

# ADVANCED OPERATING SYSTEMS — PRESENTATIONS

## Choose a paper and lead a discussion

### 1 Choosing systems topics

We have covered a number of advanced systems topics. We have read research papers. We have discussed the concepts presented, as well as critiqued the experimental methodology and data analysis. We've addressed processor and cache design; kernel structure, policies, and algorithms; run-time system algorithms and implementations; and the interaction of these components.

There are, however, a great many topics that we have not covered. In a single semester, it would be impossible to cover all current, compelling, and illustrative areas of systems research. Thus, to cover more area, and to focus some time on those topics that intrigue you the most, **you** will select and present a topic.

**Your assignment:** You will work in the same groups as the two experimental projects. Your group must:

1. Search through a group of recent conference proceedings and journals (see Section 2 for more information). Find a paper that you find compelling.
2. Submit the paper's bibliographic information to me. I will then post a reference to the paper for the entire class.
3. Prepare a presentation of the fundamental background for the paper.
4. Moreover, prepare to lead the discussion that follows any fundamental background presentation. You should aim to draw observations out of the rest of us, but keep the discussion moving through the relevant points of the material.

### 2 Where to find papers

Here is a **list of conferences and journals** from which you may find compelling papers:

- *The Symposium on Operating System Principles (SOSP)*
- *The Symposium on Operating System Design and Implementation (OSDI)*
- *Architectural Support for Programming Language and Operating Systems (ASPLOS)*
- *The International Conference on Measurement and Modeling of Computer Systems (SIGMETRICS)*
- *The Symposium on Networked Systems Design and Implementation (NSDI)*
- *Programming Language Design and Implementation (PLDI)*
- *The USENIX Annual Technical Conference*
- *The USENIX Conference on File and Storage Technologies (FAST)*
- *ACM Transactions on Computer Systems (TOCS)*

- *ACM Transactions on Programming Languages and Systems (TOPLAS)*
- *ACM Transactions on Modeling and Computer Simulation (TOMACS)*

First, it is important to realize that **this list is not at all comprehensive**. There are many other conferences and journals, and if they contain a paper that is interesting (and about a relevant systems topic), then you should use it.

Second, you should be aware that any papers that you find are necessarily themselves the end-point of your search. You can and should **explore the citation chain**. For each paper that addresses an interesting topic, you should examine its bibliography and obtain copies of papers listed there that may be compelling. Moreover, you should **find papers that reference this one**.

That leads us to the third point, which is that you should **consult librarians**. Few of you are likely to know how to follow a citation chain forwards, finding which later papers reference the one that you are holding in your hands (or viewing on your screen). A librarian can show you how to do that, and find newer papers that build upon one that caught your attention.

### 3 Scheduling and evaluation

Each group will get an entire class section (50 minutes) to present and lead a discussion of their paper. Since there are four groups, we will use the following four dates for these presentations:

- Friday, December 4
- Monday, December 7
- Wednesday, December 9
- Friday, December 11

For each presentation, the paper to be presented will be posted for the class to obtain and read at least two days before it is presented and discussed. Scheduling the groups to these dates will occur before Thanksgiving break. Specifically, if any group would like to volunteer for the first date, December 4, then that group should do so **before 9:00 am, Friday, November 18**. On that afternoon, I will select at random the assignment of groups to the (remaining) slots.

These assignments will be evaluated on the following criterion:

- **The paper selected:** While I will allow a great deal of leeway in recognition that you have little experience in choosing papers, you are expected to choose a paper that addresses some of the most compelling points of a particular topic. Selecting the first paper that you find is likely to result in a mediocre coverage of the important questions of that topic.
- **The background presentation:** You must make clear to the class the relevant background, connecting their curricular background as advanced undergraduate CS students to a specialized area. As the presenter, you are expected to fill in the gaps that make deeper discussion possible.
- **Leading of the discussion:** You should come prepared with questions that lead the class through the analysis of the work presented in the paper. You should not plan to lecture your way through the paper, but rather to draw the relevant points from the other members of the class. Highlight the key questions, and be prepared to keep the discussion on track, all while trying to address questions raised by class members.

- **Participation in others' presentations:** On any day that another group is presenting, I expect each of you to be a full participant in the discussion of the paper. You must be thoroughly prepared for all of these presentations, and you must come with questions and critical observations.

I will be observing not just the intellectual quality of your presentations and discussions, but also their presentational qualities. I expect you to be well rehearsed, speaking clearly, directly, and animatedly.

**A deadline:** Each group must choose a paper by **Wednesday, December 2, 9:00 am.**