DEPARTMENT OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

6.033—Computer System Engineering Handout 5—February 25, 1995

ASSIGNMENT: March 6 through March 13

For Lecture: Monday, March 6

In preparation for lecture read the second part of Halstead's "6.033 notes on networking on communication" (reading #15). In addition, read Tanenbaum Chapter 9. Chapter 9 is easy background reading.

For Recitation, Tuesday, March 7

Your **one-page reading report** should address the following question regarding *Ethernet* (Metcalfe and Boggs, "Ethernet: distributed packet switching for local computer networks", reading #17) vs. *Autonet* (Schroeder et al. "Autonet: a high-speed self-configuring local area network using point-to-point links", reading #18).

Ethernet and Autonet are two architectures for local area networks. Identify *two* architectural implementation issues in which Ethernet and Autonet differ. For each implementation issue, describe any advantages and disadvantages that one architecture has over the other. For example, how do the two architectures route packets? (You don't have to choose routing as one of the implementation issues; it's just a suggestion.)

A couple of interesting side notes. Ethernet is the dominant local-area networking technology that is used today. The paper describing Ethernet is "old": 1976. Autonet is brand-new networking technology, which has high impact on ATM switching technology. ATM is likely to be the next standard for local-area networking technology.

Another tidbit is that Michael Schroeder (the first author on the Autonet paper) was one of the key architects of 6.033. He taught it for a number of years. The railroad example used in the first lecture is one of his many contributions. Mike is also one of Jerry Saltzer's students; he wrote an influential thesis on security. Later in the term, when we talk about naming and security, we will see more of Schroeder's work. Small world, isn't it?

For Lecture, Wednesday, March 8

For lecture read Ioannidis et al. "IP-based protocols for mobile internetworking", reading #19. This paper is the first paper on routing problems when the end points are mobile computers that are traveling around. This paper had created a small research area in mobile routing, including standard committees. A very hot topic. As a personal exercise you may want to brainstorm about how cellular networks are addressing similar issues with mobile phones. Are the issues the same?

For Recitation, Thursday, March 9

No reading for recitation, but you may want to review the 6.033 material through March 6; the first quiz is tomorrow and will cover this material. Come to section with questions about material you are unclear about.

This morning the **assignment for case study I** will also be available on the Web. Check out the 6.033 home page. You can find all the instructions for the case study also on the Web. Case study I is **due on March 23**.

Quiz I, Friday, March 10

Quiz I is in **Walker** during normal class hours: **2-3pm, March 10**. The quiz will be *OPEN BOOK*. Topics: everything up through the lecture of March 6 is fair game.

We will make example quiz questions available. The thing you should conclude from this sample is that the focus tends to be on concepts rather than details, that essay and multiple guess questions are common (actually multiple guess is more common than you would conclude from this sample) and that, as in the weekly assignments, you need to be able to express your thoughts in English.
The answers that were considered appropriate at the time the quizzes were originally given will be made available on Thursday, March 9.

For Lecture, Monday, March 13

Last lecture on networking. Read Saltzer's "Case study: synchronized file transfer; failure retry", reading #22.

System Aphorism of the week: It must be remembered that there is nothing more difficult to plan, more doubtful of success, nor more dangerous to manage, than the creation of a new system. For the initiator has the enmity of all who would profit by the preservation of the old institutions and merely lukewarm defenders in those who would gain by the new ones. Niccolo Machiavelli (1469-1527)