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Why is round trip time (RTT) an appropriate timescale for retransmission? Check all that apply.

1. A timeout much smaller than the estimated RTT may result in wasteful retransmissions.
2. A timeout that is roughly equal to the RTT gives enough time to the receiver application to process data.
3. A timeout that is roughly equal to the RTT is favourable as it gives the sender enough time to receive ACKs from the receiver.
4. A timeout much larger than the estimated RTT may result in poor network utilization.

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Answer

Please select all correct answers.

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Suppose you estimate some quantity V using an exponentially weighted moving average (EWMA) of periodic measurements of V. Call the estimate "r." There is a scaling factor alpha (a) which controls how much a new measurement factors into the estimate, using the function r ← ar + (1-a)m. Let's say you start with an initial estimate of r = 100. Suppose the true value of V stays constant at 50, which of the following statements are true?

1. A higher value of "a" means it takes longer time for r to reach 50.
2. If a = 0.5, it takes 5 samples for r to be within 0.5 of V (i.e. r - V <= 0.5)
3. If a = 0.5, it takes 7 samples for r to be within 0.5 of V.
4. If a = 0, r is always set to the newest sample m.

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Answer

Please select all correct answers.

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Recall that self clocking is the process by which a TCP sender uses acknowledgments from the receiver to trigger transmissions. Why is self-clocking important? Check all that apply.

1. Without self clocking, the sender will never know when to transmit more data.
2. Self clocking is a way for the sender to know that its packets have left the network. Thus, self clocking ensures that the number of packets in the network at any given time is always less than the cwnd.
3. Self clocking gives a TCP sender enough time to accumulate data before it transmits a packet into the network.
4. A self clocking sender naturally paces out packet transmissions to the bottleneck link capacity without using timers.

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Answer

Please select all correct answers.

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