DEPARTMENT OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

6.033—Computer System Engineering Handout 6—February 26, 1996

ASSIGNMENT 4: February 29 through March 8

For Recitation, Thursday, February 29

Only one paper assigned for today, but it is the classic paper on remote procedure call (RPC). Study the paper carefully. It will be discussed in detail in recitation. The goal of RPC is to make a call to a remote server look like a regular procedure call. As a personal excercise while reading, you might attempt to figure out ways in which RPC and procedure calls differ.

For Special Lecture, Friday, March 1

Ed Barrett from the writing program will provide a special lecture on the topic of writing technical papers such as 6.033 case studies. The first case study will be assigned next week so this an excellent opportunity to figure out how you write one. There is no reading assignment.

For Lecture, Monday, March 4

In preparation for lecture read the second part of Halstead's "6.033 notes on networking on communication" (reading #13). In addition, read Tanenbaum chapter 9. Chapter 9 is easy background reading.

For Recitation, Tuesday, March 5

Your one-page reading report should address the following question regarding Ethernet (Metcalfe and Boggs, "Ethernet: distributed packet switching for local computer networks", reading #15) vs. Autonet (Schroeder et al., "Autonet: a high-speed self-configuring local area network using point-to-point links", reading #16). If you like, you can skip sections F, G, and H of Section VI ("Functions and Algorithms") of the Autonet paper.

> Compared to Ethernet, Autonet seems more complex in the system design. (As a first indicator, the Ethernet design description takes 9 pages, while the Autonet description takes 17 pages.) What are the sources of complexity in Autonet as compared to Ethernet? Do Autonet's advantages justify the extra cost? Why?

A couple of interesting side notes. Ethernet is the dominant local-area networking technology 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 protection. Later in the term, when we talk about security, we will see more of Schroeder's work. Small world, isn't it?

For Lecture, Wednesday, March 6

No reading for today's lecture. Perhaps use this additional time to prepare for Quiz I.

For Recitation, Thursday, March 7

Read Ioannidis et al., "IP-based protocols for mobile internetworking", reading #17. This paper is the first to consider routing problems when the endpoints are mobile computers that are traveling around; it has 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 really the same?

This morning the assignment for project I will also be available on the Web; check out the 6.033 home page. **Project I is due on March 21**.

For *Quiz I,* Friday, March 8

Quiz I will be in room **4-270 and 4-370** during normal class hours, **2-3pm,** on **March 8**. The quiz will be OPEN BOOK. Topics: everything up through the lecture of March 4 is fair game.

Students with last names beginning with **A through L** should go to **4-270**.

Students with last names beginning with **M through Z** should go to **4-370**.

We will make example quiz questions available this week. 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 when the quizzes were originally given will be made available on Thursday, March 7.

System aphorism of the week

It must be remembered that there is nothing more difficult to plan, more doubt ful 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))