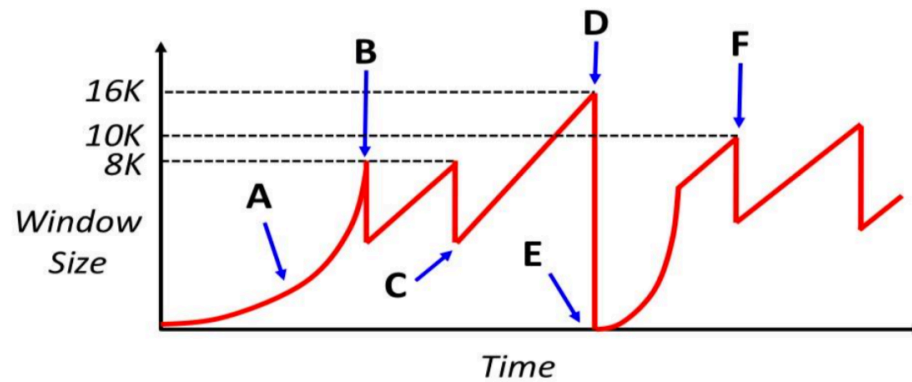
Q5



1. Name the event at B which occurs that causes the sender to decrease its window

- (a) Triple Duplicate Ack
- (b) Slow Start
- (c) Packet loss
- (d) Time out

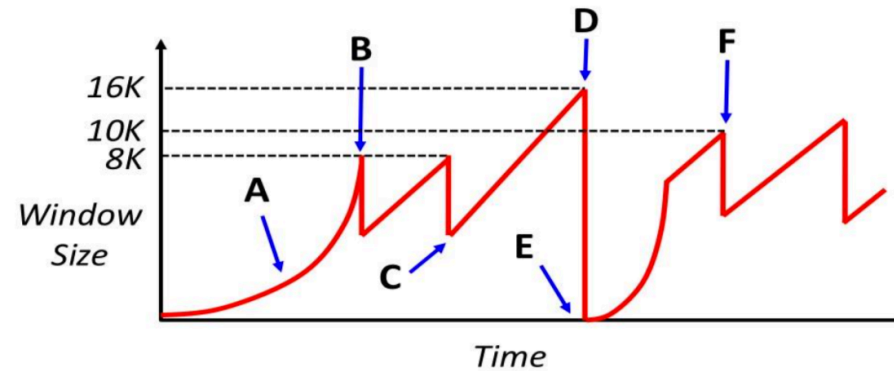
Q6



2. Does the event at B necessitate that the network discarded a packet ?

- (a) Yes
- (b) No
- (c) Don't know

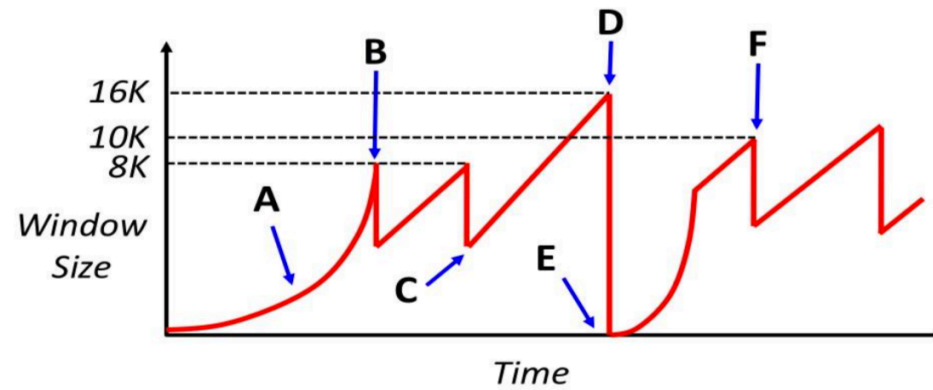
Q7



3. Name the event at D which occurs that causes the sender to decrease its window.

- (a) Triple Duplicate Ack
- (b) Slow Start
- (c) Packet loss
- (d) Time out

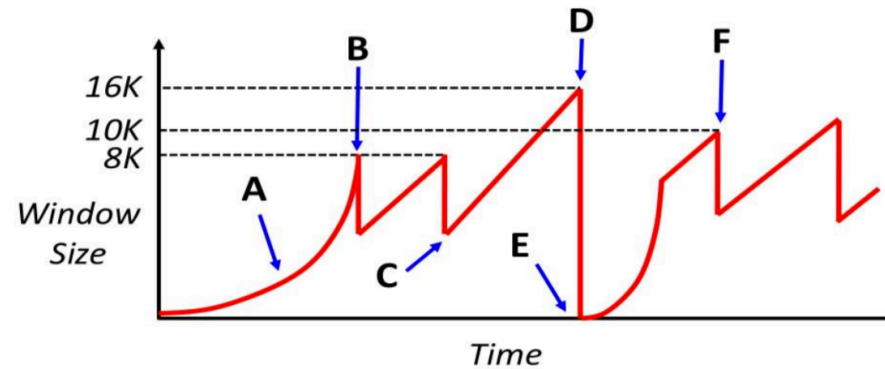
Q8



4. Does the event at D necessitate that the network discarded a packet

- (a) Yes
- (b) No
- (c) Don't know

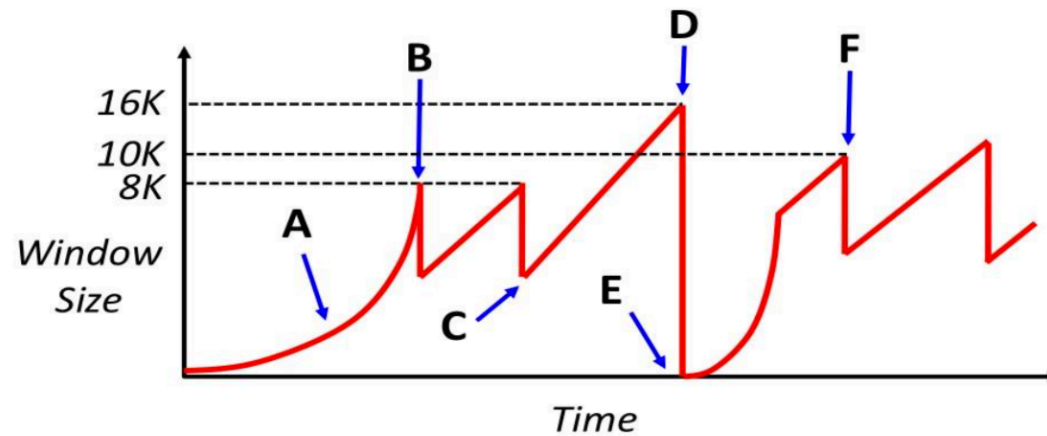
Q9



5. For a lightly-loaded network, is the event at D MORE likely or LESS likely to occur when the sender has multiple TCP segments outstanding

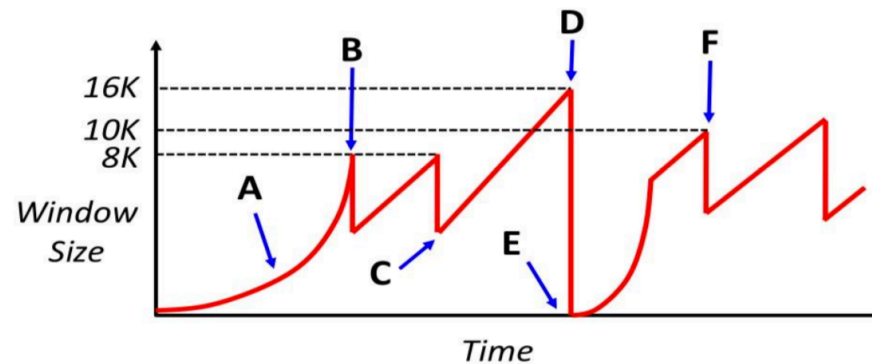
- (a) MORE
- (b) LESS
- (c) ALMOST SAME

Q10



6. Consider the curved slope labeled by point A. Why does the TCP window behave in such a manner, rather than have a linear slope? (Put another way, why would it be bad if region A had a linear slope?)

Q11

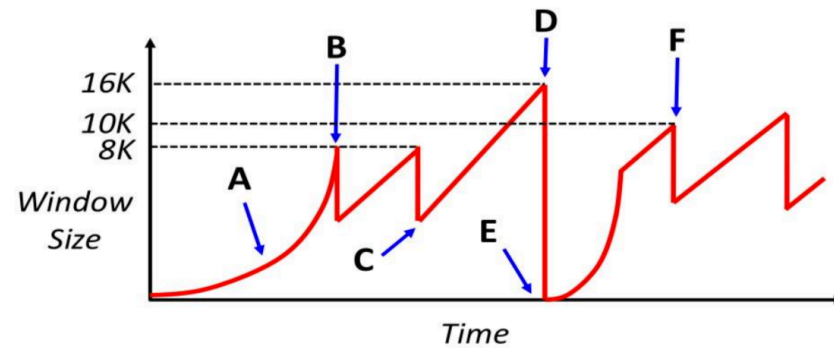


Assume that the network has an MSS of 1000 bytes and the round-trip-time between sender and receiver of 100 milliseconds.

Assume at time 0 the sender attempts to open the connection.

Also assume that the sender can “write” a full window’s worth of data instantaneously, so the only latency you need to worry about is the actual propagation delay of the network.

Q12

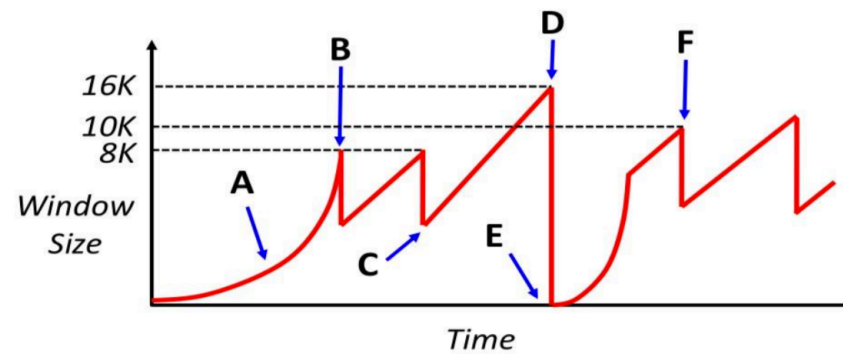


RTT = 100ms, MSS = 1000 bytes

7. How much time has progressed by point B ?

- (a) 200ms
- (b) 300ms
- (c) 400ms
- (d) 600ms
- (e) 700ms

Q13

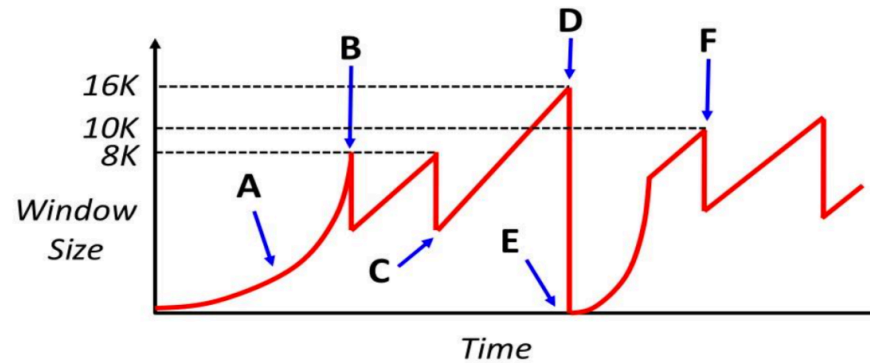


RTT = 100ms, MSS = 1000 bytes

8. How much time has progressed between points C and D?

- (a) 800ms
- (b) 1000ms
- (c) 1200ms
- (d) 1400ms

Q14

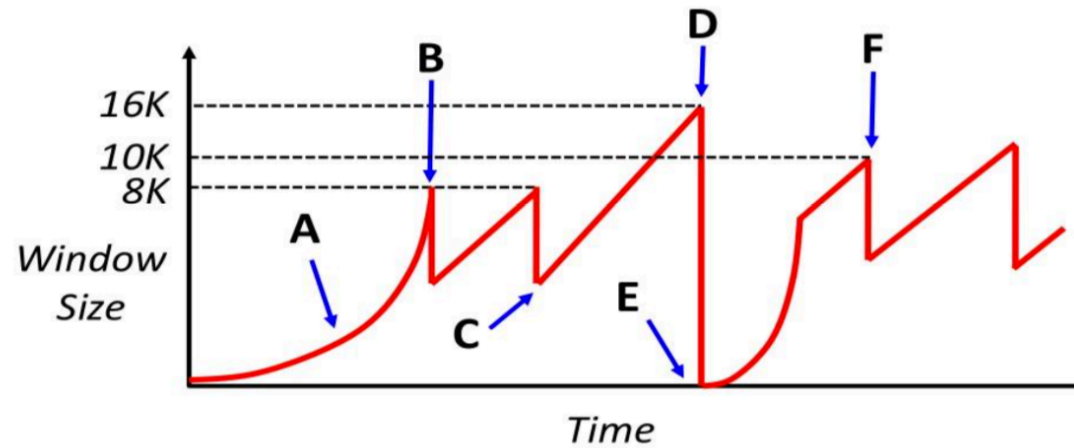


RTT = 100ms, MSS = 1000 bytes

9. How much time has progressed between points E and F?

- (a) 400ms
- (b) 600ms
- (c) 800ms
- (d) 900ms

Q15



10. If the sender shares its network with other clients whose traffic traverses the same IP routers, give one explanation for why point D is higher than point B?