

Unit 10: Interoperability

10.2. Windows 2000 in an UNIX Environment

Windows 2000 in an UNIX Environment

- Windows/UNIX Interoperability Strategy
- Services For UNIX 2.0
- SFU Future Planning
- Microsoft Interix 2.2

Windows/UNIX Interoperability

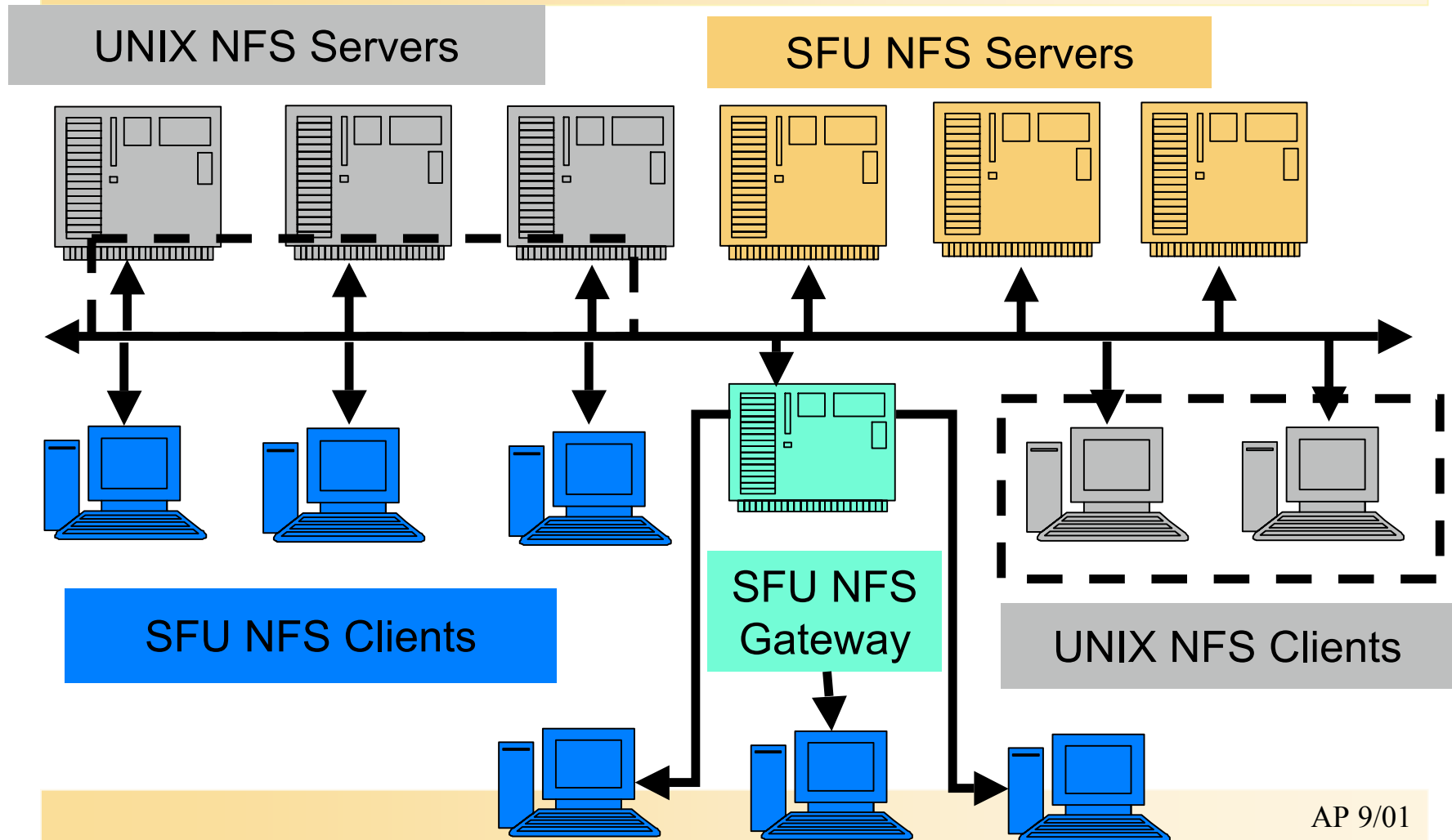
Microsoft Interoperability Framework

- Leverage Existing Network Resources
- Simplify Account Management
- Leverage Existing UNIX Expertise
- Simplify Network Administration

Microsoft Windows Services for UNIX 2.0 (SFU)

- Leverage Existing Network Resources
 - NFS Client, Server, Gateway, PCNFS Server
- Simplify Account Management
 - NIS Migration Wizard, Server, Password Synch, User Name Mapping
- Leverage Existing UNIX Knowledge
 - Core set of utilities based on UNIX
- Simplify Network Administration
 - Telnet Client/Server, ActiveState Win32 PERL, Windows Technology

NFS Support (Leverage Existing Network Resources)



Client for NFS

- **Seamless access to NFS servers**
 - Access NFS servers using Windows credentials
 - Maps Windows name to UNIX UID
- **Integration of NFS with Windows UI**
 - Browsing NFS network, servers and shares
- **Windows semantics**
 - case sensitivity, 8.3 naming, share locks, access to NFS via DFS, UNC naming, 'net' commands

Server for NFS

- Allow UNIX clients to access files on Windows servers
- File access using UNIX UID/GID
 - Map UID to a domain users
 - File access privileges according to mapped user
- NFS access with just UNIX sign-on
- NFS semantics
 - Support v2/v3, TCP/UDP, locking

Gateway for NFS

- SMB on one side and NFS on other
 - Exports out NFS mounted drives as SMB shares
 - NFS access without NFS client on each client
 - Low cost, low admin
 - Good solution for smaller installation
 - NFS access to Win95/98
- Authenticated access
 - Each Windows user mapped to a Unix user
 - File privileges determined by the mapped user
 - Each user authenticated on the client

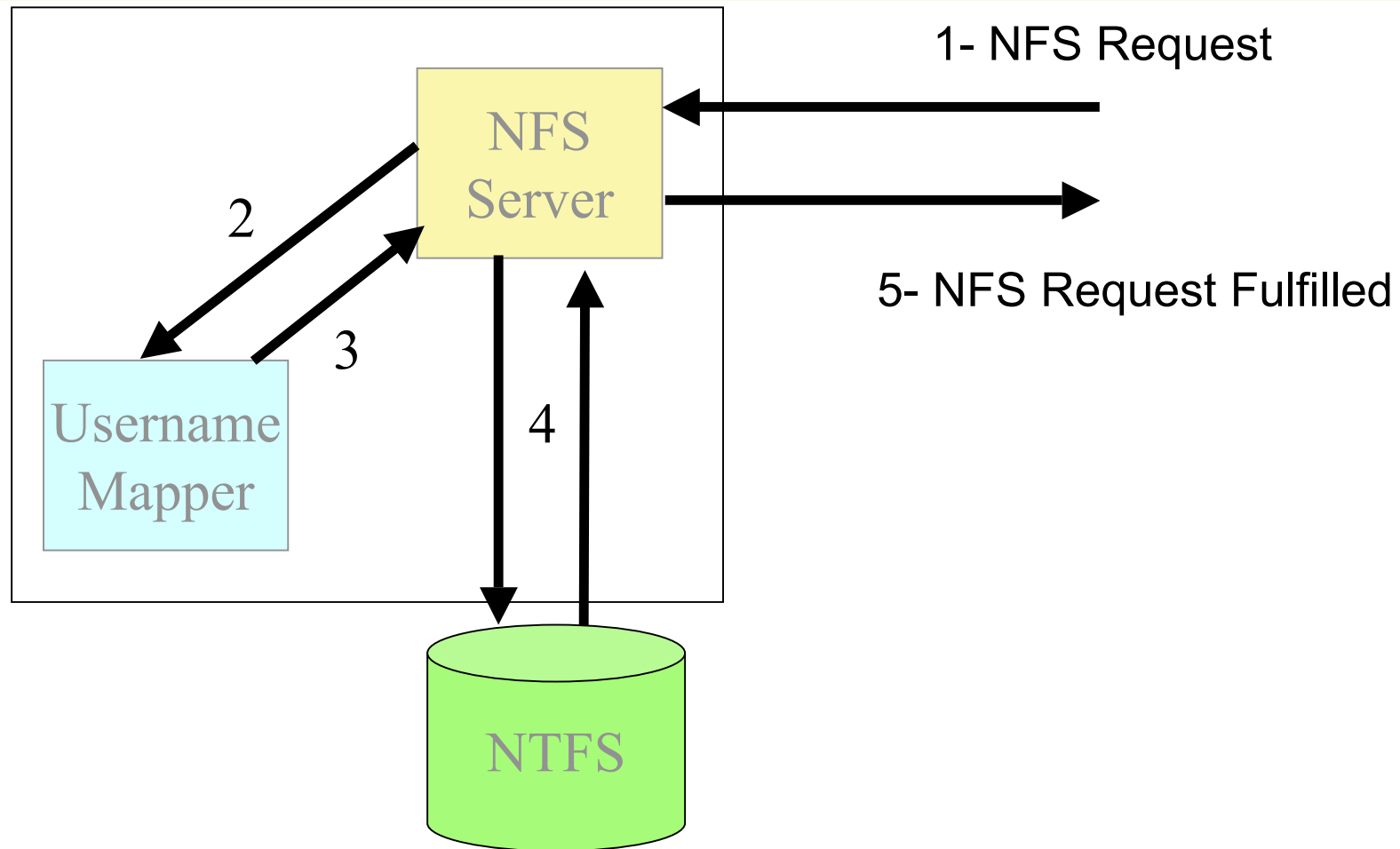
User Name Mapping

- Central mapping mechanism
 - Allow Windows users access NFS servers using Windows credentials
 - Allow Unix users access NFS files on Windows servers
 - Keep consistency in file access across all NFS clients and servers
 - Ease administrative task maintaining mappings on all machines

Windows user	Windows domain	Unix user	Unix domain	UID/GID
JohnDoe	Indwindows	Johnd	Indunix	1090/201
Maryjane	Indwindows	Maryj	Indunix	1223/201
...				

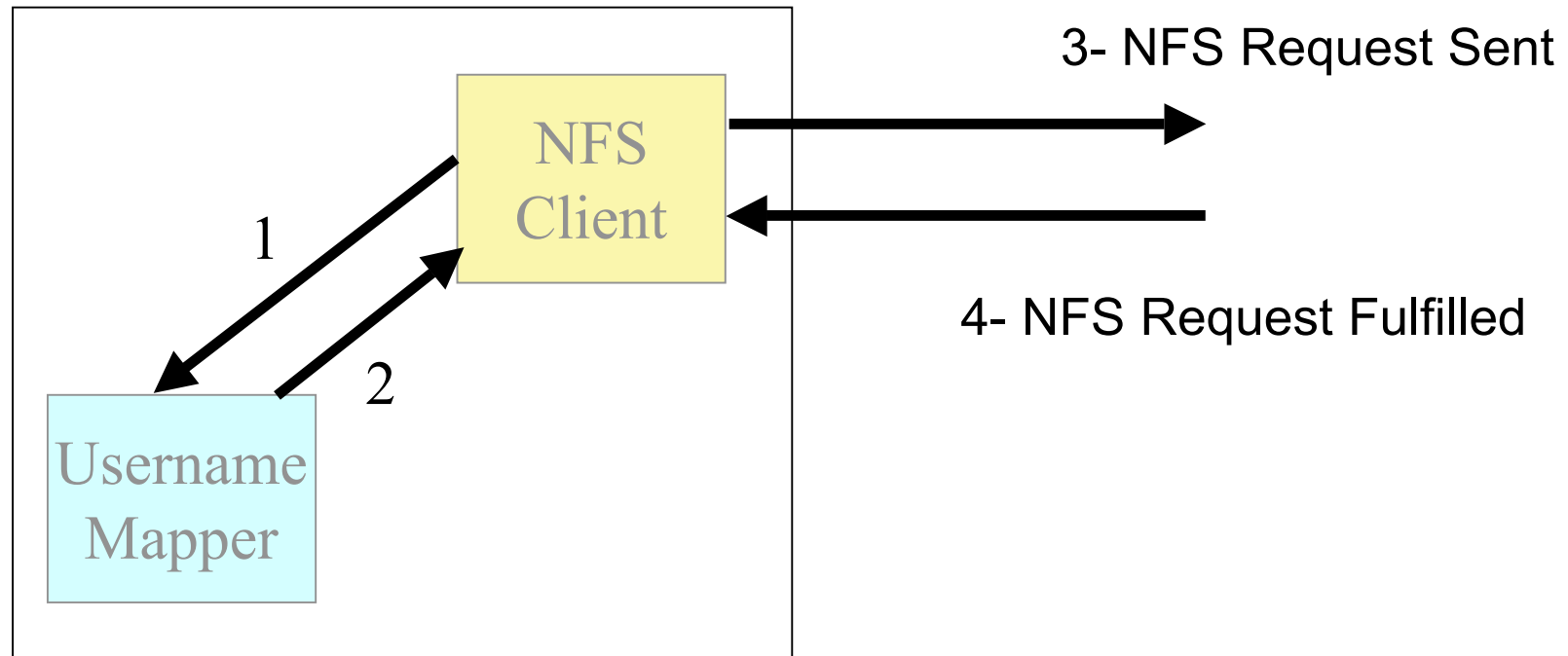
Username Mapping Server (Server)

Windows 2000



Username Mapping Server (Client)

Windows 2000



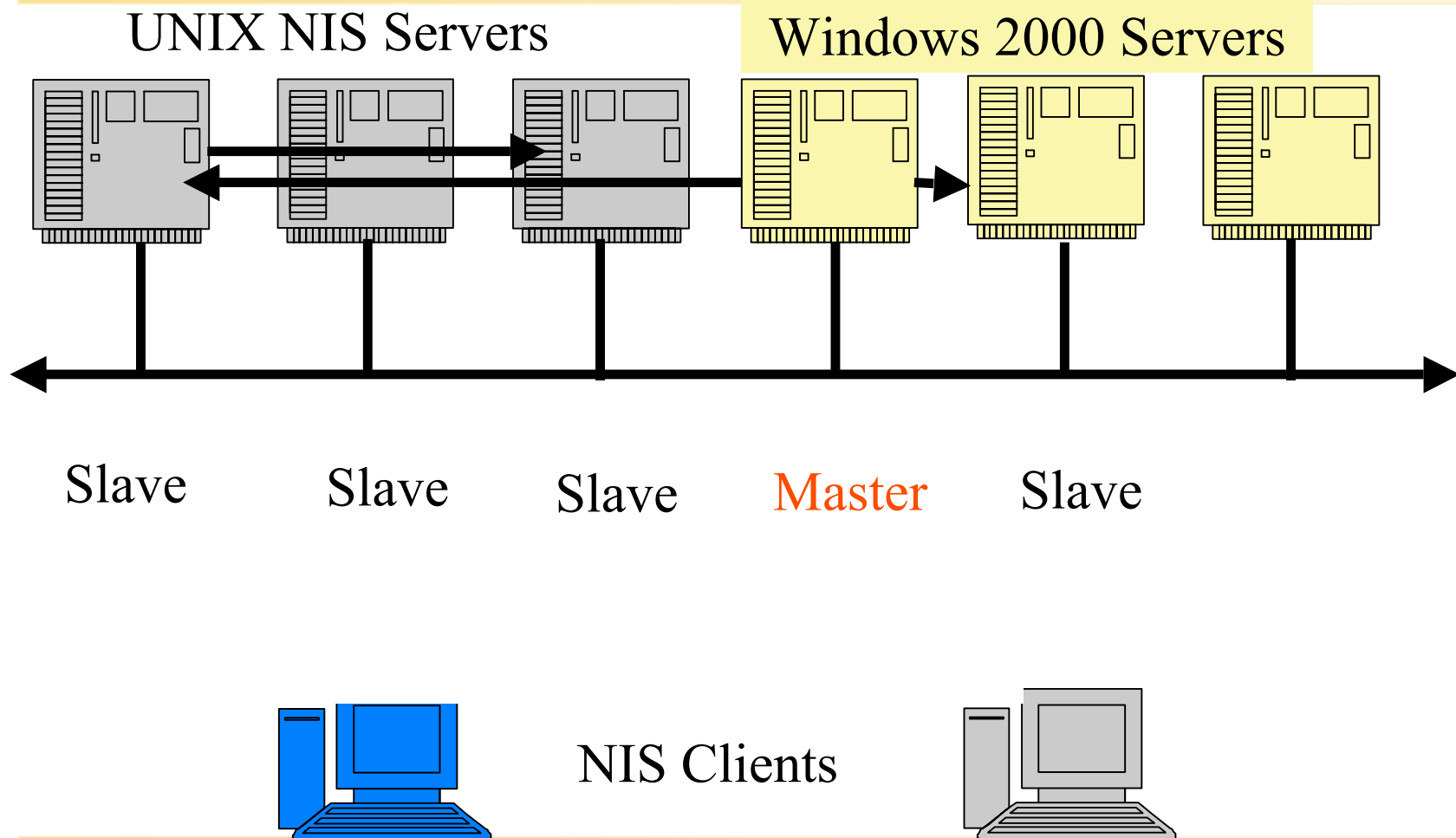
Server for NIS

- **Allows migration of NIS maps into Active Directory (AD) via migration wizard**
 - passwd, group, and hosts maps
 - into Users, Groups and Computers
 - Supports standard & non-standard map
- **Stores NIS data in AD**
 - Extends AD schema for UNIX attributes
- **Runs NIS server on W2K**
 - Supports NIS v2.0
 - Manipulate NIS maps via AD
 - Supports multiple NIS domains
- **Provides yppasswd**
- **Supports password synch**

The screenshot shows a Windows-style dialog box titled "vivek Properties". It has several tabs: Sessions, Remote control, Terminal Services Profile, General, Address, Account, Profile, Telephones, Organization, Member Of, Dial-in, UNIX Attributes (selected), and Environment. Below the tabs, there is a text box with the instruction: "To enable access to this group for UNIX clients, you will have to specify the NIS domain to which this group belongs to." Below this, there are several input fields: "NIS Domain" with a dropdown menu showing "physlab", "UID" with a text box containing "755", "Login Shell" with a text box containing "/usr/imports/bin/tcsh", "Home Directory" with a text box containing "/fs/krusty/users/vivek", and "Primary group name" with a dropdown menu showing "sdag". At the bottom right, there are three buttons: "OK", "Cancel", and "Apply".

Server for NIS

(Simplify Account Management)

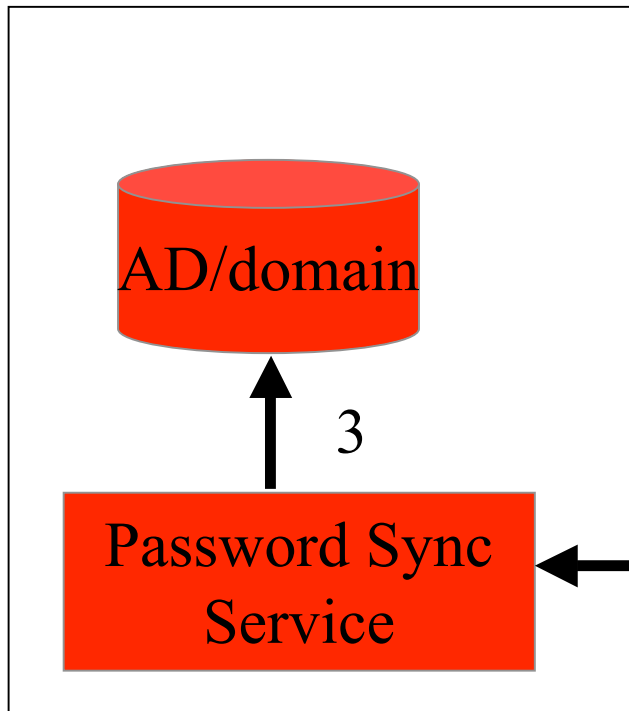


Password Synchronization

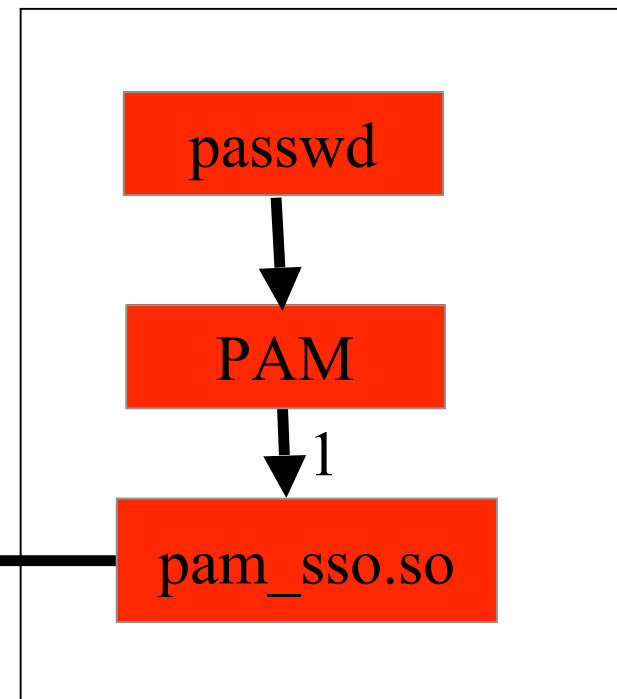
- Ability to change password from NT or UNIX (two-way)
- Encrypted propagation based on Triple-DES
- Ability to send to targeted computers
- Ability to filter based on user names when sending and receiving
- Limited to users with identical names

Password Sync from UNIX

Windows NT/2000

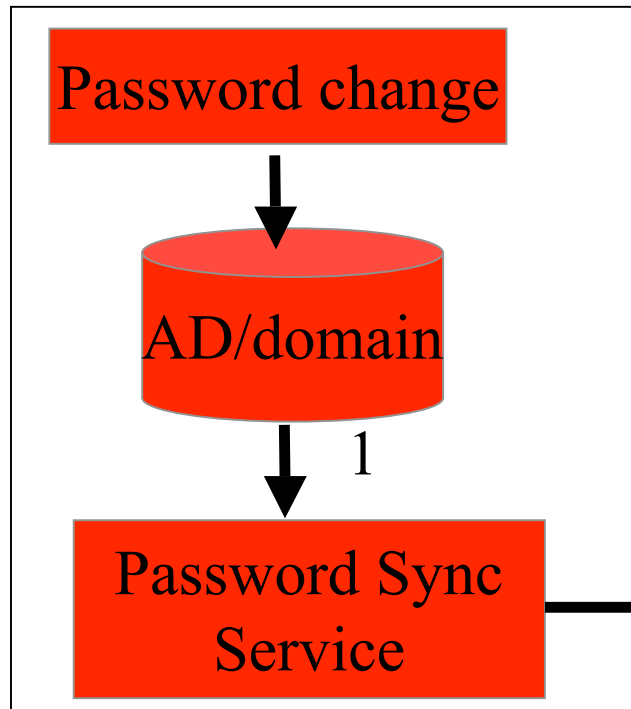


“UNIX” system

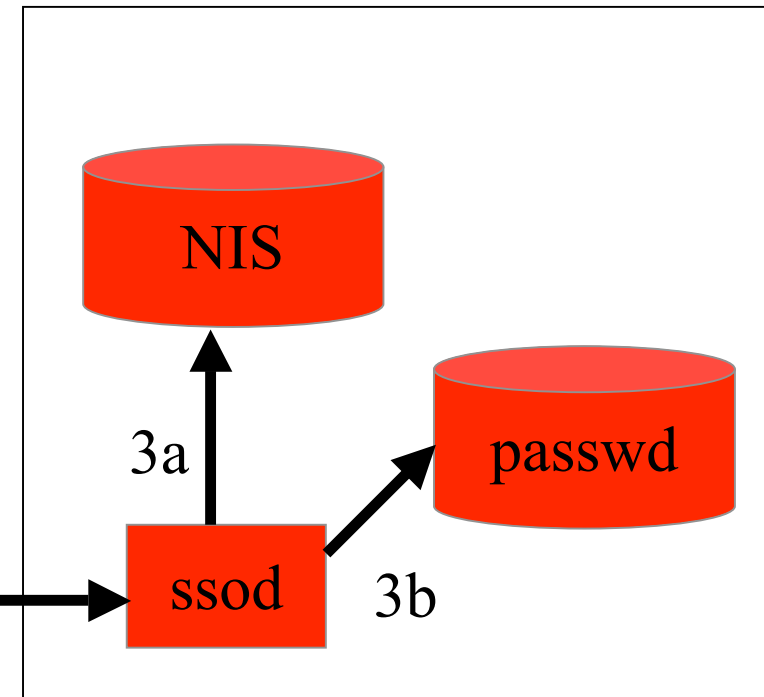


Password Sync to UNIX

Windows NT/2000



“UNIX” system



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Systems Support for Password Synchronization

	Windows to UNIX (ssod)	UNIX to Windows (PAM)
Solaris 2.6+	Yes	Yes
HP/UX 10.3+	Yes	Yes
IBM AIX 4.3+	Yes	No
Digital Tru64	Yes	Yes
Red Hat 5.2+	Yes	Yes

Leverage Existing Knowledge

The screenshot displays a Windows NT desktop environment. On the left is the Start menu with icons for My Computer, My Documents, Internet Explorer, My Network Places, Recycle Bin, and Microsoft Outlook. The main desktop area contains several windows:

- My Computer:** A window showing the system's drives (3 1/2-Inch Floppy Disk (A:), Local Disk (C:), Local Disk (D:), NTWKS50A (E:)) and various system folders like Control Panel, Scheduled Tasks, and Network Connections.
- Command Prompt (C:\WINDOWS\System32\cmd.exe - telnet A311012):** Displays the output of a telnet session, including a table of system files and their attributes.
- Command Prompt (C:\WINDOWS\System32\cmd.exe - telnet):** Shows the telnet client's startup sequence, including the Microsoft Windows NT version information and the 'Welcome to MS Telnet Client' message.
- Entire Network:** A window showing the network configuration, including the Microsoft Windows NT and NFS Network icons.

The taskbar at the bottom shows the Start button, several open application windows (Microsoft PowerPoint, My Computer, C:\WINDOWS..., Entire Netw...), and the system clock displaying 9:12 AM on 9/10.

Simplify Network Administration

- Services for UNIX 2.0
 - Telnet Client and Server
 - Scripting – PERL and Shell
 - Command line
- Windows 2000
 - Windows Installer
 - Windows Scripting Host
 - Windows Management Instrumentation
 - Microsoft Management Console

Telnet

- **Client**
 - Window resizing
 - Scrolling support
 - Additional settings (bs/del, cr/lf, logging, escape char)
 - Ability to send messages to server (ao, ayt, ip)
- **Server**
 - Background apps
 - Window resizing
 - Improved performance
 - Operator messages such as shutdown
 - Single world binary

UNIX Utilities

- Over 60+ UNIX utilities available in SFU
 - Cron, rshsvc, cut, diff, du, kill, nice, od, split, strings, su, tar, top, tr, uuencode/uudecode, wait...
- See microsoft.com for complete list
 - <http://www.microsoft.com/windows/sfu>
- Add Interix to the mix for an environment supporting 300+ utilities that behave exactly like their UNIX counterparts.

Future Planning Softway - Interix

- Acquired Interix technology September 1999. Microsoft Interix 2.2 was released to manufacturing on Jan. 26, 2000.
- Easily port and run UNIX-based applications and scripts on Windows
- A Single Enterprise Platform to run all Windows, UNIX, and Internet applications
- Take advantage of existing UNIX expertise
- Current planning includes integration with future versions of Services for UNIX

Availability and Licensing

- SFU v2.0
 - RTM April 2000
 - Pricing ERP US\$149
 - Works on both Windows NT and Windows 2000
- SFU v3.0
 - Available as 120-day trial version on www.microsoft.com/windows2000/unix/interop/default.asp