

## Homework 4

Assigned: October 17

Due: October 23 (in class)

1. Leon-Garcia, 8.63 (2nd edition)

[Note: On Sunday I will post the corresponding question in the 1st edition. For those of you who want to try to find the corresponding question yourself, the text for the question begins, “Consider the network shown in Figure xx. Suppose that a source connected to router 7 wishes to send information to the multicast group G3....” The question has three parts, and in each part you are finding a set of paths using a different scheme for tree construction.]

2. (anycast) Read the paper “A Framework for Scalable Global IP-Anycast (GIA)” by Dina Katabi and John Wroclawski, Sigcomm 2000. You can find the paper at:

<http://www.ana.lcs.mit.edu/dina/pub/Katabi-350.pdf>

What are the key methods used to achieve scalability? Is this scheme incrementally deployable? Explain.

3. Suppose *both* ends of a session are mobile. That is, the client is running on a mobile host that has moved from its home network and the server is running on a mobile host that has moved from its home network. Draw a diagram that illustrates the paths of packets from the server to the client and from the client to the server. Clearly indicate (all) the source and destination IP addresses in the packets on each portion of the path.
4. Construct an example in which the tree used by center-based multicasting is exactly the same as the tree used by reverse-path multicasting. Your example should contain a network topology, a clearly designated multicast source, a clearly designated router functioning as the center (or rendezvous point), two or more clearly designated multicast receivers, and the tree used. How similar can the trees be if there are two sources?