Advanced Operating Systems

Introduction

What the Course Is About

- In-depth study of fundamental concepts in operating systems
- Text: a collection of papers on OS design
- Course project

Purpose of the Course

- Good understanding of important concepts in modern operating systems
- Experience with modern kernels and system building

Course Info

- Instructor: Pei Cao ([‘tsao])
- Course homepage:
  http://www.cs.wisc.edu/~cao/cs736.html
- Office: 7361 Computer Sciences
- Email: cao@cs.wisc.edu
- Office hour: Tuesday 2-3pm, or by appointment
- Phone: 262-2252

Administration Stuff

- Copies of papers can be purchased from DoIT
- Homework assignments:
  - Performance measurement of modern operating systems (20%)
  - Course project (70%)
- Class participation required (10%)
- No Exam

How to Read a Research Paper

Identify what kind of paper you are reading

- Big idea
- Unifying theme
- Small idea
- Measurement
- Comparison
- Retrospective or experience paper

Take Notes

- Pause after you read the introduction
  - ask yourself: do I know what this paper is talking about? if so, how would I conduct the research?
- Create on-line bibliography with comments
- Create outline
- Record big ideas
- Jot down buzz words

Put Paper in Context

- What other papers are like this one?
- How is this one different/the same as others?
- What are the new ideas?
- Did the author read the literature?

Critique

- On the ideas:
  - do the ideas still make sense today?
  - what were the motivations for the ideas?
  - did/does this paper make a difference?
- On the methodology:
  - what did they measure/prove/demonstrate?
  - do they attempt this in a significant way?
  - do you believe their results? (why/why not)
  - did they present the results well?

After You Finish the Paper

- Summarize paper in 1-3 sentences
- Put paper in one of three categories
  - classic
  - important
  - useless
- Is the paper well-written?
- What did you learn from the paper?

Anatomy of Contemporary Papers

- Introduction: background/context, the idea, summary of results
- Design: how the idea is realized
- Implementation: how you did it
- Result: why the idea is wonderful
- Related work: prove other people haven't done it
- Conclusion: reiterate idea, stress results

Critique of Contemporary Papers

- Is the general problem really important? for which fraction/ what percentage of the population?
- Why would anyone use their idea?
- What is new in here?
- How would you rate their effort?
- Do you believe their results?