CS 422 (Park)   Assignment IV   Due: Mar. 11 (Fri.), 2005

Submission instructions: Please type your answers and submit electronic copies using `turnin` *by 11:59pm on the due date. You may use any number of word processing software (e.g., Framemaker, Word, LATEX), but the final output must be in pdf or ps format that uses standard fonts (a practical test is to check if the pdf/ps file prints on a CS Department printer without problem). For experiments and programming assignments that involve output to terminal, please use* `script` *to record the output and submit the output file. Use* `gnuplot` *to plot graphs. Use* `ps2gif` *to convert a eps/ps plot to gif format (e.g., for inclusion in Word).*

PROBLEM 1

Read Chapters 28, 29, and 30 from Comer.

PROBLEM 2 (30 pts)

Search through networking/Internet news articles of the recent past, not more than a month old, and select 3 articles discussing current topics that are of interest to you. The constraints are that the articles should cover trends and issues below IP—the material covered in class so far—up to and including link layer (wireline and wireless). For each article, write a 1-page critique composed of the following parts: (a) what interests you about the article, (b) a synopsis of the article, (c) how does the article's topic relate to the material discussed in class, (d) is the article accurate and are its conclusions correct based on your understanding of networking? For each article, provide a URL, title and author (some URLs get outdated very soon and the TAs may need to search the web by title/author). The best three critiques and the worst three critiques, as determined by the TAs, will be selected for powerpoint presentation in class. As to article sources, you may find them at numerous web sites including technology/science sections at `news.google.com`, `nytimes.com`, `eweek.com`, `infoworld.com`, to mention a few.

PROBLEM 3 (50 pts)

As a continuation of Problem 3, Assignment III, reimplement the client/server application so that it uses TCP sockets in place of FIFO, and client and server reside on separate hosts. Most of your code will remain the same. The changes relate to replacing the FIFO based client/server interaction with a socket based interface. Note: FIFO and socket are two of the seven UNIX file types and at the API level obey similar syntax and semantics. You have an option of using or not using `pause()` in this problem. Test your client/server system by running the benchmark suite of Problem 2(a), Assignment II, but with each client request executed on a different host. Hence there are 10 client machines and one server machine. To initiate execution from a single terminal, use `ssh -X` *login-name@machine-name* to open remote shell windows from a single machine. Run two benchmarks suites with *mytimeout* set to 1 sec and 5 sec, respectively. Record your terminal interaction using `script`. How do your results in terms of client/server behavior differ from those observed in Problem 3, Assignment III? Include a half page discussion of your results.