

Data Communication

Active Repeat Request (ARQ)

Assume a communication line between two terminals is established as shown in the Figure below.



Besides, assume a message needs 40 ms to travel from A to B (propagation delay), data rate is 1,000,000 bps, message length is 2500 bits, and the message processing time in B is 1 ms. If A wants to send a series of 100 messages to B, what will be the total time needed in each of the following cases:

1. Stop-and-wait
2. Sliding window with a window size of 5
3. Sliding window with a window size of 10

Now assume, the following messages are lost in their first attempt:

3, 10, 15, 22, 29, 38, 44, 59, 63, 66, 73, 81, 90, 95

Find the total transmission time of the message when go-back-n is used with sliding window sizes of 5 and 10.

Discuss the effect of message loss rate, and window size on the total transmission time.