P3, P4

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Outline

- P3 grading approach
- Coping with P3 disasters
- P4

P3 Grading Approach

- Substantially according to “Plan of Attack”
- ***Key milestone: does the shell run?***
  - virtual memory, system call boundary, context switch
  - fork(), exec()
  - wait(), exit()
  - readline() [basic]
  - Functional, if limited, maybe-unstable, OS

P3 Grading Approach

- Semi-automatic test environment
  - Kernel booted
  - Shell calls “magic” readline
  - Simics used to simulate command line
  - Single test runs
  - Second call to readline shuts down kernel

Approximate Breakdown

Item	*Value*
Shell runs	65.00%
Basic tests	10.00%
Solidity tests	10.00%
Threads	7.00%
Structure/Style	8.00%

P3 Disasters?

- Some groups seem not “done”
  - One or more conceptual problems
  - Time management issues
  - Merge failures
  - “Out of gas”

P3 Disasters

- P3 is ***central*** to this class
  - Pedagogically, you should finish it
  - Very difficult to do a kernel extension (P4) w/o P3
  - Potential exam trouble
- Some people have asked about withdrawing
- I'd prefer finishing to withdrawing...

What I Can Offer

- An additional week
  - We do need to ***grade*** these...
    - Including interviews
- The bad news...
  - This extra P3 time will preclude P4
- How to decide?
  - Educational goal: understanding core principles
  - "Hurdle" model

P3 Hurdle

- Test suite to be released around midnight
  - After “P3 clock” has run out for 3-late-day groups
  - Basic tests – essentially what was already released
  - Solidity tests – subset of grading suite
- “Self-grade” by running them yourselves
- If you pass, register on “P4 registration page”
- Otherwise
  - P4 grade = 0%; late P3 may end up with mild penalty

Moving Forward

- ***Read your partner's code***
  - Regardless of whether you made the deadline!
  - You need to understand the whole thing
    - Even if time constraints mean you can't write your own
- Think about what happened
  - Maybe write down what you will do differently
- ***Plan time wisely***
  - ...based on your painfully-won self-knowledge

P4 Projects

- Paging – we will provide IDE disk driver
- File system
  - Read-only is ok
  - Simplified format ok (e.g., FAT)
  - One option: turn “executable RAM disk” into r/o fs
- Console extensions
  - Multiple virtual consoles, hot-key swap
  - “System monitor” line at bottom of display

Icing on the cake?

- Try your kernel on real hardware
  - So you can amaze your friends & family
- Not unusual for there to be some glitch
  - Uninitialized variable
    - Real PC may have different RAM contents than simics PC
  - Clock interrupt happens too early

Lecture Topic Survey (Pick 3?)

- Remote file systems
- Distributed time & agreement
- Exotic operating system designs
- Naming in the Internet
- Mobile code
- Transactions
- PGP key-signing party?