Quiz (EECS 333) Introduction to Communication Networks

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2:20-2:50 pm, May 21, 2007

Requirements

• You have 30 minutes to complete the exam. Use your time strategically.

• This is a closed book closed notes exam. Work on your own.

• Make sure to provide justification for your answers. A correct numerical answer without justification may be considered wrong.

• If we cannot read it, we cannot grade it.

Problem 1  (4 points)

Consider a 4800-kilometer (km) routing path between a source node $S$ and a destination node $D$ through three routers equally spaced between $S$ and $D$. In other words, the path consists of 4 equal 1200-km hops. Let the signal propagation speed be $2 \times 10^8$ m/sec on each hop. The source node has a transmission rate (i.e., the access speed) of 60 Kbps and each of the three routers has a transmission rate of 100 Mbps and introduces a routing delay (processing time) of 10 msec. Find the end-to-end packet delay for delivering a 1500-byte packet by first evaluating the total transmission time, the total propagation delay, and the total router processing delay, respectively, and then summing them up.
Problem 2  (2 points)
Name one similarity and one difference between a hub, a switch and a router.

Problem 3  (4 points)
Consider the network configuration in below. Assume that each link has length 1.

Suppose A is the destination. Run Bellman-Ford algorithm on this network to compute the routing table for all nodes to destination A. Show the distance of each node to A at each step.