

# DEPLOYMENT

AREK SOKOL  
SENIOR CLIENT ENGINEER  
GENENTECH / ROCHE





# BEFORE WE BEGIN...

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- Learn from others historical mistakes
- Reducing complexity and re-using resources increases reliability and overall user satisfaction
- Total effort doesn't change no matter how many endpoints you maintain
- There's no "one fits all" solution
- Don't even think about squeezing Mac into "that" Windows world!



# AGENDA

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- Planning
- Image Deployment
- Deployment Solutions (for any \$budget)
- Packaging
- Tools Most of Us Use
- Resources
- Q & A



# PLANNING

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- Gather security and user requirements, get sign-off if possible
- Think 5 years ahead before looking to solution
- Know your budget and resources, set realistic expectations
- Take the time to do it “mostly” right the first time



# IMAGE DEPLOYMENT

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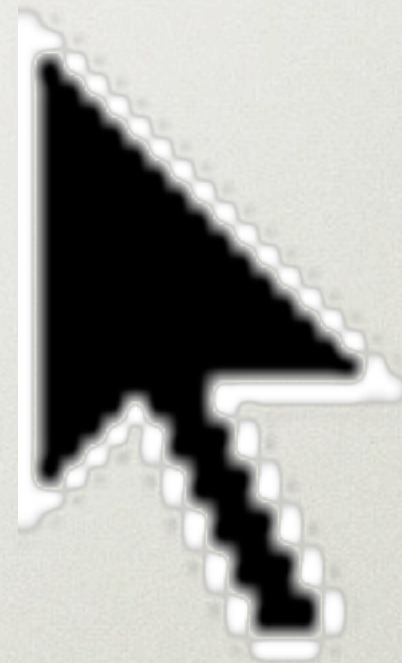
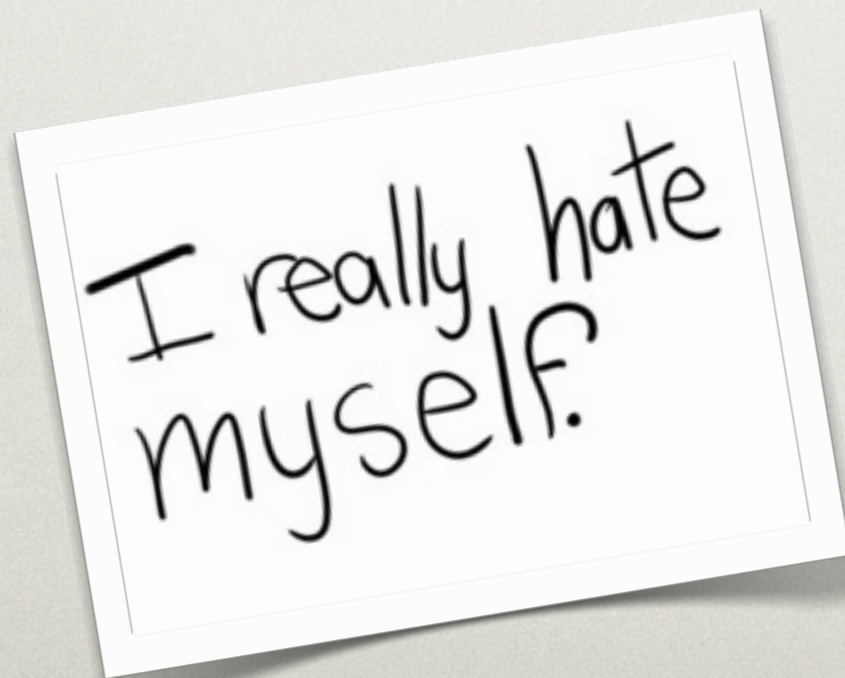
- “Manual” Non-Imaging
- Monolithic “Golden Master Mac”
- Thin Imaging
- Modular Imaging



# “MANUAL” NON-IMAGING

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- Ergonomic nightmare
- No Mac will ever be the same. Guaranteed.
- Inefficient use of resources
- Slow to deploy

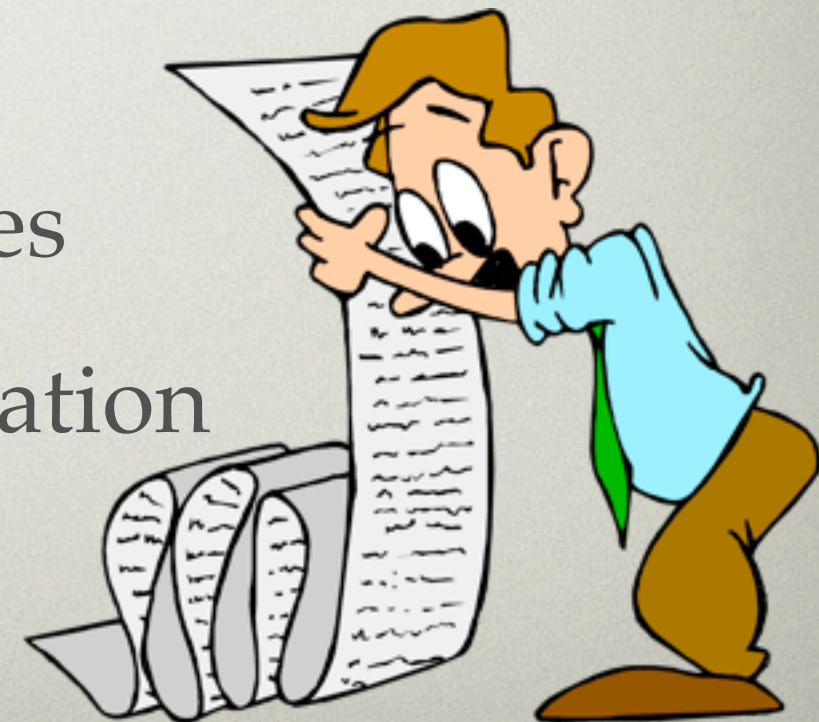




# MONOLITHIC “GOLDEN MASTER MAC”

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- Make one and clone to all!
- How we all used to do it
- A LOT of work ALL the time (if you want support)
- Support limited to build version of core OS  
<http://support.apple.com/kb/HT1159>
- Inconsistency across image releases
- Requires additional post-configuration

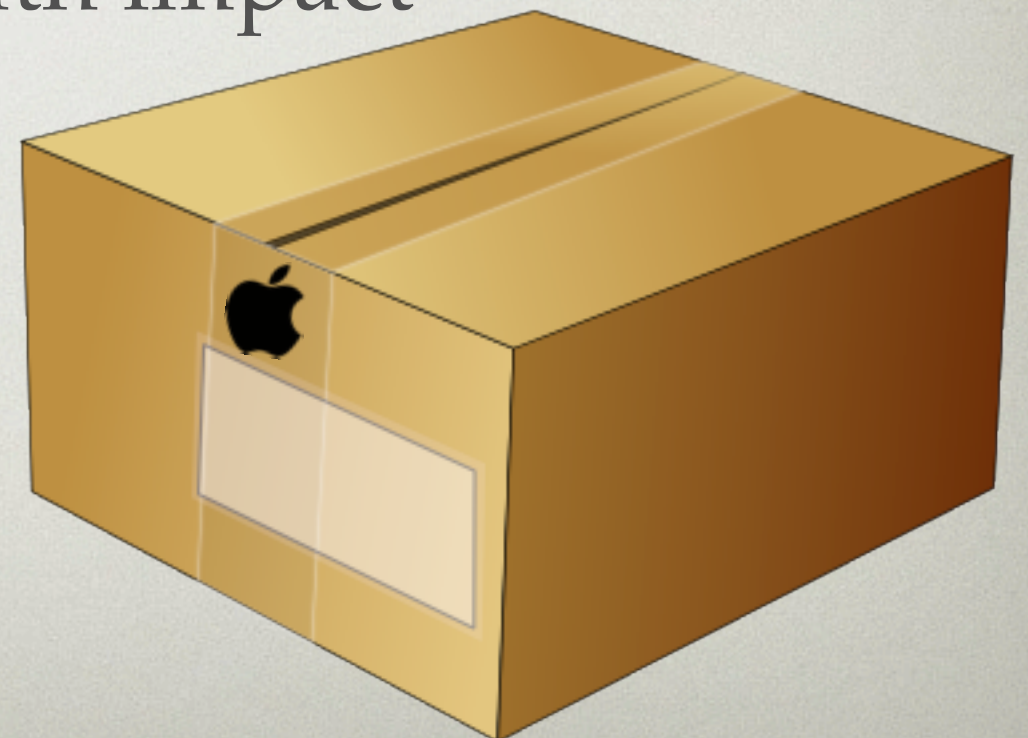




# THIN IMAGING

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- Out-of-the-Box approach
- Reduced time to deploy
- System-specific image need not apply
- Internet restore compatible
- Potential network bandwidth impact
- Human-factor risk
- BYOD “capable”

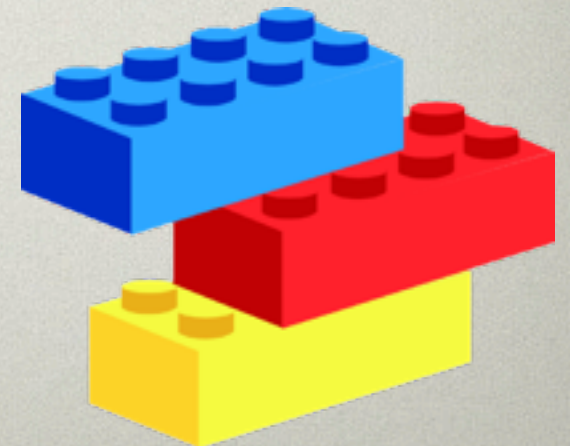




# MODULAR IMAGING

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- “Gotta keep ‘em separated” (OS / Recovery Partition / Applications / Settings)
- Fast to deploy updated image for new Apple hardware
- 3rd Party applications and patches stay current
- Consistent experience across images
- BYOD “capable” as well





# DEPLOYMENT SOLUTIONS

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## Vendor Supported



- **JAMF Casper Suite**

- Inventory, Imaging, Composer, Self-Service, Remote
- NetSUS Appliance (Linux + free)
- MacOS and iOS only

<http://www.jamfsoftware.com>

- **Absolute Manage**

- Cross-platform support (Win, Mac, iOS, Android)

<http://www.absolutemanage.com>

## Open Source



- **Munki**

- Software Deployment, Self-Service
- Reposado (Bye-bye OS X Server)

<https://code.google.com/p/munki/>

<https://github.com/wdas/reposado>

- **Puppet**

- Cross-platform support
- Compares to your defined specifications and deploys accordingly

<http://puppetlabs.com>

Other solutions... FileWave, AirWatch, LANDesk, Tivoli EndPoint Manager...



# HOW WE DEPLOY MACS

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**Endpoints:** 12,000+ Mac clients world-wide

**Management Solution:** JAMF Casper Suite

**Environments:**

- Global Casper Production Environment
- Global Casper Development Environment
- 3 Regional Casper Test Environments

**Servers:**

- 30+ RHEL Virtual Machines
- 20+ Global Distribution Points (Casper Distribution, NetBoot, Resposado)

**Deployment Features:**

- Casper Imaging - “Single” Modular Global Image(s)
- Casper Self-Service - Active Directory Software Targeting for Licensed Software
- Casper Self-Service OS Upgrades



# OUR MODULAR APPROACH

Casper Imaging	Image	Mac OS X Build Image
	Install / Stage	Recovery Partition Image
		Standard Applications
		Post Configuration Frameworks
Casper Policy	First Boot Workflow	Scripted Recovery Partition Deployment
		Install Regularly Patched Utilities and Plug-ins
		Security Settings
First Login Workflow	Gather User Info	
	Populate Casper SMART Groups	
	Apply Regional Customizations	
	Apply User Specific Settings	

Only Hardware / OS Build Specific

- MacBook Air 6,1 6,2 10.8.4
- All Others 10.8.3



# PACKAGING

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- **What?** \*.pkg, \*.mpkg, \*.dmg
- **How?**
  - Casper Composer
  - PackageMaker
  - pkgutil
  - DropDMG
  - Many more...
- **Don't Want To?** Pressure on your vendor or outsource.  
You've got options depending on your organization and your budget.



# TOOLS MOST OF US USE

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- **DeployStudio**

- Heavy-duty imaging software for the Mac that's **FREE**
- Setup and create NetBoot image "environments"
- Workflows for configuration (run scripts, partition drives, install pkgs, copy files/folders, shutdown)
- Requires Mac OS X Server running DeployStudio Server (Assistant, Admin, and Runtime)
- Unlike Carbon Copy Cloner - allows for post configurations steps like renaming the systems and binding them to a directory server

<http://www.deploystudio.com>

<http://deploystudio.com/Doc/Doc.html> (documentation)

- **InstaDMG**

- Creates clean, never-booted, restorable Mac OS X images for deploying Mac OS X
- Uses Apple's native installers, package formats, and disk image frameworks
- Can consolidate the latest OS X updates making your image up-to-date

<http://code.google.com/p/instadm/>

- **createOSXinstallPkg**

- Creates a deployable Mac OS X Lion or Mountain Lion .pkg installer

<https://code.google.com/p/munki/wiki/InstallingOSX>



# MORE TOOLS

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- **Apple Remote Desktop**

- Remote Control / Support
- Package / Script Deployment
- Asset Management

<https://www.apple.com/remotedesktop/>



- **Apple Mac OS X Server**

- File Sharing, Wiki, Profile Manager, Calendar, Contact, and Mail Servers
- NetBoot\* / NetInstall / NetRestore
- Apple Software Update Server

<http://www.apple.com/osx/server/>



- **Apple Command-Line Tools**

- **asr** (Apple Software Restore)
- **hdiutil** (Manipulate Disk Images)
- **diskutil** (Modify, Verify, Repair Local Disks)



<https://developer.apple.com/library/mac/documentation/Darwin/Reference/ManPages/#>



# RESOURCES

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- **Apple-ization of the Enterprise**  
<http://www.enterpriseappleization.com>
- **MacEnterprise**  
<https://groups.google.com/forum/#!forum/macenterprise>
- **AFP548 = Apple IT since 2002**  
<http://www.afp548.com/>
- **JAMF Nation**  
<http://www.jamfnation.com>
- **Krypted = Charles Edge = Well Published**  
<http://www.krypted.com>



# RESOURCES (CONTINUED)

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- **DerFlounder** = Rich Trouton = FileVault  
<http://derflounder.wordpress.com>
- **Managing OS X** = Greg Neagle = Disney  
<http://managingosx.wordpress.com>
- **Apple Deployment Guide**  
[http://images.apple.com/education/docs/l521219b\\_osx\\_deployment\\_guide\\_030513.pdf](http://images.apple.com/education/docs/l521219b_osx_deployment_guide_030513.pdf)



**macbrained.org** -- SF Bay Area Mac and iOS Admin Community

Website <http://www.macbrained.org>

Google+ <https://plus.google.com/u/0/communities/112787048813969399285>

Join [info@macbrained.org](mailto:info@macbrained.org)