

Radmind

Mac OS X File System Management

Radmind developed by RSUG of University of Michigan

Richard Glaser & James Reynolds
Student Computing Labs
University of Utah

Introduction

- A presentation covering:
 - Radmind Basics & Overview
 - U of U's Deployment and Tips & Customizations
- More details will be available:
 - On handouts
 - Radmind web site: www.radmind.org
- Web Documentation:
 - Will be available at: www.macosxlabs.org/



Who's Developing it?

- **Developed & supported by:**
 - **Research Systems Unix Group (RSUG)**
 - At the University of Michigan
 - radmind@umich.edu
 - **Includes:**
 - Technical support, questions and feature requests
 - Mailing List – Archived & Searchable

research systems  unix group

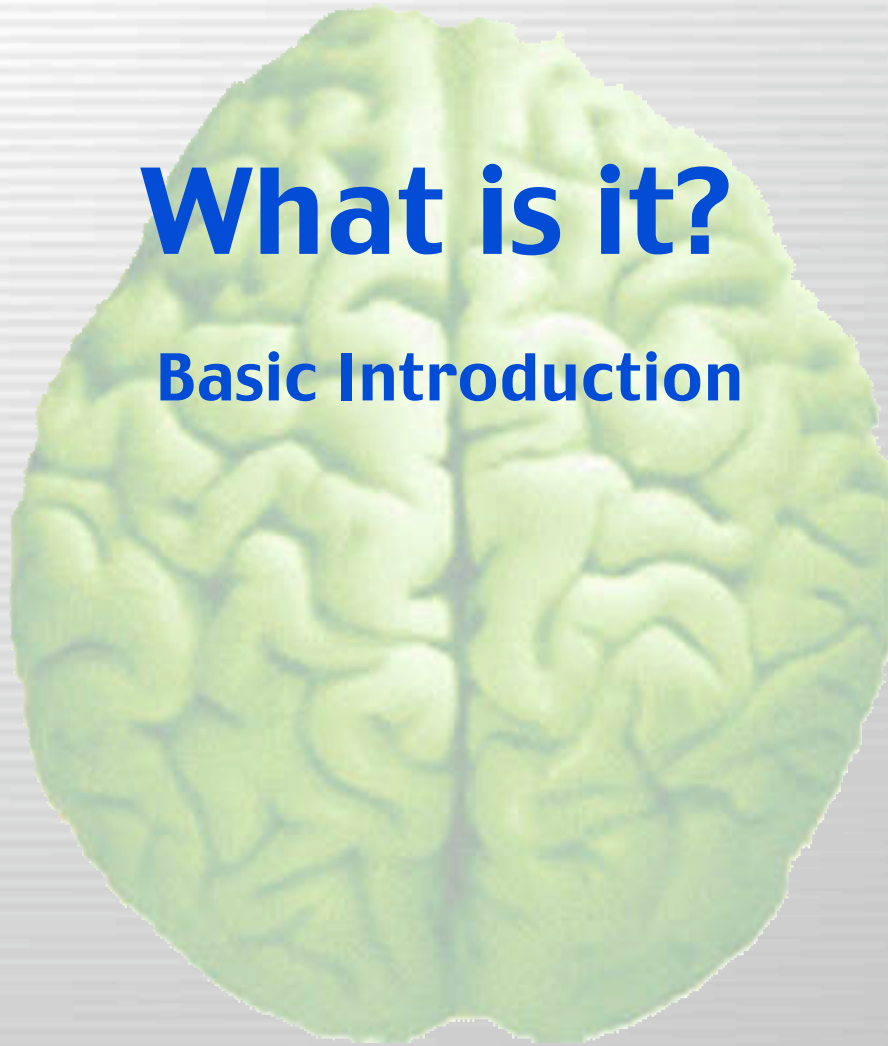
Where to get it?

- Mac OS X Installer & Source Code
- Radmind Assistant
- iHook (not part of radmind)
- www.radmind.org



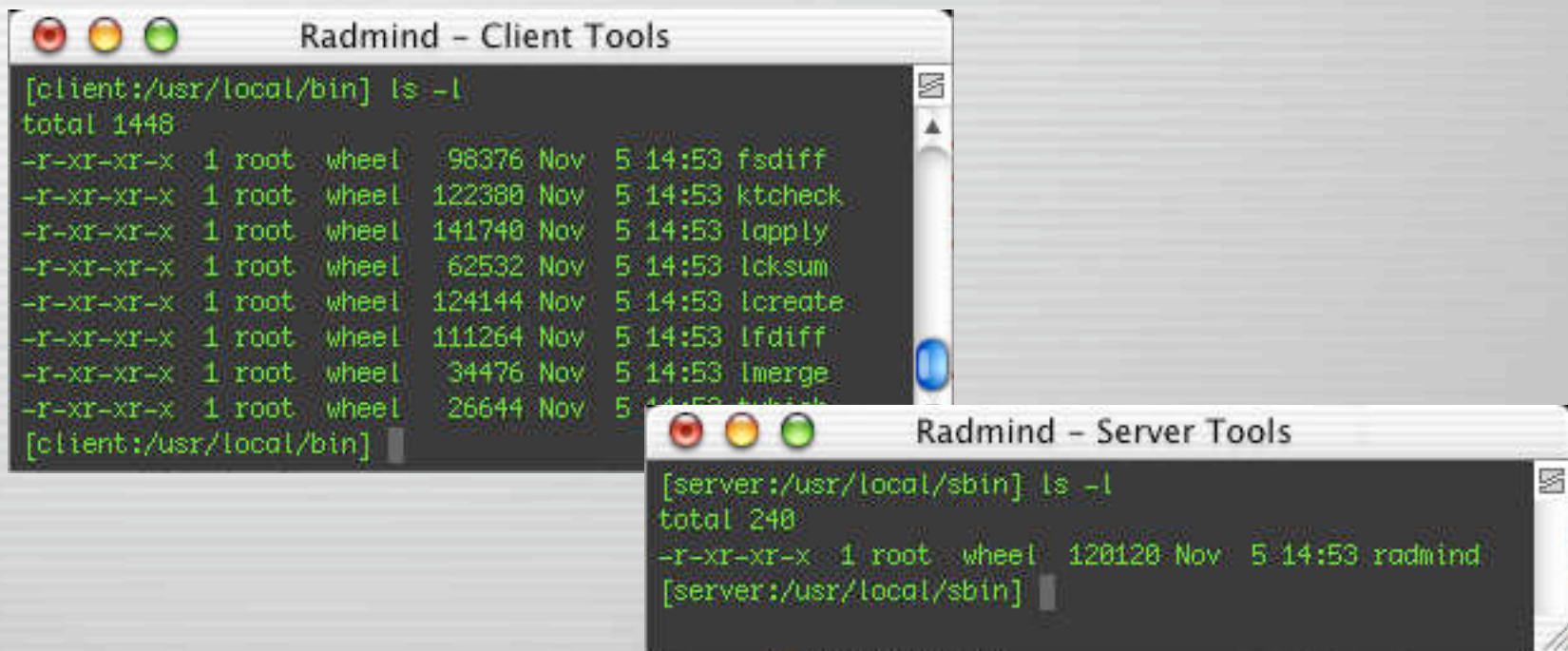
What is it?

Basic Introduction



Command Line Tools

- Suite of command line tools
 - Both client & server tools
 - Allows remotely managing multiple file systems



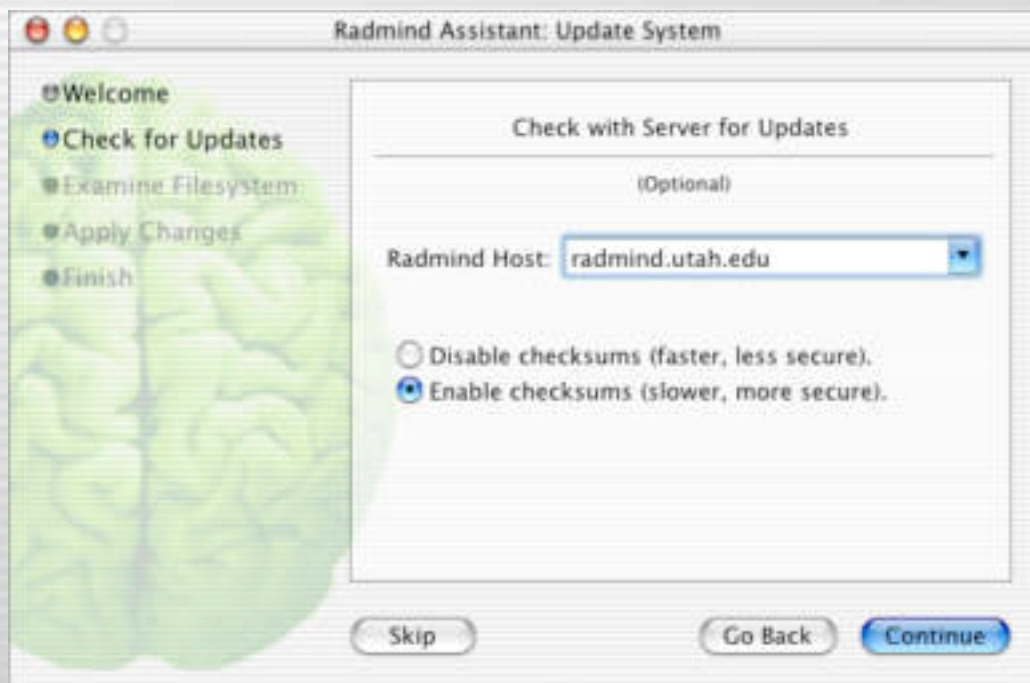
The image shows two overlapping terminal windows. The top window, titled 'Radmin - Client Tools', displays the output of the command 'ls -l' in the directory '/usr/local/bin'. It lists several files with their permissions, sizes, and timestamps. The bottom window, titled 'Radmin - Server Tools', displays the output of the command 'ls -l' in the directory '/usr/local/sbin', showing a single file named 'radmin'.

```
[client:/usr/local/bin] ls -l
total 1448
-r-xr-xr-x  1 root  wheel   98376 Nov  5 14:53 fsdiff
-r-xr-xr-x  1 root  wheel  122380 Nov  5 14:53 ktcheck
-r-xr-xr-x  1 root  wheel  141740 Nov  5 14:53 laply
-r-xr-xr-x  1 root  wheel   62532 Nov  5 14:53 lcksum
-r-xr-xr-x  1 root  wheel  124144 Nov  5 14:53 lcreate
-r-xr-xr-x  1 root  wheel  111264 Nov  5 14:53 lfdiff
-r-xr-xr-x  1 root  wheel   34476 Nov  5 14:53 lmerge
-r-xr-xr-x  1 root  wheel   26644 Nov  5 14:53 lrm
[client:/usr/local/bin]

[server:/usr/local/sbin] ls -l
total 240
-r-xr-xr-x  1 root  wheel  120120 Nov  5 14:53 radmin
[server:/usr/local/sbin]
```


Graphical User Interface

- A Mac OS X GUI is in development that offers most of the functionality of the command line tools on the client.



Supported Platforms

- Can be used with any supported Unix
 - Mac OS X
 - Solaris
 - FreeBSD
 - OpenBSD
 - Linux



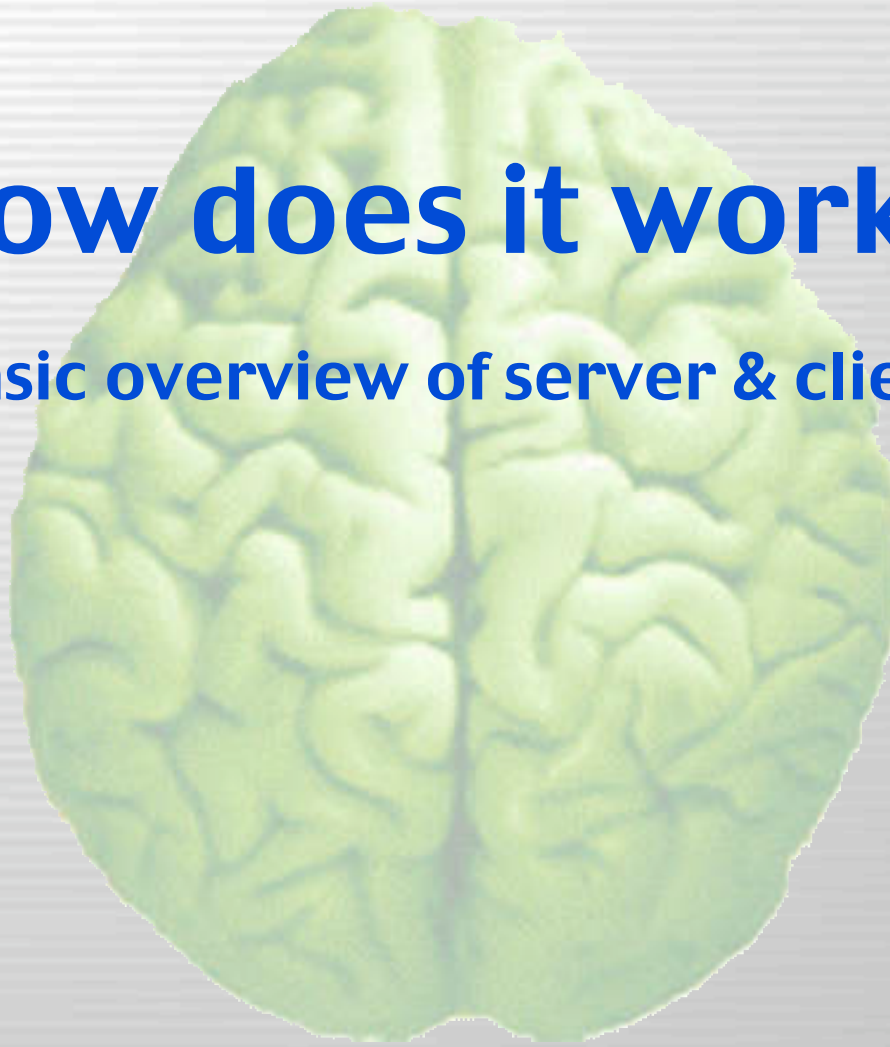
Mac OS X Requirements

- Requires Mac OS X 10.1.3 or later



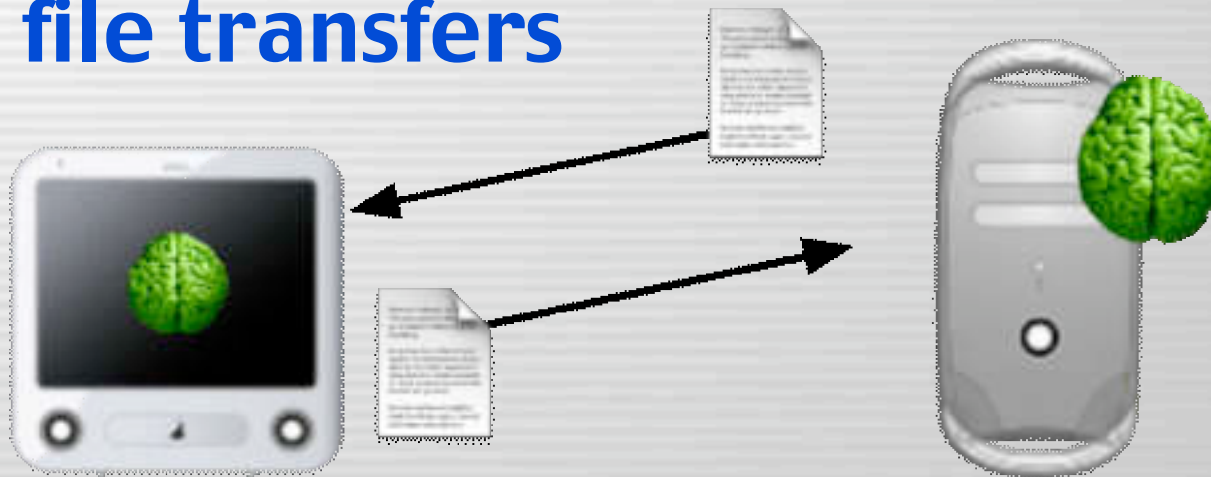
How does it work?

Basic overview of server & client



Server – Communication

- Server handles communication between itself and the client
- And file transfers

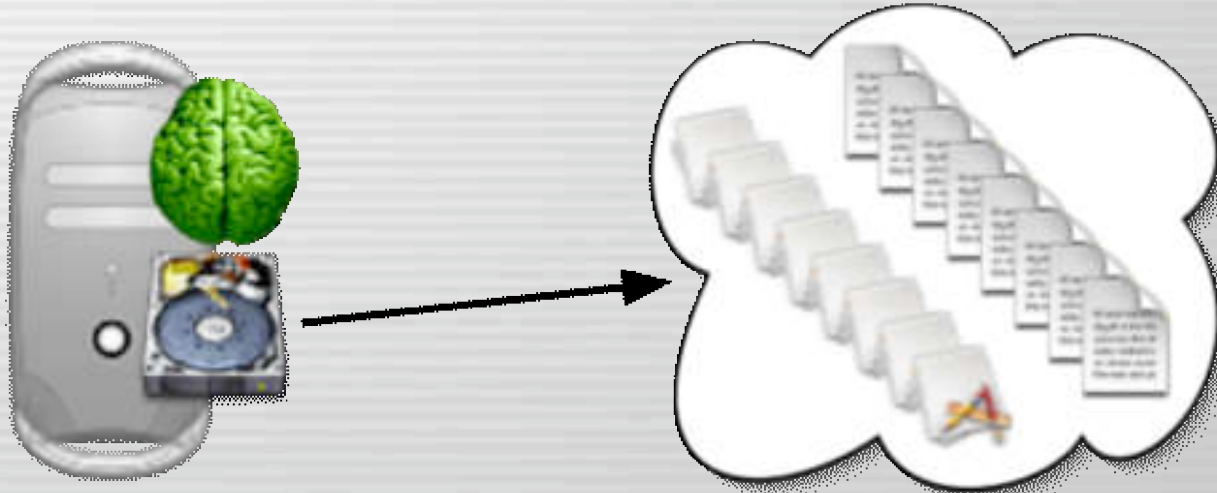


Mac Client
(radmind client tools)

Radmind Server
(radmind application)

Server – File Storage

- The server stores the deployed client file system descriptions & associated files



Radmind Server

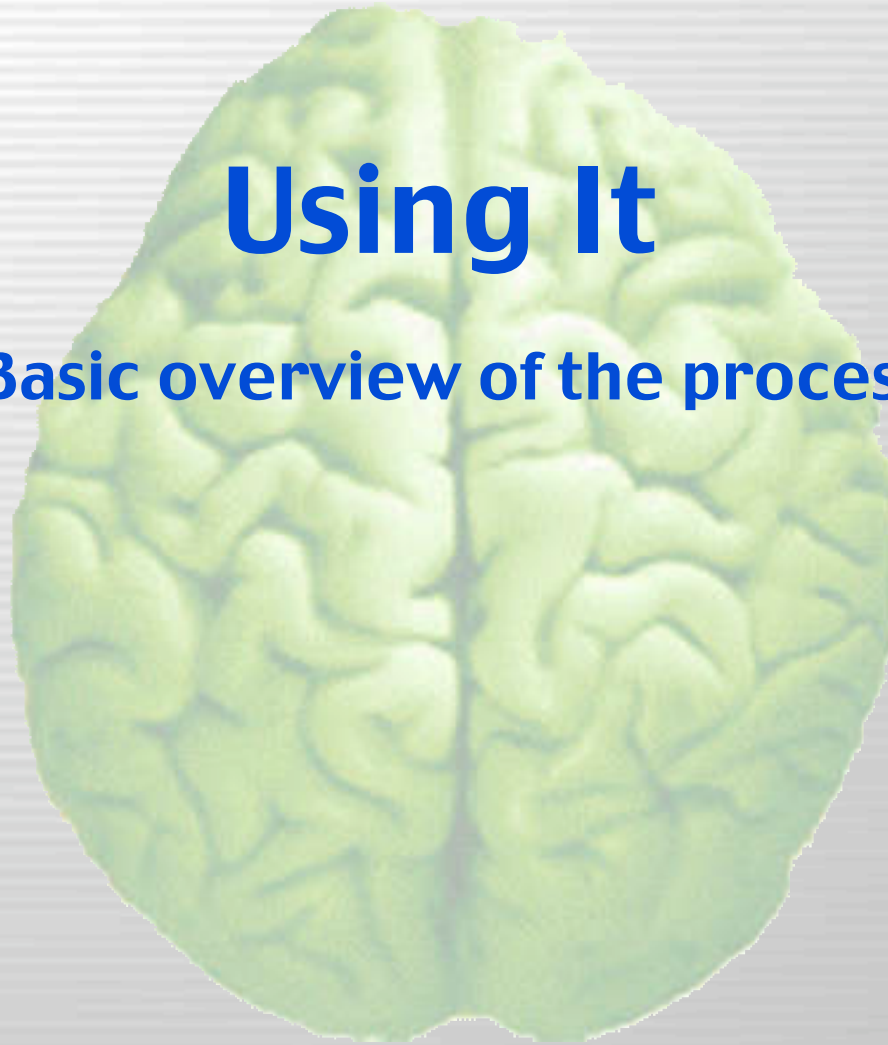
Files and descriptions

Client Tools

- Scans local file system
- Uploads local file system descriptions & files
- Restores local file system
 - Downloads required file system descriptions & files
 - Removes unneeded files
 - Modifies attributes & permissions.

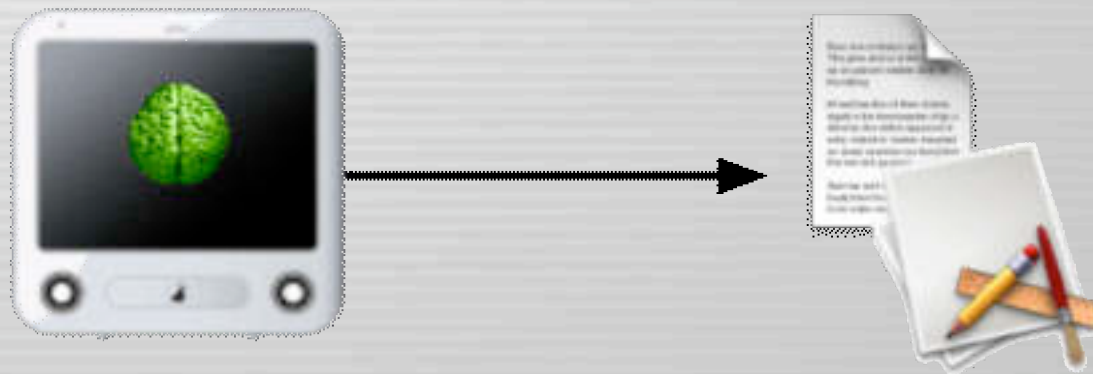
Using It

Basic overview of the process



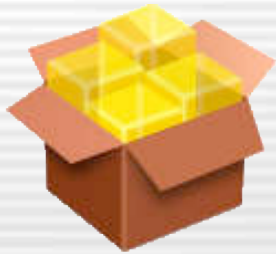
Client

Creating a file system description



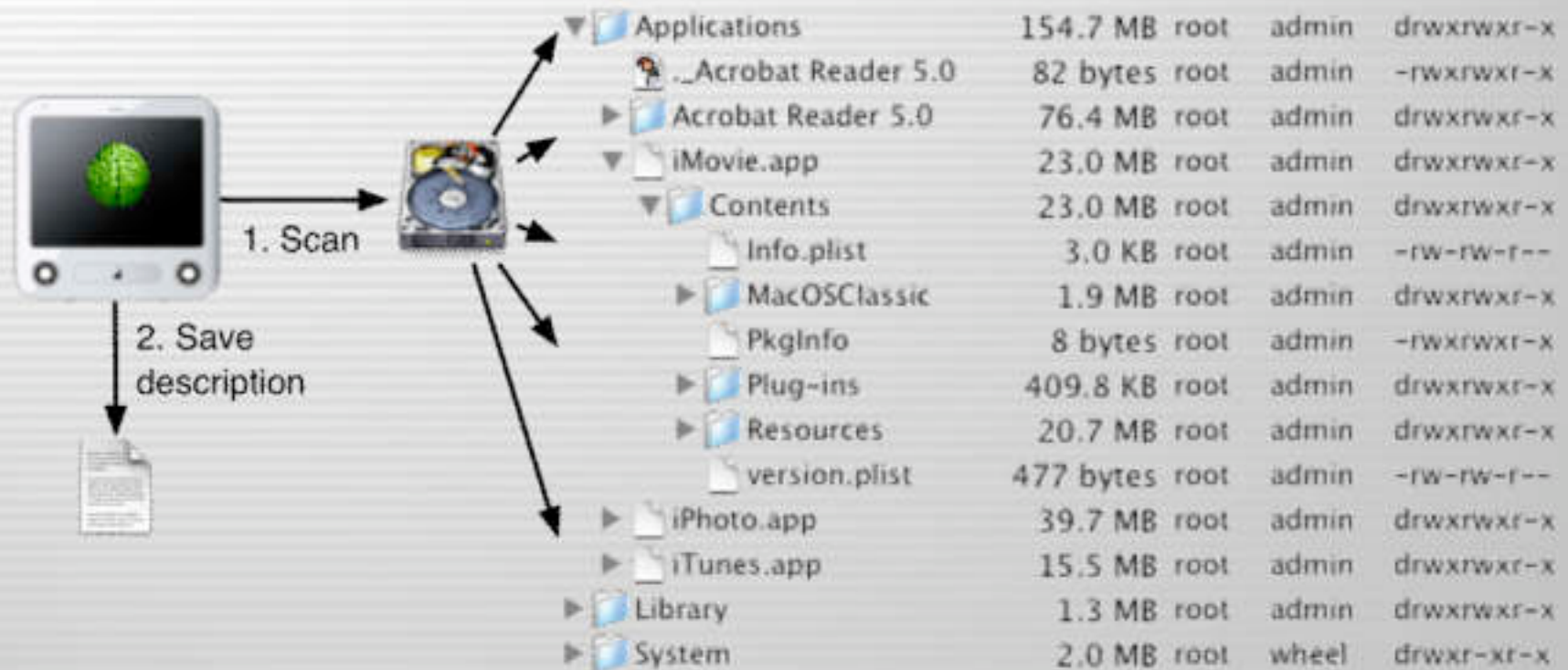
Client – Install Stuff

- First, install stuff...



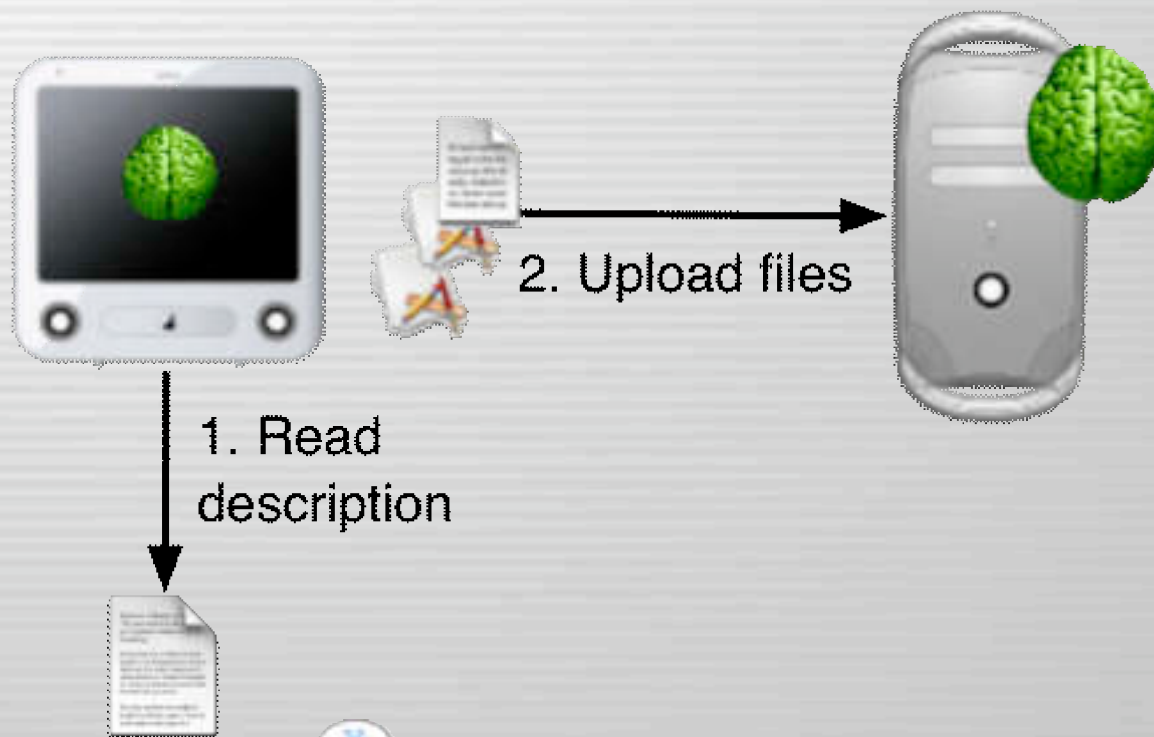
Client – Scan

- Next, scan client file system
- And save description



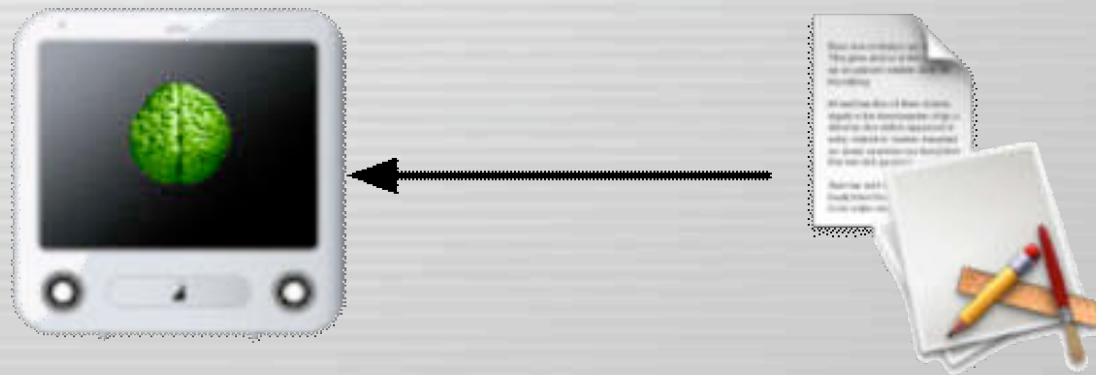
Client – Upload

- Then, read the description
- And upload the description & associated files to server



Client

Restoring a file system description



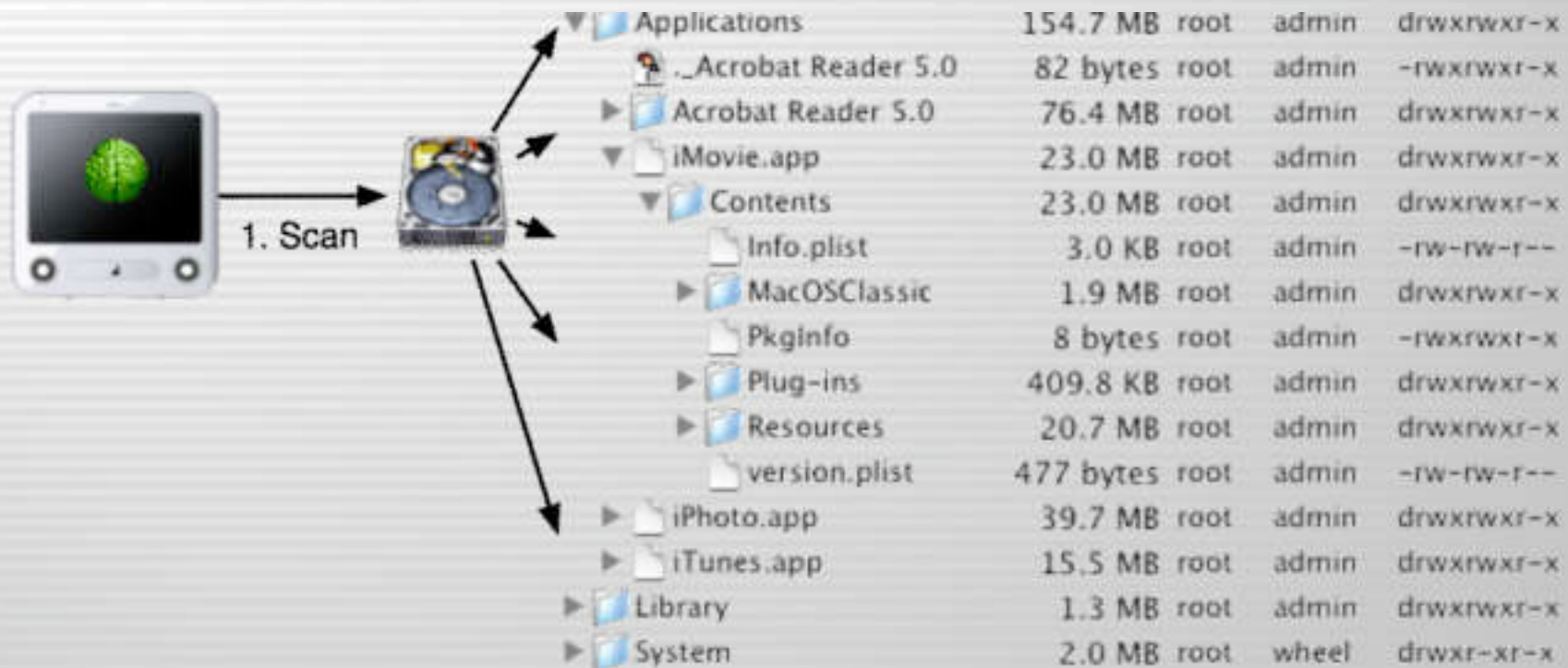
Client – Download

- First, it downloads description of deployed file system.



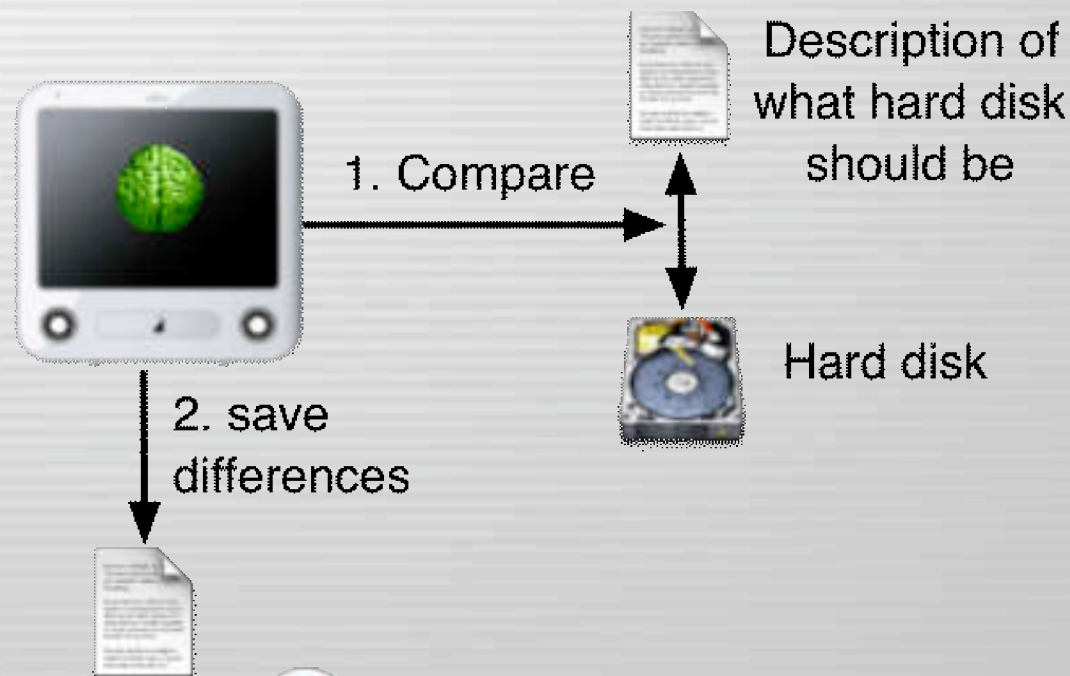
Client – Scan

- Next, it scans local file system



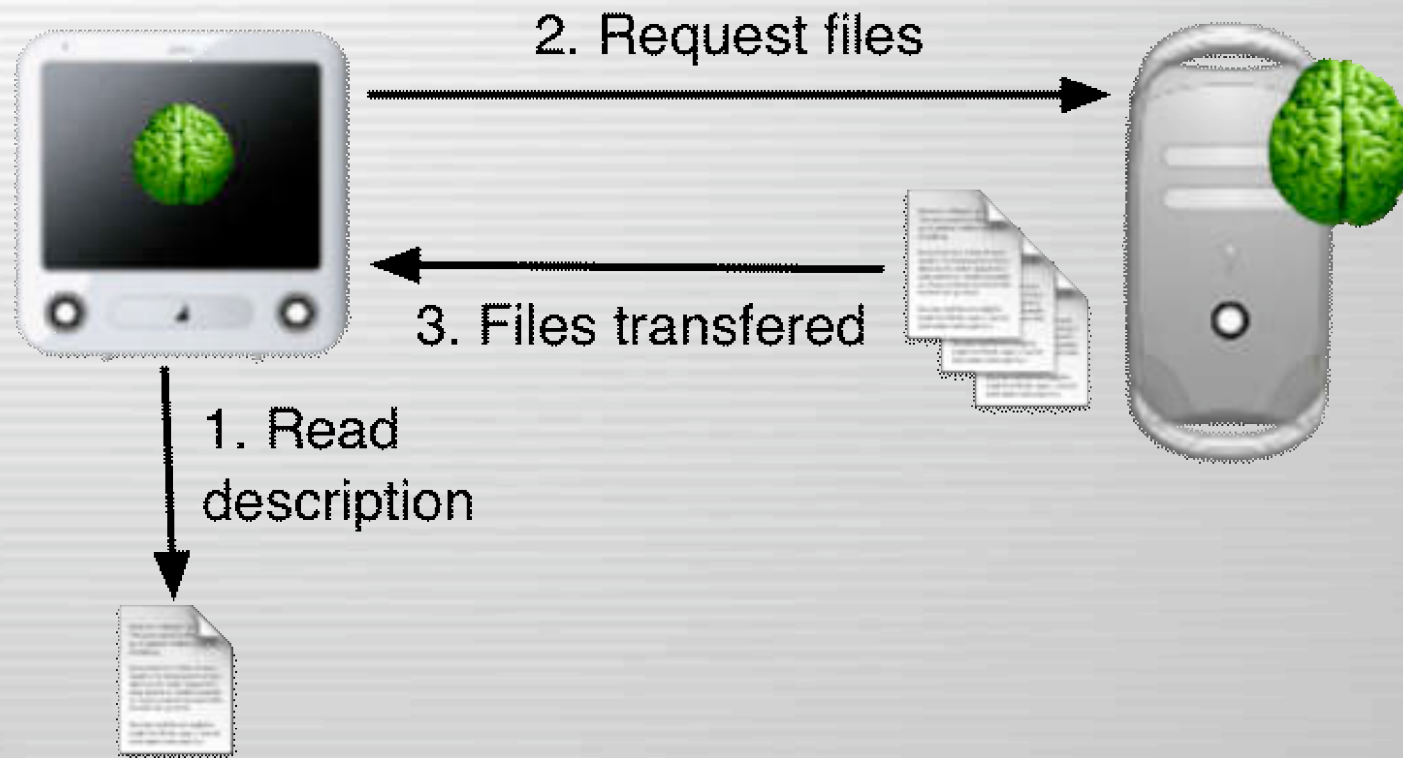
Client – Compare

- Then, compares local hard disk with deployed descriptions
- Creates a differences description



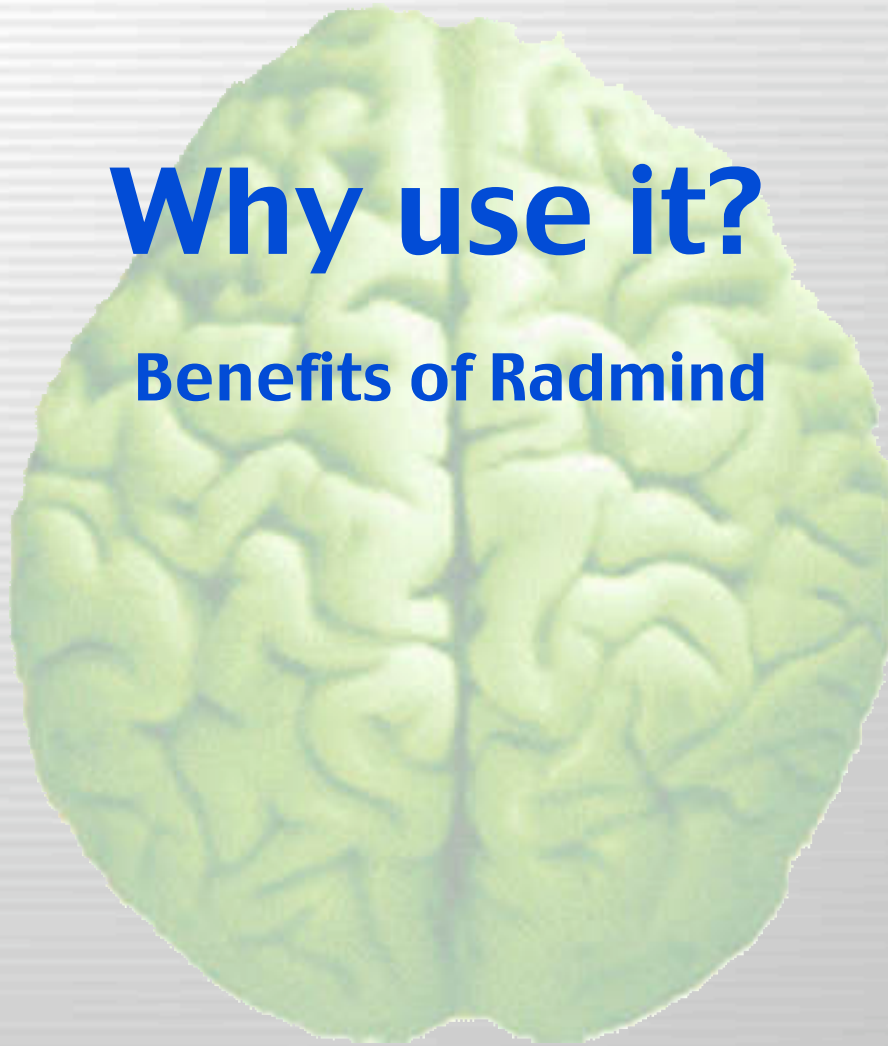
Client – Restore

- Downloads & removes files and sets attributes & permissions



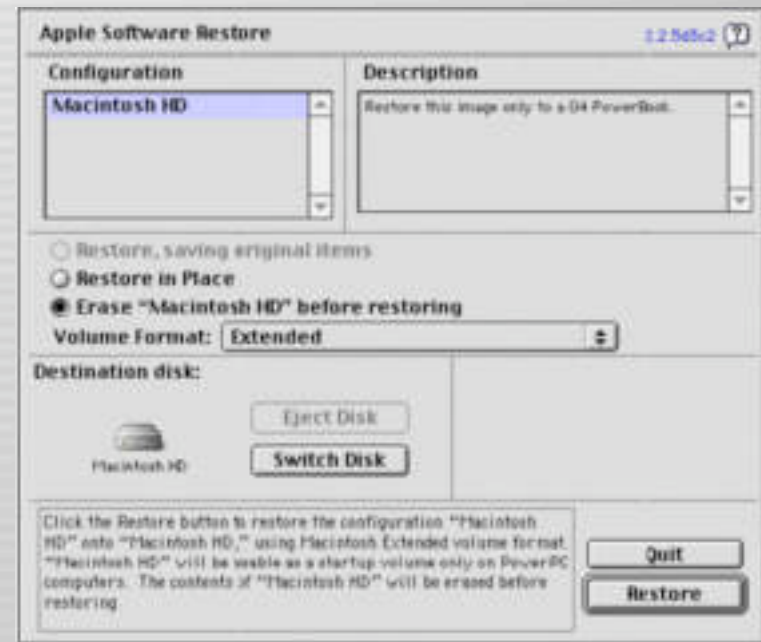
Why use it?

Benefits of Radmind



Network Usage

- Few files are transferred over network for incremental updates
 - Only needed files are downloaded
- Unlike ASR, which is usually setup to transfer an entire hard disk image every time, even if a few updates are needed on the client.



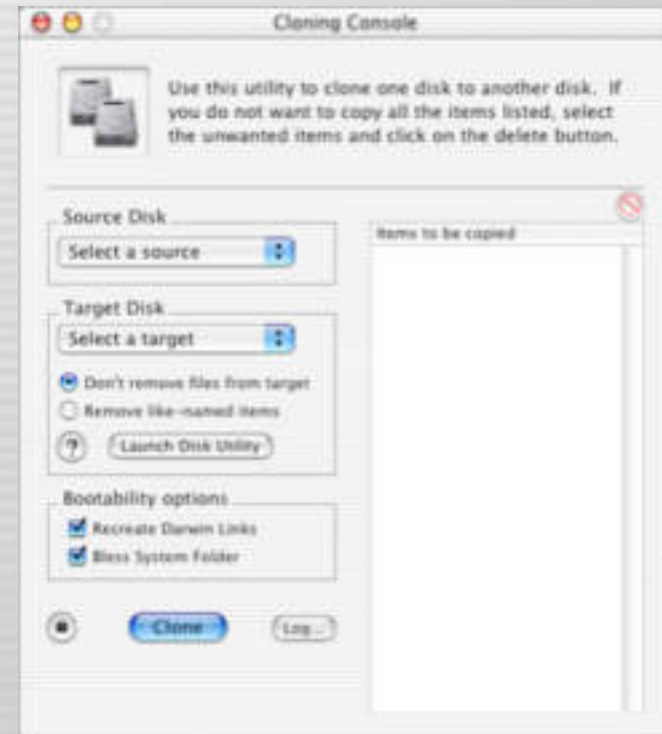
Server Usage

- **Minimizes server/network usage**
 - **The client scans the hard disk locally, doesn't talk to server during scan**
 - **Unlike Assimilator or RevRdist; which are usually setup to compare the client hard disk to server master over the network.**



Remote Administration

- Remotely control & distribute file systems on multiple machines
 - Unlike tools like Carbon Copy Cloner, which requires a portable hard disk to manually clone each individual machine in a lab environment.



DHCP not Required

- It is flexible, you just need an IP address
- Doesn't matter how it gets assigned.
 - Unlike tools, like NetBoot, NetInstall that require DHCP to operate.



Manage by Certificate

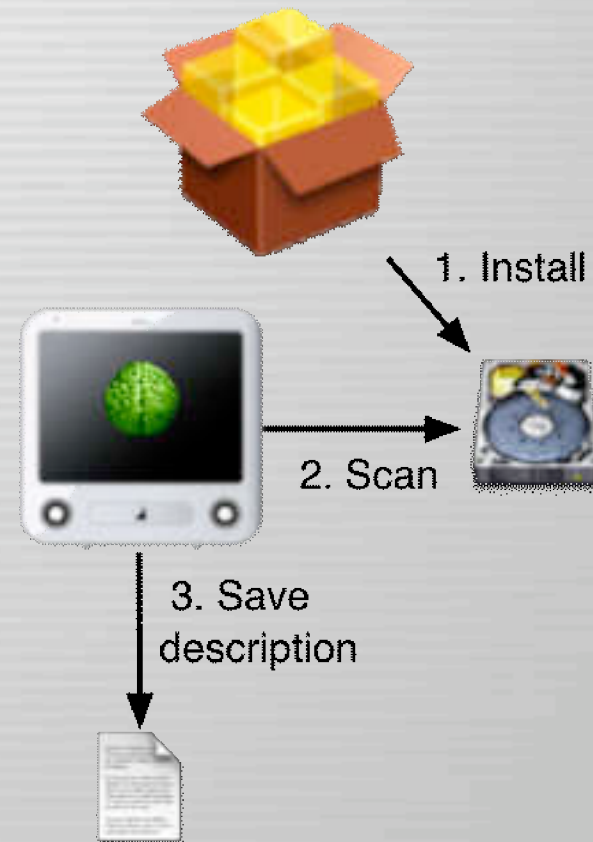
- Allows client verification via SSL certificate.
- Nomadic Machines
 - Laptops used in various locations, like home & work, can be managed.
- IP Dynamic Assignments
 - IP is completely irrelevant for client identification.



Software Management

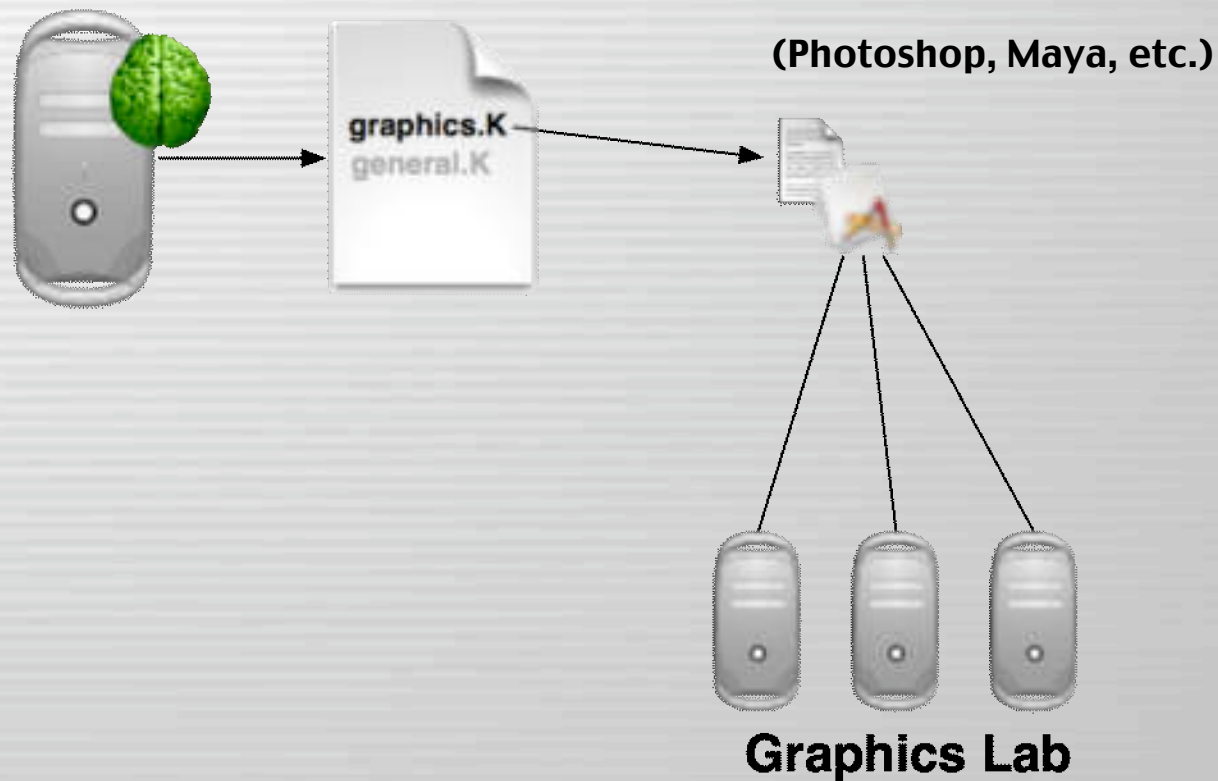
- Tracks software & OS installations

- Unlike other tools, radmind has built-in support for tracking individual software or OS installations.
- And has built-in support for uploading & restoring individual software or OS installations.



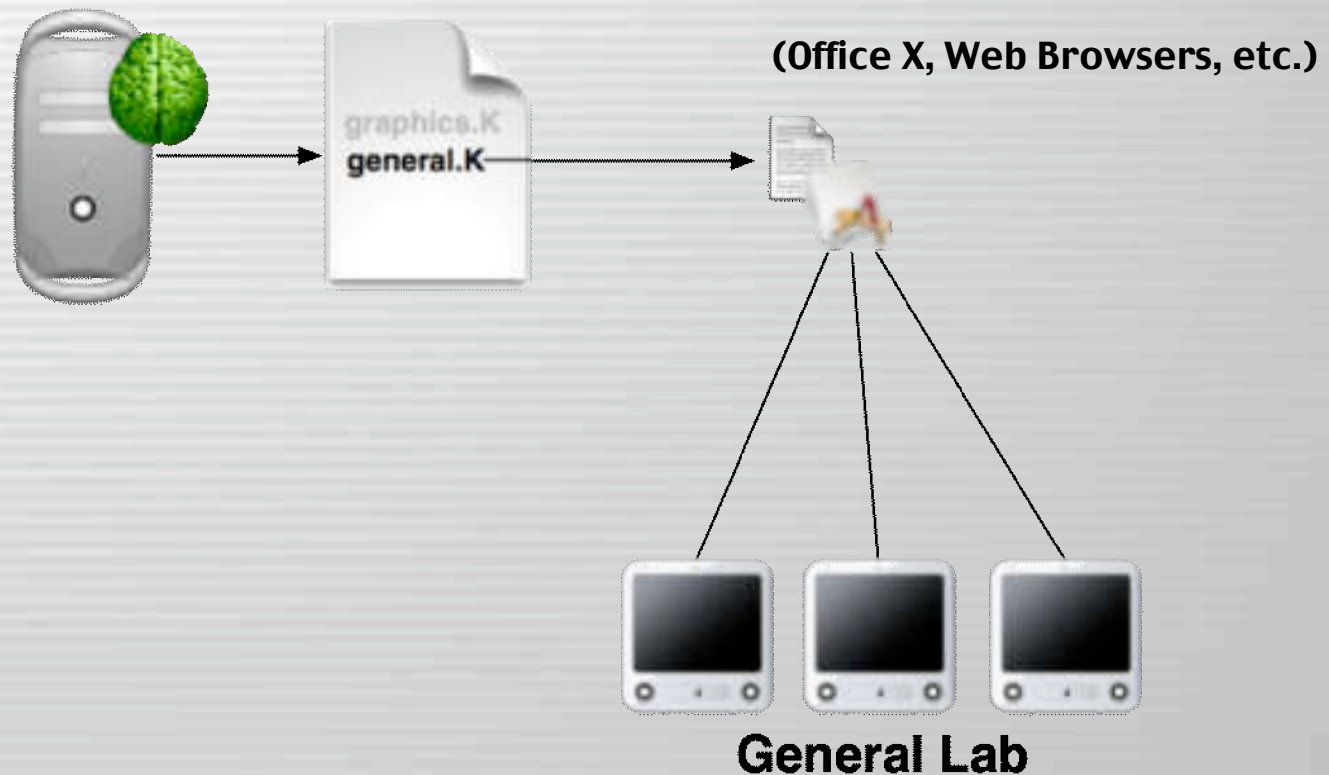
Client Management

- One file on server to manage file systems of multiple machines.



Client Management

- One file on server to manage file systems of multiple machines.





macosx labs.org
Mac OS X Deployment in Higher Education

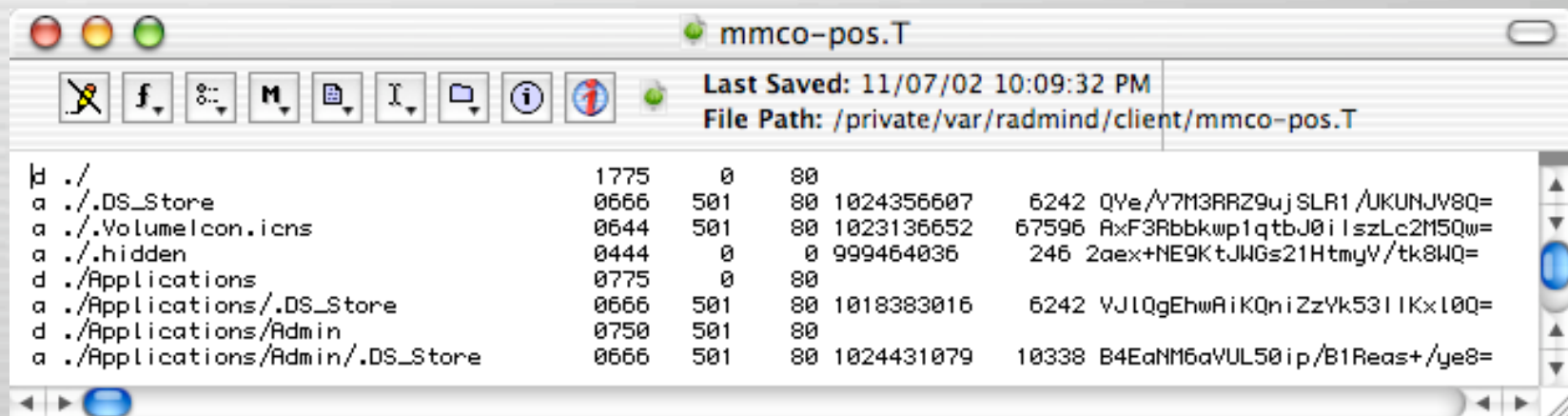
Terms

Radmind Lingo & Slang



Transcript

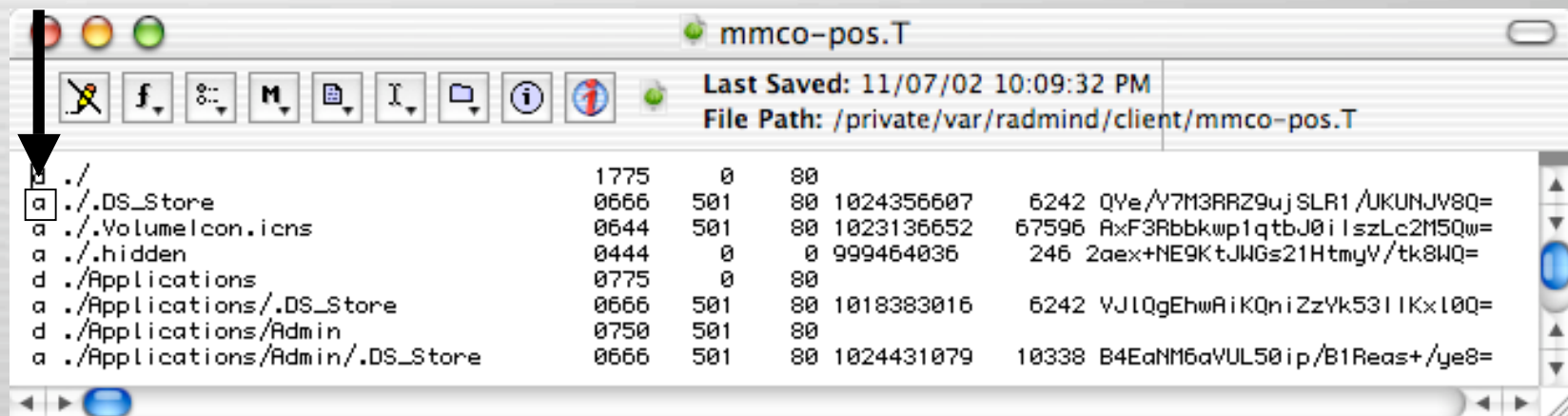
- Transcript
 - A description of the file system
 - A list of files, directories, links.
 - Includes attributes like size, permissions, modification dates, checksums, etc.



Transcript – File Kind

- **Transcript**
 - A description of the file system
 - A list of files, directories, links.
 - Includes attributes like size, permissions, modification date, checksum, etc.

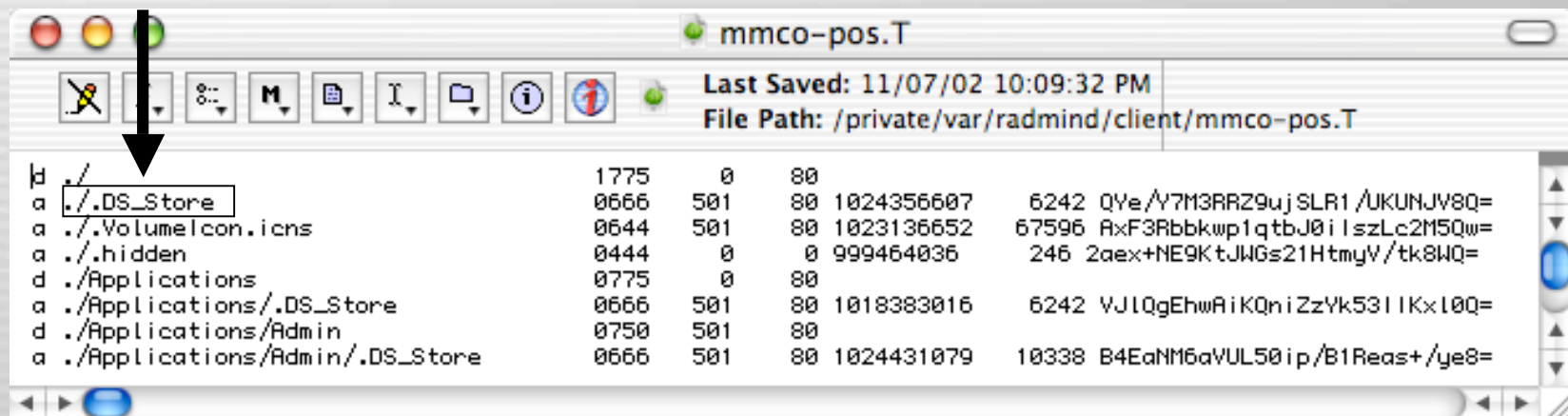
File Kind – “a” applefile, “d” directory, “f” file, “l” link



Transcript – Location

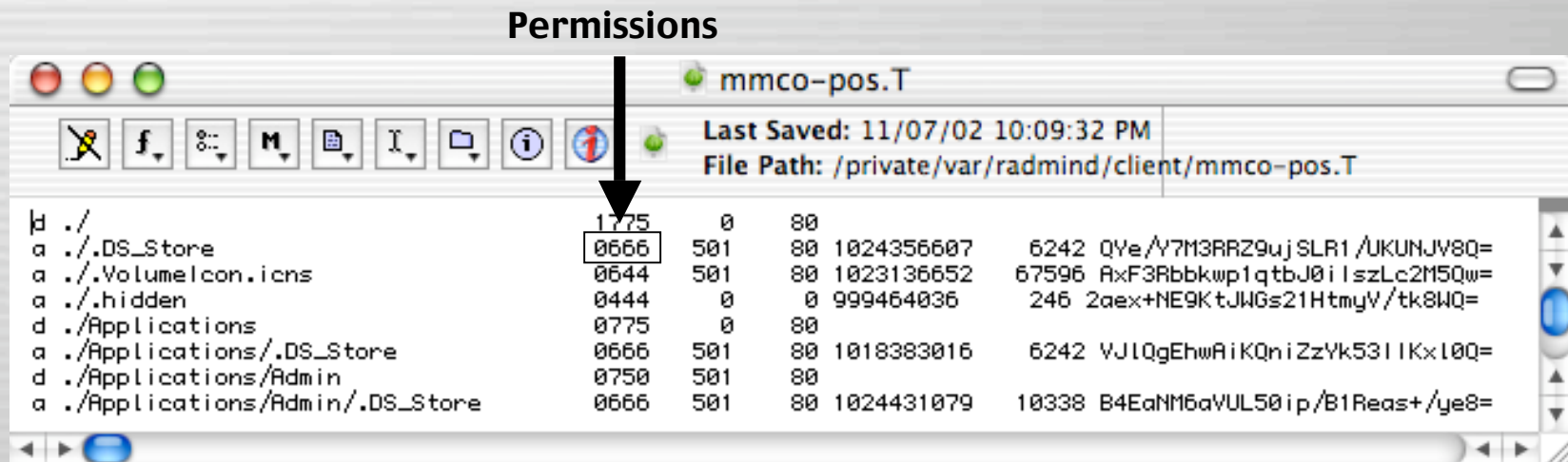
- **Transcript**
 - A description of the file system
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Location



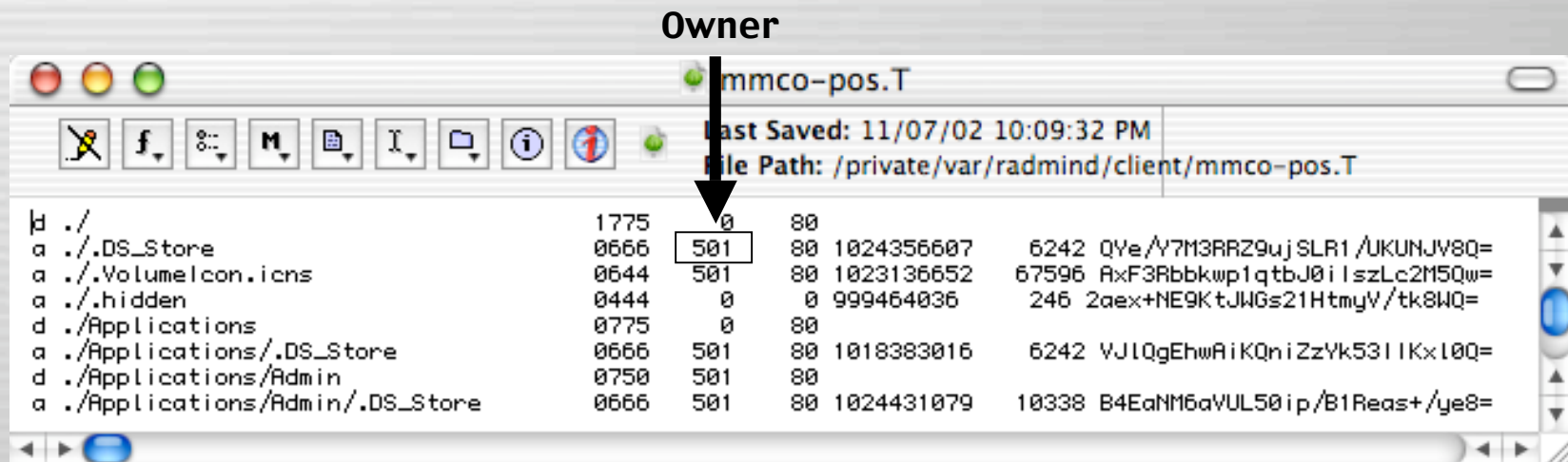
Transcript – Permissions

- Transcript
 - A description of the file system
 - A list of files, directories, links.
 - Includes attributes like size, permissions, modification date, checksum, etc.



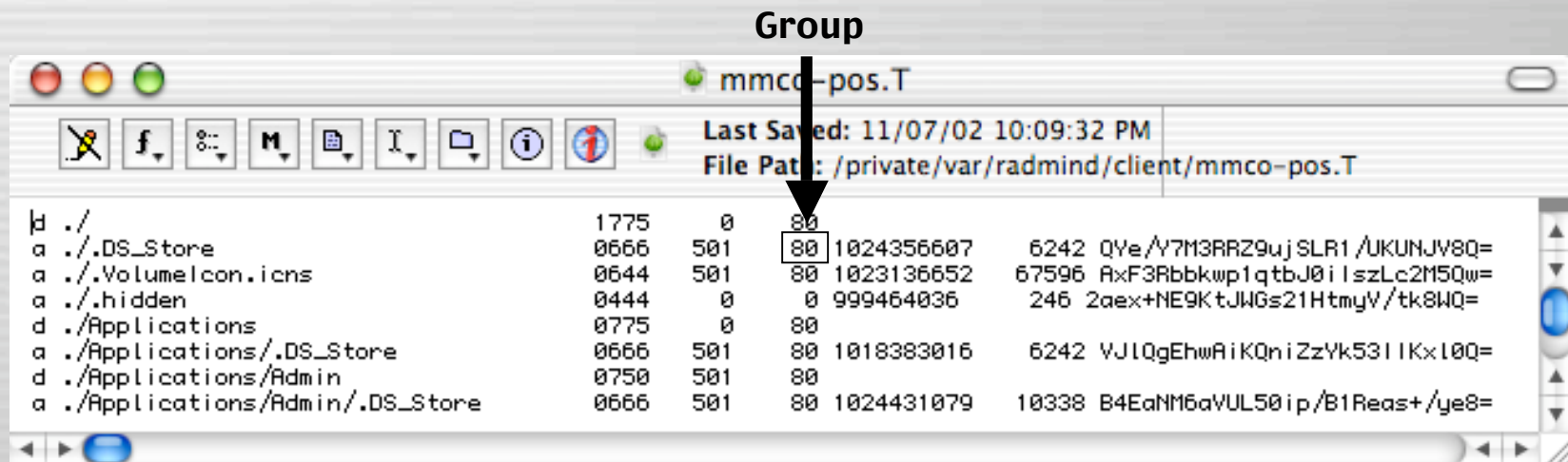
Transcript – Owner

- Transcript
 - A description of the file system
 - A list of files, directories, links.
 - Includes attributes like size, permissions, modification date, checksum, etc.



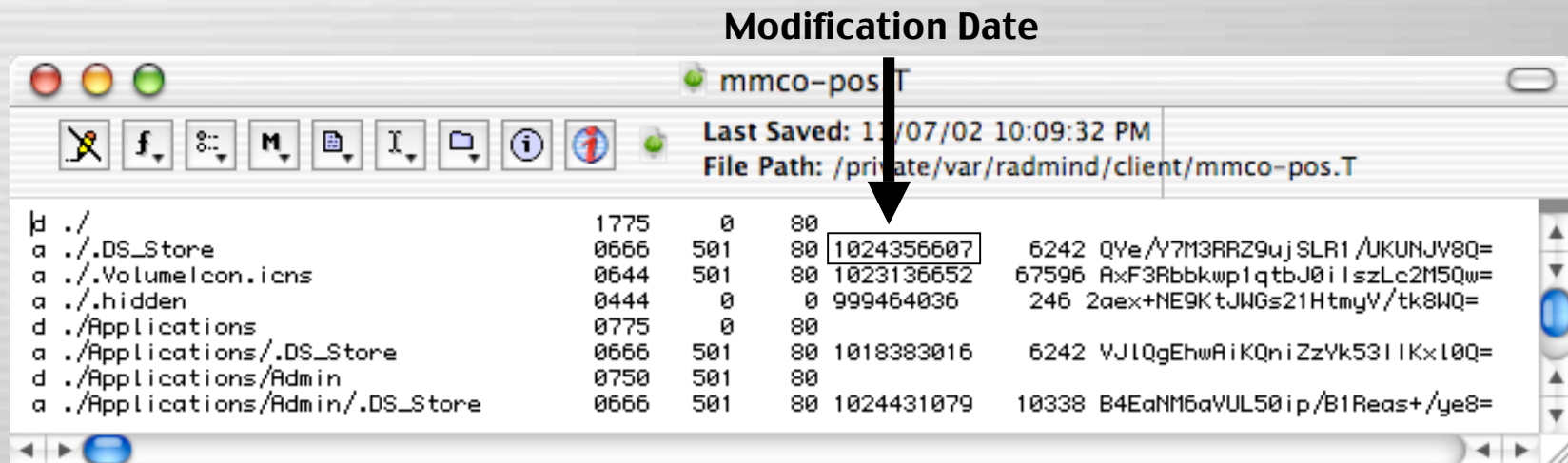
Transcript – Group

- Transcript
 - A description of the file system
 - A list of files, directories, links.
 - Includes attributes like size, permissions, modification date, checksum, etc.



Transcript – Modified

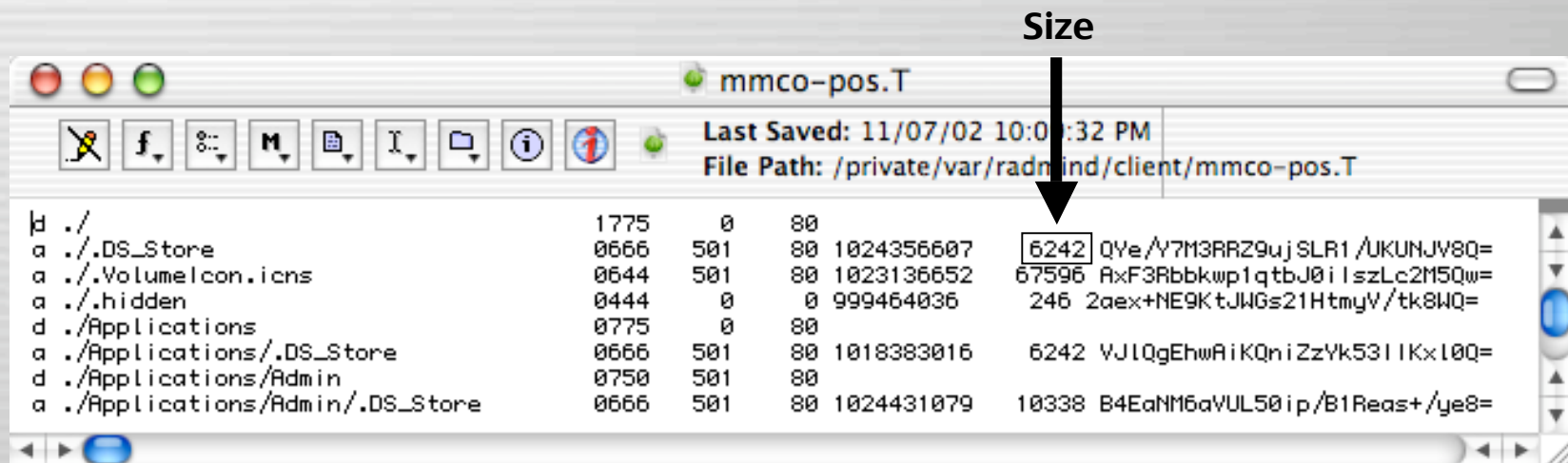
- Transcript
 - A description of the file system
 - A list of files, directories, links.
 - Includes attributes like size, permissions, modification date, checksum, etc.



Transcript – Size

- Transcript
 - A description of the file system
 - A list of files, directories, links.
 - Includes attributes like size, permissions, modification date, checksum, etc.

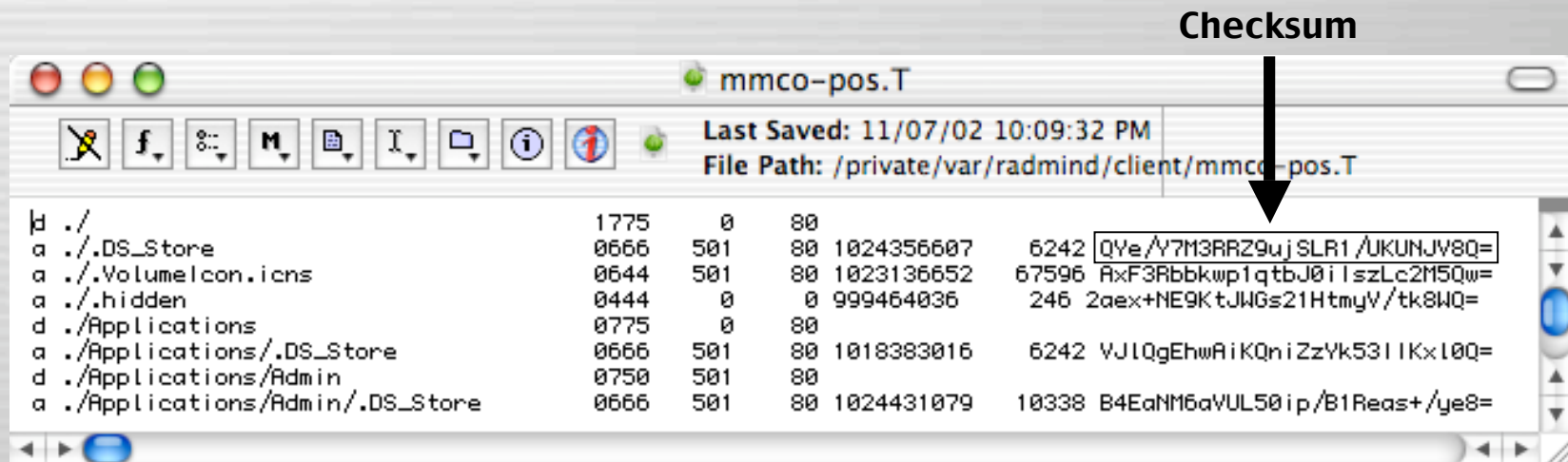
Size



	Size	Permissions	Checksum
h ./	1775	0	80
a ./DS_Store	0666	501	80 1024356607
a ./VolumeIcons	0644	501	80 1023136652
a ./hidden	0444	0	0 999464036
d ./Applications	0775	0	80
a ./Applications/.DS_Store	0666	501	80 1018383016
d ./Applications/Admin	0750	501	80
a ./Applications/Admin/.DS_Store	0666	501	80 1024431079

Transcript – Checksum

- **Transcript**
 - A description of the file system
 - A list of files, directories, links.
 - Includes attributes like size, permissions, modification date, checksum, etc.



- **Lists file system descriptions like files, directories, links, etc. that must exist and match all attributes.**



Negative Transcript

- Lists file system description that must exist, but only some attributes are checked
- For example, if a directory is listed in a negative transcript, it will check its UID, GID and permissions, but will not read the directory itself.

- Analogous to using “AiSu” parameter with RevRdist

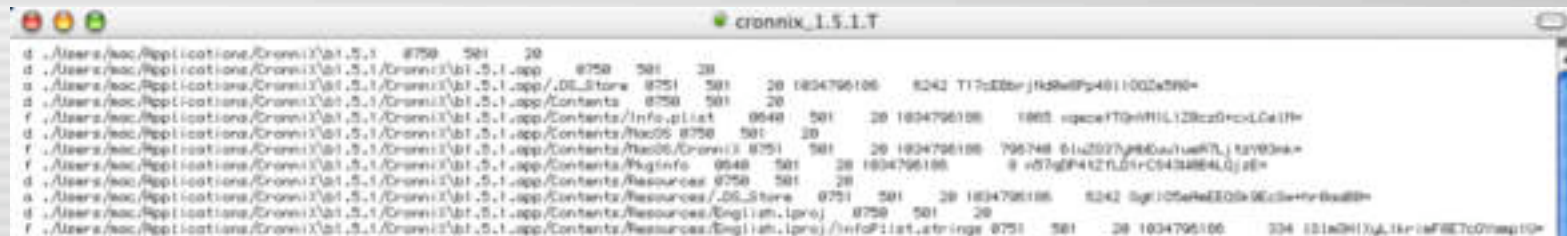


```
mmco-neg.T
ls -ld /usr/local
ls -ld /usr/local/bin
ls -ld /usr/local/lib
ls -ld /usr/local/libexec
ls -ld /usr/local/share
ls -ld /usr/local/share/man
ls -ld /usr/local/share/man/man1
ls -ld /usr/local/share/man/man2
ls -ld /usr/local/share/man/man3
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ls -ld /usr/local/share/man/man97
ls -ld /usr/local/share/man/man98
ls -ld /usr/local/share/man/man99
ls -ld /usr/local/share/man/man100
```

Loadset

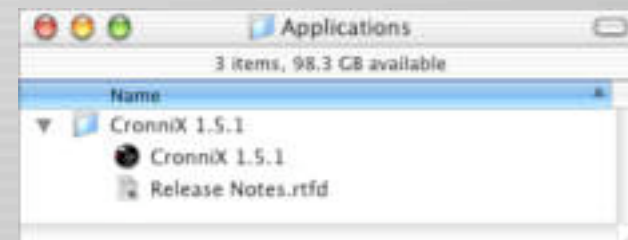
- Can be defined as a transcript and its associated files.
- These are smaller loadsets that can be individual OS or software installs, OS or software updates, admin modifications, or lab or group customizations, etc.

Transcript



```
d . /Users/mac/Applications/CronniX/1.5.1 8758 581 28
d . /Users/mac/Applications/CronniX/1.5.1/CronniX/1.5.1.app 8758 581 28
d . /Users/mac/Applications/CronniX/1.5.1/CronniX/1.5.1.app/.DS_Store 8751 581 28 1834796186 8242 T17cEBrjKd9wPp4811002x590+
d . /Users/mac/Applications/CronniX/1.5.1/CronniX/1.5.1.app/Contents 8758 581 28
f . /Users/mac/Applications/CronniX/1.5.1/CronniX/1.5.1.app/Contents/Info.plist 9548 581 28 1834796186 1885 xqceFTQwHIL1Z8czDrcxL6e1H+
d . /Users/mac/Applications/CronniX/1.5.1/CronniX/1.5.1.app/Contents/MacOS/CronniX 8751 581 28
f . /Users/mac/Applications/CronniX/1.5.1/CronniX/1.5.1.app/Contents/PlugInfo 9548 581 28 1834796186 796748 61u227j986xwueRLj1zV8nk+
d . /Users/mac/Applications/CronniX/1.5.1/CronniX/1.5.1.app/Contents/Resources 8758 581 28
a . /Users/mac/Applications/CronniX/1.5.1/CronniX/1.5.1.app/Contents/Resources/.DS_Store 8751 581 28 1834796186 8242 5gr105e4eE08e9Ecs+Hy6u8B+
d . /Users/mac/Applications/CronniX/1.5.1/CronniX/1.5.1.app/Contents/Resources/English.lproj 8758 581 28
f . /Users/mac/Applications/CronniX/1.5.1/CronniX/1.5.1.app/Contents/Resources/English.lproj/InfoPlist.strings 8751 581 28 1834796186 334 121aQH1XyL1kr1eF8ETc0hnp10+
```

Associated Files

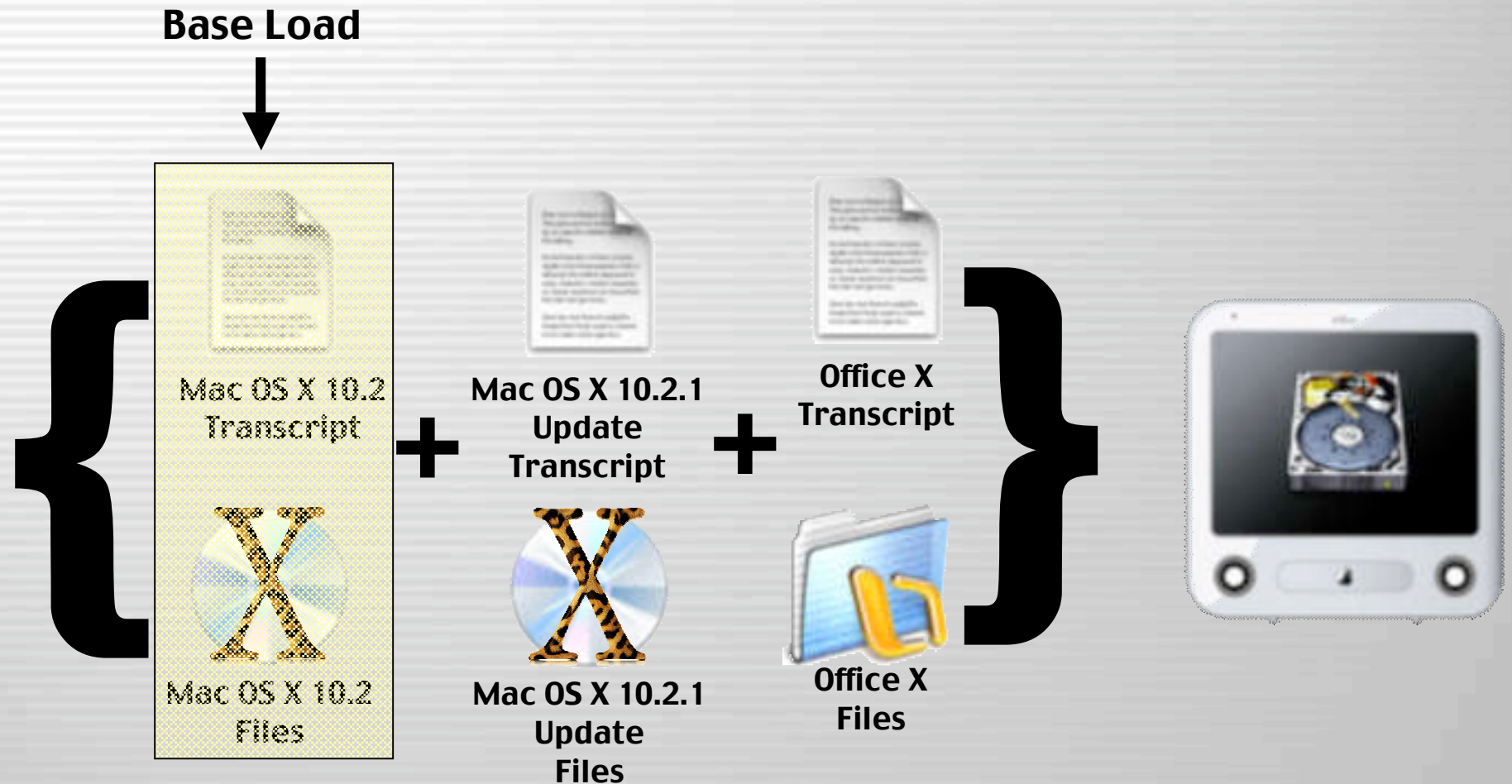


Base Load

A base load is the primary file system loadset, usually a large transcript & associated files. A base load could be:

- Mac OS X**
- Mac OS X and default applications**
- Or the entire client file system deployment**
 - Including Mac OS X**
 - Applications**
 - Admin Modifications**
(users & groups, directory setup, scripts, etc.)

Base Load – Example



Base Load at the U of U

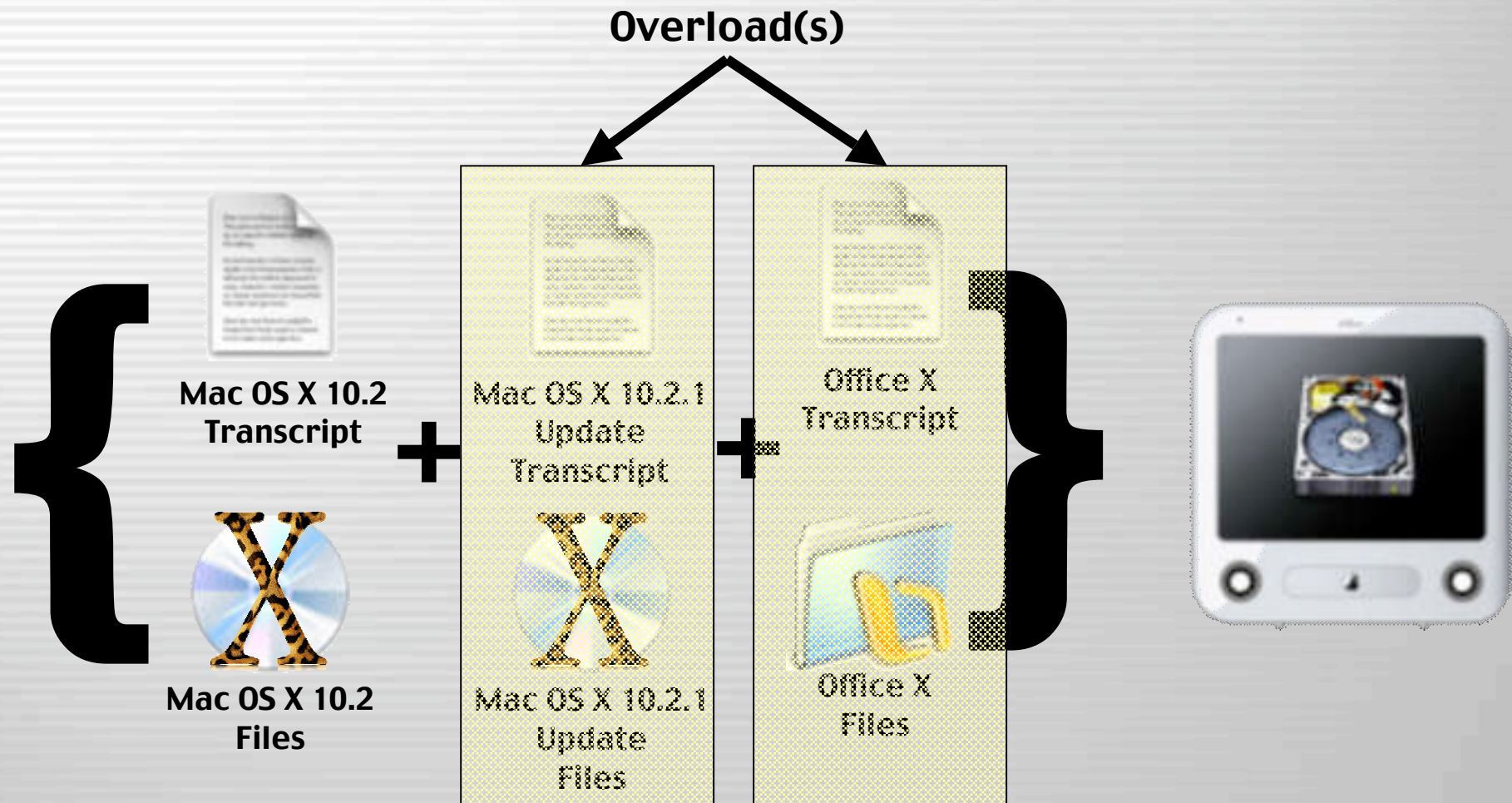


- Originally we had a base load that contained; the OS, our admin modifications, and global distributed applications.
- Currently, we are using a more granular & flexible deployment, where the base load is only the OS, and our admin modifications, individual application installs, lab or group customizations are separate over loads.

Over Load

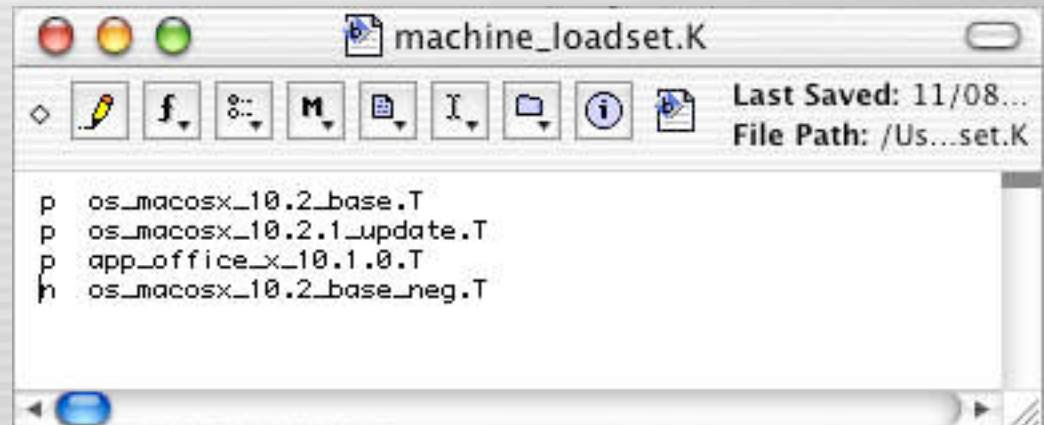
- An over load is a smaller additional loadset used with the base load for the machine deployed file system.

Over Load – Example



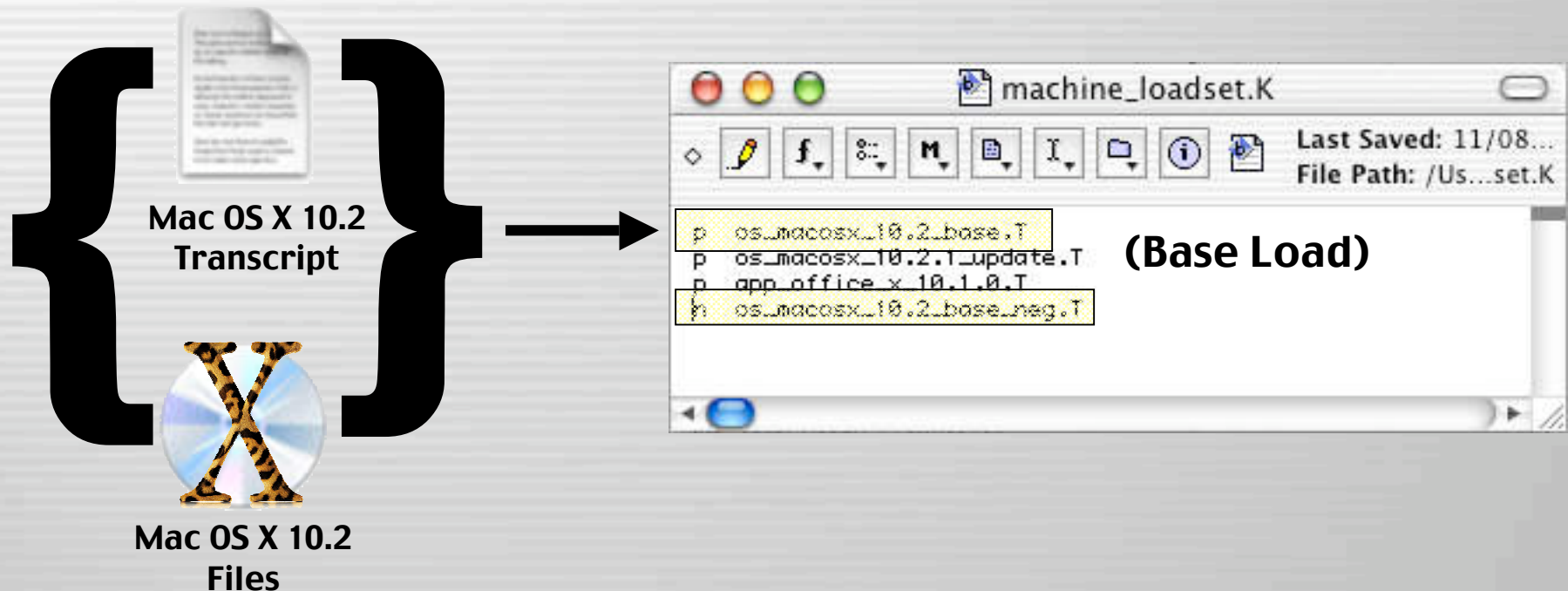
Command File

- **Command file (the machine loadset)**
 - A list containing the names of the base load and additional overloads.



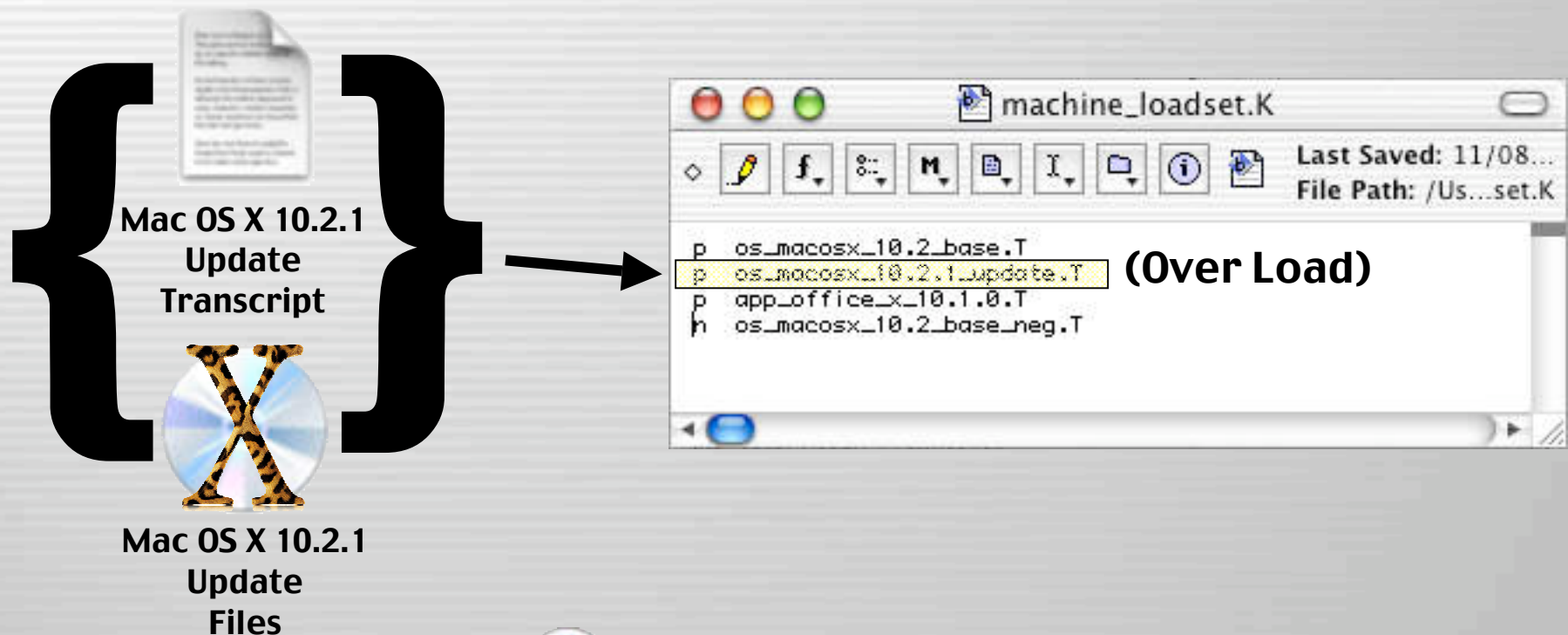
Command File – Base Load

- **Command file (the machine loadset)**
 - A list containing the names of the base load and additional overloads.



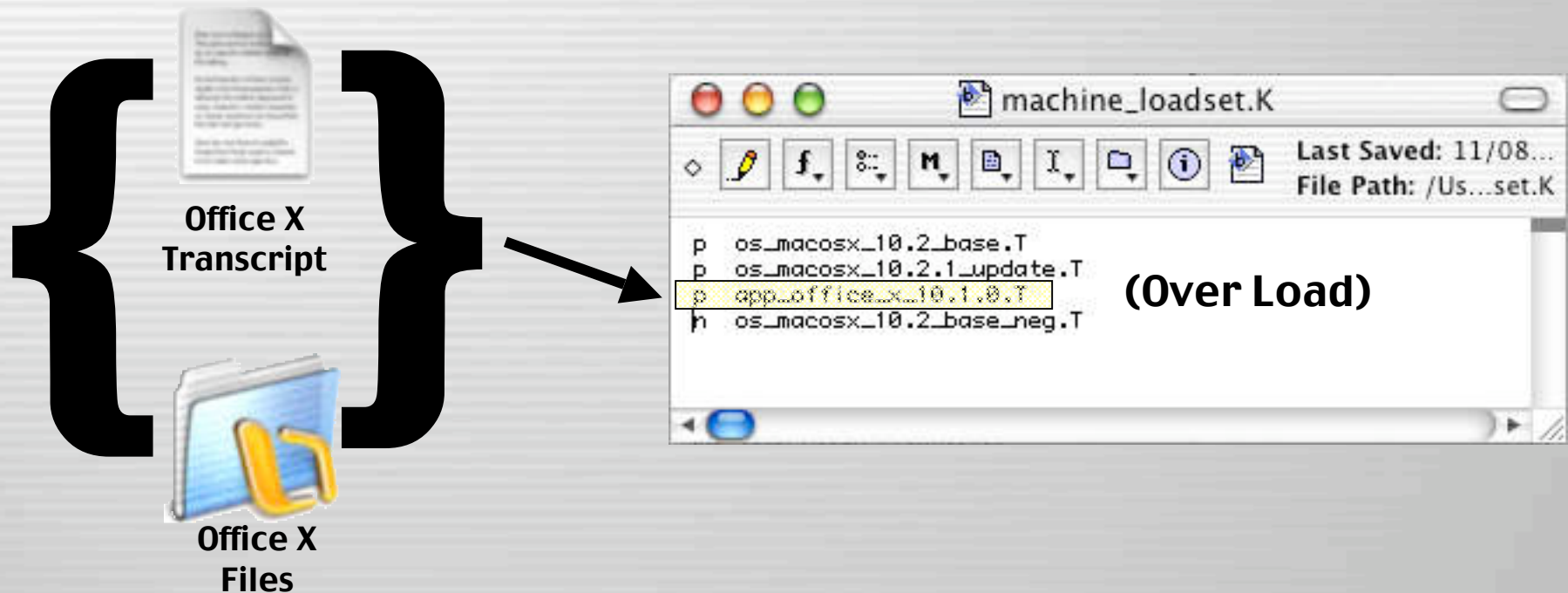
Command File – Over Load

- **Command file (the machine loadset)**
 - A list containing the names of the base load and additional overloads.



Command File – Over Load

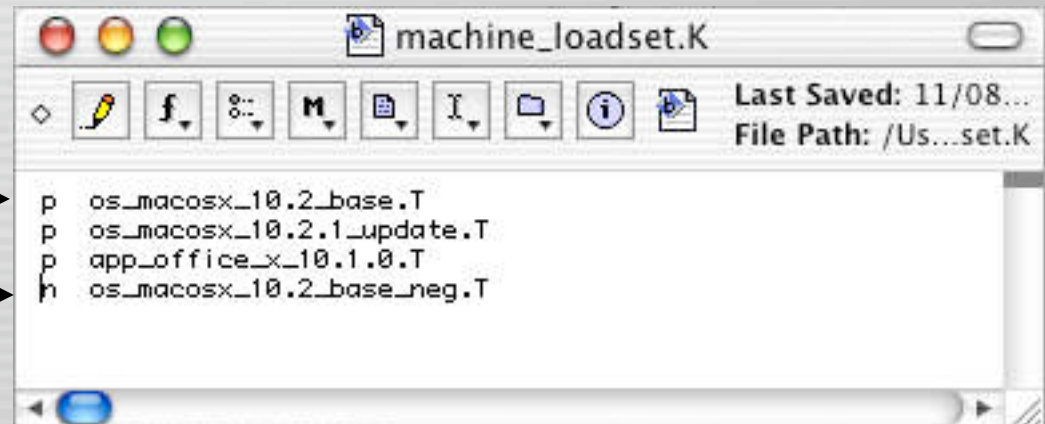
- **Command file (the machine loadset)**
 - A list containing the names of the base load and additional overloads.



Command File – Precedence

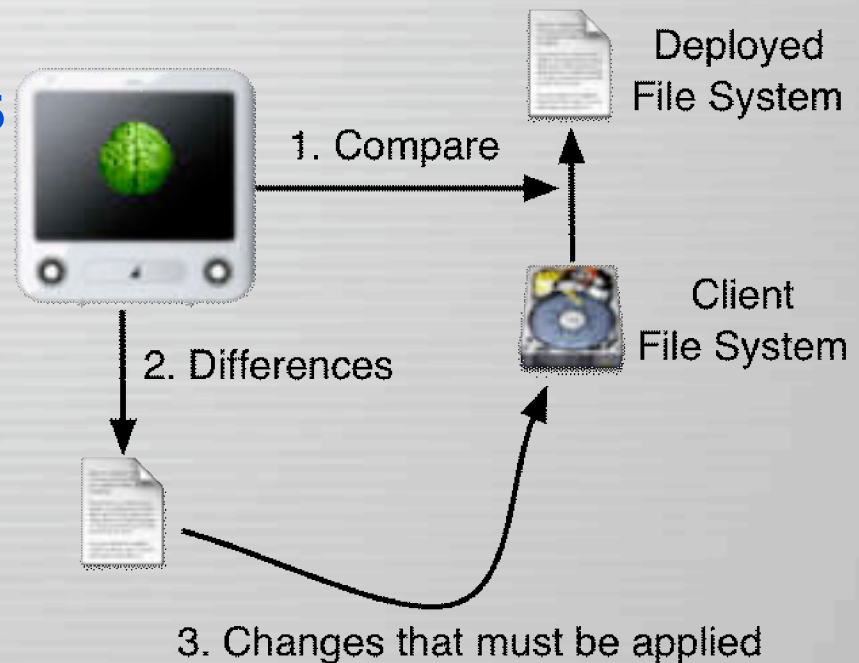
- **Command file (the machine loadset)**
 - Transcripts are listed in order of precedence, from lowest to highest
 - If the same file is listed in two different transcripts the last transcript in the command file is used.

Lowest →
Highest →



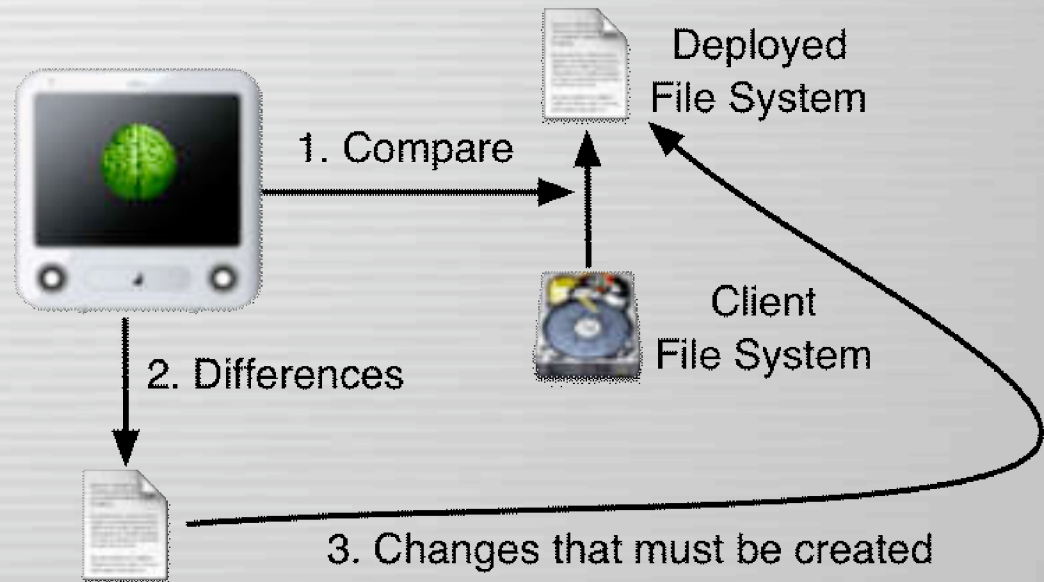
Apply-able Transcript

- **Apply-able Transcript**
 - Is a transcript containing the differences between the deployed & client file system.
 - These are the changes that must be applied to the client for it to match the deployed file system.
 - Used to restore client



Create-able Transcript

- **Create-able Transcript**
 - Is a transcript containing the additions on the client not on the deployed file system.
 - These are the changes that must be created on the deployed file system to match the client.
 - Used to create loadset



Checksum

- **Checksum**
 - Is an computed value which depends on the contents of a file and the formula used to compute this value.
 - Radmin can use checksums to provide more accuracy and security when checking the client's file system and comparing it to machine loadset.
 - This helps protect against file corruption or hacked files, if other file attributes like file size and modification date don't get changed.

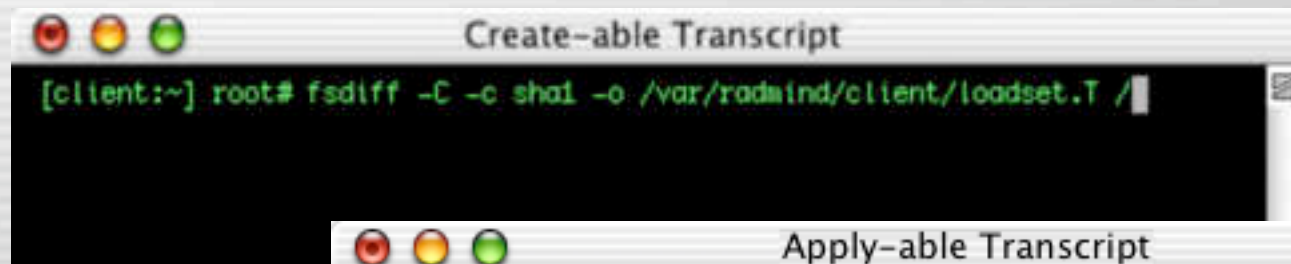
Radmind Tools

Brief description of each tool

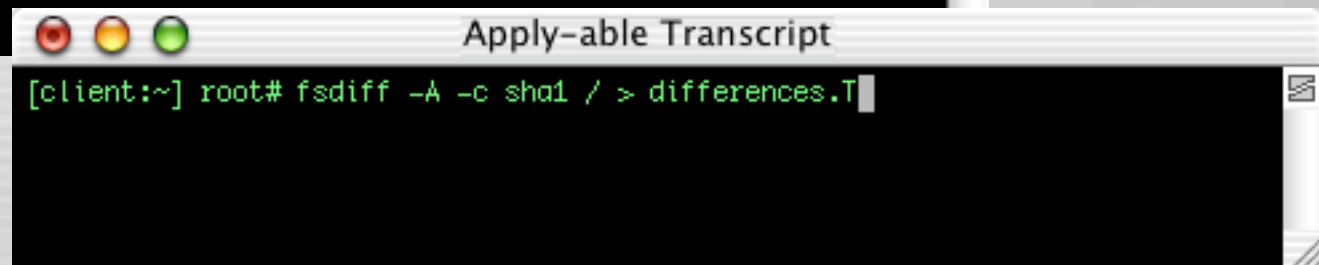


fsdiff (File System Differences)

- The primary radmind tool
- Compares the file system to a set of transcripts described by a command file
- Produces the differences in the form of a transcript
- Never talks on the network



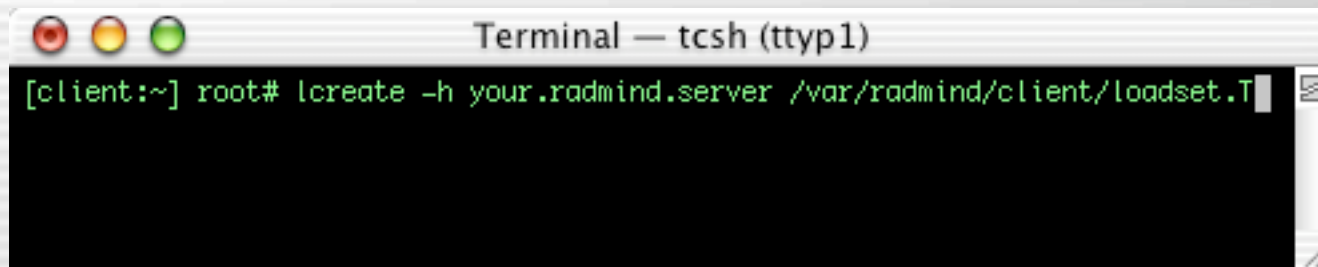
```
[client:~] root# fsdiff -C -c sha1 -o /var/radmind/client/loadset.T /
```



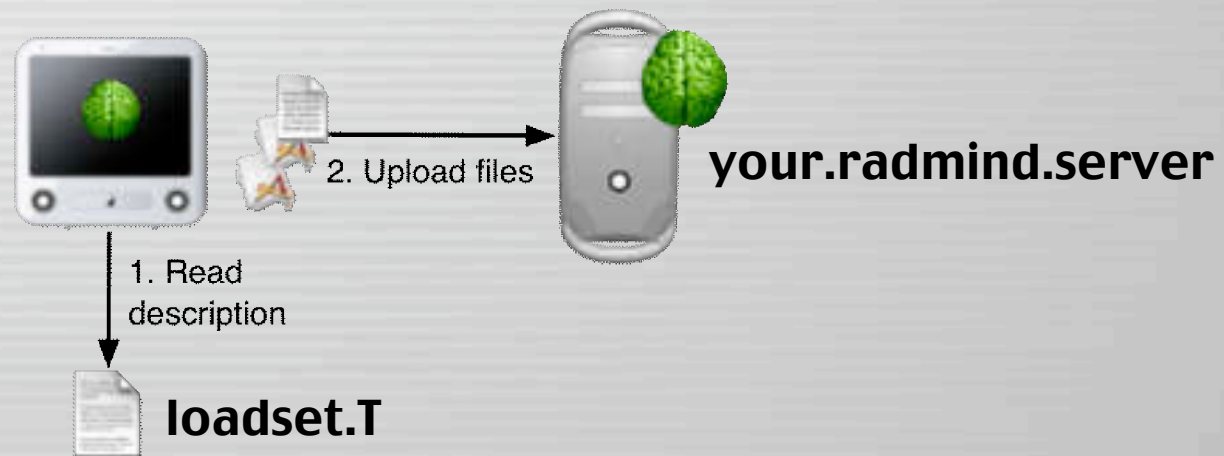
```
[client:~] root# fsdiff -A -c sha1 / > differences.T
```

lcreate (loadset create)

- Uploads a transcript and associated files to the server

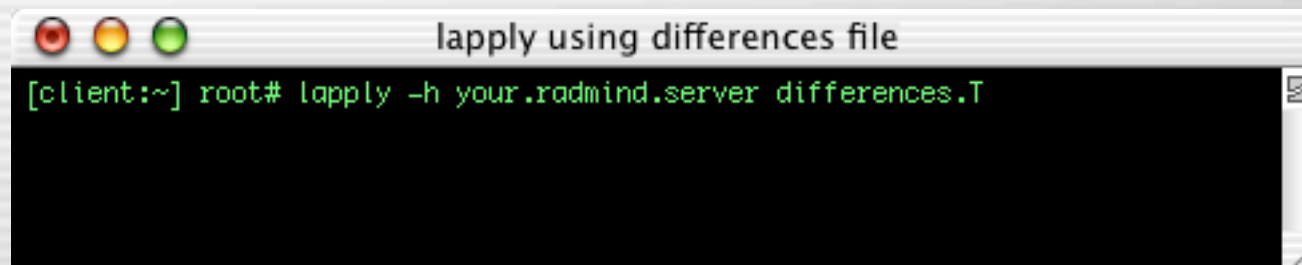


```
Terminal — tcsh (tty1)
[client:~] root# lcreate -h your.radmind.server /var/radmind/client/loadset.T
```

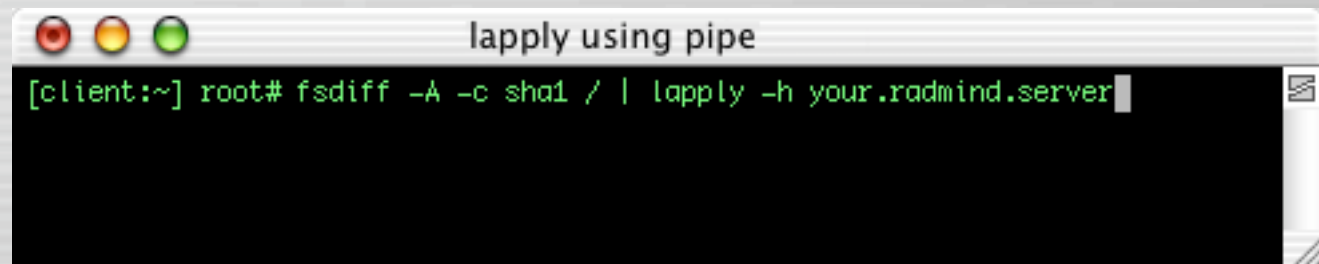


lapply (loadset apply)

- Changes local file system as described by an apply-able transcript
- Retrieves updated files as required from the server



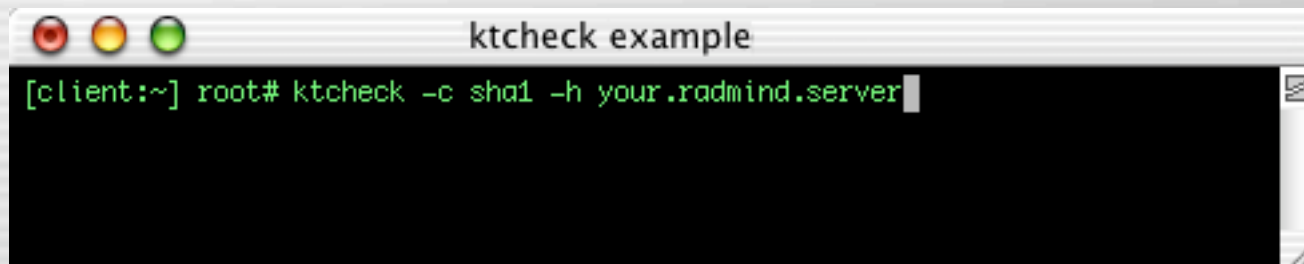
```
lapply using differences file
[client:~] root# lapply -h your.radmin.server differences.T
```



```
lapply using pipe
[client:~] root# fsdiff -A -c sha1 / | lapply -h your.radmin.server
```

ktcheck (command & transcript check)

- Compares local command file and associated transcripts with those stored on the server
- Retrieves updated command files and transcripts from the server

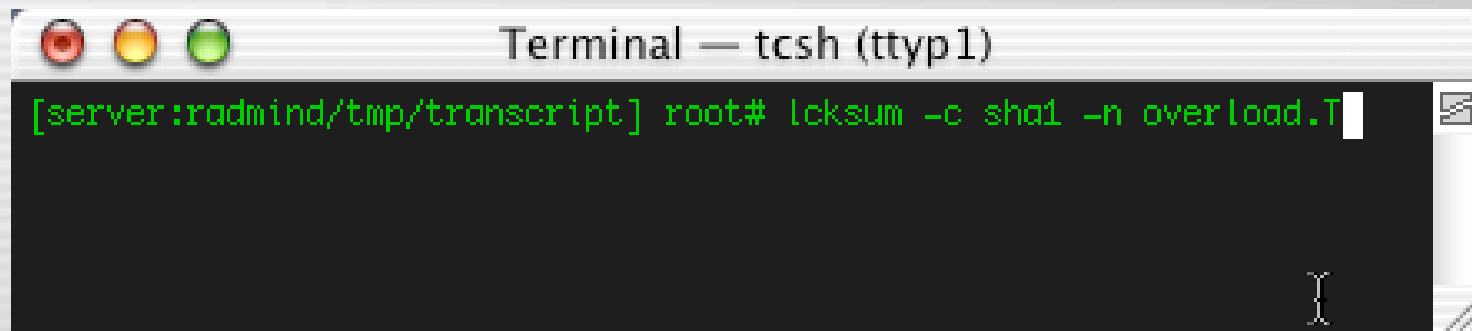


```
ktcheck example
[client:~] root# ktcheck -c sha1 -h your.radmin.server
```



Icksum (loadset checksum)

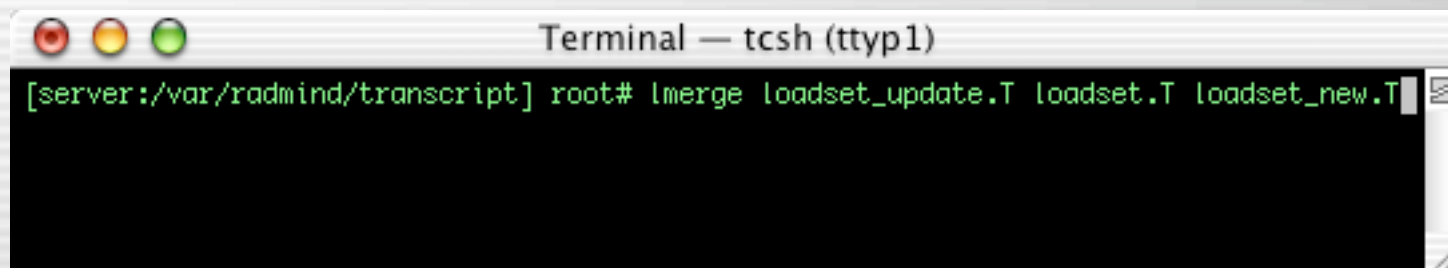
- Verifies the checksum and size of files associated with a transcript on the server

A screenshot of a Mac OS X Terminal window. The title bar reads "Terminal — tcsh (tty1)". The window has three colored window control buttons (red, yellow, green) on the left. The terminal text is green on a black background. It shows the prompt "[server:radmind/tmp/transcript] root#" followed by the command "icksum -c sha1 -n overload.T". A white cursor is at the end of the command. On the right side of the terminal window, there is a vertical scrollbar and a small icon at the bottom right.

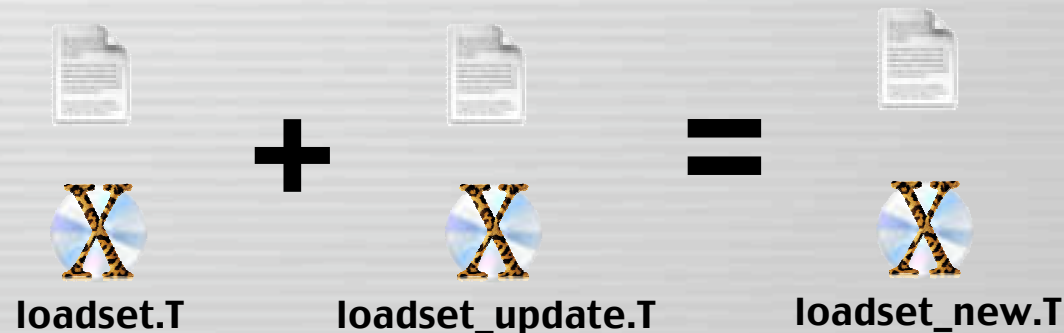
```
Terminal — tcsh (tty1)
[server:radmind/tmp/transcript] root# icksum -c sha1 -n overload.T
```

Imerge (loadset merge)

- Combines two or more transcripts and corresponding files into one loadset



A screenshot of a terminal window titled "Terminal — tcsh (tty1)". The prompt is "[server:/var/radmind/transcript] root#". The command entered is "Imerge loadset_update.T loadset.T loadset_new.T".



Journal

University of Utah – Ramind Integration





U of U Journal

- **First stage (June '02)**
 - Mac OS X 10.1.5
 - Larger Base Load
 - Mac OS X
 - Admin Mods
 - Default Apps
 - Fewer overloads
 - Radmind 0.6
 - Kiosks





U of U Journal

- **Second stage (July '02)**
 - Added authentication
 - Deployed
 - Teaching lab
 - Student labs
 - Staff machines



U of U Journal



- **Third stage (Oct '02)**

- Mac OS X 10.2.1
 - Smaller & more specific base load
 - More granular loadsets
- Radmind 0.9.1
- Kiosks

- **Totals**

- Managed with radmind: 150
- Very little local maintenance



When to run?

Options for running radmind on the client



Every Logout – Modify ttys

- Modify ttys file located in /etc

– Change:

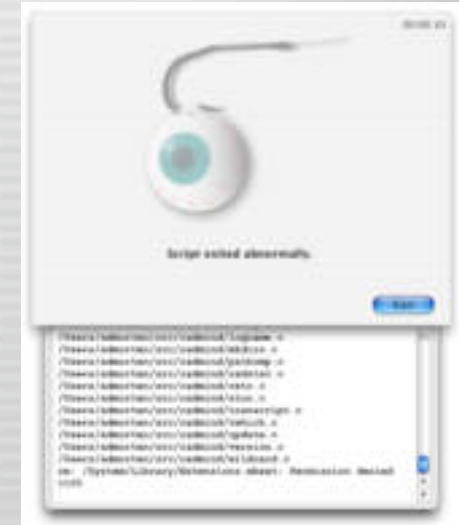
`"/System/Library/CoreServices/loginwindow.app/loginwindow"`

– To:

`"/System/Library/CoreServices/loginwindow.app/loginwindow
-LogoutHook /ect/logout.hook"`

Every Logout – Config iHook

- **Install iHook**
 - GUI for command line executables
 - It's Customizable
 - Layout
 - Background graphic
 - Progress bar
- **Radmind script**
 - Modify provided script
 - Add your setup info
 - Make sure it is user executable
 - Move
 - /etc/logout.hook

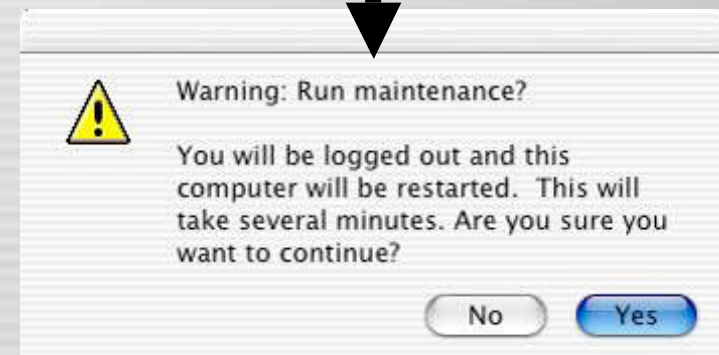


Other Logout Options

- **Staggered logouts**
 - **During time period**
 - If logout occurs between “time x” & “time y” run **radmind**
 - **Every X number of logouts**
 - On the tenth logout run **radmind**
 - **Less time consuming & more user friendly**
 - Users don’t wait as often to login to a Mac
 - One option in a busy lab

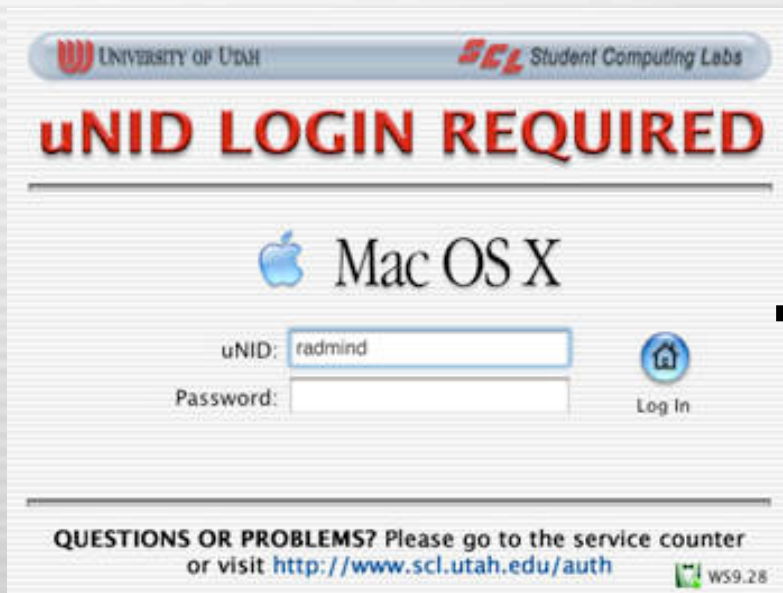
Manually

- Can be launched from icon
- Displays dialog warning user
- Logs out
- Runs **radmind**



Login

- Create a radmind user
- LoginHook checks for specific user
 - Runs radmind if that user logs in



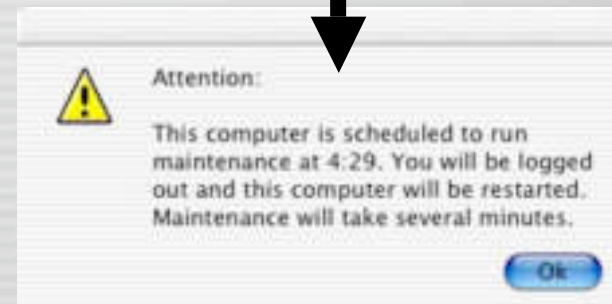
Scheduled

- Cron executes script
- If user logged in
 - Open AppleScript warning user
- Restart
- Run radmind at startup



Terminal — tcsh (tty1)

```
HELL@WIN/SH
PATH=/bin:/sbin:/usr/bin:/usr/sbin
HOME=/var/log
15 7 * * * root periodic: daily
30 7 * * * root periodic: weekly
45 7 * * * root periodic: monthly
0 5 * * * root /Library/Admin/hidden/Scripts/VM_Cron
0 5 * * * 1,3,4 root /sbin/reboot
```



Single User mode

- Tell radmind to run **after** network loads
 - Useful if machine doesn't fully boot

```
StorageBlaBla/Maxtor 90648D2Media/IOApplePartitionScheme/MacOS@5
```

```
BSD root: disk0s5, major 14, minor 5
```

```
devfs on /dev
```

```
Nov 11 16:17:3 mach_init[2]: Started with uid=0
```

```
Singleuser boot -- fsck not done
```

```
Root device is mounted read-only
```

```
If you want to make modifications to files,  
run '/sbin/fsck -y' first and then '/sbin/mount -uw/'
```

```
Welcome!
```

```
sh-2.04a# runRadmin
```

```
This mac will reboot and run radmind. Are you sure? Yes
```

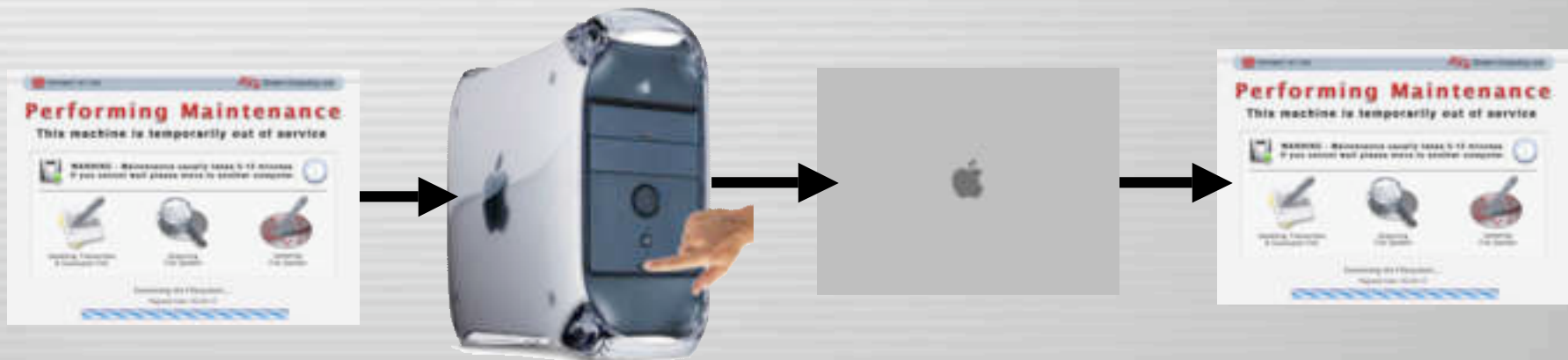
```
Saving status...
```

```
Rebooting...
```



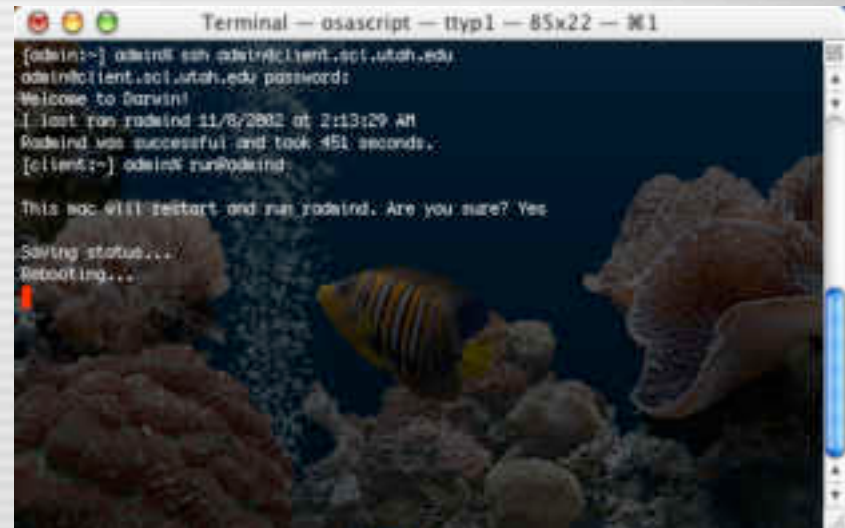
Catch Force Restart

- Will continue running at startup until completed.
 - Prevent user from bypassing radmind execution
 - Power failures during execution, etc.



Network-based

- **SSH**
 - Admin SSH's to clients and runs radmind
- **Web Server**
 - Regular cron job curls a web page
 - If webpage contains machine identifier, run radmind
 - Allows lab faculty & staff to remotely run radmind
 - Does not require SSH to be enabled

A screenshot of a Mac OS X Terminal window titled "Terminal — osascript — ttty1 — 85x22 — M1". The terminal shows an SSH session from a client to a server. The user logs in as 'admin' and runs 'radmind'. The output shows the last successful run of radmind on 11/8/2002 at 2:13:29 AM, took 451 seconds, and was successful. The user then runs 'radmind' again, and the terminal shows 'Saving status...' and 'Rebooting...'. The background of the terminal window is a dark blue image of a fish swimming near coral.

```
Terminal — osascript — ttty1 — 85x22 — M1
[admin:~] admin@ssh.admin@client.sci.utah.edu
admin@client.sci.utah.edu password:
Welcome to Darwin!
I last ran radmind 11/8/2002 at 2:13:29 AM
Radmind was successful and took 451 seconds.
[client:~] admin@ runradmind

This mac will restart and run radmind. Are you sure? Yes

Saving status...
Rebooting...
```


Customizing Scripts

Enhancing tools with scripts



Customized Scripts

- **More efficient**

- **Why type this:**

- ```
fsdiff -c sha1 -C / > /var/ramind/overload.T
```

- ```
lcreate -c sha1 -h your.ramind.server /var/ramind/overload.T
```

- If you can type:**

- ```
createPosTranscript overload.T
```

- ```
uploadOverload overload.T
```

- **Combine tool commands like:**

- ```
ktcheck -c sha1 -h your.ramind.server
```

- ```
fsdiff -A -c sha1 > differences.T
```

- ```
lapply -c sha1 -h your.ramind.server differences.T
```

- Into a custom script:**

- ```
prepForOverload
```

Customized Scripts – Speech

- Use speech or sound on custom scripts

`osascript -e 'say "c"'`

– Use with tools to notify completion like:

- Scanning file system with `fsdiff`
- Changing client file system with `lapply`
- Uploading overload with `lcreate`
- Verifying & moving overload with `lcksum` & `mv`

Customized Scripts – Backup

- **Backup**
 - Create custom script to verify, move & backup loadsets
 - Create a backups or old folder for loadsets:
 - /var/radmind/transcripts
 - /var/radmind/files

```
Terminal — tcsh (tty1)
[server:/var/radmind/transcript] root# ls -l
total 0
-rw-r--r--  1 root  wheel   0 Nov  8 18:28 app_office_10.1.0.T
drwxr-xr-x  2 root  wheel  68 Nov  8 18:20 backups
drwxr-xr-x  2 root  wheel  68 Nov  8 18:26 old
-rw-r--r--  1 root  wheel   0 Nov  8 18:27 os_macosx_10.2.1_update.
T
-rw-r--r--  1 root  wheel   0 Nov  8 18:27 os_macosx_10.2_base.T
-rw-r--r--  1 root  wheel   0 Nov  8 18:28 os_macosx_10.2_base_neg.
T
[server:/var/radmind/transcript] root#
```

```
Terminal — tcsh (tty1)
[server:/var/radmind/file] root# ls -l
total 0
-rw-r--r--  1 root  wheel   0 Nov  8 18:30 app_office_10.1.0.T
drwxr-xr-x  2 root  wheel  68 Nov  8 18:30 backups
drwxr-xr-x  2 root  wheel  68 Nov  8 18:30 old
-rw-r--r--  1 root  wheel   0 Nov  8 18:30 os_macosx_10.2.1_update.
T
-rw-r--r--  1 root  wheel   0 Nov  8 18:30 os_macosx_10.2_base.T
-rw-r--r--  1 root  wheel   0 Nov  8 18:30 os_macosx_10.2_base_neg.
T
[server:/var/radmind/file] root#
```

Completion Status

Notification options for status



Visual Radmind Status

- Why
 - Gives status to lab staff & users
 - Useful when there is an important update or problem



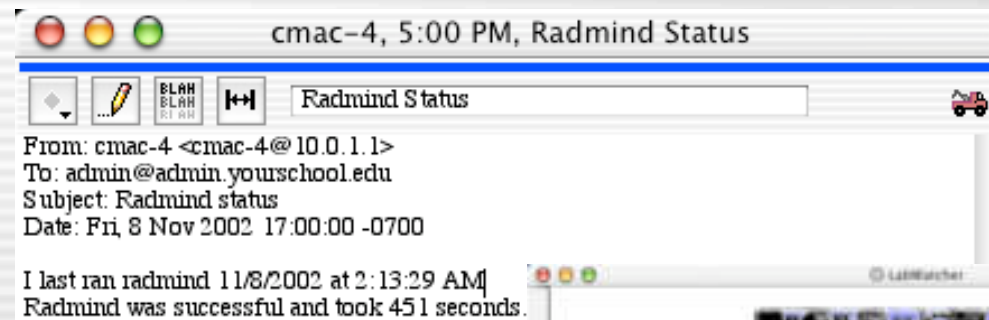
- System Menu
 - Menuversum

- Login Panel



Remote Radmind status

- Email
- Database
- SSH
- Etc.



U of U Customizations

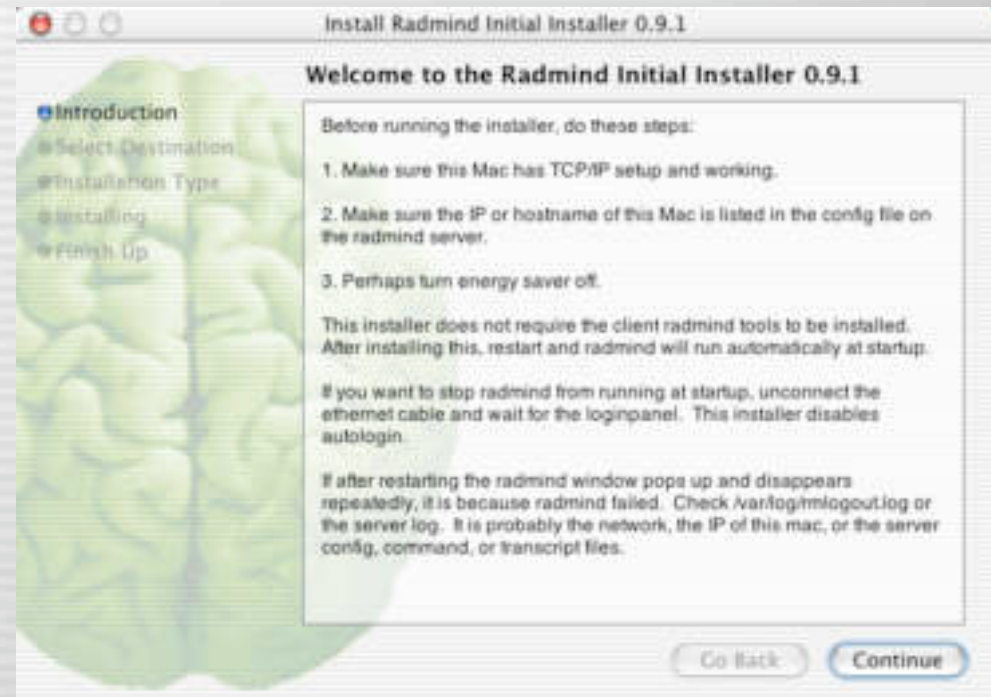
University of Utah – Ramind Customizations





Initial Installer

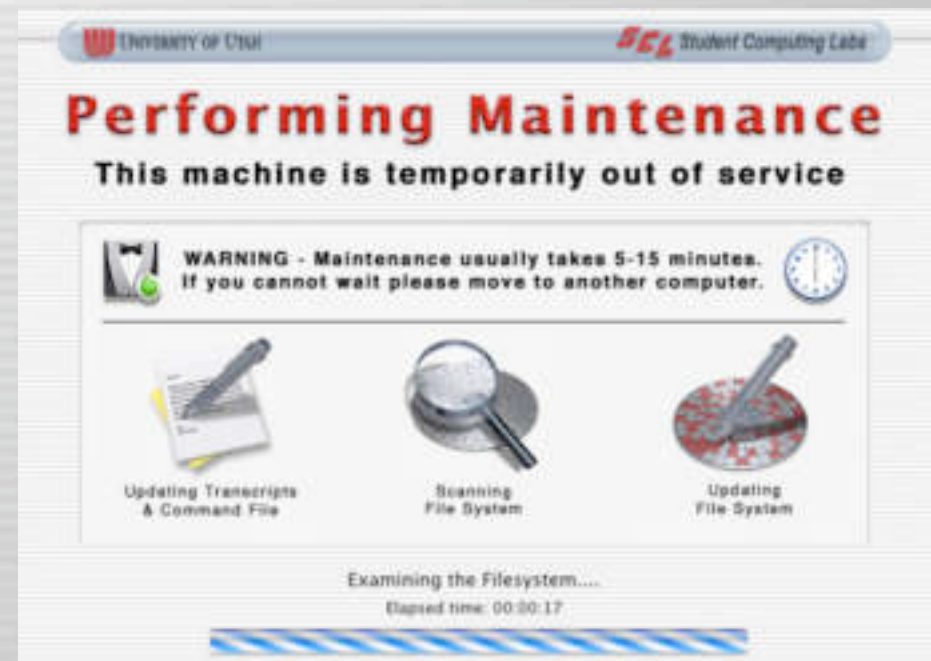
- **Install base OS**
 - Imaging Software
 - Install CD
- **Run Initial Installer and restart**
 - Requires no other installs
- **Then radmind updates client**
 - Will continue running even if restarted
 - Runs without risk of being used or compromised





Custom “please wait”

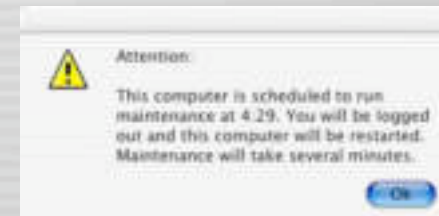
- Big and obvious (to most users ;-)
- Covers login panel when running at startup
- Prevents users from logging in and using apps
- Prevents users from force quitting
- Uses iHook to display graphic and other GUI



When we run radmind



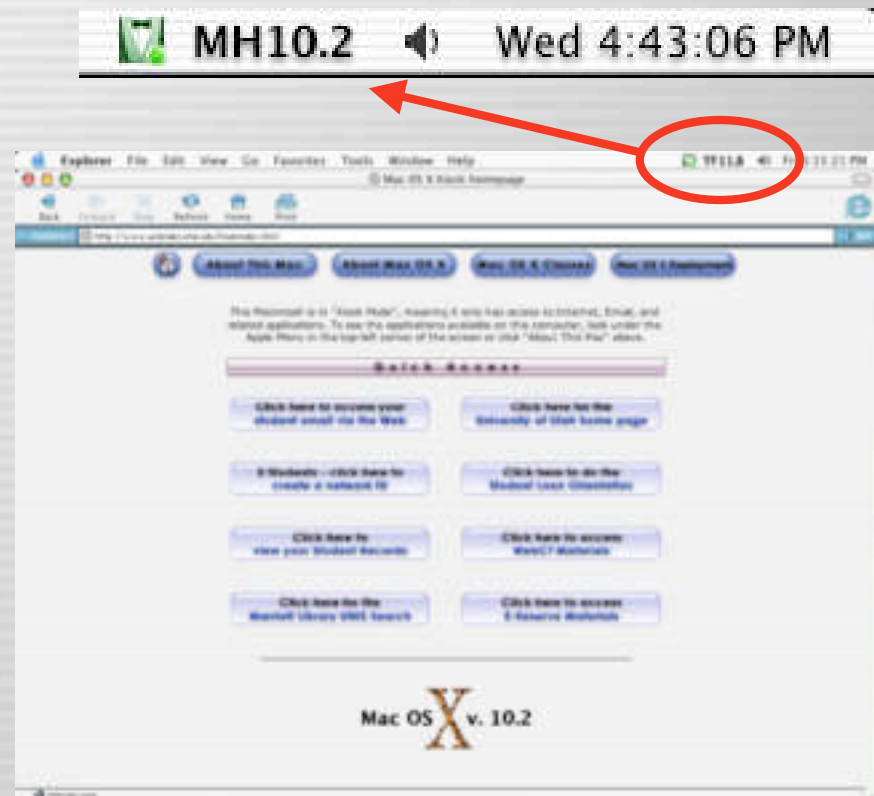
- When a specific user logs in
- With cron,
 - every 3rd day between 1 am – 6 am
 - Load balanced
 - Regularly pushes out updates
- Manually
 - Logs out & runs radmind
- Single User mode
 - If it won't boot to GUI





Custom System Menu

- **Green Icon**
 - No problems w/ radmind
- **“MH” – cron days**
 - Monday & Thursday
- **“10.2” date last ran**
- **Useful when Mac logged in**
 - Usually visible
 - Versus Apple Menu, Dock or Desktop





Custom system menu

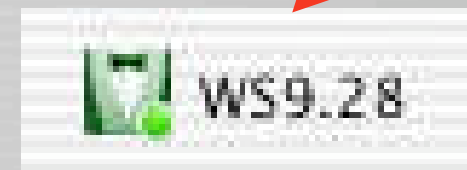
- Red Icon
 - Problems
 - “!” is a code
 - type of problem
 - Other codes
 - CN
 - *





Custom login panel

- Green Icon
 - No problems
- “WS” – cron days
 - Wednesday/Saturday
- “9.28” date last ran
- Useful when Mac logged out
 - Usually visible
 - Unless off or sleeping





Custom login panel

- Red Icon
 - Problems
- Example of problems:
 - Mac was off when scheduled to run
 - Admin broke scripts
 - Admin broke loadset
 - Server not found
 - Radmin bug



Radmind Status Database



- Server
 - FileMaker Pro



- Client
 - CURL
 - Preinstalled in Mac OS X



The screenshot shows a web browser window titled "LabWatcher". At the top is a small image of a lab setup. Below it is a table with columns: "Mac DNS name", "Date", "Time", "From", and "Message". The table contains several rows of data, all showing successful Radmind operations on 11/8/2002. The messages include details about the duration of the operations in seconds.

Mac DNS name	Date	Time	From	Message
c1mac-4.unionlab.utah.edu	11/8/2002	2:13:29 AM	Radmind	Radmind successful and took 451, total time is 451 seconds
c1mac-6.unionlab.utah.edu	11/8/2002	2:13:30 AM	Radmind	Radmind successful and took 453, total time is 453 seconds
c1mac-8.unionlab.utah.edu	11/8/2002	2:13:33 AM	Radmind	Radmind successful and took 456, total time is 456 seconds
c1mac-5.unionlab.utah.edu	11/8/2002	2:13:39 AM	Radmind	Radmind successful and took 461, total time is 461 seconds
c1mac-9.unionlab.utah.edu	11/8/2002	2:13:40 AM	Radmind	Radmind successful and took 463, total time is 463 seconds
155.99.57.168	11/8/2002	2:29:53 AM	Radmind	Radmind successful and took 1414, total time is 1414 seconds
emac-11.emcb.cc.utah.edu	11/8/2002	2:43:01 AM	Radmind	Radmind successful and took 422 seconds
emac-12.emcb.cc.utah.edu	11/8/2002	2:43:08 AM	Radmind	Radmind successful and took 430 seconds
emac-13.emcb.cc.utah.edu	11/8/2002	2:43:09 AM	Radmind	Radmind successful and took 431 seconds
ms_osx.2.mimc.utah.edu	11/8/2002	2:43:58 AM	Radmind	Radmind successful and took 776, total time is 776 seconds

Tips

Tips & suggestions for using radmind

Tips – File Naming

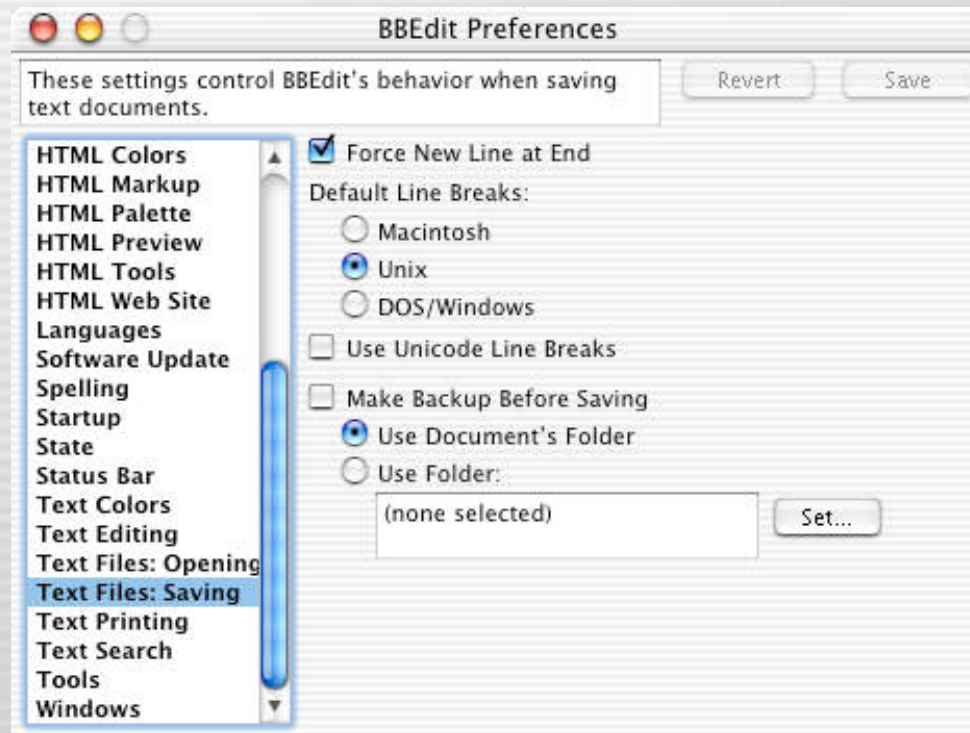
– Use prefix on loadset names:

- os– For OS installs, updates, etc.
- admin – For administrative scripts/modifications
- app – For applications
- cron – For cron jobs
- special – For group/lab customization

– Makes it easier to track & update loadsets

Tips – BBEdit Setup

- To use BBEdit with Radmind
 - Modify preference for Text File: Saving select:
 - “Force New Line at End” and “Unix linefeeds”



Tips – Pico

- **Pico will hard wrap like “Wu Tang Clan”**
 - Even if you use option `-w` with it will sometimes wrap `radmind` transcript files.
 - It might be better to NOT to use `pico`
 - If you want a GUI use `BBEdit`
 - If you want to use a “real” Unix text editor use `vi` or `emacs`.

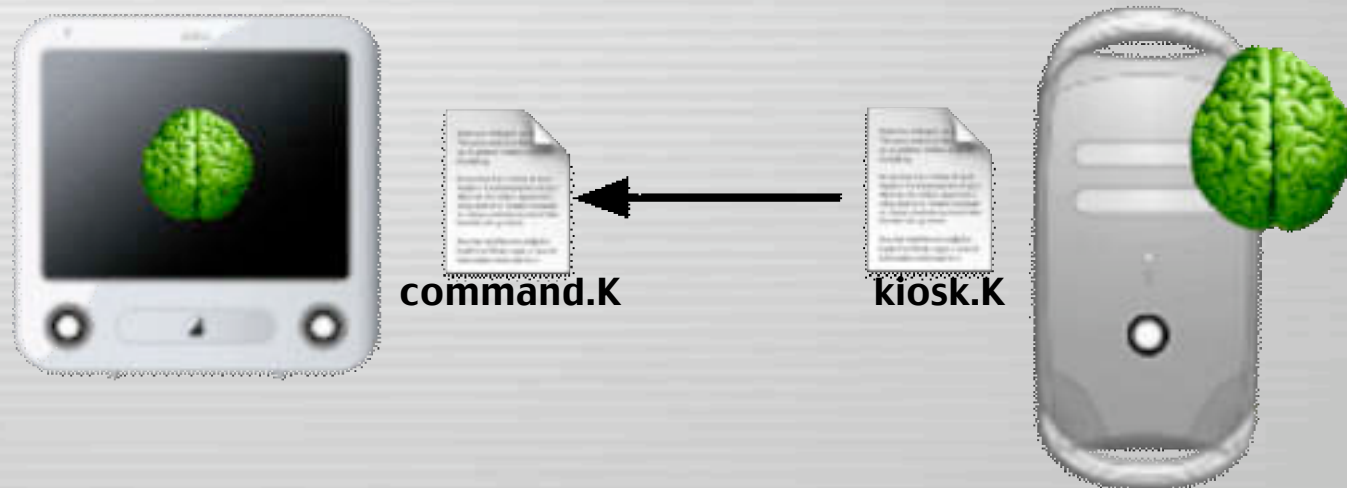
```

Terminal — ttty1
GNU nano 2.8.3 File: maco-pass.txt
# 1775 0 00
d ./_DS_Store 0666 501 00 18244366687 6282 VJd
d ./VolumeIcon.icns 0644 501 00 18231366652 67596 WdF
d ./_hidden 0444 0 0 999484036 246 Jsd
d ./Applications 0775 0 00
d ./Applications/_DS_Store 0666 501 00 1818383816 6282 VJd
d ./Applications/AdmIn 0750 501 00
d ./Applications/AdmIn/_DS_Store 0666 501 00 18244421879 18238 WdF
d ./Applications/AdmIn/Applications/Profiler.app 0775 0 00
f ./Applications/AdmIn/Applications/Profiler.app/Contents 0775 0 00
f ./Applications/AdmIn/Applications/Profiler.app/Contents/Info.plist 0664 1
f ./Applications/AdmIn/Applications/Profiler.app/Contents/MacOS 0775 1
f ./Applications/AdmIn/Applications/Profiler.app/Contents/MacOS/Applications 0775 1
f ./Applications/AdmIn/Applications/Profiler.app/Contents/MacOS/Profiler 0775 1
f ./Applications/AdmIn/Applications/Profiler.app/Contents/Resources 0775 1
f ./Applications/AdmIn/Applications/Profiler.app/Contents/Resources/ASAP.tone 1
d ./Applications/AdmIn/Applications/Profiler.app/Contents/Resources/ASAPGather1
d ./Applications/AdmIn/Applications/Profiler.app/Contents/Resources/ASAPGather2
f ./Applications/AdmIn/Applications/Profiler.app/Contents/Resources/ASAPGather3
Read 4908 lines, Long lines wrapped
# Set Help WriteOut Read File Prev Pg Cut Test Cur Pos
# Exit Justify Where is Next Pg UnCut Test To Spell

```

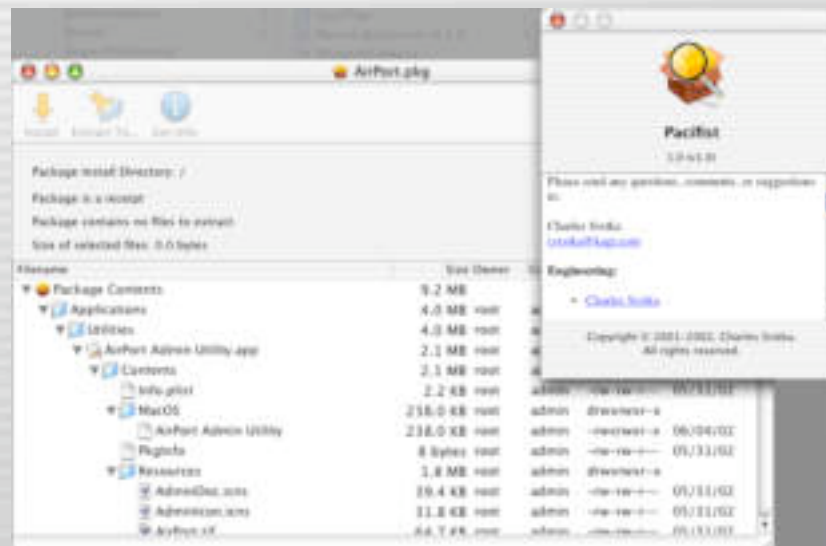
Tips – Command File Renaming

- Command file downloaded from server is renamed to “command.K” on client
 - Server command file can be specifically named something like “kiosk.K”
 - But will always be named “command.K” on client



Tips – Examine .pkg installers

- To help track and compare software installs to the radmind transcript.
- It is sometimes useful to use a utility like Pacifist that will allow you to extract and view package installers.



Summary

- **Handouts available**
 - Radmind presentation
 - Detailed Description
 - RSUG – Mac OS X Tutorial
 - RSUG – TLS Cookbook
 - Radmind Tools Man Pages
- **Web page will be available in near future.**
 - www.macoxlabs.org/documentation/documentation.html



Q & A

Thanks for your time & attention