

Objectives

- To explore the theory and practice of distributed systems including:
 - Designing and implementing a 2- or 3-tier distributed system and application
- To demo and present your work to the rest of the class
- To produce a term report documenting your work (including analysis, design, and related work)

Project

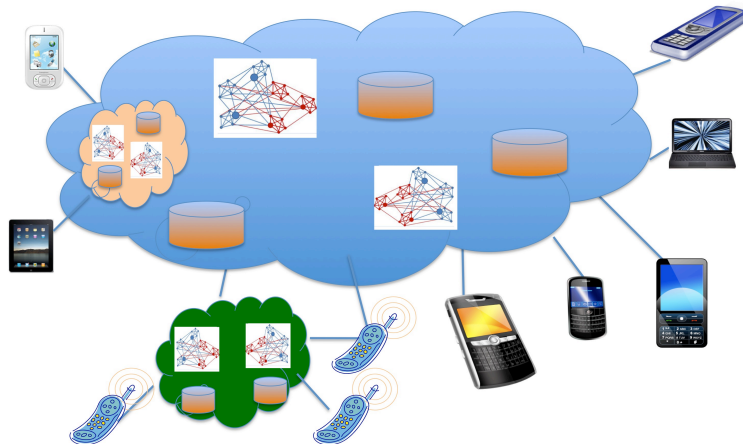


Figure 1: A Modern Vision of Distributed Systems

Your project must be related to distributed systems in a significant way, and involve the design, development, demonstration, and analysis of a distributed application, game, or prototype of some type. In short, the expectation is that your project will implement some subset of the picture shown in Figure 1.

In addition, your project must cover the major topics in the course including the following:

1. At least three different kinds of client devices including two varieties of mobile devices.
2. Reliable & flexible communication (ordered, asynchronous, publish-subscribe, or group communication).
3. Coordination and cooperation.
4. Replication, availability, and consistency.
5. Naming and service discovery.
6. Fault tolerance; handling of partial failures.
7. Security (for communication and data access; support/enforcement for authentication and access rights).
8. Scalability.
9. Use of an interesting distributed algorithm.

It is likely some team projects may not be able to meet all of the above topics easily, and some teams may decide to explore some of the se topics in greater depth. Please consider this handout as only a starting point for defining a project, and constant communication between each team and the instructor is required. Please make use of any time available in the class, or office hours, via myCourses project discussion area, and more.

Notes

- Do not assume that all required information is available in this handout. Au contraire ... it is not!
- The project is open-ended, and gives your team full control to make decisions within the broad guidelines stated above. Feel free to make appropriate decisions, but clearly document each decision and its rationale, and include these in the final project report. Feel free to check with the instructor as appropriate.

Initial Schedule and Deliverables (Dates may be revised so monitor myCourses calendar)

Date	Event	High-level Description
Mar 17	Team formation	<ul style="list-style-type: none">• Select your teammates, and a name for your team.• Send email to me giving the team name, the names and RIT email addresses of the team members.
Mar 24	Phase 0	<ul style="list-style-type: none">• Submit a 1-page description of your project including your sample distributed system and application. For the report, you must use the ACM style LaTeX template linked on myCourses.
Apr 07	Phase 1	<ul style="list-style-type: none">• About 2 pages describing what has been done, what will be done, how it will be done, and the plan to cover topics stated above. This report should be written as a formal research paper proposal. For the report, you must use the ACM style LaTeX template linked on myCourses.• Zip up any documentation, source code files, etc.
Apr 21	Phase 2	<ul style="list-style-type: none">• Submit your distributed system and application, along with documentation for installation and usage.• Submit a revised version of your Phase 1 report to reflect the progress made since the Phase 1 submission, and changes anticipated in the final submission. For the report, you must use the ACM style LaTeX template linked on myCourses.
May 12	Poster	<ul style="list-style-type: none">• "Mini-conference" scheduled during last lecture of the quarter.• Attendance is mandatory.
May 12	Phase 3	<ul style="list-style-type: none">• Final submission must include:<ul style="list-style-type: none">• Research report covering project motivation, architecture, design, implementation, lessons learned, current status, and future work, written up as a formal research paper. For the report, you must use the ACM style LaTeX template linked on myCourses.• Soft-copy of presentation material must be submitted.• Working well-documented source code of your distributed system and application.• A README describes how to set up your submission, and also explicitly describes changes made by each team member.
May 16	Overall peer evaluation	<ul style="list-style-type: none">• Each team member will confidentially report on the overall contributions of all team members; see Surveys area.• If you do not fill this evaluation out carefully and in detail, your individual project grade will go down significantly.
Blog	Through-out the quarter	<ul style="list-style-type: none">• Maintain a regular (several times spread over each week over the quarter) blog about your Distributed Systems activities: what you read, what you are working on, and so on. <i>Separate grading component!</i>

Submission Information

For each of the three major submissions (Phase 1 to 3), place the files to be submitted (e.g., *.java, *.c, *.txt, *.doc/sxw/pdf, READMEs, and any Makefiles) in folders named phase0, phase1, phase2, and phase3 respectively. Each submission must include all relevant files (including those modified from earlier project submissions). Include some documentation and instructions on how to install your system and application, and run your project.

Zip up each of the phases, and submit the zipped file to the corresponding myCourses dropbox by 11:59pm on each due date. (By the way, zip means a zip file, not any other compressed archive.)

P3 Evaluation

Step 1: Team Score

Phase 0	5%
Phase 1	20%
Phase 2	25%
Phase 3	25%
Research Paper	25%
Overall team score	100%
Scaled team score	70% (70% of overall team score)

Step 2: Individual Score

Team score to individual adjustment	$\pm a$	Adjustment up or down based on (a) peer evaluation feedback, and (b) individual P3-related performance during demo and quarter (as observed by instructor).
Individualized team score	70%	Scaled team score $\pm a$
Team peer evaluation	-20%	Only if you fail to submit a well-detailed overall peer evaluation
Presentation/Demo	10%	
P3 questions during final exam	20%	If a student's performance on P3-related questions is significantly better or worse than her or his team's, individual grade will be further adjusted up or down.
Final P3 score	100%	See P3 component weight in the Course Syllabus handout.

Follow the Academic Honesty policies mentioned in the Syllabus handout. As usual, check with the instructor if you do not understand something. Ignorance of the rules is never an excuse!