

## 412 Projects II

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## Sample Plan 9 Projects

- Security
  - PubCookie authentication for web server
  - Kerberos support in factotum file system
  - ssh v2
- Kernel hacking around the edges
  - “Do laptops better” - multiple small pieces
  - Kernel crash dumps / better stack traces
  - SMART disk-health monitoring
  - “rewrite x86 vm code”

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## Sample Plan 9 Projects

- Software infrastructure
  - port CMU reliable-virtual-memory package
  - How portable is “Apache Portable Runtime”?
  - “most of a Palm synch fs is written”
- Platform port projects
  - sun4 revival (join project in progress elsewhere)
  - aggressive: iMac port!

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## iMac Port

- Good news
  - Plan 9 has run on PowerPC
    - embedded systems, BeBox
  - Other things run on iMac
    - NetBSD, Darwin, Gentoo Linux
  - iMac is not a PC (OpenFirmware >> BIOS)
  - Net booting is easy (much easier than PC)
- Serious good news
  - Utility curve of Plan 9 ports rises quickly

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## iMac Port

### 1. “Brain in bottle” (Miss Uumellmahaye)

- Need to be able to boot (OF)
- Need debug-quality console I/O (OF)
- Need to be able to do VM, context switch
  - PPC interval timer built into processor
- Kernel arrives with built-in file system...
  - Operational system: shell, compiler, debugger, ...
  - Semester project for 2-4 people

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## iMac Port

### 2. Join the network community

- PCI device enumeration
- PCI interrupt management
- 1 Ethernet device driver

⇒ “CPU server”

### 3a. USB, graphics ⇒ “terminal”

### 3b. ATA driver, disk labels ⇒ file server

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## iMac Port

- Is this crazy?
  - Don't we have enough operating systems?
  - Why develop something for roughly zero users?
    - ...and it won't even run OpenOffice!?

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## iMac Port

- Christo & Jeanne-Claude will decorate Central Park in February
  - 23 miles of saffron-colored fabric gates: “The Gates, Central Park, New York, 1979 to 2005”.
  - 7,500 16-foot vinyl frames throughout park at 12-foot intervals, Feb. 12-27.
  - “All our work is about freedom”.

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## Other Projects

- Click “modular router” project
  - Target: Soekris tiny router box (start: simics)
  - Goal: point-and-click DSL link scheduler
- [insert your project here]
- Linux – kernelnewbies.org
- FreeBSD – freebsd.org
- NetBSD – you get the idea

## Next Steps

- How to not-commit to Plan 9
  - Warm-up projects
    - PDF file system
    - double-buffer dd
    - document aux/disksim
    - software cursor!