

Dual-Boot Labs at Goucher College, Six Years Later:

Eric Gadsby
Stanley Patterson



Goucher College

Goucher College is a private institution that was founded in 1885. It has a total undergraduate enrollment of about 1,500.



Agenda

- ❖ Brief History
- ❖ Where We Started
- ❖ How do we do it now
- ❖ Management
- ❖ User Experience
- ❖ Lessons learned
- ❖ How far we've come
- ❖ What we could do better
- ❖ What's next?

What Did We Get Ourselves Into?

Dr Ray Stantz: You know, it just occurred to me that we really haven't had a successful test of this equipment.

Dr. Egon Spengler: I blame myself.

Dr. Peter Venkman: So do I.

Dr Ray Stantz: Well, no sense in worrying about it now.

Dr. Peter Venkman: Why worry? Each one of us is carrying an unlicensed nuclear accelerator on his back.

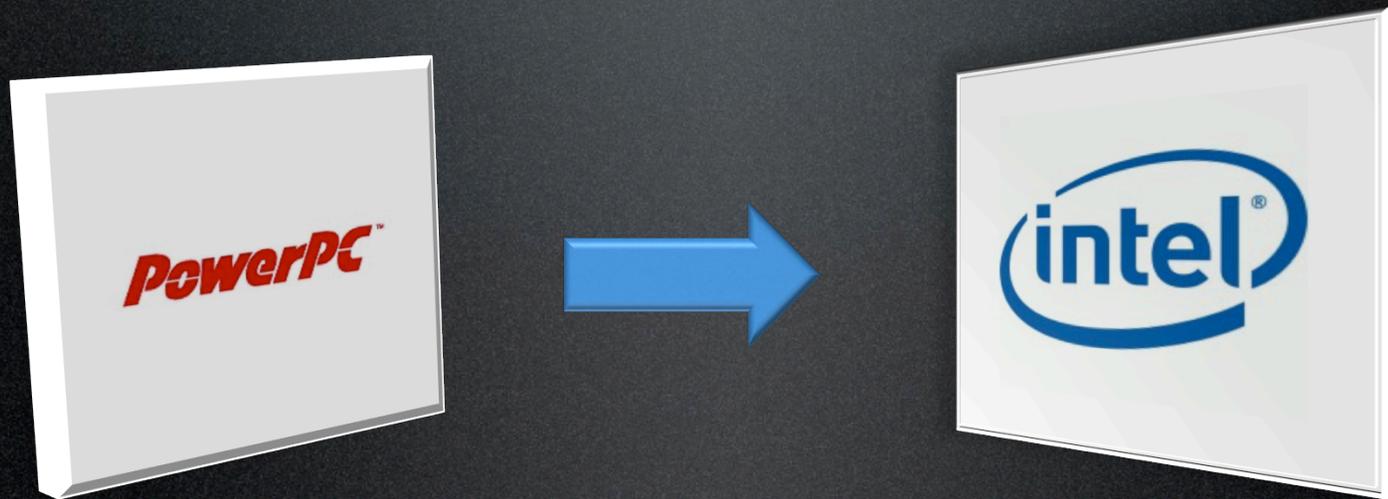
~Ghostbusters, 1984



Brief History...

Going From PPC to Intel

In 2005, Apple publicly announces that it would adopt Intel as its microprocessor. “Steve Jobs”, pg. 446-448



Technical Aspects of the Transition

- ❖ Emulation becomes Virtualization

- ❖ Dual-Boot

- ❖ More available code

- Easier to port Windows Apps to Mac

- **Example:** "TransGaming's Cider™ Portability Engine is a proprietary technology that allows PC games to be enabled on Apple's Intel Macs without the traditionally expensive and arduous need to redevelop a game from the ground-up. Cider acts as a "wrapper" around the PC game dynamically translating PC API calls to the Mac OS X operating system" (<http://transgaming.com/business/cider>)

Technical Aspects of the Transition

- Intel only apps became available very quickly
Examples: AutoCAD, MatLab, Maple, SPSS, and Call of Duty
- Intel only OSS became available (Thank You UNIX)
Examples: MacPorts OSS library

Apple Releases “Boot-Camp” Drivers



- ❖ Prevents Reverse Hackintosh
- ❖ Prevents customers from voiding warranties and damaging systems trying to run Windows without proper support drivers

What this meant to Goucher College...

- ❖ No need to purchase separate lab computers (PCs and Macs)
- ❖ Intel Infrastructure was more familiar to our management
- ❖ More available code
 - More productivity apps became available
Example: AutoCAD, MatLab, Maple, and SPSS
 - Intel only OSS became available
Examples: MacPorts OSS library

Where we started...

Goucher started with a medium size Dual-Boot lab 5 years ago as a pilot.



Our main goal was to see if this was really feasible.

Early Results

- ❖ It WAS possible...but not easy...
 - 4-7 days to image a lab...
- ❖ No best practices
 - Lots of Trial & Error...& Error...& Error
- ❖ Very time consuming project to build and image a Dual-Boot lab
 - NetRestore, Proton Pack Server, & GHOST



How we do it now...

Current Tools and Imaging Setup

Tools used today: Deploy Studio, BootPicker, ARD, & Mac OS X 10.7 server

Current Imaging setup: Xserve, Mac Mini Server, & a Drobo storage unit



Imaging
Room

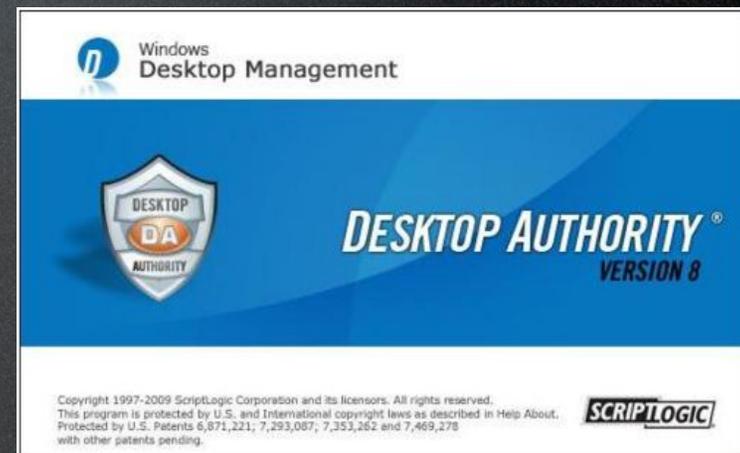
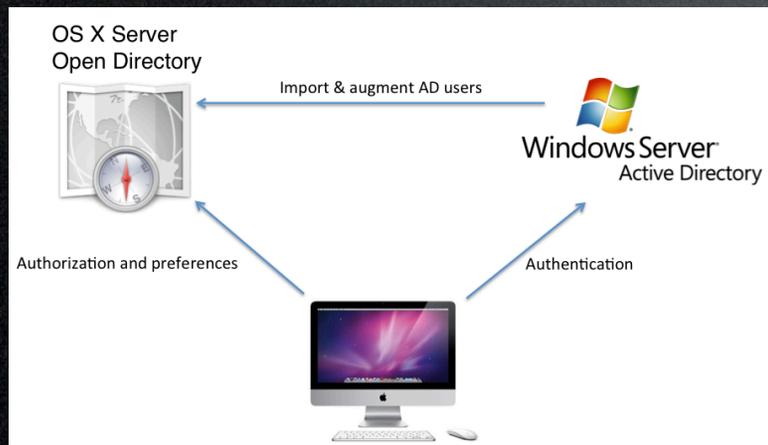
Current Tools and Imaging Setup



Library

Goucher's Dual-Boot Labs

- ❖ Mostly powered by Active Directory
- ❖ Use Magic Triangle OD for Mac OS X user experience
- ❖ Use Desktop Authority for Windows 7 user experience



Goucher's Dual-Boot Labs

Our largest Dual-Boot area is our Information Commons and Library Classroom.

A total of 60 iMacs available for students 24/7.



Information Commons

Goucher's Dual-Boot Labs



Information Commons

Goucher's Dual-Boot Labs



Library Classroom

Current Imaging Process

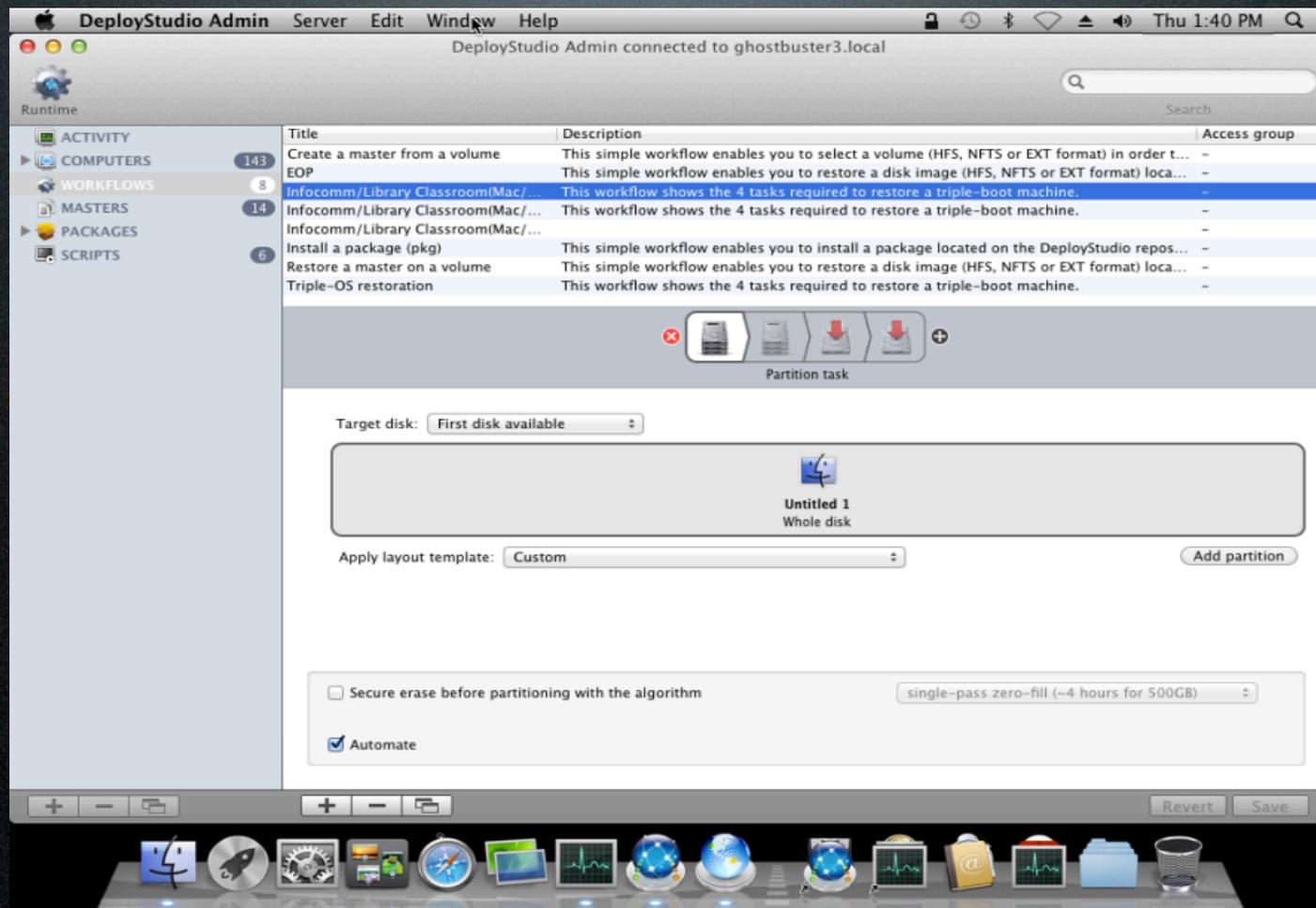
We use a dual monolithic image approach

Visit this link for the video shown at the conference:

<http://youtu.be/d-AdIC2jj18>

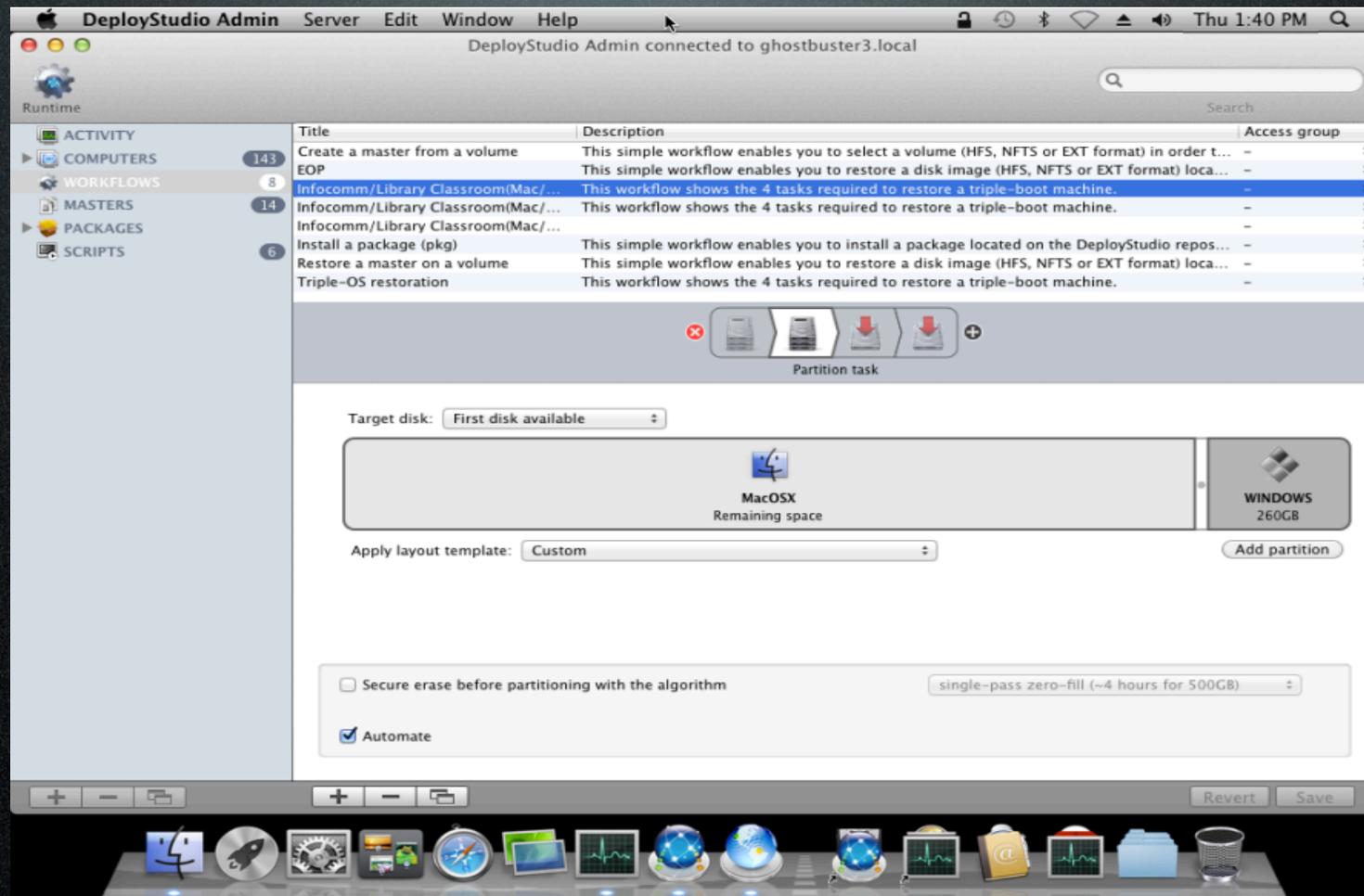
The Anatomy Of Our Duel Boot Workflow

Our workflow has four steps...



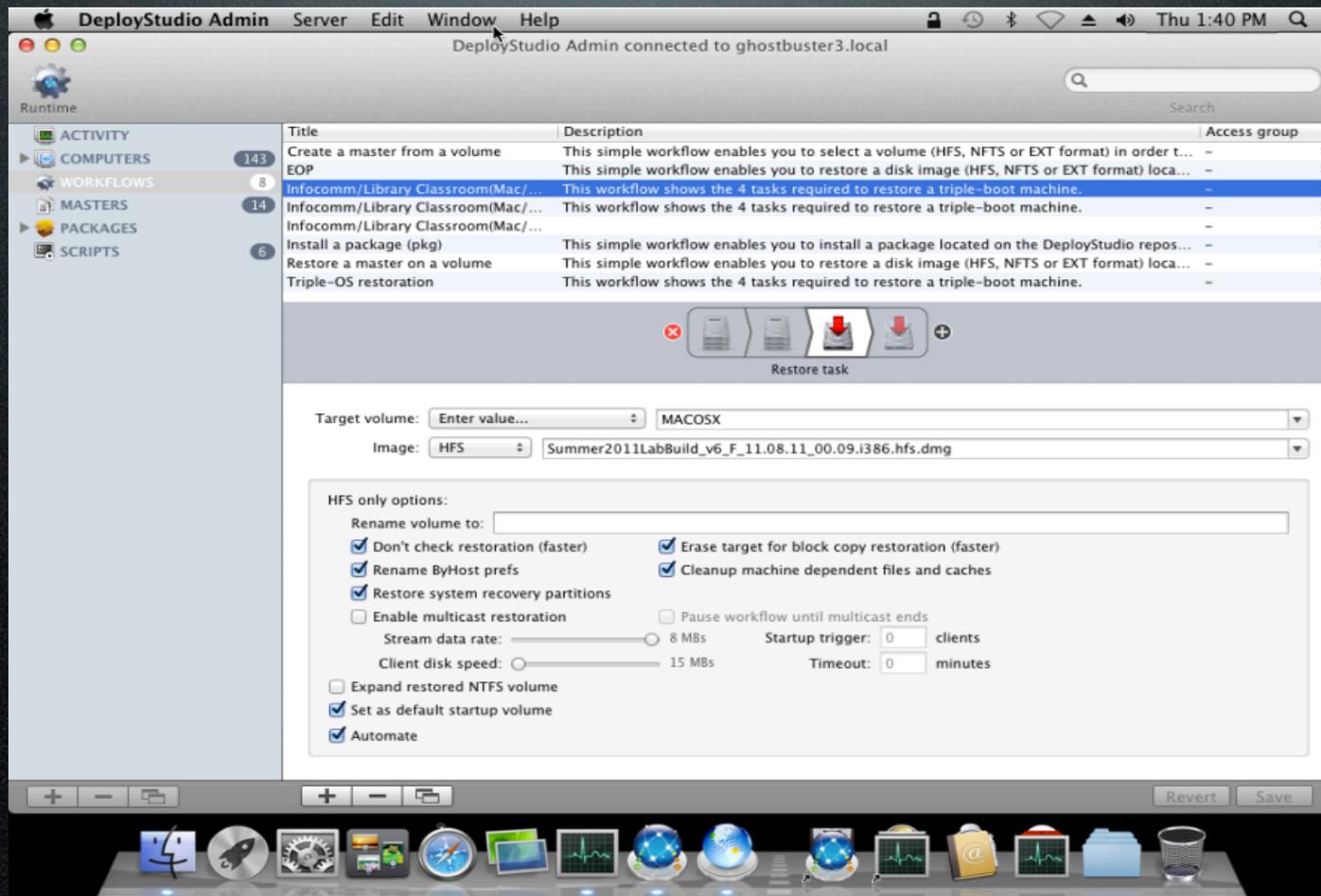
The Anatomy Of Our Duel Boot Workflow

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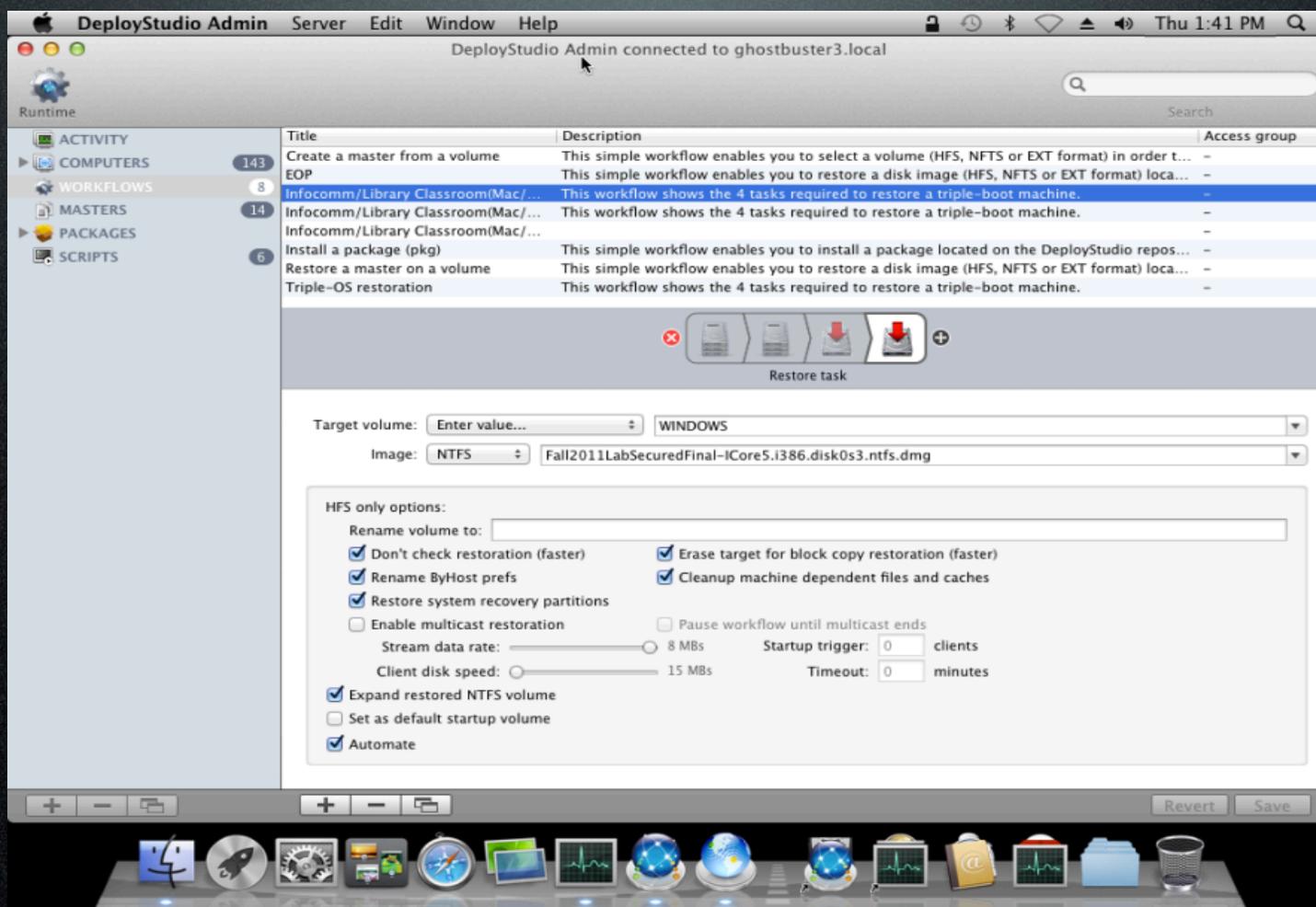
The Anatomy Of Our Duel Boot Workflow

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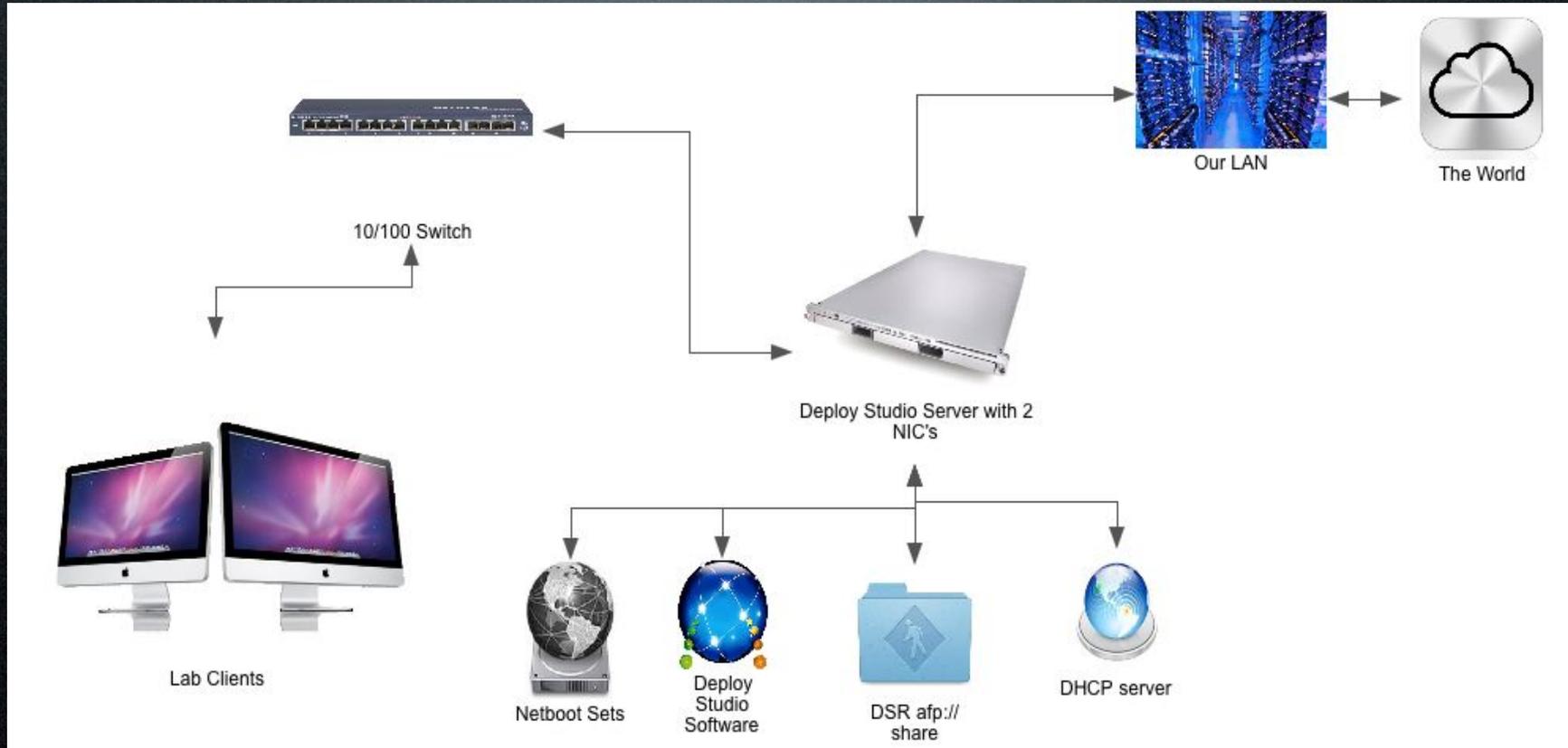


The Anatomy Of Our Duel Boot Workflow

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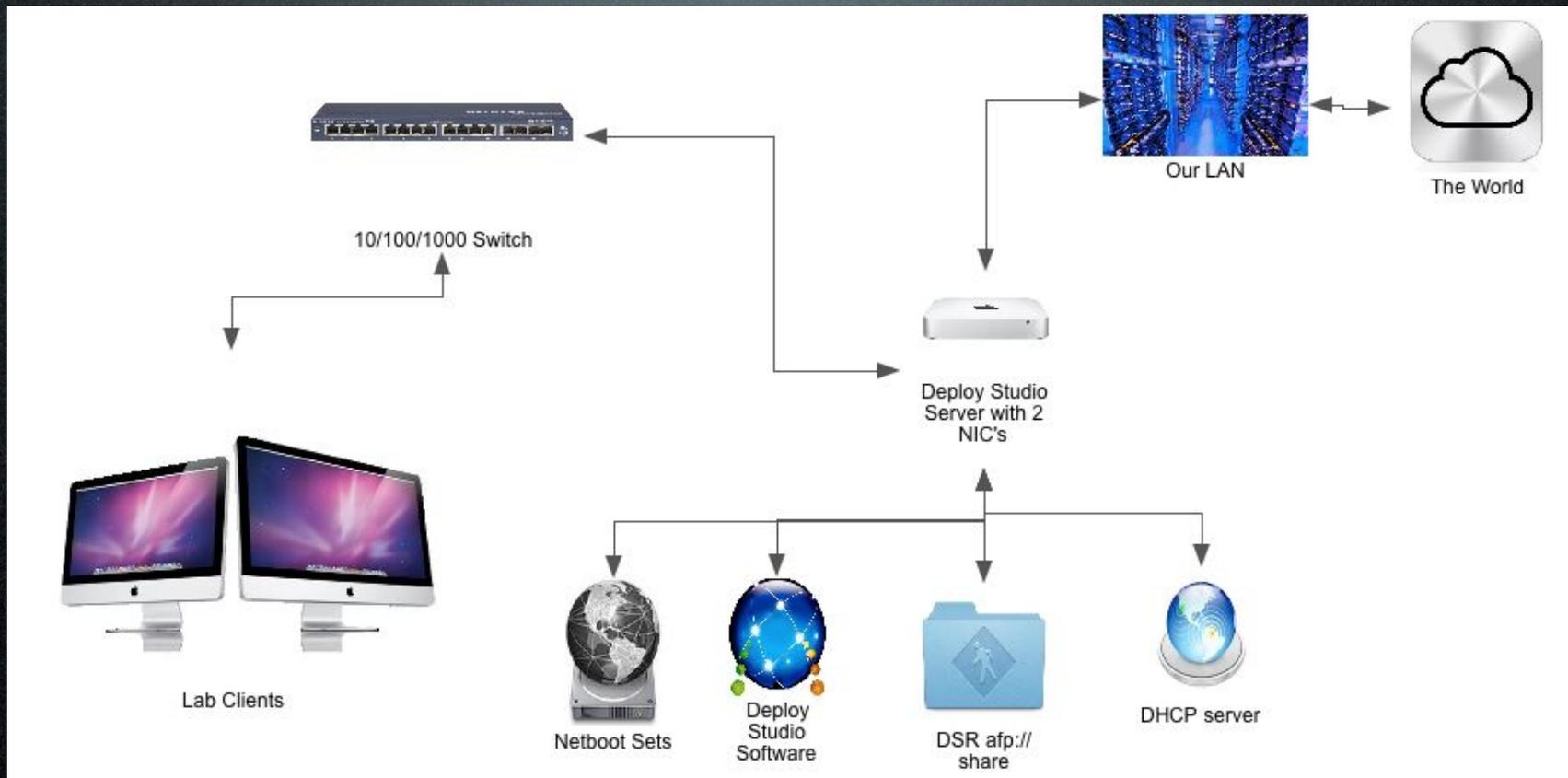


Our Imaging Infrastructure



Library Infrastructure

Our Imaging Infrastructure



Imaging Room Infrastructure

Post Imaging Process

- ❖ Autobind script from APS for Mac OS X
- ❖ Sysprep for Windows 7
 - Currently working on an answer file to join to domain
- ❖ Configure “BootPicker”, let the users pick OS



Management...

Mac OS X

- ❖ Use Magic Triangle OD for user experience via MCX
- ❖ Use Log-in/Log-off hooks to make updates and changes that are not support by MCX
- ❖ Use ARD for updates and changes
- ❖ Use a local Apple Update Server for updates

Windows

- ❖ Use Desktop Authority and GPOs for user experience
- ❖ Use Windows Update Server to push out Windows Updates
- ❖ Use SCCM and Desktop Authority for remote installs and software updates

User Experience Parity...

No Preferred OS

We have strived to make the user experience similar regardless of the OS.

Mac OS X

- ❖ Active Directory
- ❖ MCX
- ❖ Login/Logoff hooks
- ❖ ARD
- ❖ Desktop forwarding
- ❖ CUPS deployment
- ❖ PaperCut print accounting

Windows 7

- ❖ Active Directory
- ❖ Group Policy
- ❖ Desktop Authority
 - Login/Logoff scripts
 - Desktop forwarding
 - Assigns printers
- ❖ PaperCut print accounting

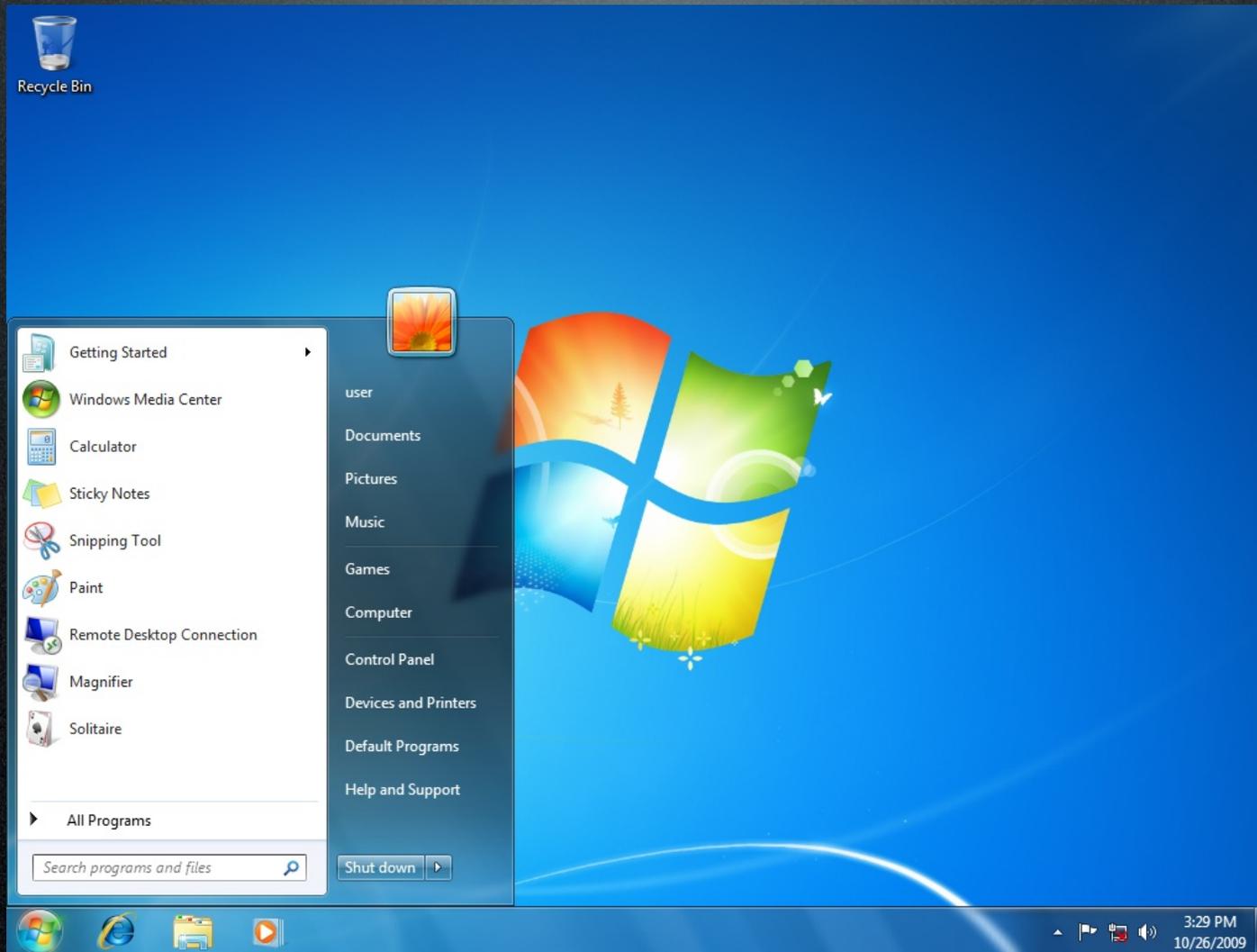
Mac OS X Default



Mac OS X Custom



Windows 7 Default



Windows 7 Custom



Lessons learned...

So what did we learn?

- ❖ We approached each year differently and improved our process
- ❖ The process is not as cost effective from a labor point of view
- ❖ Dual booting isn't always well received
- ❖ User Experience Parity helped out a lot
- ❖ Apple Hardware has proven to have a good ROI

How far we've come...

No Longer a Pilot

At Goucher this has gone from a “**Pilot**” to a “**24/7 academic resource**”.

Now it’s “**too big to fail**”... we are very invested in Apple running multiple OS’s.

Better Imaging Process

First Dual-Boot deployment took 3, 12 hour days to image 16 machines.

- Using multiple imaging tools
- Using unicast sessions for Windows
- No automated imaging process

Current deployments takes about 3-6 hours to image 60 machines.

- DeployStudio was implemented
- Automated imaging process

Better User Experience

First lab deployments had no parity between the two OS's.

- No desktop forwarding
- Different applications installed on each OS

User experience is almost identical now.

- Location based printing
- Desktop forwarding
- Similar Applications installed

What we could do better...

Deploy Studio is Great, but...

- ❖ Needs Gigabit
 - Currently utilizing 10/100 switches
- ❖ Hard Drive Geometry
 - Need to know disk size for partitioning
- ❖ No way to image a whole disk
 - DS workflows takes care of this issue

No Quick Access

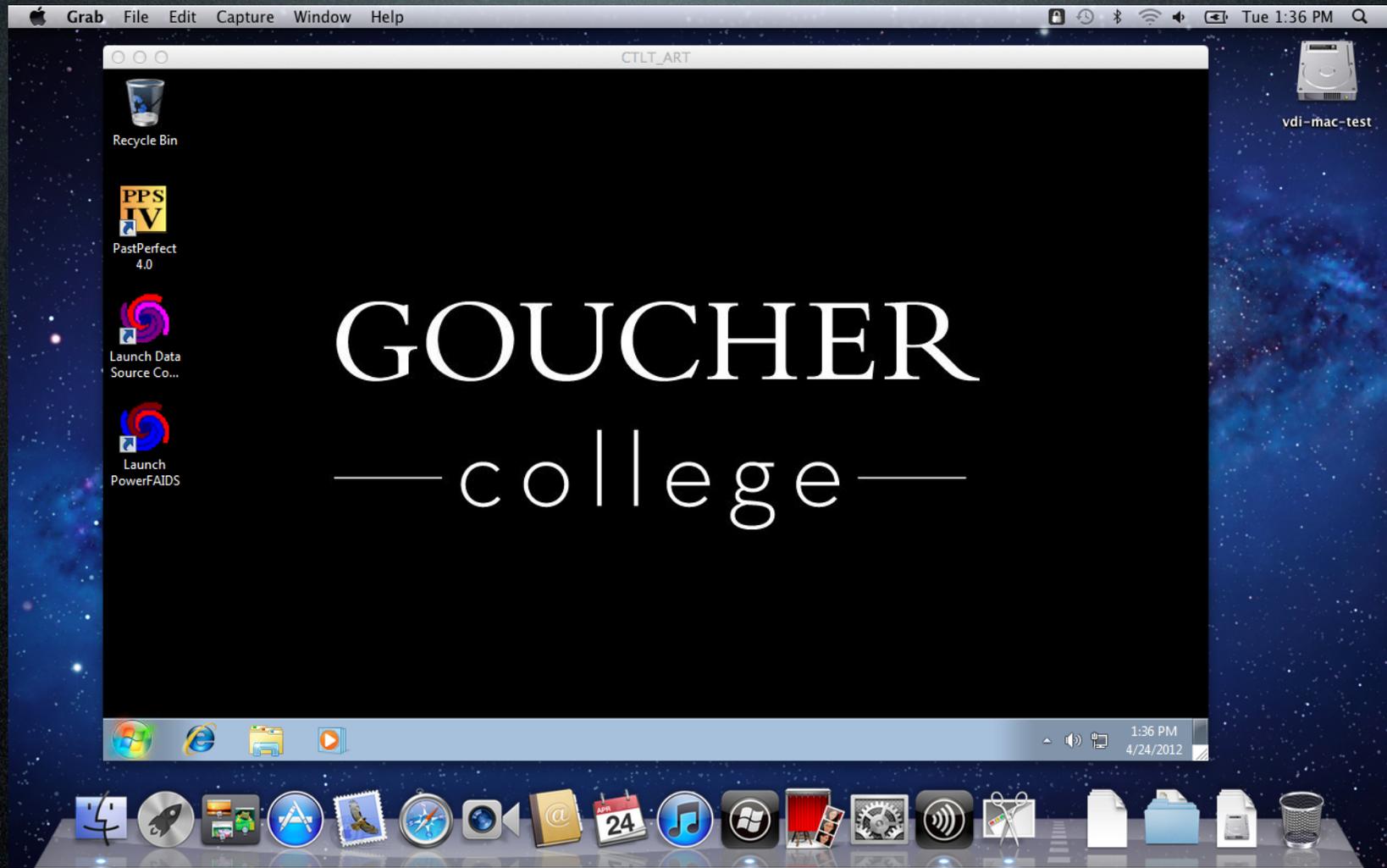
- ❖ Longer login times when accessing either OS
 - Workstation has to reboot
- ❖ No real substitute for “BootPicker”
 - rEFIt???

Management

- ❖ OS updates
 - Is it in the desired OS???
- ❖ Configuration updates
 - Is it in the desired OS???
- ❖ BootPicker has been “discontinued”
 - rEFIt???

What's Next...

Virtualizing Windows 7



Moving to Casper Suite

The screenshot displays the Casper Suite web interface. At the top, there is a navigation bar with tabs for 'Inventory', 'Management', 'Logs', and 'Settings'. A search bar labeled 'Search JSS Topics' is located to the right of the 'Settings' tab. Below the navigation bar is a 'Logout' button. The main content area is divided into two columns of management options, each with an icon and a brief description.

Computer Management

- Policies**
Create and modify Policies to manage your computers
- Managed Preferences**
Manage Preferences for your computers and users
- Restricted Software**
Specify applications that should not be allowed to run

New Hardware Provisioning

- PreStage Imaging**
Automate the imaging of new computers
- Configuration Profiles**
Manage configuration profiles for iPhones.

Computer Groups

- Smart Computer Groups**
Smart groups are updated automatically as inventory changes
- Static Computer Groups**
Static groups of Computers

Management Framework

- Casper Admin**
Manage packages, scripts, printers and configurations
- Management Framework Settings**
Preferences regarding how computers should be managed
- Self Service Preferences**
Preferences regarding how the Self Service application behaves
- Scheduled Tasks**
Timed events that trigger actions on managed computers
- Directory Bindings**
Specify information to automate directory binding

Servers

- Distribution Points**
Configure servers used to deploy packages
- Software Update Servers**
Software Update Servers for deploying updates
- NetBoot Servers**
Servers that computers can use as startup disks

Summary

What worked

- DeployStudio
- Apple Professional Services
(Printing & Desktop Forwarding)
- Automation
- “BootPicker”
- Parity for user experience

What didn't work

- No parity between the two OS's
- Manual imaging process
- Underutilization of Dual-Boots

Resources

- ❖ Isaacson, Walter. *Steve Jobs*. New York: Simon , 2011. Print.
- ❖ Transgaming - <http://transgaming.com/business/cider>
- ❖ Deploy Studio - <http://www.deploystudio.com>
- ❖ Desktop Authority -
<http://www.scriptlogic.com/products/desktopauthority/>
- ❖ Casper Suite - <http://www.jamfsoftware.com/products/casper-suite>
- ❖ Citrix XenDesktop - <http://www.citrix.com/xendesktop>
- ❖ BootPicker -
<http://www.macupdate.com/app/mac/24845/bootpicker>
- ❖ Apple Education Professional Services -
<http://www.apple.com/education/resources/information-technology.html>
- ❖ rEFIt - <http://refit.sourceforge.net/>



Questions ???