



Home Directories / Account Mgmt / Load Planning

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User Account Management

Three basic user account types

- Local account with local homedir
 - Pro—network independent, high performance
 - Con—difficult to manage en mass
- Network account with network homedir
 - Pro—easily managed remotely
 - Con—network traffic hog
- Mobile account
 - Pro—best of both worlds
 - Con—“rabbit effect”



Local Accounts w/ local homes +/-

- Benefits
 - Simple to set up for bulk imaging
 - Not dependent on network management
 - Network traffic limited to actual application usage, i.e. browser use
 - Works with pretty much any application set
- Downside
 - Impossible to log unique usage ("Student logged in at 1:15pm....")
 - MCX limited to generic control - computer/workgroup
 - If local MCX admin used, requires extraordinary effort to alter
- Works best for:
 - Small deployments with limited server infrastructure
 - Pure, shared portable carts where wireless bandwidth is limited
 - Loaner systems with short lifecycles



Network Accounts w/ network homes +/-

- Benefits
 - Easily managed for large deployments
 - System becomes commodity, replaceable without user impact
 - User tracking information is readily available
- Downside
 - Application performance is often wretched
 - Network traffic can be overwhelming
 - Offline usage is impossible - requires reversion to local account(or mobile)
- Works best for:
 - High bandwidth, basic use environments, i.e. NetBoot
 - Fixed station shared systems - Libraries, open labs



Mobile Accounts w/ Portable Homes +/-

- Benefits
 - Local traffic with network management
 - Applications behave well
 - Offline usage is easily supported
 - With PHD sync, systems can be shared
- Downside
 - “Rabbit Effect” - excessive spawned accounts across systems
 - PHD sync needs careful tuning
 - First time logins can be problematic
- Works best for:
 - 1-1 deployments
 - Individual systems (expanded 1-1 concept)
 - Shared systems on strong network



Mobile Accounts Are More Than 1:1's

- Use mobile accounts when
 - Load on home directory is critical
 - System is often user's only computer
 - Network traffic needs to be minimized
 - Computer is often off-net
- Mobile accounts can work in
 - Staff/faculty desktops
 - Temporary use systems
 - NetBoot environments
 - Shared computer labs (training / common use)



Directory Information

Account data sync

Basic Advanced Groups Home Mail Print Quota Info Windows Inspector		
Filter: <input type="text"/> Record Size: 4.70 KB		
Name	Size	Value
AppleMetaNodeLocation	17 bytes	/LDAPv3/127.0.0.1
▶ AuthenticationAuthority(2)	837 bytes	;ApplePasswordServer;
GeneratedUID	36 bytes	F82066D6-E152-4C3F-91A2-
HomeDirectory	79 bytes	<home_dir> <url>afp://
Keywords	7 bytes	primary
LastName	2 bytes	99
MCXFlags	283 bytes	<?xml version="1.0" encoding="UTF-
▶ MCXSettings(2)	3.29 KB	<?xml version="1.0" encoding="UTF-
NFSHomeDirectory	42 bytes	/Network/Servers/pserve2.local/Users
Password	8 bytes	*****
Picture	28 bytes	/Library/UserPics/johnd.tiff
PrimaryGroupID	2 bytes	20
RealName	12 bytes	DeTroye John
▶ RecordName(2)	17 bytes	johnd
RecordType	23 bytes	dsRecTypeStandard:Users

Options... Edit... New Value... New Attribute...

Network Directory (OpenLDAP)

Property	Value(s)
original_node_name	/LDAPv3/pserve1.apple.edu
▶ name	(johnd, DeTroye John)
mcx_flags	<?xml version="1.0" encoding="UTF...
home	/Users/johnd
▶ original_authentication_authority	(;ApplePasswordServer;0x427ed4200...
authentication_authority	;LocalCachedUser;/LDAPv3/pserve1....
passwd	*****
lastname	99
_writers_picture	johnd
realname	DeTroye John
uid	10125
original_home	/Network/Servers/pserve2.local/User...
▶ preserved_attributes	(dsAttrTypeStandard:AuthenticationA...
shell	/bin/bash
generateduid	F82066D6-E152-4C3F-91A2-B018E...
gid	20
mcx_settings	(<?xml version="1.0" encoding="UTF...
original_home_loc	<home_dir> <url>afp://pserve2.appl...
copy_timestamp	2005-05-22T20:43:41Z
picture	/Library/UserPics/johnd.tiff

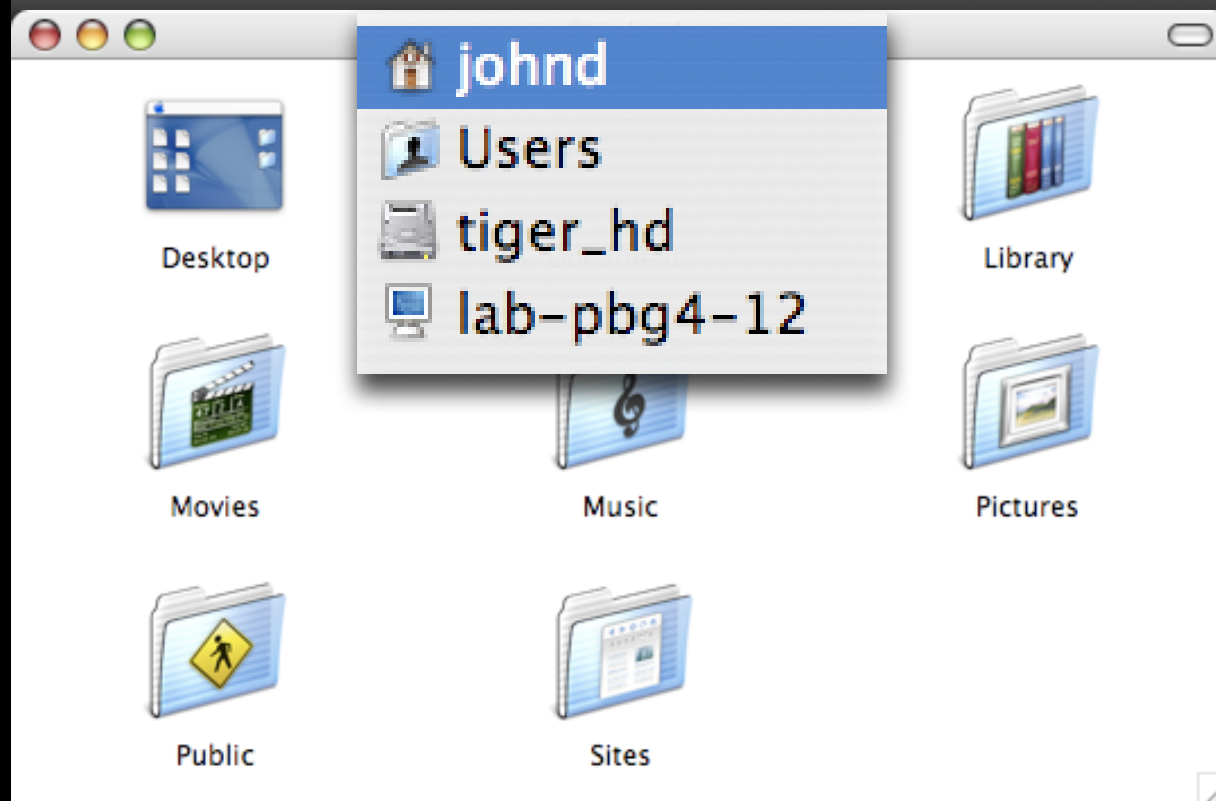
Local Directory (NetInfo)



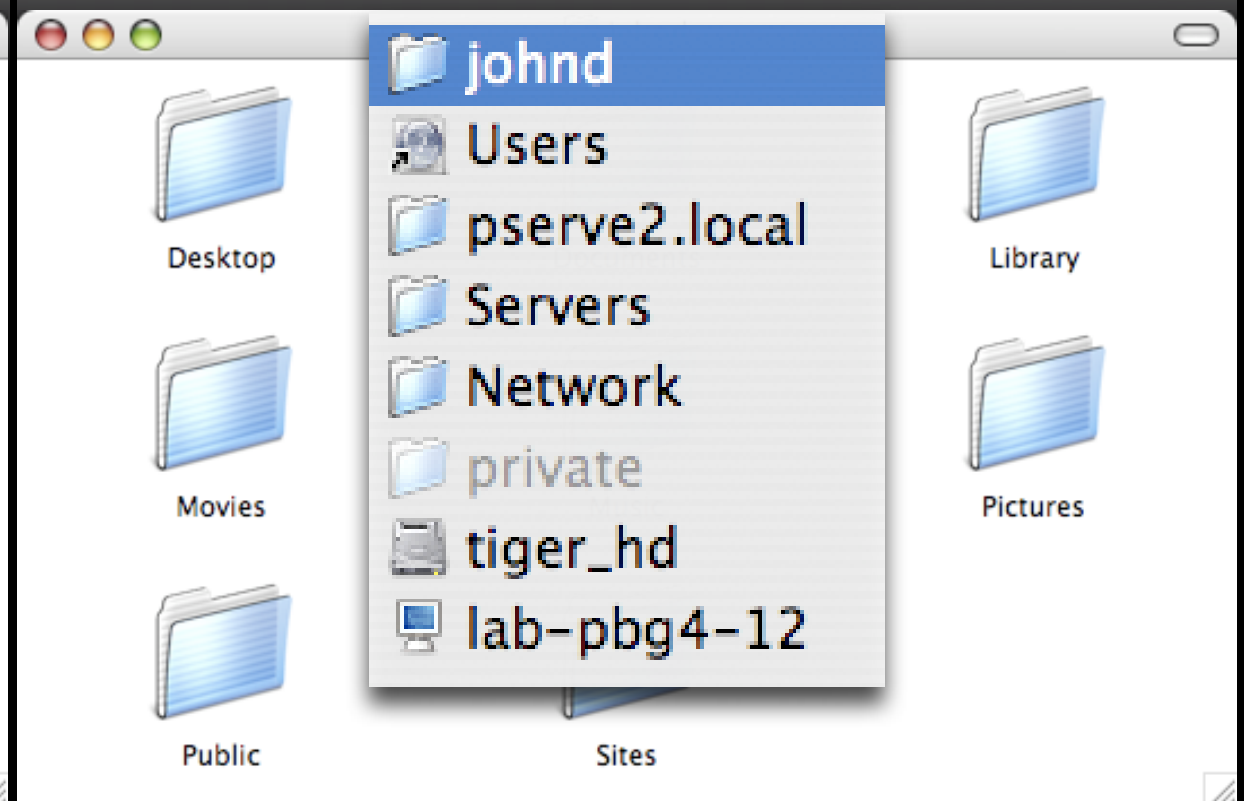
Mobile Account Home Directories

Local and Network home directories

User's local home is created in /Users



User's Network home is mounted in /Volumes



Portable Home Directories

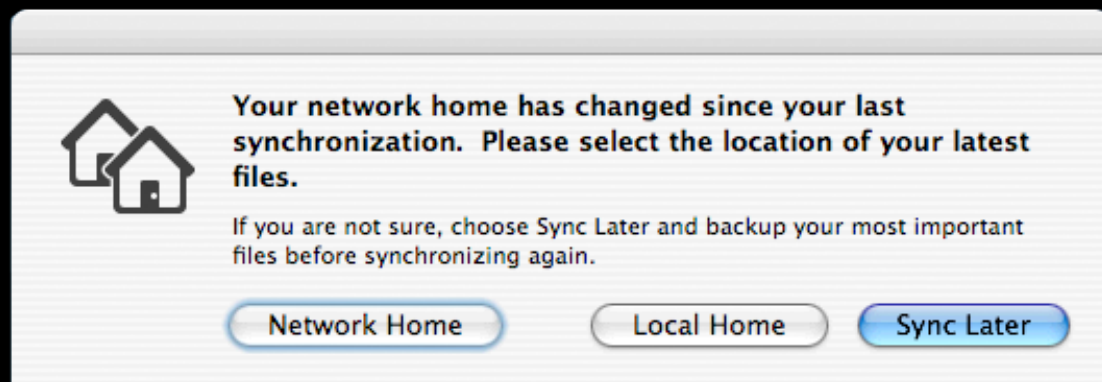
Tiger feature - not in Panther

- Mobile account limitation under Panther
 - Account sync—not document sync
- Customer requirement
 - “I need my users’ work preserved / backed up / maintained...”
- Mobile account with Portable Home Directory
 - Establish file level synchronization between local and network homedir
 - Allow for filtering of undesirable files / folders
 - Make it flexible—login/logout and/or background sync
 - Allow for on-demand sync



PHD Logic

2-way sync using same engine as iDisk sync

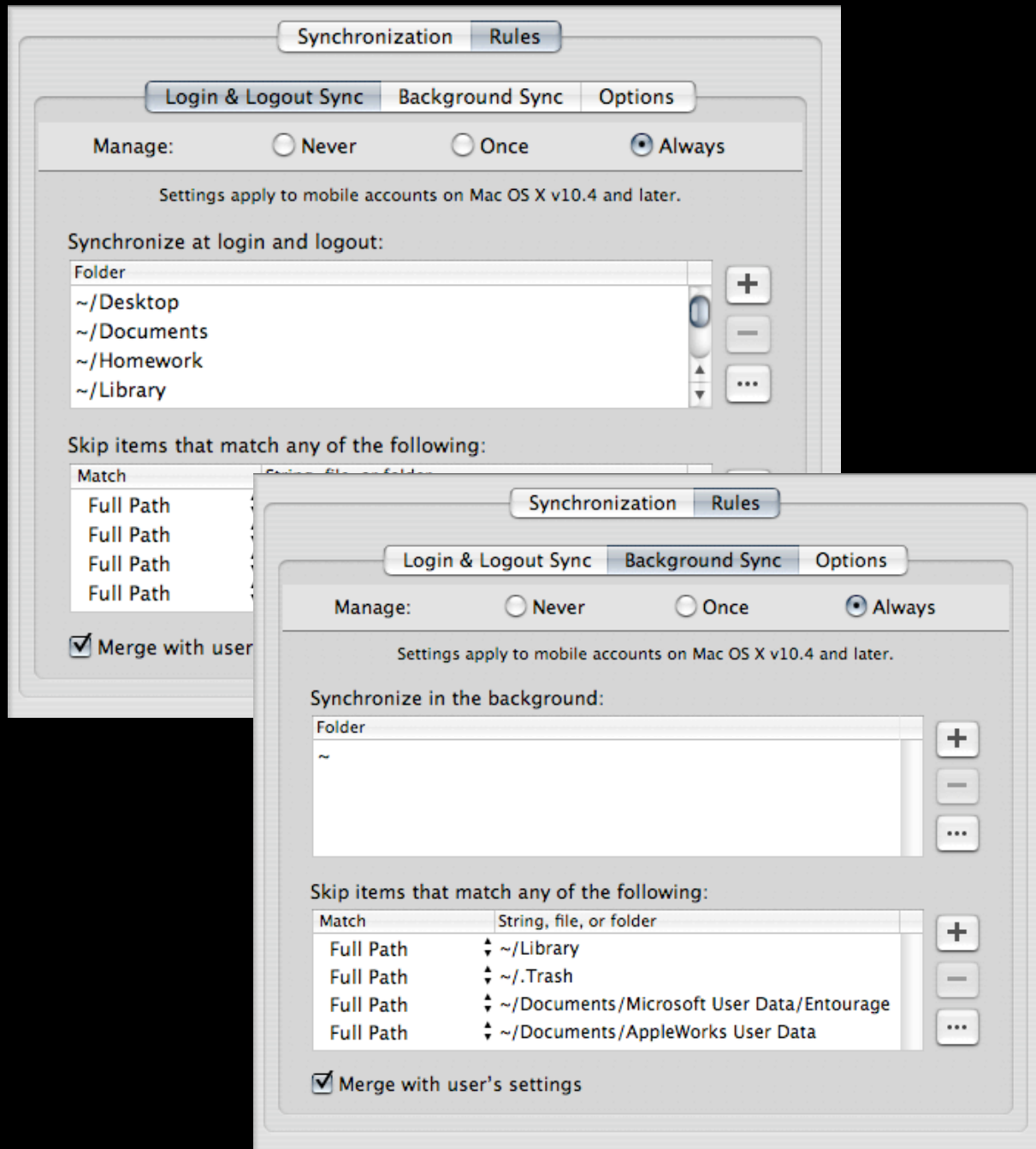


- Create a db of all files in user's home directory at both locations
- At sync, compare file datetime stamps
- Synchronize allowed files to maintain most current items
- Provide for key out of bounds cases
 - User changes local system
 - Users drops back to using network home



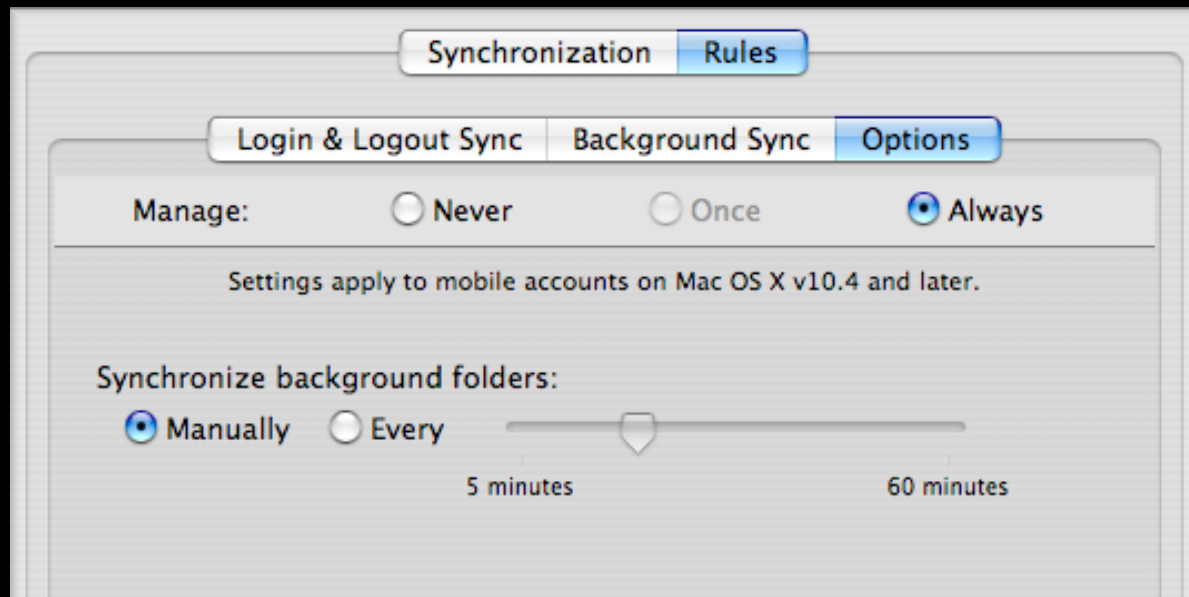
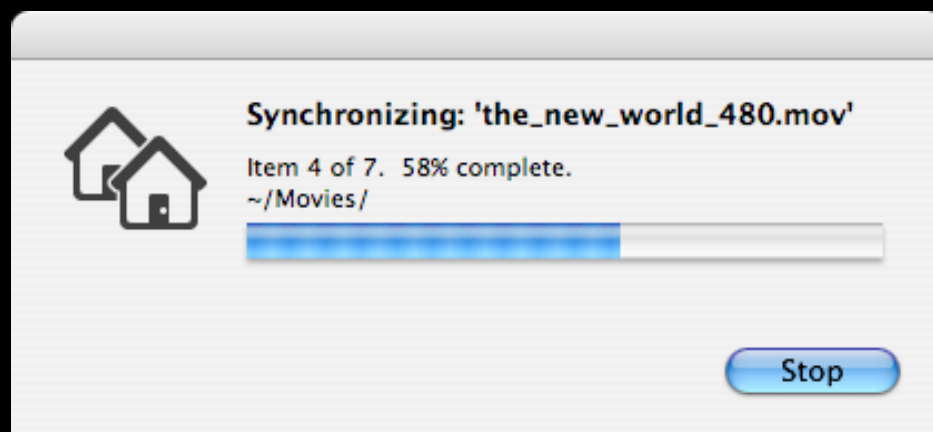
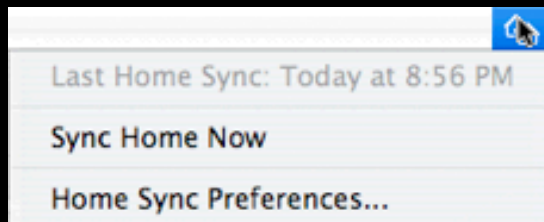
PHD Options

- Folder based sync with filters
- Login / Logout sync
- Background (periodic) sync
- Supports rule-based filters
 - Path names (folders)
 - File names (files)
 - Case sensitive filtering
.MP3 ≠ .mp3



Optional Sync Settings

- Applies to background sync
- Option to set for manual or periodic syncing
- Choose based on user behavior, network, and time allowance



Sync Policies and PHDs

- Login/Logout sync needed to set up ~/Library
 - User's preferences, bookmarks, Mail
 - iPhoto and iTunes
 - Music and Pictures are outside ~/Library
 - Album and Playlist definitions are inside ~/Library
- Sync process can become network intensive
- Workflow should determine filter and folder settings
- Multiple sync settings can be created by using group / computer accounts
 - Sync only certain folders when users are in restricted areas
 - Sync everything in more open settings
 - Manual sync when background sync might interfere with application





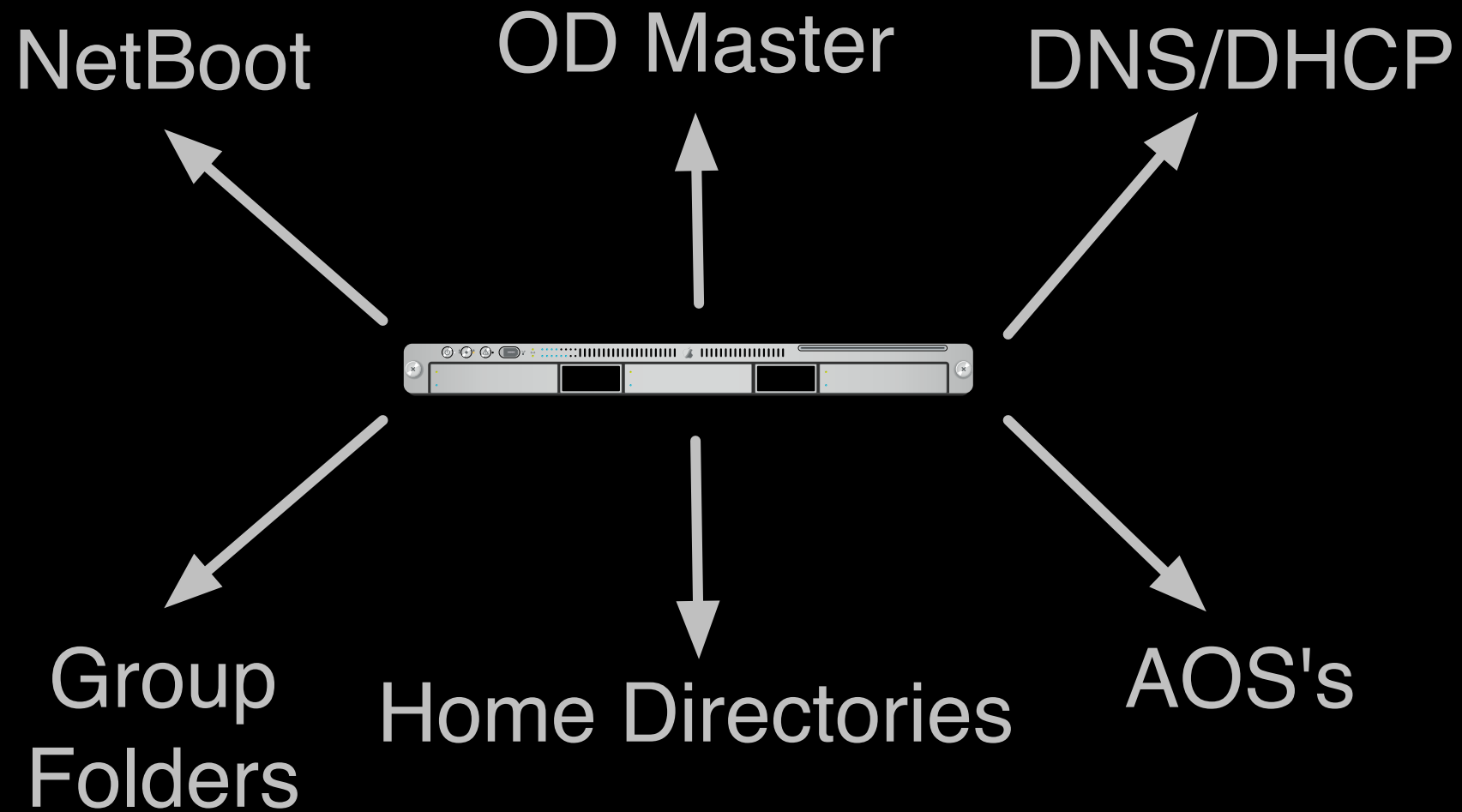
PHD demo



Server Load Planning Basics

The way we tend to plan

"We can make do with one server..."



Reality Check

The way we should look at servers

- Dedicated services - gets its own server
 - Mail
 - Web
 - Streaming / QTSS
 - Collaboration / Chat
 - Home Directories
- Shared services - depends on load and need
 - DNS / DHCP
 - Software Update
 - Common / group sharepoints
 - Open Directory



Looking at some numbers

Having only one server isn't a goal

- Open Directory
 - One ODM server per 900 concurrent logins, add replicas
- Common / group sharepoints (afp)
 - One server per 450 concurrent connections
- Home Directories
 - "Pure" network homes - one server per 150 concurrent connections
 - Portable Home Directories - one server per 300 concurrent connections
- Storage
 - Don't set quotas without a user workflow analysis (common IT failure)
 - Teachers/students can easily create 10-40Gb of material in a year
(Remember the iLife suite load plus the school's need to journal work)



Workflow - plan for it

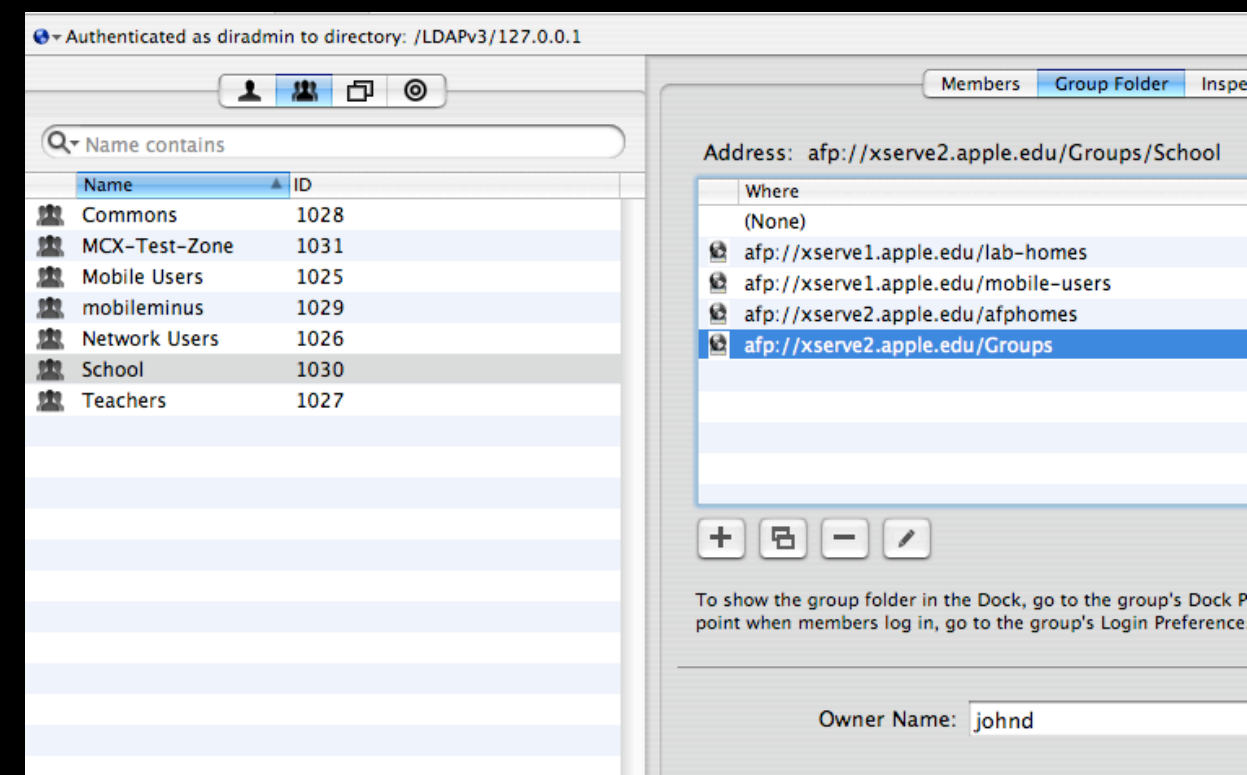
Don't react to need after the deployment

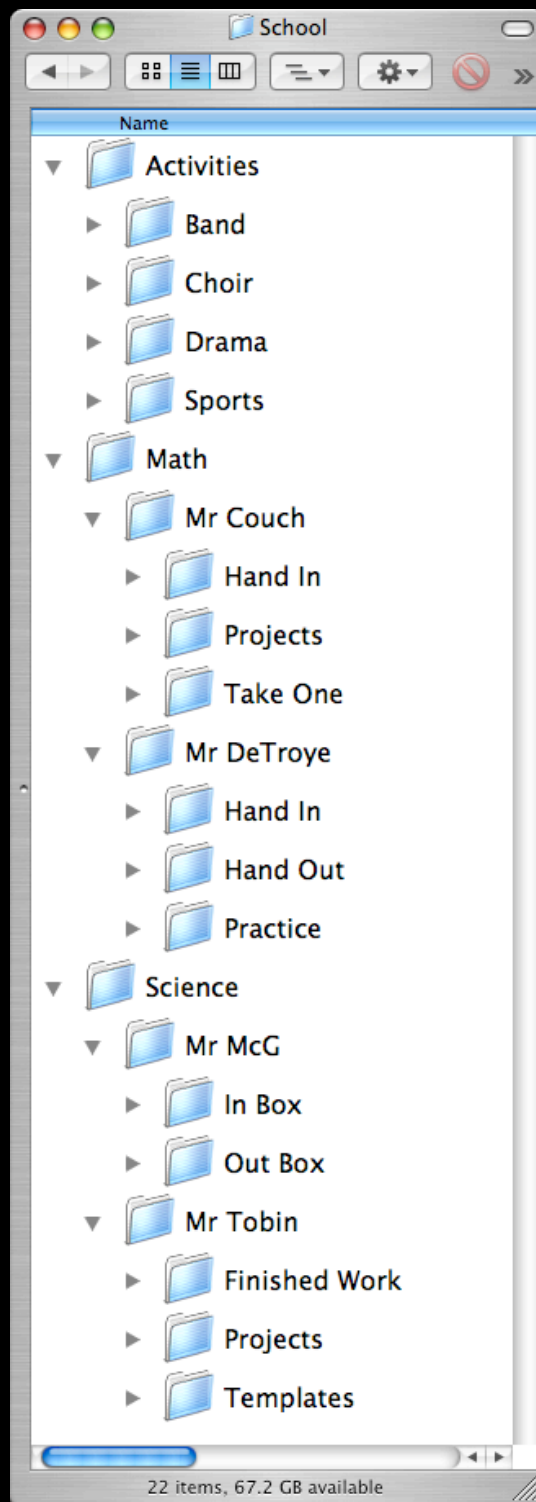
- Using teachers' home directories for hand-in/hand-out is a Bad Idea™
- Group projects - history, science, math, language arts,
- Shared databases - math, language arts, science
 - Type To Learn
 - Key Skills (Math)
 - GoSolve (Math)
- Basic hand-in and hand-out folders
- School projects - yearbook, newsletter,
- Future planning - blogs, wikis, podcasts



The little understood (work)group folder

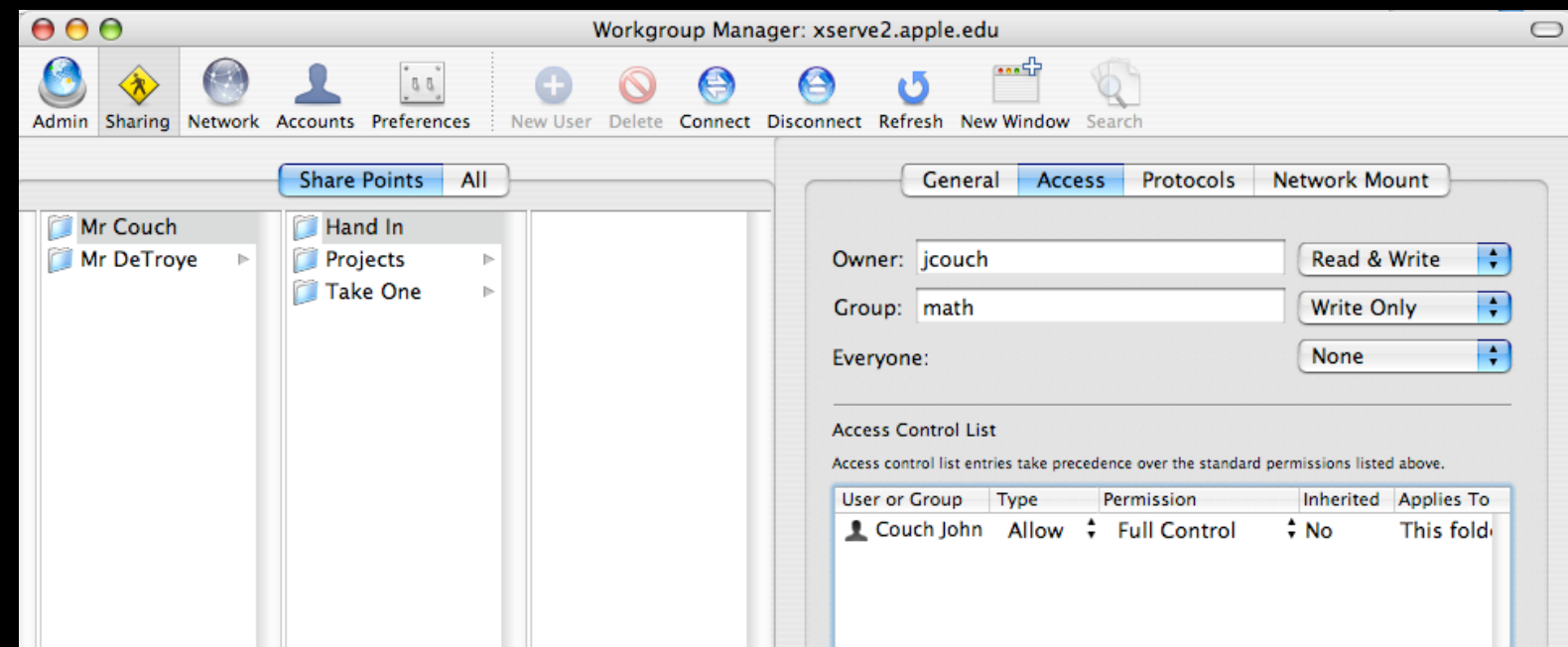
- Education demands electronic document workflow
- A group folder is not dependent on managed client
- Group folder(s) are infinitely modifiable
- Default group folder structure:
 - Documents
 - Library
 - Public (with Dropbox)
- Change it any way you desire!
 - Curriculum folders
 - Staff / admin / student folders
 - Special activities
 - Multiple sets belonging to different groups





Group Folder redo

- Use ACL's to set special access
 - Read/write without delete
 - Multiple access Dropboxes
- Pull many groups together into one
 - Build a tiered structure
 - Create as complex or simple a setup as you need



Doing the numbers

How many servers do I really need?

OD Master

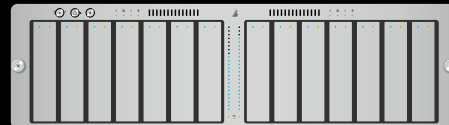


Other svcs

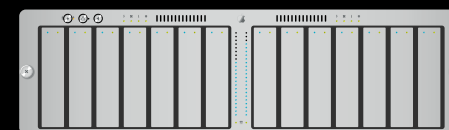


OD Replica

Common / Group



Home Directories



Elementary School / Departmental Example

- 600 users - admin/teachers/students
- 135 systems
 - Lab with 30 desktops
 - 2x carts with MacBooks
 - 45 faculty desktops

OD Master

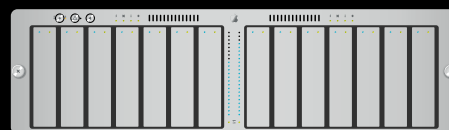


Other svcs

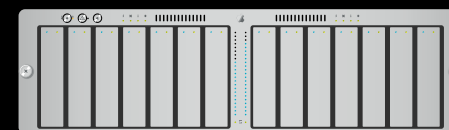
Common / Group



Home Directories



~200Gb min

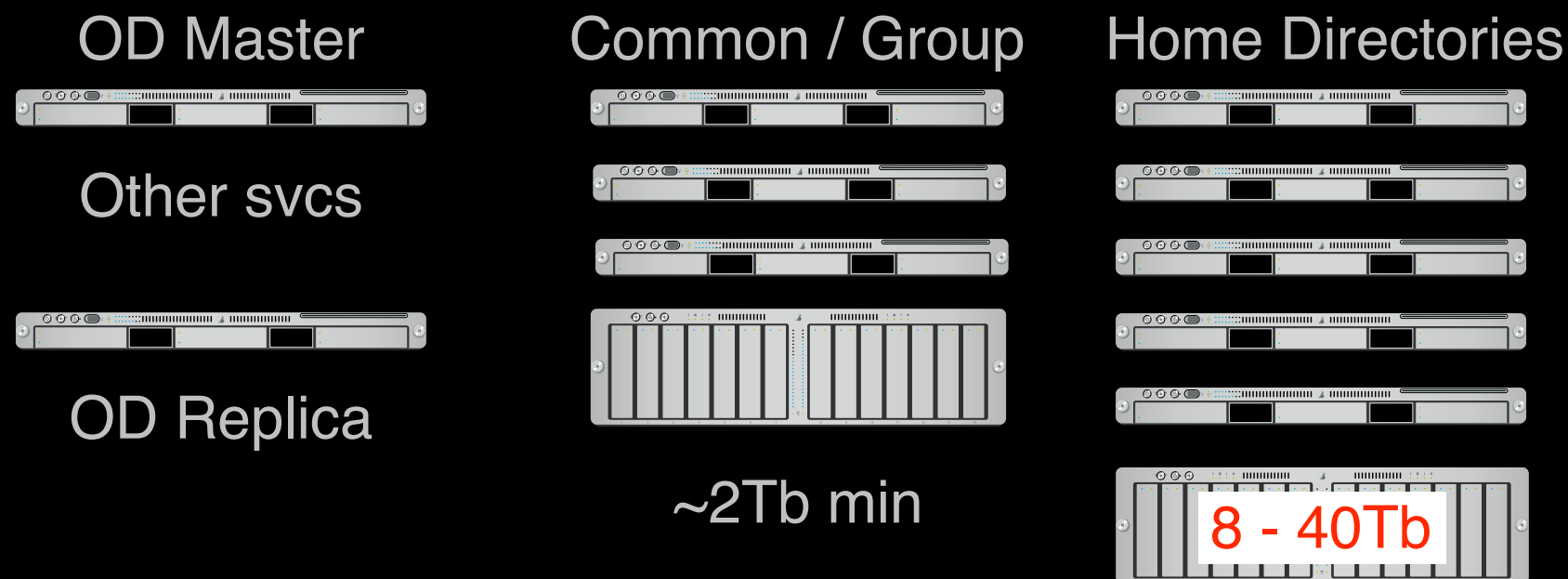


6 - 24Tb



High School / Campus Example

- 2000 users - admin/teachers/students
- 1350 systems
 - 1000 MacBooks in 1-1 project
 - Four labs with 30 desktops each (120)
 - 6x carts with MacBooks (180)
 - 150 faculty desktops





Q&A