DEPARTMENT OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

6.033—Computer System Engineering Handout 31—May 1, 1996

ASSIGNMENT 12: May 3 through May 16 (last day of classes)

For Lecture, Monday, May 6

Now that we have completed studying many different systems, we will take a step back and look again at complexity in this lecture. Jerry Saltzer will lecture. In preparation, read Brooks, *The Mythical Man-Month*, chapters 1, 2, and 4. This book is a classic that you should have bought at the beginning of the term. Although slightly old, it contains a unique perspective and advice on building complex systems. You will probably reread this book several times during the next couple of decades. A lot of people do. Be ready to discuss Brooks's ideas in Thursday's recitation (5/9).

For Recitation, Tuesday, May 7

The assigned reading is reading #43, T.E. Anderson, M.D. Dahlin, J.M. Neefe, D.A. Patterson, D.S. Roselli and R.Y. Wang, "Serverless Network File Systems", which was distributed as handout 29. This paper is brand new (appeared in February 1996!) and gives you some flavor of current hot topics in reliable high-performance file systems. Building on the LFS and RAID ideas, it describes a radically different approach to structuring file systems that replaces centralized servers with distributed servers. The system is definitely not serverless, despite what the title of this paper suggests! Since the paper is quite long, focus on sections 1–3, 5, and 7.

Your reading report should address the following question:

> What is done in xFS to ensure that when a machine dies, data is still available? Is there a single point of failure you can see in xFS? If so, what is it? (Please ignore the fact that the machines may be all on one power generation plant and other external problems.)

For Lecture, Wednesday, May 8

The last lecture of this term! In preparation, read chapters 5, 8, and 11 of *The Mythical Man-Month* by Brooks. Be prepared to discuss the chapters in tomorrow's recitation.

For Recitation, Thursday, May 9

In preparation, reread "Hints for computer system design" by B. Lampson, reading #8. In addition, read "Before the Altair: the history of personal computing" by Press, reading #42 (the last reading!).

For Lecture, Monday, May 13

No lecture today. Instead the TAs will review material for Quiz 3.

For Recitation, Tuesday, May 14

No reading report and no reading assignment. Recitation section will be spent finishing up loose ends and perhaps discussing some problems in preparation for tomorrow's quiz (5/15).

For *Quiz 3*, Wednesday, May 15

Quiz 3 is during regular class hours, **2–3pm**. Rooms will be announced. The quiz is *open book and note* and covers all material from Lecture 17 through Recitation 24 (i.e., storage systems, fault-tolerance computing, transactions, and more complexity). Of course that material builds in various ways on things studied earlier so you shouldn't be surprised to find integrating questions. We will make a handout with example questions and distribute it to the class. We will also provide a handout with the solutions to the example questions.

For Recitation, Thursday, May 16

We will attempt to hand back Quiz 3 with solutions in recitation. If we can't get the solutions done in time, a notice will be posted on the 6.033 home page when they are available.

System aphorism of the week

Il semble que la perfection sont atteinte non quand il n'y a plus rien à ajouter,
mais quand il n'y a plus rien à retrancher.

(It seems that perfection is attained not when there is nothing more to add,
but when there is nothing more to take away.)

(Antoine de Saint-Exupery, *Terre des Hommes* (Wind, Sand and Stars), 1939, Chapter 3 "The Tool")