Homework Assignment #6 (Due: Mon, Nov 13, 2000)

CSE 5347: Telecommunication Networks Design

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http://www-cse.uta.edu/~das/5347.html

4. There is a 4-node ring network with links (1,2), (2,3), (3,4), and (4,1). All links are 1000 bps and are half duplex. There are requirements of 500 bps between node pairs (1,2), (2,3), and (3,4). There is a requirement of \( X \) bps between node pair (4,1). The average packet length (exponentially distributed) is 1000 bits.

   (a) Assuming min-hop routing, what is the average end-to-end delay if \( X = 900 \) bps?
   (b) What is the optimal (minimum delay) routing? What is the average end-to-end delay with this routing?
   (c) What is the largest value of \( X \) for which min-hop routing is optimal in this network?