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Homework 23

10/23/13

CS 2600

Question 23

Consider an ARQ algorithm running over a 40-km point-to-point fiber link. (10 points)

(a) Compute the propagation delay for this link, assuming that the speed of light is 2 x 108 meters per second in the fiber.

(b) Suggest a suitable timeout value for the ARQ algorithm to use. (Assume that transmission time for data frames and returning ACKs is insignificant, compared to link propagation delay.)

(c) Why might it still be possible for the ARQ algorithm to time out and retransmit a frame, given this timeout value?

1. Propagation delay = distance / speed of light

40000 m / 2 x 108 ms = 0.0002 s

1. Round Trip Time = .0004 So an acceptable ACK would be double that at .0008 seconds
2. The algorithm could time out and the frame could be retransmitted because the sender didn’t receive back the ACK. This could be because the receiver never received the frame or because the receiver did resend the frame sent and ACK, but the sender never received the ACK. In either case is the responsibility of the sender to resend the frame.