CS 513/EE 506 Introduction to Local and Wide Area Networks   WPI, Spring 2007
Craig E. Wills   Final Project (100 pts)
Assigned: Monday, January 29, 2007   Due: Monday, April 16, 2007

Introduction

This course includes a final project. The expectation is that most students will do the "Standard" project (see other handout). This project involves programming to simulate a three layer communication abstraction which sits on top of TCP/IP. Students who feel the standard project would be difficult for them to complete or desire to do another type of project must propose an alternative that deals with some aspect of computer networks. Students are strongly encouraged to work in two-person groups but individual projects are acceptable.

   Regardless of the student's choice, the project has three due dates:

1. Proposal (Due: February 12, 2007)

   Each group will turn in a typed proposal (one or two pages) defining the project and explaining the work to be done. If the group has chosen the standard project, then the proposal must fill in some of the details for this project and define the functionality of the application layer. A list of the client commands must be included.

   This proposal should clearly explain the final product and include a preliminary schedule. Proposals will be approved or disapproved but not graded.

2. Final Project and Report (Due: April 16, 2007)

   The final report should be a well-presented technical report discussing your project. If your project is primarily a programming effort, you should explain how the program works, give specific sample runs and analyze the results. With the standard project, demos will likely be scheduled during the last week of the course. The report should be 10-20 pages in length, although may be less if you do the standard project.

   The alternative projects should involve approximately the same level of effort as the standard project. The following list gives some examples of possible ideas for alternative projects. In proposing an alternative project, students must accept the responsibility for assuring that they have access to adequate resources and the proper background to complete the project:

1. A computer program which simulates some aspect of a point-to-point or local area computer network. Care must be given to restricting the scope of the simulation. One possibility is to use the *ns-2* network simulator.

2. An actual implementation of a "toy" network. You must be able to guarantee hardware access to take on this project.

3. A computer program which is used as a tool to analyze some aspect of computer network performance. This can be a simulation of a specific network, an analytic model, or some type of performance monitoring tool. It will be important to illustrate the usefulness of your tools with sample runs and analysis discussion.

4. A performance measurement study that uses existing or developed tools to examine an aspect of networked applications or network performance. The study could be for wired or wireless networks.

5. An analytic study dealing with design decisions or algorithms used in networks. Examples of these are: layer protocols, routing strategies, flow control, and topology design. This project requires sufficient mathematical ability to understand the current literature.

6. A research paper that surveys a current issue in computer networks.

NOTE: If you do not have a viable idea for an alternative project or need help in getting a group partner, please let the instructor know ASAP.