

EECS 211: Advanced System Software Lecture 4

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Lecture 4: Overview

- Operating Systems Review
 - Synchronization
 - Deadlocks
- The Nachos System
 - Introduction
 - Overview
- Assignment 1
 - Introduction to Nachos

Operating Systems Review

- Excerpts from chapters 6 through 7 of “*Operating System Concepts*”, 8th Edition by A. Silberschatz, P. B. Galvin, G. Gagne, John Wiley & Sons, 2009.
- Synchronization
- Deadlocks

The Nachos System

- Introduction
 - Instructional operating system
 - designed by Th. Anderson, UC Berkeley
 - designed for teaching (undergraduate class!)
 - Simple, but working system
 - Concepts are learned by hands-on experimentation
 - Covers all major components of a modern OS
 - threads and process synchronization
 - file systems
 - multiprogramming
 - virtual memory
 - networking
 - Usable in regular Unix environment
 - Well-documented source code freely available

The Nachos System

- Documentation
 - Text book, 7th edition, Appendix D
 - Local copy available on course web site
 - Source code (!)
 - Well-commented C/C++ code
 - Additional resources
 - Nachos home page
 - Nachos roadmap
 - Wikipedia entry
- Why not Linux?
 - Huge size and complexity
 - Development and test environment (“naked PCs”?)
 - Debugging (nightmare!)

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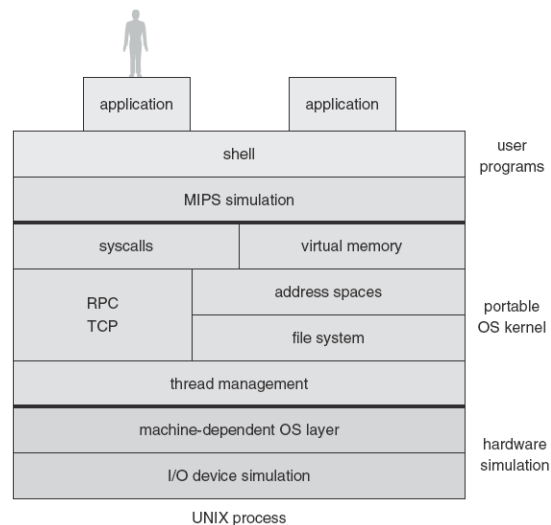
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The Nachos System

• Overview

- User code: emulated by MIPS simulator
- Kernel: normal (debug'able) Unix process
- I/O System: simulated by std. process I/O



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Assignment 1

- The Nachos System
 - Task 1: Read the overview chapter
 - Text book, Appendix D (contents online)
 - Task 2: Install the software
 - Setup environment, copy tar-ball, unpack, compile, test
 - Task 3: *Understand* the Nachos system!
 - Read documents and source code
- Deliverables
 - log output when running the plain Nachos installation
 - brief explanation of `yield` and `SWITCH` functions
 - Email to `doemer@uci.edu`
- Due
 - Wednesday, Jan 21, 2009, at 12pm (noon)