Problem 1: Remote System Monitoring using RPC

Due: 11:59pm, February 17, 2019 (same for both on- and off-campus students)

I. Overview

The objective of the machine problem is to write a network management application that tracks user logins, CPU usage and other statistics on a host and allows querying by a RPC-based network management system. Its output can be used to feed into an analysis component for deciding on corrective actions in self-managing distributed systems.

The system will have multiple clients and single/multiple servers. Clients can send request to a server running at a different machine to get the current system statistics of the server machine. Track, for example:

- Current system time (can be in different formats such as date, time, or a combination of both.)
- CPU usage
- Memory usage
- Swap usage
- List of user names
- Load procs per min

Please take a look at the sample RPC code for this machine problem posted on the Canvas:

RPC mechanism must be used for the communication between clients and the server.

Note: We expect each student will design and implement this programming assignment individually.

II. What to Hand In

The running system will consist of client and server program. As platform, you should be using the UNIX/Linux workstations, and develop the program in C. Before you start hacking away, plot down a design document. The result should be a system level design document, which you hand in along with the source code through Canvas. Please make sure it convinces the reader that you know how to attack the problem. List and describe the components of the system.

Please schedule a time with the TA to show the project demo between Feb. 18-22, 2019. Note that the demo requirement is only for on-campus students. For off-campus students, the project will be graded by the TA manually on Canvas.