CS447-003 – Networks and Data Communications
Spring 2024

Exercise Question on February 13th

Although TCP slow-start is an effective technique for dynamically adjusting the window size under various situations, it can result in long recovery times in high-speed networks.

Assume a round trip-time of 50ms and a link with an available bandwidth of 10 Gbps (1G = 10^9) and a packet size of 420 octets (1 octet = 1 byte = 8 bits). How long will it take to reach the window size that is just large enough for full (= 100%) utilization of this link?

Assume that no error will happen during the packet transmissions.

<u>Show all your work</u> (most of the credit is for showing a correct procedure to find the solution, instead of the solution itself).