Advanced Operating & Distributed Systems

Gabe Parmer & Tim Wood

Week 1: Jan 14, 2013
Your Hosts

• Gabe Parmer
  • Operating Systems
  • Real-time and embedded systems
  • Energy requirements of typical system:
    • 2 AAA Batteries

Making resource constrained systems be dependable and predictable

• Tim Wood
  • Distributed Systems
  • Cloud computing and virtualization
  • Energy requirements of typical system:
    • 1 medium sized power plant

Making large scale systems be fast, cheap, and reliable

vs
Course Content

• Advanced topics related to the implementation of operating systems and distributed systems

• Reliability

• Memory Management

• Scalability
Seminar Style

• Reading research papers
  • 3-4 papers each week
  • Be prepared to discuss and ask questions

• Semester long project
  • Substantial programming project building something new

• Warm-up Assignment
  • Practice with C, multithreading, coordination
  • Practice running an application on a cloud server
  • Due in 2 weeks
Piazza

• Sign up for piazza course forum
  • Link on class website: http://bit.ly/gwadvos13

• Will be used for all course correspondence
Paper Presentations

- Summaries of 2 papers per week
  - 1 sentence summary
  - 2 paragraphs on main contributions and questions you have

- Post to Blackboard
  - In plain text (paste into assignment comment box)

- Presentations
  - 30 minutes + time for QA
  - Send draft of slides to us by Friday night before your class
    - Subject = "ADVOS-Presentation"

- Paper selection will happen soon
Research Project

• Substantial programming project related to operating systems or distributed systems

• Teams of 2
  • 1 or 3 with permission

• We will provide some possibilities
  • Or suggest your own pending approval
    • Contact us before the deadline

• Semester long
  • Mid-semester code review
  • Periodic progress reports
  • Final report and demo
Warm-up Assignment

• Details on web page including specification

• Multi-threaded web server written in C
  • Using POSIX threading, locks, condition variables, etc
  • Atomic instructions, lock-free data structure

• Deploy onto Amazon EC2 cloud VM
  • Familiarity with linux / ssh
  • We will provide account information

• Due in 2 weeks: January 28th at 5PM
  • Submit on Blackboard
Grading

• 65% Research project
• 20% Presentation
• 10% Summaries
• 5% Warm-up Assignment
Enrollment

• If you are not yet registered but want to be talk to us after class