CMSC 327 Distributed Systems

Project 2: Client-Server II
Due October 4, 2010

We will build on the client-server programs you created in the first assignment. You will rewrite your server as a multi-threaded server using the C programming language. Again, each student should submit their own code, but it's fine for your clients and servers to interact with each other (i.e. use each others' services).

Implementation

Submit your code as two separate programs called server.c and client.py. Your server should fully implement your desired service and should spawn a new thread for each incoming connnection. Your client code should be instrumented to collect latency data as it was in the first assignment. It might be necessary for you to modify your client slightly, for example, to make the client continually interact with your server. Both programs should be properly documented and the server program should include a description of the service it is providing.

Evaluation

You will evaluate the latency of your distributed service. You should collect data concerning the latency of the interaction when the client and server are colocated on the same machine and when they are on different machines. In both scenarios, you should vary the number of clients connecting to your server to see how the number of clients concurrently using your service impacts performance. The data should be collected and visualized effectively. Write a paragraph or two reflecting on the results.

Learning Objectives

- Become familiar with C systems programming
- Use the `pthreads` library
- Empirically Evaluate Software

Deliverables

Submit a zip file with the following directory structure:

`cmsc327_proj2_LASTNAME_FIRSTNAME/`

`src/server.c`	server program
`src/client.py`	client program
`README`	simple text file explaining how to run your code
`results.pdf`	your evaluation

Resources

Chapters 11 & 16 of Advanced Programming in the UNIX Environment by Stevens and Rago cover the details of using threads and sockets in C. And as always, the `man` pages are a treasure trove of information.