

# Apple/Novell Integrations

Wednesday, December 17, 2003

[www.novell.com](http://www.novell.com)

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Novell.

# N Agenda

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- Integration of Apple Desktops and NetWare 5.1 and 6
- Configuration Options for Native File Access
- Apple's LDAP integration into Mac OS
- NetWare 6+: Moving to the Web
- Novell's Future Plans for Macintosh support
- Staying informed
- Question and answer



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## Connectivity with NetWare 5.1 & 6.x

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### Native File Access for Macintosh for 5.1 and in 6

- AFP (Apple Filing Protocol) v2.2 protocol support over TCP/IP (Mac OS 8.1 and above)
- No support for AppleTalk transport

### Native File Access for Macintosh in NetWare 6.5

- Adds AFP v3.1 protocol support over TCP/IP (Mac OS 10.2.3 and above) (v2.2 still supported)
- Long File Names, >4GB files, Auto Reconnect, NSS integrated.

### Native File Access for Windows for 5.1 and in 6.x

- Mac OS 10.2 supports access to CIFS servers (MS Networking).
- Not officially supported by Novell for Mac OS X

# N TCP/IP Printing Support

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## TCP/IP network printing through LPR/LPD

- No-Frills Unix printing model
- NetWare 5.x, 6.x support LPR/LPD clients for network printing
  - Enter the IP address of the Novell Distributed Print Services (NDPS) server
  - Specify the queue name (this is the name of the Printer Agent on the NDPS server)

## TCP/IP network printing through IPP


- Mac OS 10.2 and above only\*






<http://developer.novell.com/research/appnotes/2001/july/03/a010703.htm>


## Connect to Server

Choose a server from the list, or enter a server address

At:  RUSH  

Local Network 

-  mac.provo.novell.com
-  MIKEDEV-DELL1
-  NDS153-161
-  NDS153-188
-  RUSH



afp://137.65.67.35

5 items

Address:

Add to Favorites

Cancel

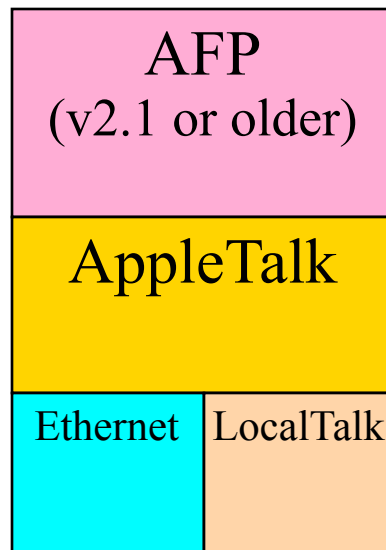
Connect

Novell.

# N

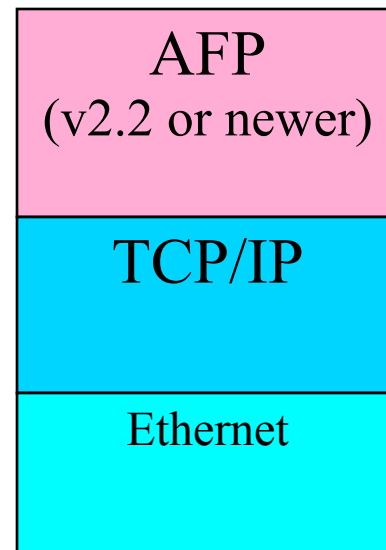
## AppleTalk vs. TCP/IP

Old



Network must support  
AppleTalk and TCP/IP

New



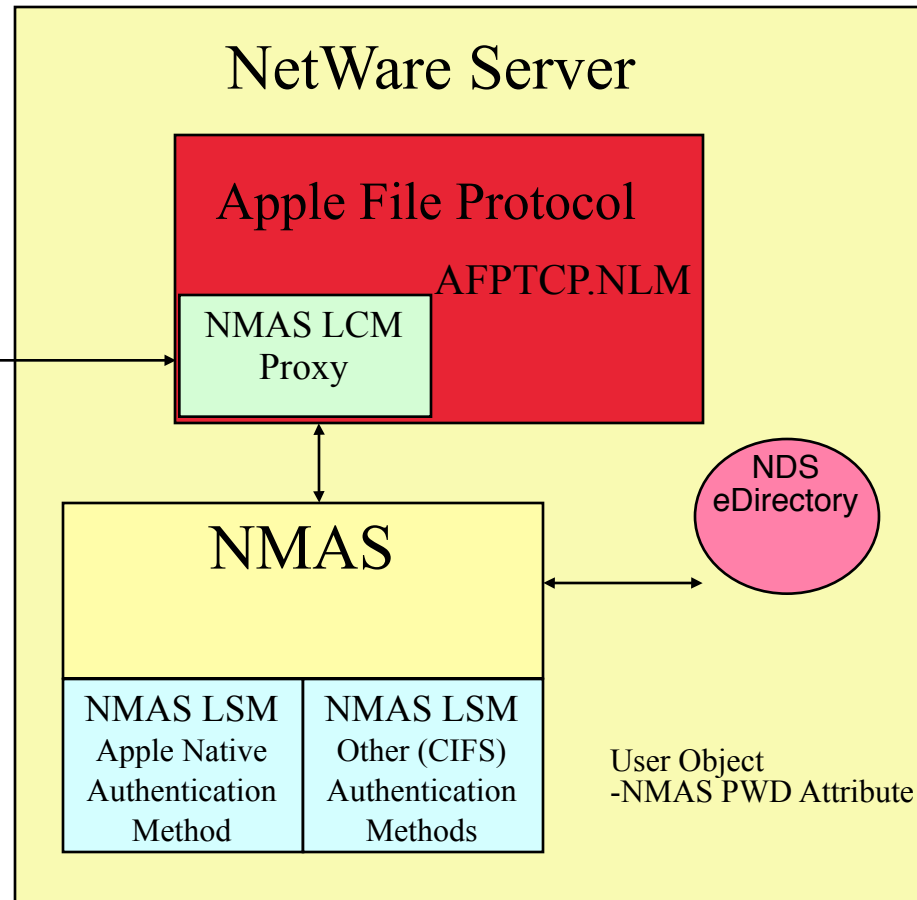
Network just supports TCP/IP

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# Native Authentication



Mutual Authentication  
2-way encrypted



NMAS=Novell Modular Authentication Services  
LCM=Login Client Method  
LSM=Login Server Method

# N

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# Configuration Options for AFPTCP

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## Command Line Load Options Explained

- cleartext
- count
- noSharing
- returnDefaultRights
- log
- guest
- setnoworldrights
- threads <n>
- NoUnloadCheck
- RenameFromNWVolName

## Console Commands

- DTRESET <AFP Volume Name>

# N

## Cleartext

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Enables cleartext login. The password that is entered on the Mac will go over the wire unencrypted. AFPTCP will first try to use it as a Simple Password. If that fails, AFPTCP will try to it as the NDS password. If that succeeds, AFPTCP will then set the Simple Password to this proven NDS password.

This is intended for startup and an easy way to get users a simple password that is in synch with their NDS password. The user can start AFPTCP with the cleartext option, run that way until everyone has had a chance to login once (say a week) then reload AFPTCP without the cleartext option

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## Count (N/A in NW6.5)

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This will give an exact count of the number of offspring in a directory. Turning this option on will impact performance negatively. When asked for an offspring count, AFPTCP looks to see if there are any files or folders in the target folder. If the folder is empty, AFPTCP returns 0. If AFPTCP finds at least one entry in the folder, AFPTCP returns 100. This lie is told to improve performance.

This is intended to fix a problem seen with Mac OS X machines. When dragging folders to the trash, if the offspring count is wrong, the folder will not be deleted. The files in the folder will have to be dragged to the trash first, then the folder. You will see this problem anywhere a folder is being deleted. If you copy a folder over a folder of the same name, the destination folder will be deleted first, then the copy begins. This preparatory delete will fail, and the file copy will fail. These problems are not seen on Mac OS 9. Setting the count option will fix the problems with deleting a folder.

Count is on by default in NW6.5 (option removed).

# N

## NoSharing

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This turns off fetching rights for the owner, groups, and everyone and returns a set of default rights when asked. The rights for the current user are returned accurately and GUI clues on the Mac will be accurate (i.e. a pen will appear on the folder if you have write rights).

This is intended to bypass performance problems if the request for rights results in a query going off the box. If the DS query goes off the box, a delay of 20 seconds or more may be experienced.

This will disable the ability of Mac users to use the "file sharing" dialog. The File Sharing dialog allows users to assign a group or user rights to a folder (or assign a group or user as owner). In place of user and group names the message (Use NetWare Utilities) is displayed. In general, it is preferred that NetWare utilities be used to setup rights assignments. The file sharing dialog is seen as an easy way for teachers to assign rights for a class to a folder from the Mac.

# N

## ReturnDefaultRights

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This takes the "noSharing" option one step further and doesn't even look up rights for the current user. When any rights are requested, a standard set of default rights are returned. NetWare will still enforce the current user's rights, but they user may see inaccurate GUI clues. For example, he may see a pen on a folder indicating he has write access, when in fact he has read only access. Another example, a folder which is intended to be a drop box will have an icon for a regular folder instead of the drop box icon.

This is intended for testing purposes. If the noSharing option doesn't improve performance, you can try this option and see if performance improves. If no improvement is seen, the poor performance is not a DS problem.

# N

## Log

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This option logs some errors or potential errors and general status statements to `sys:\etc\afptcp.log`

If you are interested in a particular error, start AFPTCP with the log option, navigate on the Mac to just before the error occurs, delete `sys:\etc\afptcp.log` to clear out the current entries, then do the one click or keystroke that triggers the error. Rename the `afptcp.log` file. This will isolate the entries in the log file to just those that occurred during the problem.

Not all errors are logged. Some entries that are made are not really errors, but more a status message. For example if a file is not found, that will be logged, although it may not really be an error. It could be the Mac was just checking to see if the file existed. It is kind of a hit and miss thing, but may provide some clues. This is especially useful for login problems.



## Guest

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This option enables the "guest" radio button on the Mac login dialog. Without this option, the "guest" option will be grayed out.

In order to login as guest, the admin must set up a guest account with no password. If the guest account has a password, the guest login will not work.

If this option is used, the "guest" radio button will be available. If the user selects the radio button, there is no opportunity to enter a password and the user is logged in as guest with whatever rights have been assigned to guest.

# N

## SetNoWorldRights

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This option can be used if Mac OS 10.0.x through 10.2.2 clients are in the network and are creating folders on the server.

Mac OS versions 10.0.0 through 10.2.2 have a bug in them where when a folder is created, the Mac will EXPLICITLY set read and filescan rights for World (everyone) to the folder and its contents. This problem is not unique to NetWare, it will happen on AppleShare or Xserve as well. If the user does not have the NetWare Access Control right, this problem does not happen on NetWare.

Apple has fixed the bug in Mac OS 10.2.3 and later. This option is in Novell's Consolidated Support Pack 9 and later only.

Turning on this option will cause AFPTCP to ignore the Set rights requests coming from Macintosh clients. With this option on, the user cannot set rights to give access to others. They would need to do this from a Windows client (or a web browser with NetWare Nakoma).



# N

## Threads <n>

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This sets the number of threads that AFPTCP uses to process AFP traffic. The default is 32 threads. You can set it from anywhere from 1 to 32. Since this NLM is not multi-processor aware, all threads are running on the same processor and having more threads may not give you better performance. In fact, having less threads may give you better performance. We have not tested this.

This was intended for testing purposes and to see what effect on performance the number of threads may have. Each thread makes an unlicensed connection. You can decrease the number of unlicensed connections by decreasing the number of threads.

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## NoUnloadCheck

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This will not check for active connections at unload time. It will simply unload the NLM regardless of who is connected and what files they may have open.

It could be used as a workaround for the NetWare 5.1 unload problem, where the NLM will not unload after the check. If you eliminate the check, the NLM will unload, however, you will have no warning about active connections and open files.

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## RenameFromNWVolName

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This allows NetWare volume names to be used in the afpvol.cfg file when renaming volumes. Afpvol.cfg is found in sys:\etc\afpvol.cfg and the comments in the file contain all instructions, syntax and examples.

AFP on NetWare exposes the volumes in the format servername.volumename by default. For clustering, this must be changed so that a volume can properly fail over between nodes in the cluster.

Example:

```
# AFPVOL.CFG for ServerA in cluster:  
ServerA.vol1 "sharedVol1"  
ServerA.vol2 "sharedVol2"  
# AFPVOL.CFG for ServerB in cluster:  
ServerB.vol1 "sharedVol1"  
ServerB.vol2 "sharedVol2"
```

# N

## DTRESET <AFP VolumeName>

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This is a console command which will reset (rebuild) the desktop database.

Some users have complained that occasionally they get a -50 error, and when they do, rebuilding the desktop is their solution. (We don't know why they get the error or why this fixes it.) This starts the rebuild and displays a message when it is complete. Each volume has a desktop. Do NOT rebuild more than one desktop at a time. There are no checks to prevent you from doing this, but if you do, you can abend the server. Running just one desktop rebuild at a time, does not have a problem.

The syntax for the DTRESET command takes the AFP volume name as a parameter. The AFP volume name is the volume name as it appears in chooser. The default volume name is server.volume and may be renamed through afpvol.cfg.



## CTXS.CFG

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This configuration file is located in `sys:\etc\ctxs.cfg` and is where the various NDS contexts are indicated telling AFPTCP where to search for users.

Native Macintosh authentication only understands a flat naming structure, not a hierarchy. This file tells AFPTCP which NDS contexts in the NDS tree hierarchy to search for the username that is attempting to login to the server.

By default, the context of the server object is the only context searched for user objects.



# Passwords

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## NDS RSA Password

- Used with the Novell Client or Prosoft Client
- Non-reversible value stored in an attribute on the user object in NDS
- Only the NDS RSA method can make sense of this password value!

## NMAS Simple Password

- Reversible value stored in an attribute on the user object in NDS.
  - Only NMAS has rights to this attribute.
  - Only NMAS has the key to decrypt the value.
- Can be used by any authentication method

# N Passwords (cont.)

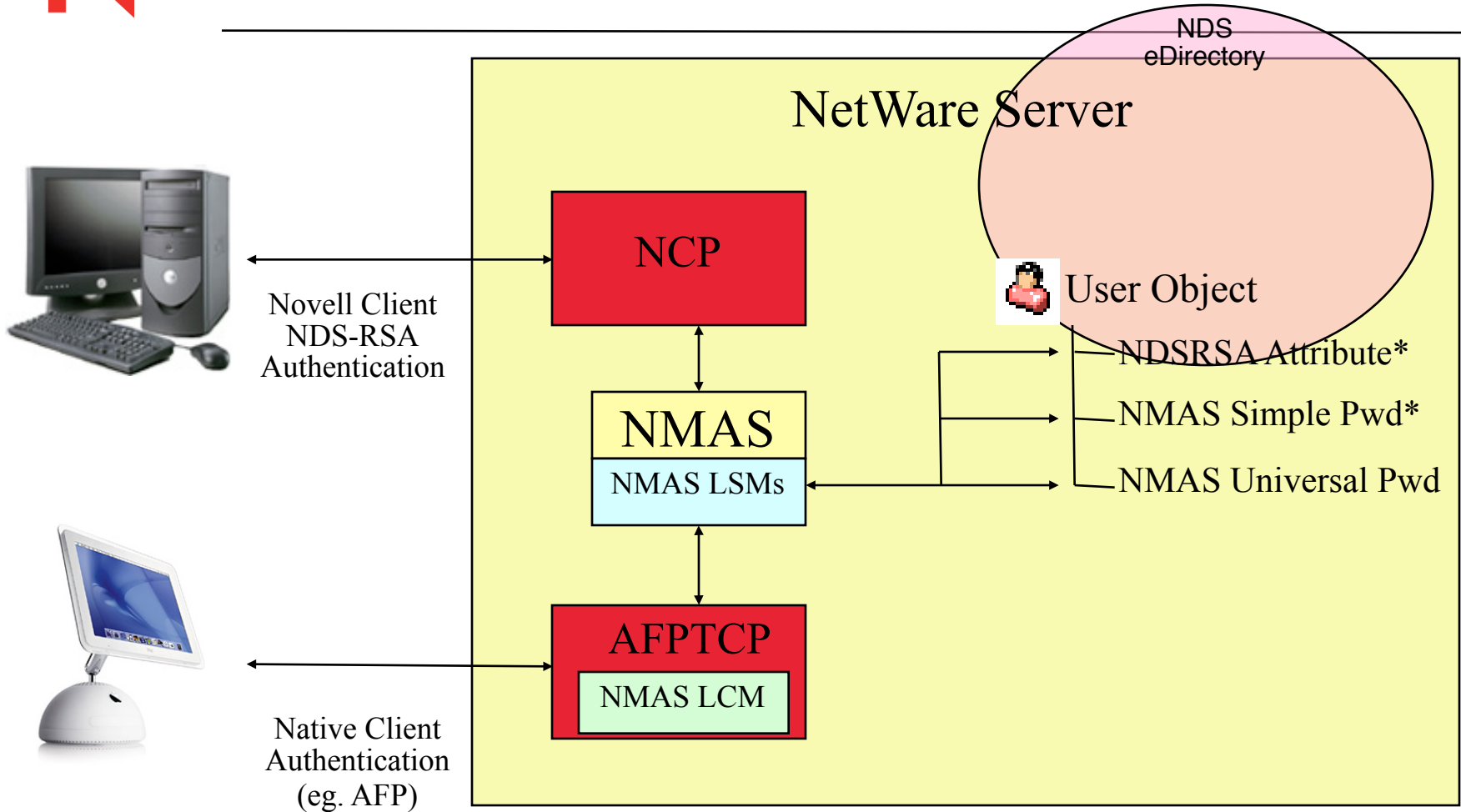
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## Universal Password (NW6.5)

- Expire, Restrictions
- Universal Password is Authoritative
- Only one password to administer
- Password policies
  - integrated with DirXML and all other systems for enterprise wide password management.
- Simple password automatically and seamlessly upgraded
- Client32 for Windows v4.9 supports Universal Password
  - Automatic upgrade of NDS RSA Password to Universal
  - NDS RSA will be around for backwards compatibility
  - NDS RSA change password can be disabled

# N

# Universal Password



\*Kept Synchronized for compatibility with older servers in the tree.



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## Integration via LDAP

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Mac OS X (10.2.3+ preferred) LDAP management:

- Remote mounting of HOME directory
  - Not an icon on the desktop
  - Becomes a mount point in the local file system under /Network/Servers
  - User's files, APPs, wallpaper, window position, etc. stored here
  - Much like a Windows "roaming profile"

# N eDirectory / LDAP Integration

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eDirectory is Novell's directory solution

- Scalable
- Extensible
- Field-proven

Easily supports Mac OS X authentication

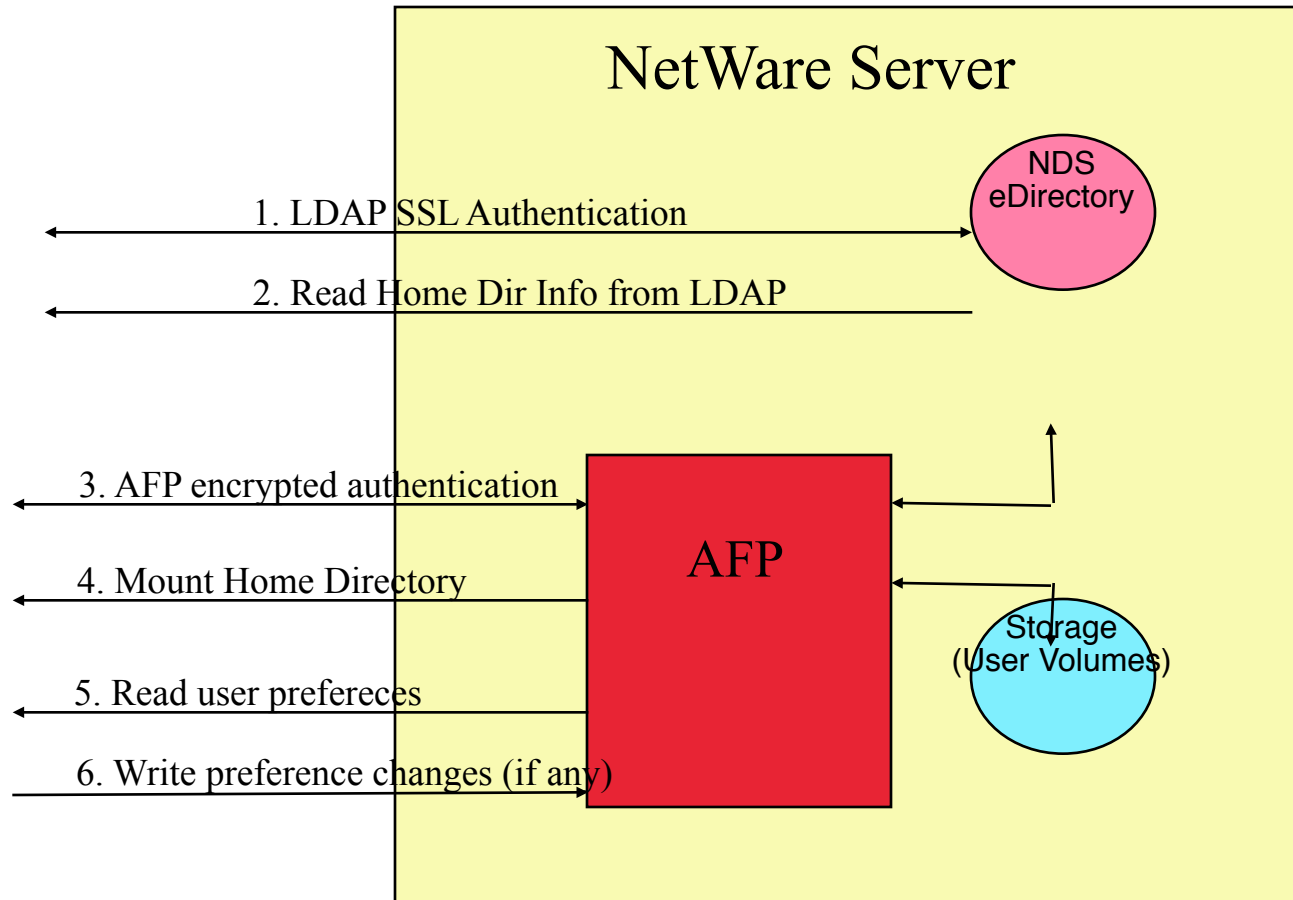
- HOME directory access

Requires schema extensions to support Apple authentication / authorization

Extensions easily made with LDIF files

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## How it works



# N Integration via LDAP

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Resources on how to set it up:

[http://www.macoxlabs.org/documentation/directory\\_services/details/novell/intro.html](http://www.macoxlabs.org/documentation/directory_services/details/novell/intro.html)

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# NetStorage

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## Web Browser

- Novell Portal Services
- NetStorage built into NetWare 6.x
- Requires Support Pack 2 or greater of NetWare 6
  - Previous support packs and initial release had problems with Macintosh Internet Explorer
  - Works only with Internet Explorer for Mac today



## Folders

- NetStorage
  - Home@RUSHTREE
    - MyStuff
      - Clients
      - Microsoft

File Edit View Help

Name	Size	Modified
2001.01.16 Power Point Presentation.ppt	79360	01/17/2001 1:46 PM
Backup of fallawa2.wbk	24064	09/02/1999 4:08 PM
Backup of Global Template	326144	07/01/1995 1:00 AM
Backup of Views	46016	02/09/1994 4:05 PM
BSLABlaw.doc	37376	12/10/1999 3:57 PM
CCLIENT.DOC	26865	06/12/1993 1:31 PM
Clients		01/31/2002 7:50 AM
Columbus.doc	22528	07/28/1999 12:27 AM
corpjet.html	15852	10/28/1998 4:21 PM
CURRENTD.MLM	7153	05/23/1996 11:45 AM
eicar.com	68	11/08/2001 1:06 PM
fallawa2.doc	25088	09/09/1999 10:55 AM
FUNC_11E.DOC	960000	10/08/1996 6:34 PM
GLOBAL80.MPT	684544	04/11/2000 7:22 PM
Group Move Instructions1.doc	35328	01/07/2000 3:56 PM
Groupwise Move issues.doc	20992	11/05/1999 7:46 PM
GXProA09.exe	158020	12/17/1999 4:51 PM
HomeAssets.wpd	2641	06/14/1998 5:42 PM

Browsing MyStuffText View



# N NetStorage

File access via Novell Portal Services File Gadget

Upload, Download

Create, Delete

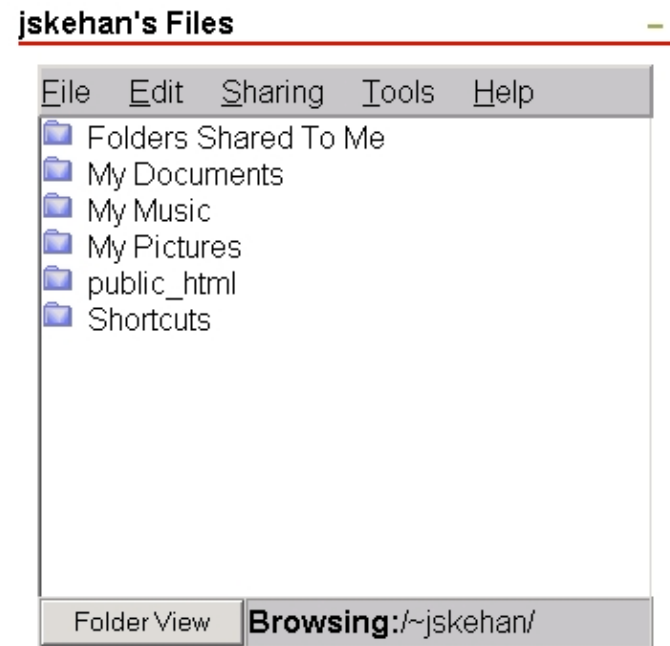
Share

Distributed File Junctions

Edit Lock (NW6.5)

File Versioning (NW6.5)

File Rights management (NW6.5)



"jskehan's Files" Tutorial

Note: This gadget **currently** only works with IE 5.x.  
Patent Pending.

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# File Access

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## Apple File updates coming in NW 6.5 Support Packs

- Support for DHx authentication (>8 character passwords - possibly Support Pack 2)

## Apple File updates coming in NW6.5 Enhancement Pack

- Kerberos Authentication

## Apple File updates planned for NW7

- Novell eDir and management integration with NetAtalk on Linux.

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## Advanced File (iFolder)

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iFolder for Mac OS - Next Major release (v3).

- iFolder lets your files follow you.
- Your Electronic Bags are always packed.
- Windows and soon Mac OS clients.
- Access files via NetStorage services from any browser.
- When to use:
  - LAPTOP users.
  - Users with more than one machine.
  - Telecommuters, road-warriors.
  - Desktop user data backup and disaster recovery strategy.





# Print Access

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iPrint for Mac OS - NW7 time frame planned

- IPP iPrint integration
  - Browser (map) based printer installation
  - Automatic print driver download & install

# N Groupwise

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## Groupwise 6.5 supports open standards

- iMAP v4 support embedded into the Post Office Agent
- CAP (Calendar Access Protocol) is planned in Support Pack 1 for GroupWise 6.5
  - CAP is not a ratified standard yet, Novell intends on interoperability testing with Apple and Linux vendors prior to release.

## Cross Platform Client (in beta now)

- Windows, Mac, Linux, Unix
  - Goal is rich feature parity cross platform.
- Announced at Brainshare 2003
  - Availability 1H 2004

# N NetMail

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NetMail supports POP, iMAP and iCAL open standards clients today.

- Open Standards POP, iMAP and iCAL Macintosh clients supported today.
- Web based interface also supported on Mac Browsers.



# Novell BorderManager

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## Novell BorderManager 3.7

- BM37 Support Pack 2 in CSP9 fixes an SSL engine problem causing authentication problems with Mac clients.

## Novell BorderManager 3.8

- Mac OS 10.2 bundled a VPN client which is supported in 3.8.
- HTTP Tunnel disable option (prevents Mac clients from bypassing proxy)
- Tested with IE, Netscape and Opera on Mac OS 9 and X (Safari too)





# ZenWorks

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Novell currently has no plans to provide ZenWorks for Mac OS

- The workstation manager and roaming profile features of ZenWorks are supported by Mac OS 10.2
- --Discussion--



# Linux

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## Novell's Nterprise Linux Services v1.0 releases December 18, 2003

- Our first set of services on Linux.
- V2.0 planned for a year from now:
  - NSS File System
  - Clustering
  - Groupwise
  - etc.
- v3.0=NetWare 7

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# Resources

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## Discussion Forums

<news://support-forums.novell.com/novell.support.os.server.native-file-access>

<http://discussions.info.apple.com/>

<http://www.macobserver.com/>

<http://www.macwindows.com/netware.html>

## NetWare4mac list

[Netware4mac-owner@mail.prosofteng.com](mailto:Netware4mac-owner@mail.prosofteng.com)

[news@lists.salfordcomputing.com](mailto:news@lists.salfordcomputing.com)

<http://www.salfordcomputing.com/maillist/>

## Security Issues

<http://support.novell.com/security-alerts/>

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NetWare