EECSE 461
Homework 6
Winter 1997
Prof. Tom Anderson
Due: Monday, March 16, 5:00pm (at 316 Sieg)

All questions are equally weighted so make sure you get the easy ones right. You are free to discuss this assignment with other students and the TA, but you must each individually write up and submit your own solutions.

1. Peterson and Davie, Ch. 9, Problem 17. In part (b), the maximum packet delay is 500 ms, not the maximum interpacket gap. Why can't you determine the playback point from the gap?

2. Suppose we were to use Internet multicast support to implement cache coherent access to web pages. Every update to a web page is multicast to every node caching the page. Write a program that can behave differently if the multicast updates are totally ordered versus get delivered in a different order at different nodes.

3. Assuming nothing is cached, how many TCP connections are established to load Professor Tom's home page? What if the name is cached but not the page? What if the page is cached? Assume that the request goes through a name proxy and that "edu", "washington", and "cs" are each in their own zone.

4. Recall that DNS server replicas are updated asynchronously, so that at any point in time, some replicas may have seen an update while others have not. Eventually, however, each update arrives at each replica.

(a) Explain how a node can modify the DNS database, then try to read back the modified, and still find the old information. This can occur even if no other node has every modified that record. Why?

(b) Sketch a solution that enforces "processor order" – a node always sees its changes to the database in the order that the node made them. Your solution should not affect the system's availability.

(c) Sketch a solution that enforces "sequential order" – every node sees all changes to the database in the same order. Why might this make the system less available?