California State University, Monterey Bay

Week 1 - Homework 1

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CST331

Introduction to Computer Networks

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Problem

This problem is taken from 'Computer Networking: A Top-Down Approach', 6/E by Kurose and Ross.

Consider two hosts A and B, connected by a single link of R bits/second. Suppose that the two hosts are separated by m meters, and suppose that the propagation speed along the link is s meters/second. The length of the packet is L bits.

1) Determine the propagation delay d_{prop}, in terms of m and s

Propagation delay d_{prop} expressed in m/s
where m = distance and s = meters/second

2) Determine the transmission delay of the packet d_{trans}, in terms of L and R

The transmission delay of the packet d_{trans} is L/R
where L is the size of the packet in bits and R is the rate of transmission in bits/second

3) Ignoring processing and queueing delays, obtain an expression for the end-end delay in terms of R, m and s.

End-to-end delay ignoring processing and queuing delays would be Transmission Delay (L/R) plus the Propagation Delay (m/s). (L/R) + (m/s)