

Sharing Resources (1)

- Regardless of OS, clients want:
 - Common authentication
 - NIS, LDAP, Active Directory
 - Network name services
 - DNS, NetBIOS, WINS



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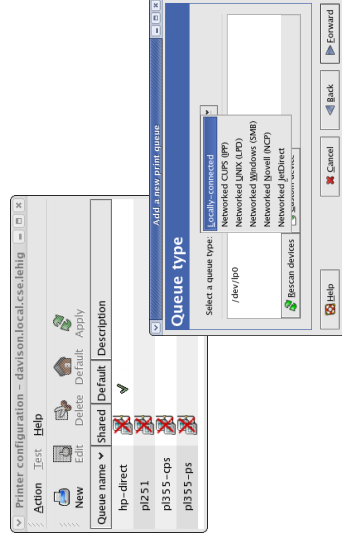
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- Making mixed environments work
 - Sharing Resources
 - Common authentication
 - Network name resolution
 - Printers
 - Files
 - Making Windows look like Linux and vice versa
 - Add or configure similar interface/functionality
 - Remote desktops
 - Dual-booting
 - OS Emulation/Virtualization

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Sharing Resources (2)

- Regardless of OS, clients want: Access to printers
 - CUPS
 - LPD
 - SMB
 - Novell
 - JetDirect



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Mixed environments are the norm

- Windows + UNIX/Linux/Mac
- Why care about Windoze? (thanks to CJ)
 - It's everywhere
 - Chances are, more of your clients will be using it than UNIX/Linux
 - It has brought computing to the average Joe – billions of 'em
 - It uses inferior multi-user technology, and we should help them where possible
 - It's not leaving anytime soon – get over it

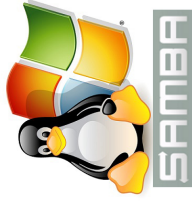
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How does Samba do it?

- SMB = Server Message Block
 - SMB is an extension added by MS to allow DOS to redirect calls to NetBIOS
 - NetBIOS = (crude) interface between network and application
- CIFS = Common Internet File System
 - Different paradigm than NFS
 - Per-user authentication
 - Based on protocols from SMB
 - Now supported directly by Linux



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Samba Configuration

- Only config file: `/etc/samba/smb.conf`
- Two daemons
 - **smbd** – file and print services, authentication
 - **nmbd** – NetBIOS name service, browsing
- Start with `/etc/init.d/smbd start`



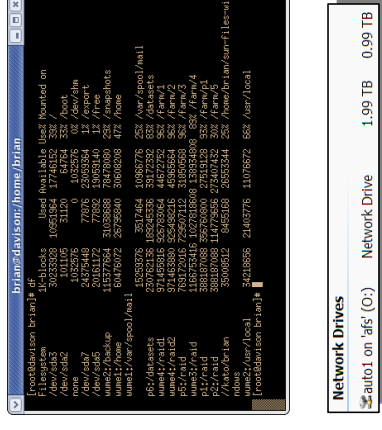
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Sharing Resources (3)

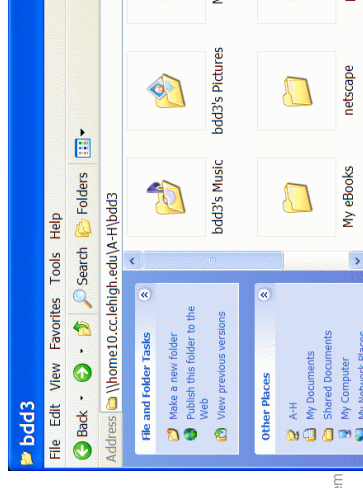
- Regardless of OS, clients want: Access to files
 - NFS
 - UNIX can be client or server
 - PC client is available
 - SMB
 - Windows & UNIX can be client or server
 - AFS
 - OpenAFS.org PC client avail.
 - UNIX can be client or server



Samba



- Samba can allow for peaceful coexistence between Windows & Linux/UNIX systems wrt:
 - Provide/Assist with Windows Internet Name Service (WINS)
 - Printer sharing
 - Client Authentication
 - Backup PCs (smbtar)
 - File sharing
- Will do only setup of file sharing today



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/etc/samba/smb.conf

- Standard, simple scheme
attribute = *value*
or ; denotes a comment
- Sample Headings:
[global] – global settings, network IDs
[homes] – users' home directories
[printers] – printing utilities
[public] – open share to all

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Shares and Attributes

- [global]
 - workgroup = name of Windows network group
 - netbios name = system name to appear in Windows Network Neighborhood
 - hosts allow = list of IPs or networks (whitespace-delineated) to have access to SMB shares
- [homes]
 - browseable = yes, will map directly to /home/user, much like "My Documents" ability on campus
 - writable = yes (same as read only = no); by default, all shares are read-only

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Samba Status

- Samba runs as a service; usually needs little attention
- Can check using **smbstatus**

```
brian.local.davison.net[brian]: smbstatus
```

Samba version 3.0.14a-2			
PID	Username	Group	Machine

3038	karen	karen	familydell (192.168.0.111)
3038	brian	brian	familydell (192.168.0.111)

Service	pid	machine	Connected at

IPC\$	3038	familydell	Sun Mar 26 23:00:24 2006
backups	3038	familydell	Sun Mar 26 23:01:15 2006
IPC\$	3038	familydell	Sun Mar 26 21:55:42 2006

No locked files			

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Samba File Sharing Process

- Install Samba (rpm for RHEL/CentOS)
- Customize /etc/samba/smb.conf
- Add users and set passwords
 - (Add user using **useradd**)
 - (Set regular user password using **passwd**)
 - Set Samba password using **smbpasswd**
- Restart Samba
 - **/etc/init.d/smb restart**



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Making Windows look like Linux (and vice versa)

- Dual-booting
 - Not always convenient
- Add or configure similar interface/functionality
 - OpenOffice.org – Microsoft Office file access
 - WINE – support for many Windows client programs
 - cygwin – bash/tcsh/zsh shell, commands, perl, gcc, etc.
 - ssh clients – access to UNIX shells
 - multi-platform web browsers, chat and email clients



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Making Windows look like Linux (and vice versa)

- Remote desktops
 - X-Windows
 - Display separate from computation
 - Clients available for Windows, built-in to most UNIX
 - Windows Remote Desktop
 - Clients available for Windows + UNIX
 - VNC
 - Real remote desktop, even within browser (Java-based)
 - Any platform can operate any other platform
 - Continue working on whatever PC is nearby
- Services: GoToMyPC.com, LogMeIn.com

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Common Shares and Attributes

- [public]
 - path = path to RW storage space
 - Often also set read only = no and browseable = yes
 - Note: gives full RW access to anyone – be careful
- [printers]
 - printable = yes
 - path = /var/spool/samba
- [music]
 - path = path to music files
 - public = yes, will allow access to all users
 - write list = list of users that can write
 - invalid users = list of users that cannot access

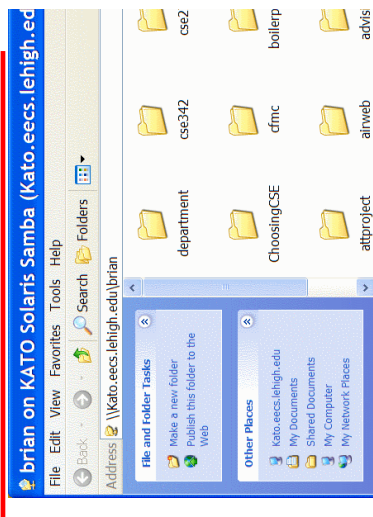
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Accessing Samba/Win Shares

- From Windows Network Places
 - Act and look like normal shares
- From Linux/UNIX
 - Using a file manager (like Konqueror or Nautilus)
 - Mount them
 - in /etc/fstab
 - //SMB_server/share local_mount_dir smbfs options 0 0
 - mount.cifs --o username=name //SMB_server/share mount_dir



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Making Windows look like Linux

(and vice versa)

- OS Emulation, Virtualization
 - QEmu
 - VMware
 - Xen
 - VirtualBox
 - Windows Virtual PC
- *And more...*

Resources

- <http://www.samba.org/>
 - Tons of documentation, including Using Samba from O'Reilly, all online
- <http://www.realvnc.com/>
 - Free and commercial clients and servers
- <http://www.cygwin.com/>
 - Shell, X-Windows, gcc and more for PC
- <http://www.openoffice.org/>
 - Microsoft Office compatible files
- <http://www.winehq.org/>