NetBoot Fundamentals and Customizations

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Quick Audience Survey

• Who’s new to Mac systems imaging and deployment?

• Who has used NetBoot before?
Overview
What is NetBoot?

- A system to boot Macs over the network
- Does not require use of Mac’s internal disk
- Built around network protocols, files and folder structures
Benefits of NetBoot

- No physical media required
- Install OS X on all Macs in small lab using one server based image
- Boot from identical master lab image, maintained in single place
- Booting third party system imaging and diagnostics
Challenges for NetBoot

- Your networks must be very robust
- NetBooting across subnets is possible, with some work and tinkering
- Can be slow for some tasks
System Requirements

- You are the server admin
- Familiar with your Network Setup and DHCP
- 100 Mb or faster wired switched networks
  - 1000 Mb (1 Gb) if more than 50 Macs
- You have Mac OS X Lion Server, right? ;-}
System Requirements

- Any Intel Mac, At least 512 MB of RAM
- Built-in Ethernet connections
- Apply latest firmware updates*
Getting Started
Download and Install Apple’s Server Admin Tools for Lion, which you will need for:

- **System Image Utility**
  - To Create your NetBoot Image(s)
- **Server Admin**
  - To Config & Enable NetBoot Service
System Image Utility

- Creates the NetBoot, NetInstall, and NetRestore disk images
- Create workflows for different customized images
SIU Images Types

- **NetBoot**
  - Boot from a server based image

- **NetInstall**
  - Installs Mac OS X over network

- **NetRestore**
  - Restores volume over the network from ASR disk image
NetBoot

- Requires existing OS X Bootable Volume
- Useful for:
  - Small Labs with exact same setup
  - Third party imaging tools
- Essentially full Mac OS X experience, Finder and all
SIU NetBoot Steps

- Select already configured Mac Volume
- Select **NetBoot Image**
SIU NetBoot Steps

- **Network Disk** is what clients will see
- Enter **Description** for your own eyes
SIU NetBoot Steps

- Process images selected volume, creates NetBoot wrapper OS
- Copy created .nbi to your Server’s NetBootSPn folder
NetInstall

- Boots up to Lion Mac OS X Utilities, just like booting from the Recovery HD Volume
  - Restore from Time Machine, Reinstall Lion, run Disk Utility
- Can be modified with additional workflows
  - Partition Disk, Install additional packages
- Great for upgrading existing Macs to Lion
SIU NetInstall Steps

- Select Lion Installer,
- Select NetInstall Image
- Enter Network Name, Description, Save location, and WAIT...
NetRestore

- Use **Install Mac OS X Lion** to create pristine OS Install
- Beware (10.7.3) “Package Apocalypse” Issue
- Workaround: Change system clock to 2/1/2012
- [http://tinyurl.com/pkg-exp-certs](http://tinyurl.com/pkg-exp-certs)
- Or restore image of golden master Mac
SIU NetRestore Steps

- Select Lab Mac,
- Select NetRestore Image,
- Enter Network Name, Description, Save location, and WAIT...
Server Admin

- Enable and configure NetBoot Service
- Select Default NetBoot Image
- Configure filters for access to images
Add NetBoot Service

- Click +, Add Service...
- Select NetBoot,
- Save
Configure NetBoot Service

- Select Ethernet interface,
- Specify locations for Images and Client Data
Configure NetBoot Service

- Enable Images
- Set Default
- Diskless Option
  - Will not use any local Volumes
- Start NetBoot
Customizations
Customization Methods

- Two ways to customize
  - System Image Utility workflows
  - Customizing existing NeBoot images
SIU Workflows
SIU Workflows

- Uses Automator
- Add actions
  - Create new user account,
  - Post Install Packages/Scripts,
  - Partition Disk,
  - And More ...
SIU Workflows

- Automator Library Actions

Add Configuration Profiles

This action adds configuration profiles to a Network Disk image.

Requires: A Mac OS X install source.
Input: Network Disk image reference
Result: Network Disk image reference
Related Actions: Apply System Configuration Settings, Create Image, Define Image Source

Version: 1.0
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SIU Workflows

- Must start with the “Define Image Source” action, and end with the “Create Image” action.
- Actions in a workflow must be connected.
Custom NetRestore Example

- Create two partitions,
- Add package installer,
- Enable automated installation
- Demo!
Modifying NetBoot Images

- Existing NetBoot Images can be continually modified and updated
- Boot Mac with NetBoot Image, capture changes with FSEventer
- Copy changed files back to master NetBoot Image
- Demo!
NetBooting the Client
How To NetBoot Client Mac

- Hold “N” Key on power up, OR ...
- Use /usr/sbin/bless command to NetBoot on restart:
  - Specific Server
    - bless --netboot --server bsdp://192.168.1.88 --nextonly
  - Broadcast for NetBoot Server
    - bless -netboot -server bsdp://255.255.255.255 --nextonly
Mac NetBoot Disk Selection

- **OPTION** Key at Power Up for Boot Picker
Tips and Tricks

- Enable ARD on your custom NetBoot Images
- Troubleshooting NetBoot Docs
Q & A

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