Course Syllabus

Course Title: Distributed Systems

Prerequisites: Csc 8530 Parallel Algorithms. (Or, CSc 4310/6310 Parallel and Distributed Computing)

Instructor: Sushil K. Prasad; Room 1453, 34 Peachtree; (Do not leave phone messages – send email instead). Email matskp@panther.gsu.edu.

Class Time and Place: 1:00-4:40, Daily ALC 330

Office Hours: MWF 11:00-12:00. Office hour may be cancelled occasionally due to academic meetings.

Content: The goal is to study various technologies related to distributed systems.


Attendance: You may be dropped if you have more than one absence. Students are responsible for all the material covered or assigned (whether or not in the text). May 29 is a holiday. Last day of class is on June 5.

Withdrawals: If you withdraw by the published withdrawal date 5/24/05 then you may get a grade of ‘W.’

Grading Policy: Homework and Seminar Presentations 65%
Term Project and Presentation 35%
Final Project Due two days before last day of class; Project Presentation: last few days

Any absence from scheduled seminar presentations must be arranged with the instructor at least a week in advance; it remains the responsibility of the absentee to find his/her replacement.

Final grade would be relative to the class performance. To ensure a grade, however, 90 and above will result in a grade of ‘A,’ 80-89 a ‘B,’ 70-79 a ‘C’ and 65-69 a ‘D.’ There will be zero credit for late submissions. Incomplete projects and assignments will not be accepted.

Disclaimer: The course syllabus provides a general plan for the course; deviations may be necessary.

A teacher can never truly teach unless he is still learning himself. A lamp can never light another lamp unless it continues to burn its own flame. The teacher who has come to the end of his subject, who has no living traffic with his knowledge but merely repeats his lesson to his students, can only load their minds, he cannot quicken them.

Rabindranath Tagore, Indian Poet
Nobel Laureate in Literature, 1913
Term Project: Survey Paper
Distributed Systems

The goal is to choose a suitable topic, in consultation with the instructor, perform exhaustive literature search of the recent material (proceedings, journals, theses/dissertations and technical reports), catalog published material on the chosen topic, browse through the papers and read the important ones, classify the results obtained so far, and write a survey paper on the state-of-the-art the research on the chosen topic. Use “ACM Computing Survey” papers as guides for style, content, and level of detail (check out samples in the ACM’s digital library available through GSU library).

The final survey paper should typically report on (i) 5 foundational papers, (ii) 5 most recent journal papers and (iii) 5 most recent conference papers and technical reports to convey the state-of-the-art techniques and knowledge.

Each student sets up a web site for this survey, where all components are to be posted by the following deadlines - hard copies need to be submitted to the instructor as well. For all online references cited, have links available on this site. Use this cite to also post your presentations a week before your deadline for review. Send a link to your site ASAP.

Deadlines:
- Topic Selection: May 22
  Submit a half-page write-up defining the scope of your survey. Also, by this date, post the write-up at your web site.
- Bibliography of literature found: May 25
  This may be a partial list to be complemented as the literature search continues. Have links to these references on your web site.
- Annotated Bibliography of the literature found: May 25
  (Scan through the papers and write a brief comment on its content not exceeding 1-2 lines - not from their abstracts/intro. Identify 15 main papers to be read more thoroughly.)
- Detailed Annotated Bibliography and Classification of the Results: May 30
  (i) Detailed comments on papers read thoroughly. (ii) Classification scheme should be a natural one which makes it easier to understand the major developments in an area, and identifies the sub-hierarchies. For each class of major result obtained on the chosen topic, identify the primary and secondary papers associated. The classification scheme will yield the organization of the survey paper.
- Survey Paper (15-20 pages, excluding references and appendices): Jun 5
  Start with an abstract, explain the topic/problem and define basic terminologies, present various approaches taken or major results obtained justifying your classification, present each major result and briefly discuss minor results within each category giving illustrations where needed, give the current trend and future work remaining in the area, and include the bibliography. All work and explanations must be adequately cited through out the survey. Have a table of contents in the beginning.

Appendix contains (1) classification and (2) annotated bibliography.

Possible Topics for survey paper

Each survey must have a separate section identifying those practical algorithms which have been demonstrated to work by implementation or are likely to yield speedups in practice. Feel free to propose topics of your interest. Need approval on any topic - consult early on with me.

- Coordination of Data and Tools for Biological Applications
- Secure and Scalable Keys for Dynamic Groups
- Mobile and Distributed Transaction Commit Protocols
- Extending Ubiquitous/Grid Computing to Mobile Infrastructures - Why and How?
- Mobile Data Structures and Algorithms - Analogous to their Distributed/Parallel Counterparts
- Secure Mobile Agents
- Proxy for Mobile Devices and Applications - Architecture and Synchronization Techniques
Mobile Devices as Data Sources - How and Why to host Web and/or Data Servers on Mobile Devices?

• Collaborative Applications on Mobile and Distributed Devices
• Mobile and Distributed Directory
• Peer-to-peer computing over mobile devices
• Parallel and Distributed VLSI Logic Simulation
• Systems for developing workflows for biological and scientific computations
• Data integration from heterogeneous sources for biological applications
• Semantic web and inter-web-service coordination and composition
• Molecular modeling of protein conformations Computational techniques for cancer research
• Large scale simulations of a network of biological neuronal models
• Flexible security architecture and algorithms for grid computing
• Adaptable security techniques for collaborative mobile computing
• Parallelizing iterative mesh computations - partitioning and dynamic load balancing
• Data integration techniques in ad-hoc sensor networks | Item Lifetime problem of ad-hoc sensor networks