

Deployment: From Unknown to Known to Desired

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Common Image

No Imaging

Imaging

Customize

Terminology

Deployment

Thin Imaging

Monolithic

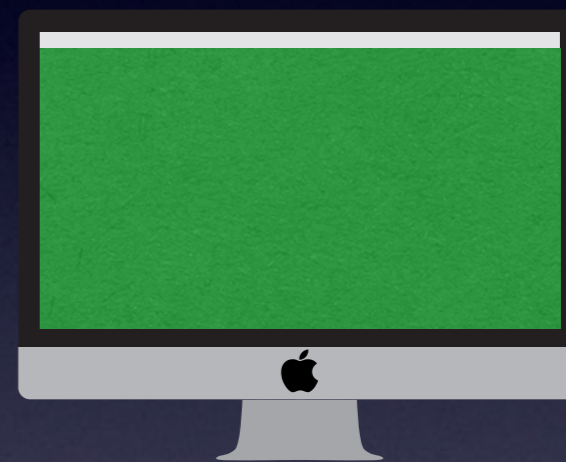
Install Only



Unknown



Known

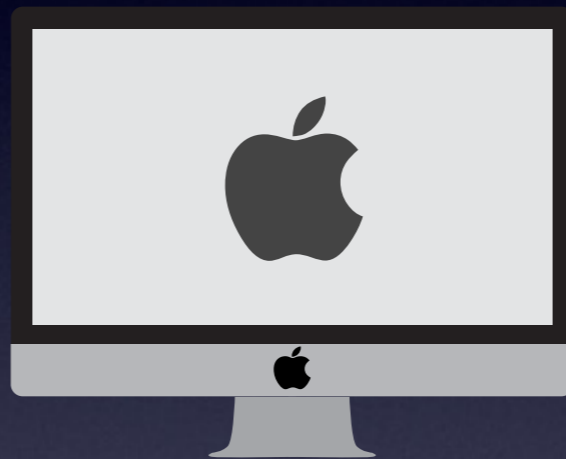
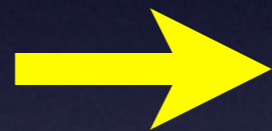


Desired

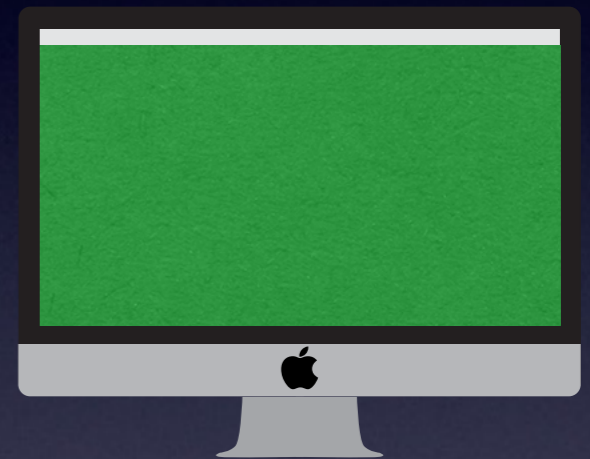
Imaging



Unknown



Known

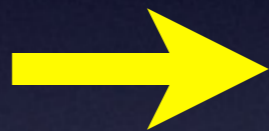


Desired

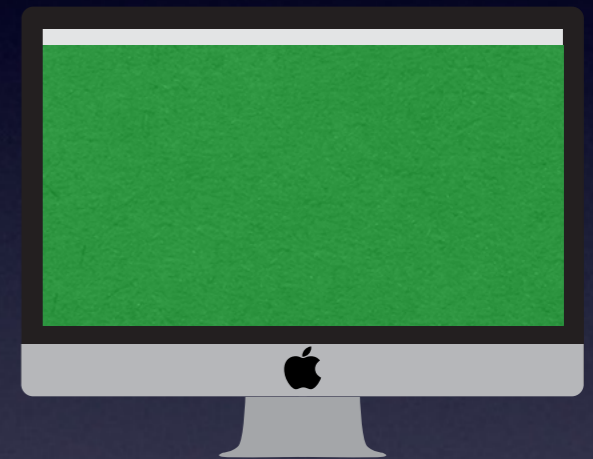
Deployment



Unknown



Known



Desired

Deployment

*Image
Creation*

*Imaging or
Installing OS*

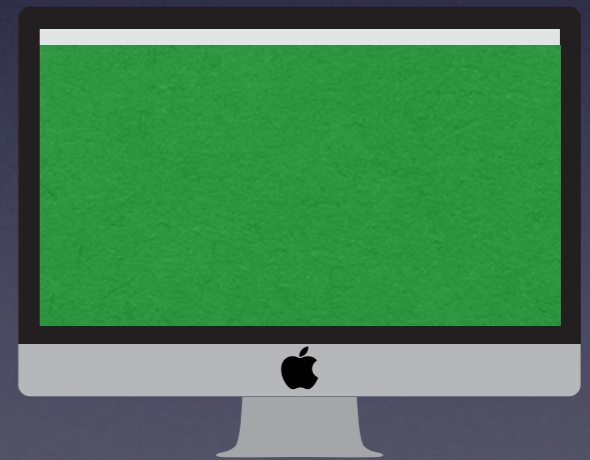
Customizing



Unknown



Known



Desired

Deployment



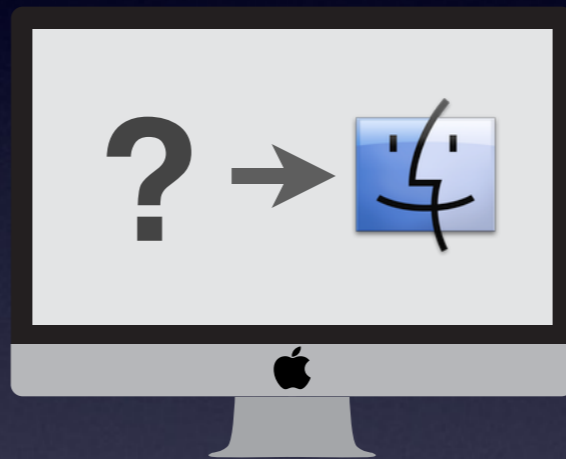
Unknown



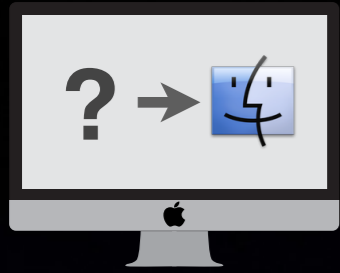
Known



Desired

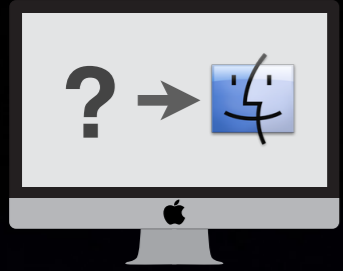


Common Workflows



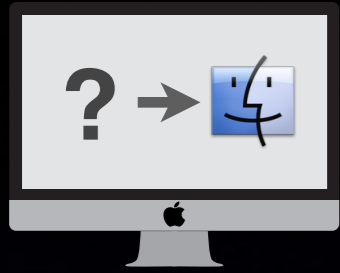
Monolithic Imaging

- Image captured from a "Golden" Mac *or* built modularly
- No (significant) software installed in customizing stage



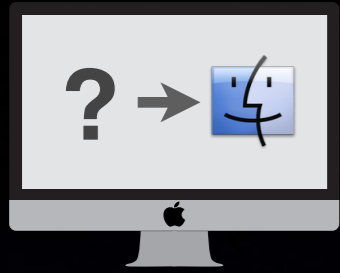
Hybrid Deployment

- Common Image built & installed
- Some software (& settings) installed in customizing stage
 - ▶ *e.g., Adobe CS/CC, Flash*



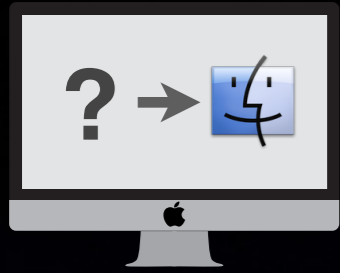
Install Only

- Mac is already in known bootable state (e.g., new in box)
- All software and settings installed in customizing phase
- a.k.a. Customize Only



Erase and Install

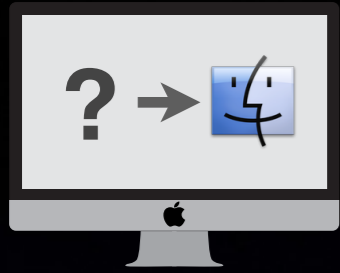
- Mac's bootable state is unknown or undesired
- Erase boot drive and install OS
- All other software and settings installed in customizing phase



Hire a Student

- Same as either Install Only (new Mac) or Erase and Install, but done **manually**
- Use a paper checklist for full effect

But what about...?



Thin Imaging

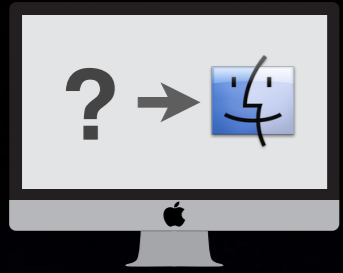
- Minimal Common Image

- ▶ *OS + hooks for auto-installation*

- Small Common Image

- ▶ *OS + maybe an app or two*

- Erase and Install



No Imaging

- ✓ ● Install Only
- ✓ ● Erase and Install

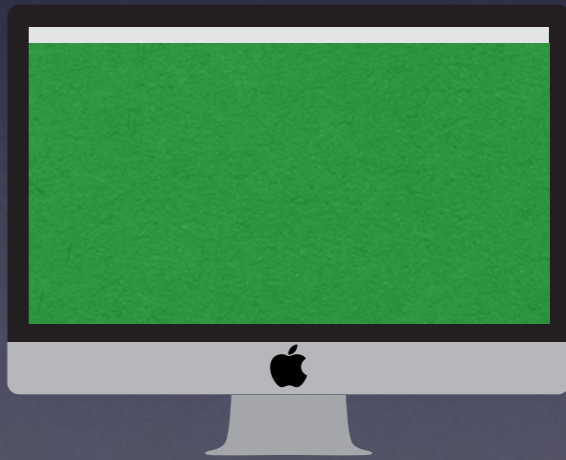
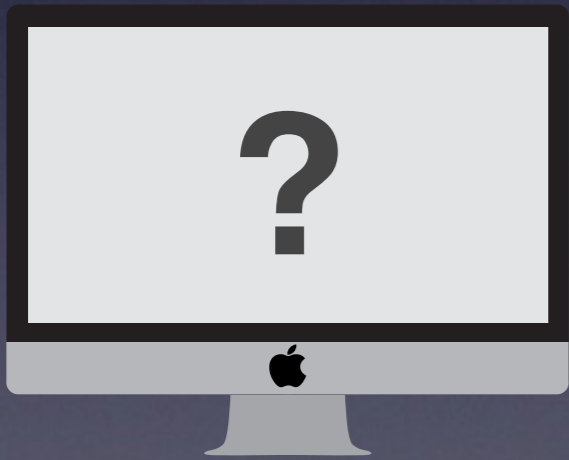
Review for Visual Learners

*Image
Creation*



*Imaging or
Installing OS*

Customizing



Unknown

Known

Desired

Monolithic / Large Common

*Image
Creation*



Imaging

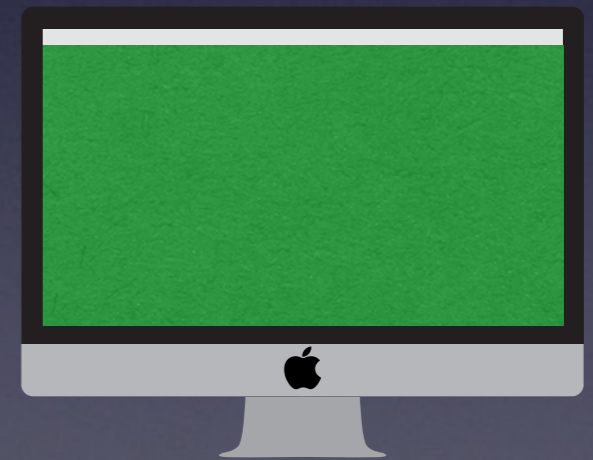
Customizing



Unknown

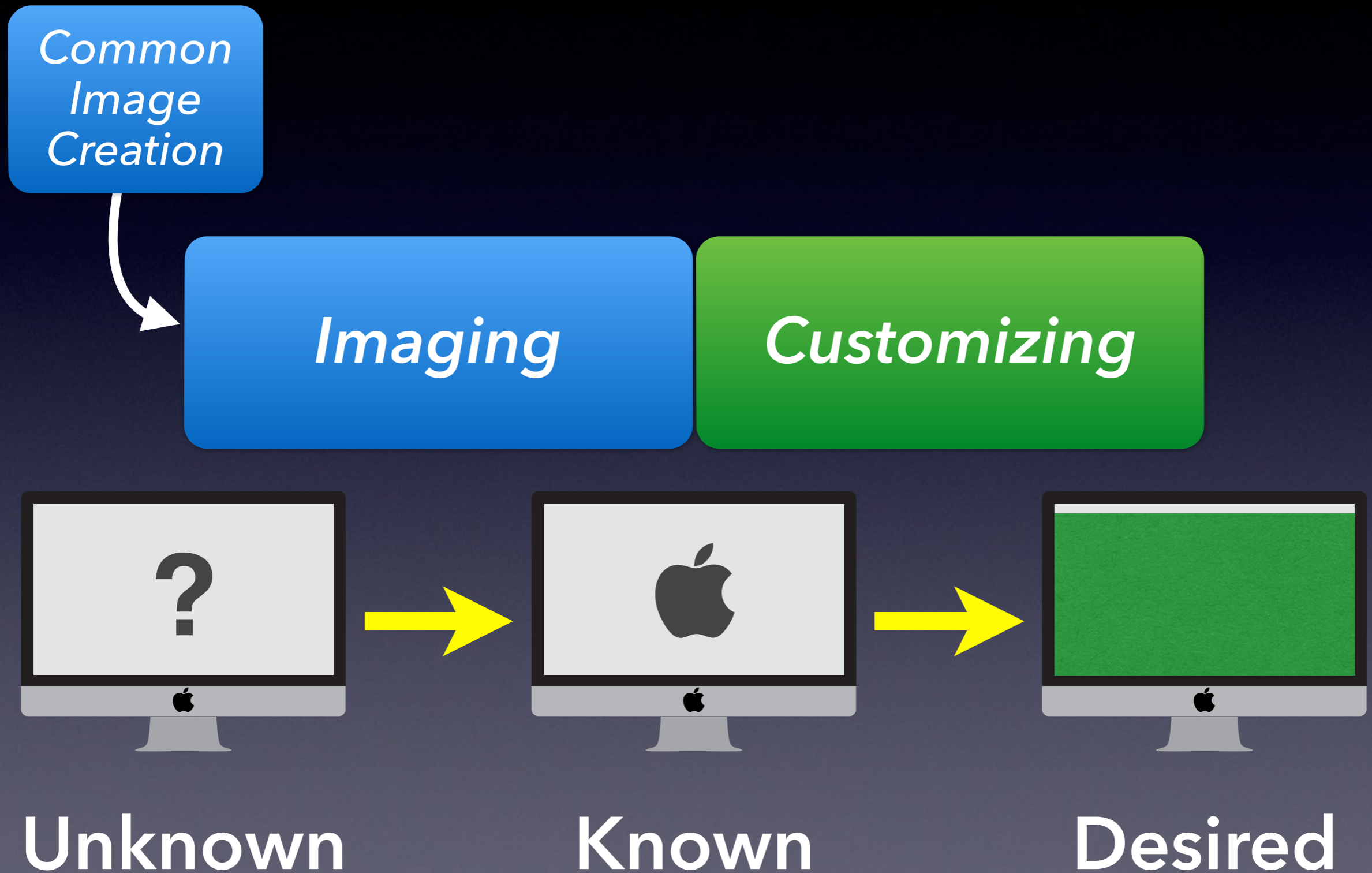


Known

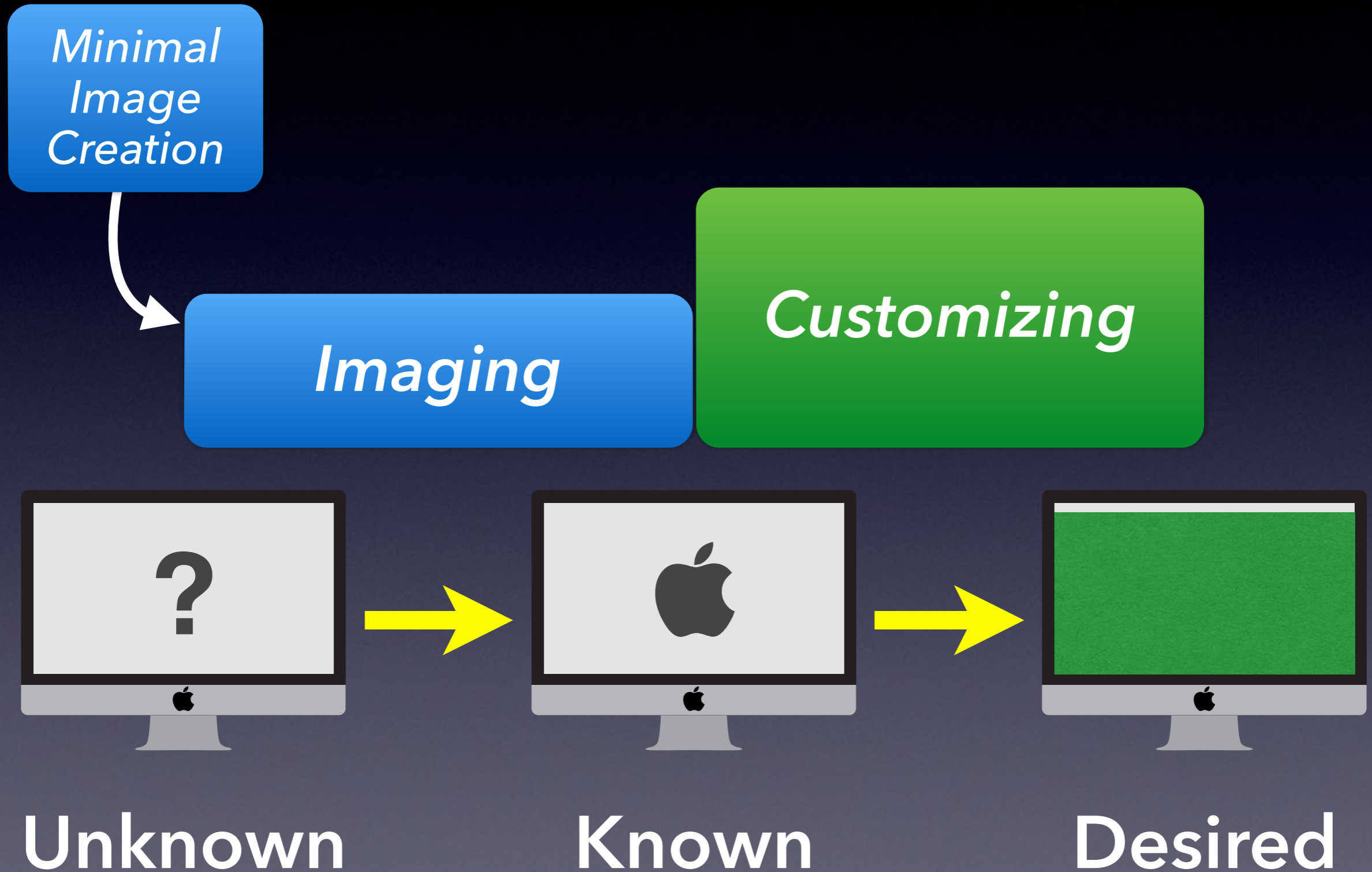


Desired

Hybrid / Common



Thin / Minimal Common



Erase & Install

Customizing

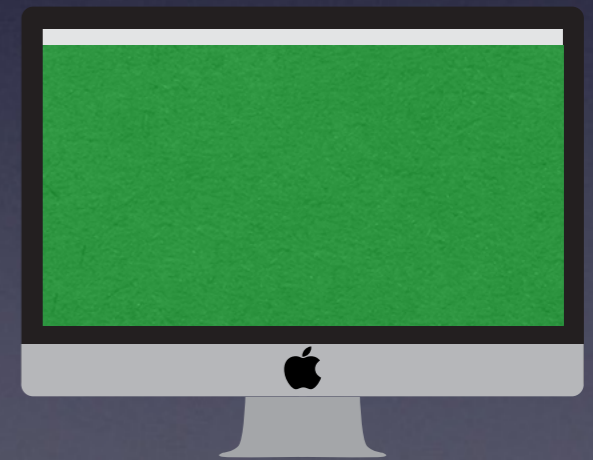
*Installing OS
on erased drive*



Unknown



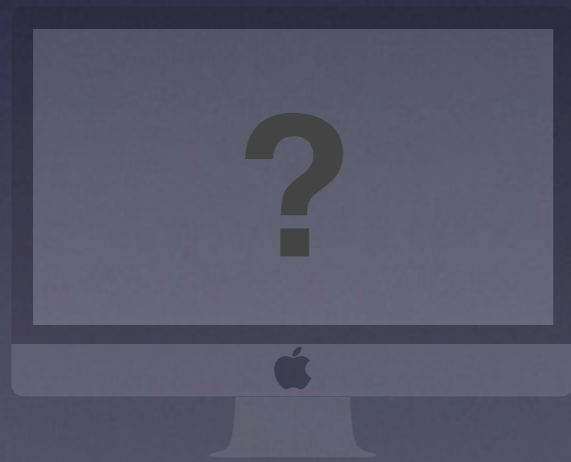
Known



Desired

Install Only

Customizing



Unknown



Known



Desired

Choosing the Right Deployment Method and Workflow

MacDeployment 2014



**Variables
to Consider**



Variables

- Scale
- Resources
- Control
- Target Hardware



Scale

- Number of computers
 - ▶ *Automate more vital as numbers grow*
- Size of payload
 - ▶ *related to network speed / turnaround time*
- Consistency of payload
 - ▶ *Less consistent = more delivered through Customizing stage*



Resources

- Hardware & Software

- ▶ *Network (speed, capacity)*
- ▶ *NetBoot Server and/or Web Server*
- ▶ *Bootable Drives / Volumes*
- ▶ *Commercial (& Free/Open) Software*

- Human

- ▶ *Number*
- ▶ *Skill Level*
- ▶ *Time*



Control

- Level of Control

- ▶ *Fully Controlled (e.g., Labs)*
- ▶ *Partially Controlled (e.g., office/individual)*
- ▶ *Not Controlled (BYOD, staff helps)*

- Physical Location

- ▶ *Proximity*
- ▶ *Variable or Fixed*



Target Hardware

- Capabilities

- ▶ *Ports & Interfaces*

- Hardware Consistency

- ▶ *Homogenous or Mixed*

- ▶ *Laptop or Desktop (or both)*

Imaging

Installing



Speed

Flexibility



Keep Current



**What's the Right
Workflow?**

A: No Imaging*

Erase and Install *or* Install Only

* unless certain variables suggest a different workflow

A: No Imaging*

Erase and Install *or* Install Only

* unless certain variables suggest a different workflow



Why Install (^image)?

- Mimics the way users would configure a Mac (*but automated*)
- Easy to maintain (*once implemented*)
- Self-documenting
- Custom OS builds not a problem
- Don't need to wipe a Mac to start managing it (*BYOD*)

Are there **tools** that
help me enter this
brave new world?



DeployStudio

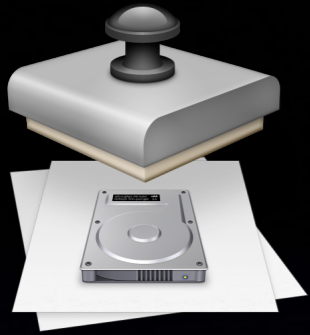
▶ www.deploystudio.com

- Erase & Install, Install Only

- ▶ *Packages (including OS*), settings, shell scripts, files*

- ▶ *Workflows can reference other workflows (1 level deep)*

- ▶ *Station-specific and general configuration*



System Image Utility

- ▶ */System/Library/Core Services/ (10.8 & later)*
- ▶ *Server Admin Tools (10.7 & earlier)*
- **Install Only (via NetInstall)**
 - ▶ *Upgrade an in-place OS or Install on an erased drive*
 - ▶ *Build a custom OS Installer with your packages*
 - ▶ *Can allow user to select which packages to install just like with normal installers*



Apple Remote Desktop

- ▶ *App Store or VPP*
- Customizing – “manual”
 - ▶ *Packages, files, apps, UNIX commands*
 - ▶ *Install on live (booted) machine*



Munki

- ▶ code.google.com/p/munki/

- Customizing

- ▶ *Built for maintenance of Macs*

- ▶ *Install Munki hooks onto known bootable Mac and then Munki does the rest on next boot*

- CreateOSXinstallPkg

- ▶ code.google.com/p/munki/wiki/InstallingOSX

- ▶ *Converts OS installer into a package*



Casper Suite

▶ www.jamfsoftware.com/products/casper-suite/

- Erase & Install, Install Only



Absolute Manage

▶ www.absolute.com/en/products/absolute-manage

- Erase & Install, Install Only

Patchoo

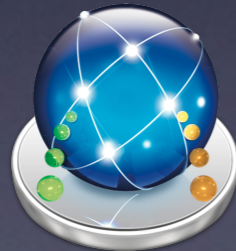
- ▶ *patchoo.github.io/patchoo/*

- Customizing

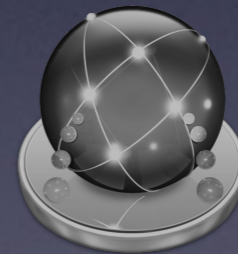
- ▶ *Munki-like functionality for Casper Suite*

Can these tools also
do ~~the dishes~~?
maintenance

Customizing Tools



Maintenance Tools



A: No Imaging*

Erase and Install *or* Install Only

* unless certain variables suggest a different workflow



Why Common Image?

- You have to deploy OS ≤ 10.6
- "Nuke & Pave" regularly

More important as payload grows

- Rapid restoration a requirement
- Network restrictions



Why Not Capture a "Golden" Mac?

- Cruft can creep in over time
- Uninstalling is hard
- One bad apple...
- "How did we do that?"
- Redundant work if multiple images required



Why Do Admins Still Capture "Golden" Macs?

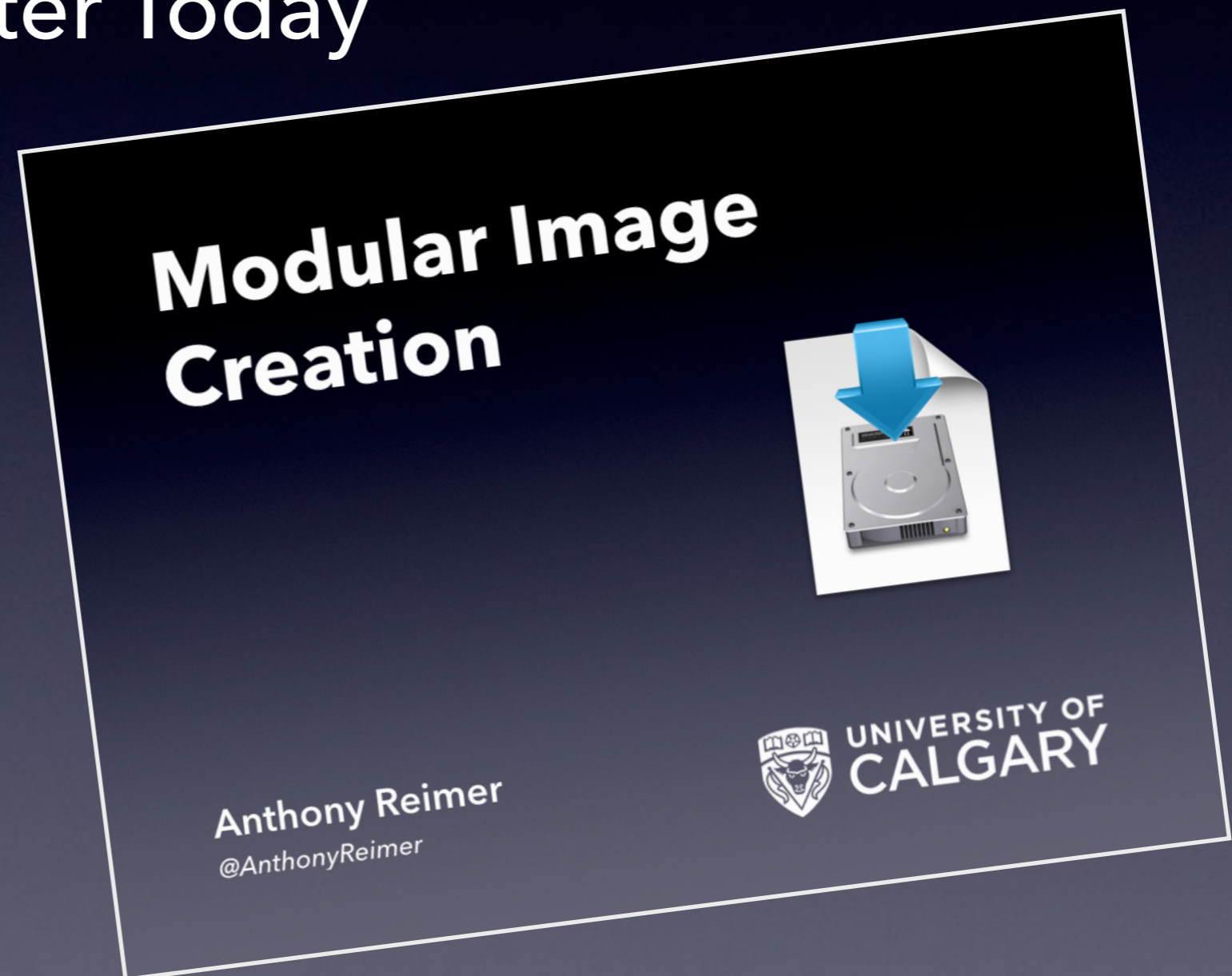
- Don't know another way
- It still works
- Lack of technical skill
- The last 5% (of other methods) is hard
- "We're out of time!"

You're here today!



Modular Image Creation

- Later Today



**How do you deliver
the goods?**

Boot From	Payload From
NetBoot Image NBI on External Drive Reg. OS on External Drive	NetBoot Server Another Server External Drive

Boot From



and From

NetBoot Image

NetBoot Server

NBI on External Drive

Another Server

Reg. OS on External Drive

External Drive

Boot From

Payload From

NetBoot Image

NBI on External Drive

Reg. OS on External Drive

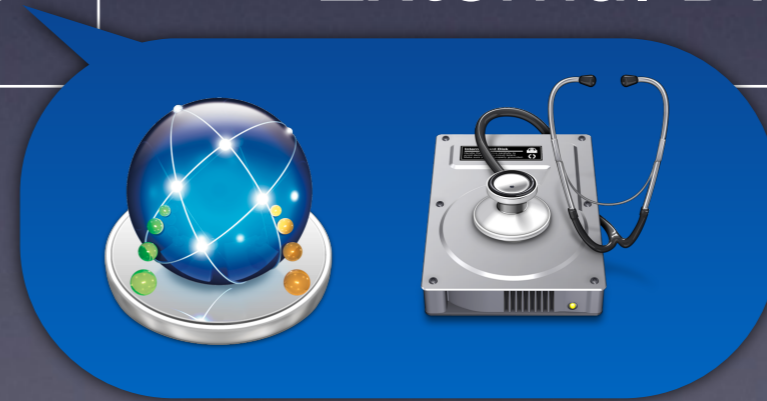


Server

Another Server

External Drive

Boot From	Payload From
NetBoot Image NBI on External Drive Reg. OS on External Drive	NetBoot Server Another Server External Drive



Boot From	Payload From
NetBoot Image NBI on External Drive Reg. OS on External Drive	NetBoot Server Another Server External Drive



System Image Utility

Boot From	Payload From
NetBoot Image	NetBoot Server
NBI on External Drive	Another Server
Reg. OS on External Drive	External Drive



DeployStudio

Boot From	Payload From
NetBoot Image	NetBoot Server
NBI on External Drive	Another Server
Reg. OS on External Drive	External Drive



Munki (via DeployStudio)

Boot From	Payload From
NetBoot Image	NetBoot Server
NBI on External Drive	Another Server
Reg. OS on External Drive	External Drive



Case Studies



Case Studies

- Control
- Scale
- Resources
- Target Hardware
- Workflow used
- Software used

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