



# File Serving Solutions Using Samba-3

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# Outline for this hour



- Introductions and overview of Samba
- Administration - SWAT, command line
- Authentication - smbpasswd, winbind, LDAP
- Samba Installation on SLES-9
- Using Samba-3
- Integration with OpenLDAP
- Time serving
- Documentation and resources

# Enterprise View



- ▶ It's a Windows desktop world, it's a UNIX server world
- ▶ Windows desktops rule 1 and rule 2:
  - Rule 1: Windows clients should not have to be modified.
  - Rule 2: When a change is needed to Windows client, see rule 1
- ▶ Samba crosses enterprise political boundaries
  - Samba works well in small groups and among friendly fiefdoms
  - Don't push Samba where political walls are high
  - Befriend the NT guys
- ▶ Success/Failure stories

# Samba background



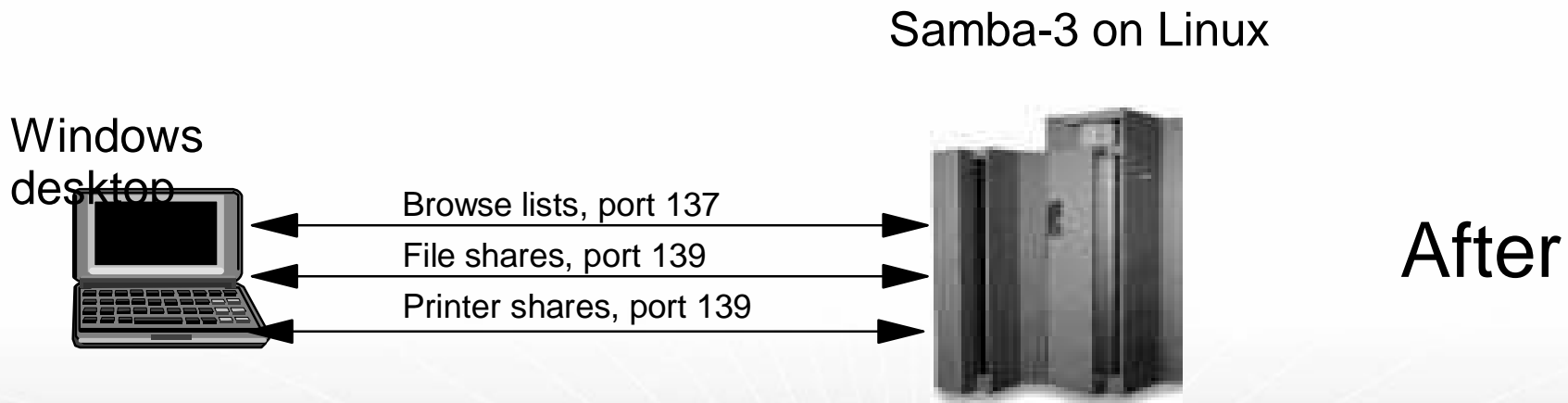
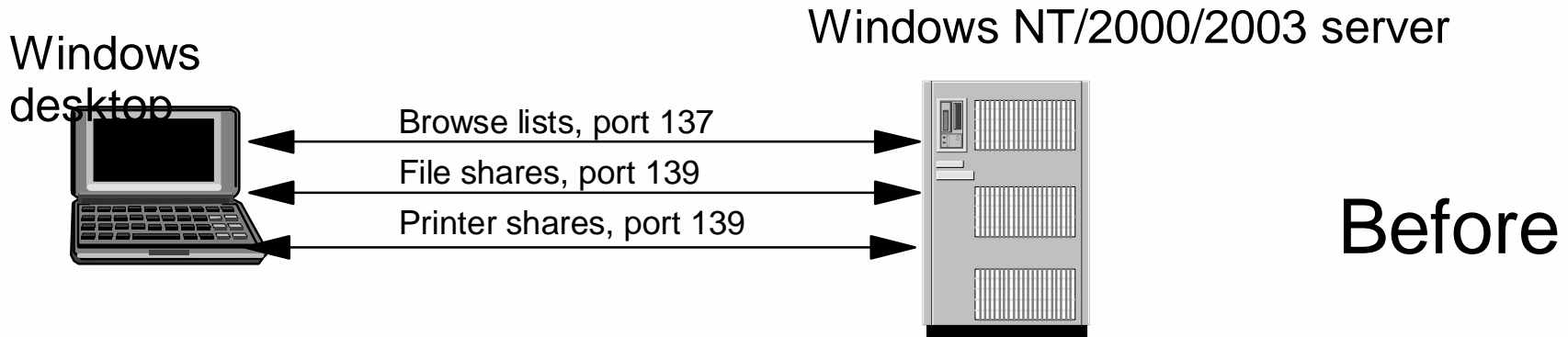
- Samba Team
  - ▶ Has done an incredible job of "staying with" Microsoft
  - ▶ Founder Andrew Tridgell - founder:
    - Wrote Samba because it was more fun than his PhD dissertation
    - Had a Linux PC at home and wanted to share files with his wife's Windows PC
    - Now an IBMer
  - ▶ Some of the more prominent members:
    - Jeremy Allison
    - Gerald Carter
    - Jim McDonough, Steve French - IBMers funded by the LTC
- License - GPL
- History - coincidentally shadows the history of Linux

# Samba services



- File serving via **smbd**
  - ▶ Large file systems - LVM + journalled FS
  - ▶ Sharing files among teams
  - ▶ Using Access Control Lists
- Print serving via **smbd**
  - ▶ An existing print server must first exist - lpd, LPRng or CUPS
  - ▶ smbd acts as "middle-man" between print server and Windows clients
- Browse lists via **nmbd**
  - ▶ Viewable via "Network Neighborhood" or "My Network Places"
  - ▶ Not the UNIX model for file shares, however, useful for printers
- Time Serving via **smbd**
  - ▶ middle-man between existing time server and Windows clients
- Domain login via **smbd**
- Authentication via **winbind** and administration via **swat**
  - ▶ Not really services, but important issues

# Samba services



# Samba administration



- Via the command line
  - ▶ /etc/init.d/nmb, /etc/init.d/smb "service scripts"
  - ▶ /etc/samba/smb.conf - one configuration file
  - ▶ /etc/samba/smbpasswd - one password file with "NT hashes"
  - ▶ Samba commands - testparm, smbpasswd, net command (new), etc.
  - ▶ /var/log/samba/\* - log files
- SWAT - the Samba Web Administration Tool
  - ▶ Enable via inetd or xinetd
  - ▶ Sometimes using read/only is a compromise
- z/VM front end - EZLNXID
  - ▶ IBM-written freeware
  - ▶ Good for shops with better VM skills than Linux skills
  - ▶ See:

<ftp://www.redbooks.ibm.com/redbooks/REDP3604/>

# Authentication - can be done many ways

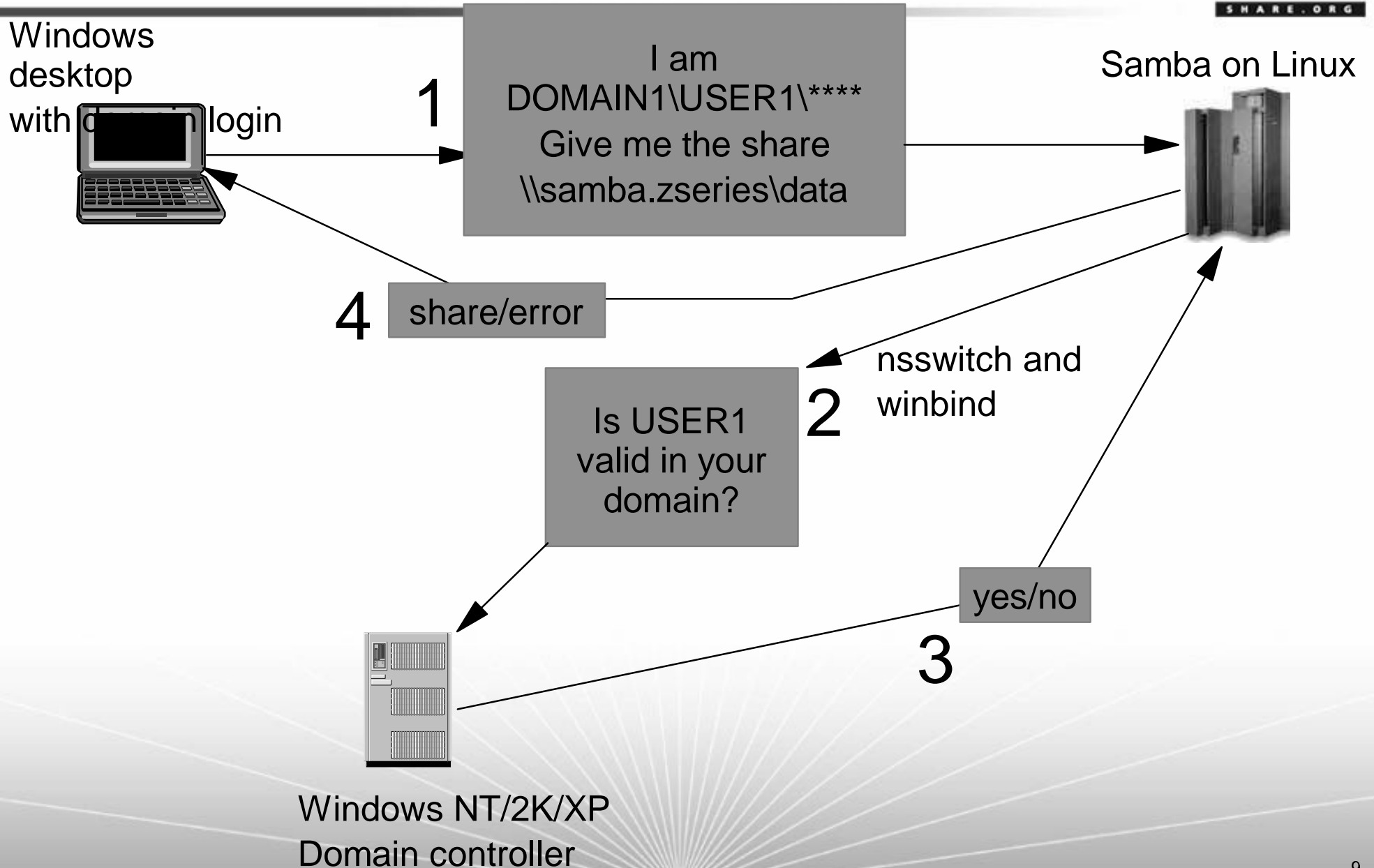


- Not at all (`guest = OK`)
- Traditional UNIX style:
  - ▶ On Linux with encrypted passwords `/etc/passwd` and `/etc/smbpasswd`
  - ▶ On Linux with unencrypted passwords - `/etc/passwd`
- Windows style
  - ▶ With Samba acting as a NT PDC
  - ▶ On the Windows Domain Controller with `winbind`
  - ▶ On the Windows DC + auto home directories and `/etc/passwd` file
    - use the `smb.conf` parameter to run a script before authentication is done:

```
add user script = /usr/local/samba/bin/addSambauser
```
- LDAP style
  - ▶ Allows an enterprise directory running on Linux
  - ▶ OpenLDAP is an open source solution that can grow in the enterprise



# Authentication via winbind



# Samba-3 Installation on SLES-9



The Samba server is not installed on a default SLES-9 system



# Samba-3 Installation (cont'd)



YaST2@pbc3533

File Package Extras Help

Filter: Search

**Search:**

samba

Search

Search in

Name

Summary

Description

Package	Summary
<input checked="" type="checkbox"/> kbase3-samba	KDE Base package: Windows Connection
<input checked="" type="checkbox"/> libsmbclient	Samba Client Library
<input checked="" type="checkbox"/> samba	A SMB/ CIFS File Server
<input checked="" type="checkbox"/> samba-client	Samba Client Utilities
<input checked="" type="checkbox"/> samba-doc	Samba Documentation
<input type="checkbox"/> samba-pdb	PDB-Modules
<input type="checkbox"/> samba-python	The Samba python-Modules
<input type="checkbox"/> samba-vscan	On-Access Virus Scanning with Samba
<input checked="" type="checkbox"/> samba-winbind	winbind-daemon and tool
<input checked="" type="checkbox"/> yast2-samba-client	YaST2 - Samba Client Configuration
<input checked="" type="checkbox"/> yast2-samba-server	YaST2 - Samba Server Configuration

Now do I have Samba installed?

```
# rpm -qa | grep samba
yast2-samba-server-2.9.28-1.2
samba-client-3.0.4-1.22
kbase3-samba-3.2.1-68.16
yast2-samba-client-2.9.17-1.2
samba-3.0.4-1.22
samba-doc-3.0.4-1.22
samba-winbind-3.0.4-1.22
```

# Configuring Samba-3: SWAT:



## ■ The Samba Web Administration Tool (SWAT)

### ▶ To configure:

```
# rpm -qa | grep xinetd
xinetd-2.3.13-39.3
# cd /etc/xinetd.d
# vi swat ==> comment out two lines:
service swat
{
    socket_type      = stream
    protocol         = tcp
    wait             = no
    user             = root
    server           = /usr/sbin/swat
#    only_from       = 127.0.0.1
    log_on_failure  += USERID
#    disable         = yes
}
# chkconfig xinetd on
# rcxinetd start
Starting INET services. (xinetd) done
```

# Configuring Samba-3: SWAT (cont'd)



1. URL  
2. Authenticate  
3. Interface

**Welcome to SWAT!**

Please choose a configuration action using one of the above buttons.

**Samba Documentation**

- **Daemons**
  - [smbd](#) - the SMB daemon
  - [nmbd](#) - the NetBIOS nameserver
  - [winbindd](#) - the winbind daemon
- **Configuration Files**
  - [smb.conf](#) - the main Samba configuration file

**Prompt**

Enter username and password for "SWAT" at http://129.40.45.33:901

User Name:  
root

Password:  
\*\*\*\*\*

Use Password Manager to remember these values.

OK Cancel

# Configuring Samba-3 (cont'd)



## ► Command line - set up smb.conf file

```
# cd /etc/samba
# cp smb.conf smb.conf.orig
# vi smb.conf
[global]
    workgroup = TUX-NET
    printing = cups
    printcap name = cups
    printcap cache time = 750
    cups options = raw
    printer admin = @ntadmin, root, administrator
    username map = /etc/samba/smbusers
    map to guest = Bad User
    logon path = \\%L\profiles\.msprofile
    logon home = \\%L\%U\.9xprofile
    logon drive = P:
[homes]
...
[printers]
...
[print$]
...
```

# Configuring Samba-3 (cont'd)



- Start Samba services across reboots

```
# chkconfig nmb on
# chkconfig smb on
```

- Start Samba services now and verify

```
# rcnmb start
Starting Samba NMB daemon                               done
# rcsmb start
Starting Samba SMB daemon                               done
# rcnmb status
Checking for Samba NMB daemon                           running
# rcsmb status
Checking for Samba SMB daemon                           running
```

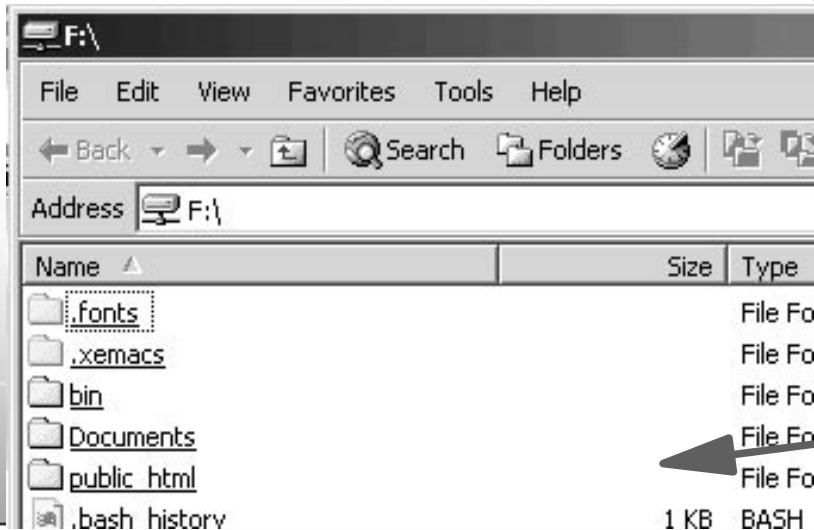
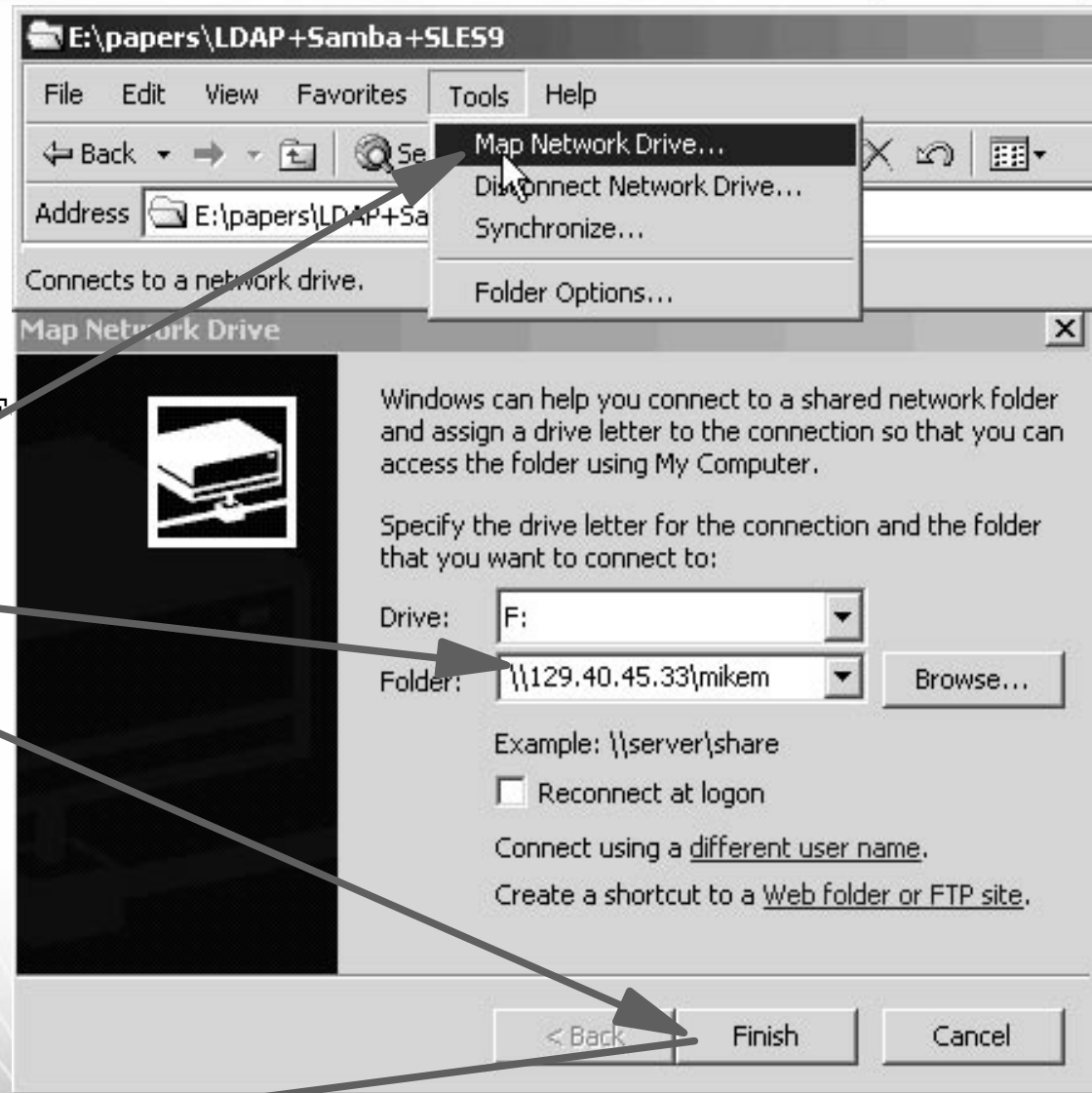
# Using Samba-3

## – Add a user

```
# useradd mikem
# passwd mikem
...
# smbpasswd -a mikem
...
# tail -1 smbpasswd
mikem:1000:F32654EA880E4DF
```

## – Get a share from Windows:

- 1.
- 2.
- 3.



Samba can be this easy



# Configuring Samba-3 (cont'd)

- Add a directory worth sharing

```
# vi smb.conf => add below [homes] section
```

```
...
```

```
[linuxdoc]
```

```
    path = /usr/share/doc/packages
```

```
[printers]
```

```
...
```

```
# rcsmb restart
```

```
Shutting down Samba SMB daemon
```

```
Starting Samba SMB daemon
```

- Get the share `\\<samba.IP.addr>\linuxdoc`

- Good Linux docs from Windows



# Configuring Samba-3 with LDAP



## ► Let's focus on just one "backend": LDAP

- First clean up: remove the smbpasswd entry

```
# cd /etc/samba
# smbpasswd -x mikem
Deleted user mikem.
# userdel mikem
no crontab for mikem
```

- Look at the LDAP tree beforehand

```
▼ localhost
  ▼ dc=pbm,dc=ihost,dc=com
    ▼ ou=ldapconfig
      cn=groupconfiguration
      cn=userconfiguration
      cn=grouptemplate
      cn=usertemplate
    ou=people
    ou=group
```

## ► How to configure?

– Configure via the command line

- **This is not easy!!!**

– Configure LDAP via YaST

- This has a *chance* of competing with Active Directory (but there is room for improvement)

- Invoke YaST:

```
# yast2 &
```

# Configuring Samba-3 with LDAP (cont'd)

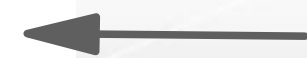


YaST Control Center @ pbc3543

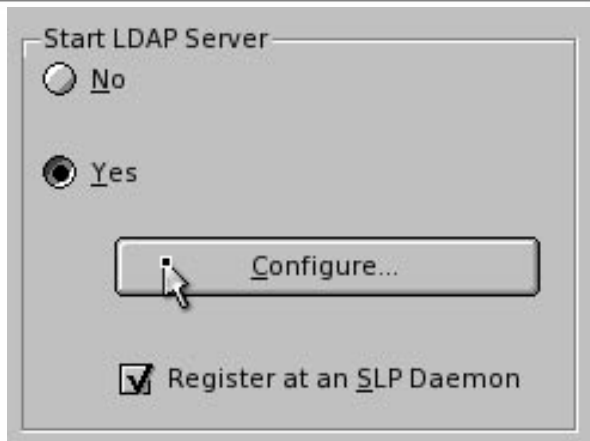
# YaST

- Software
- Hardware
- System
- Network Devices
- Network Services**
- Security and Users
- Misc

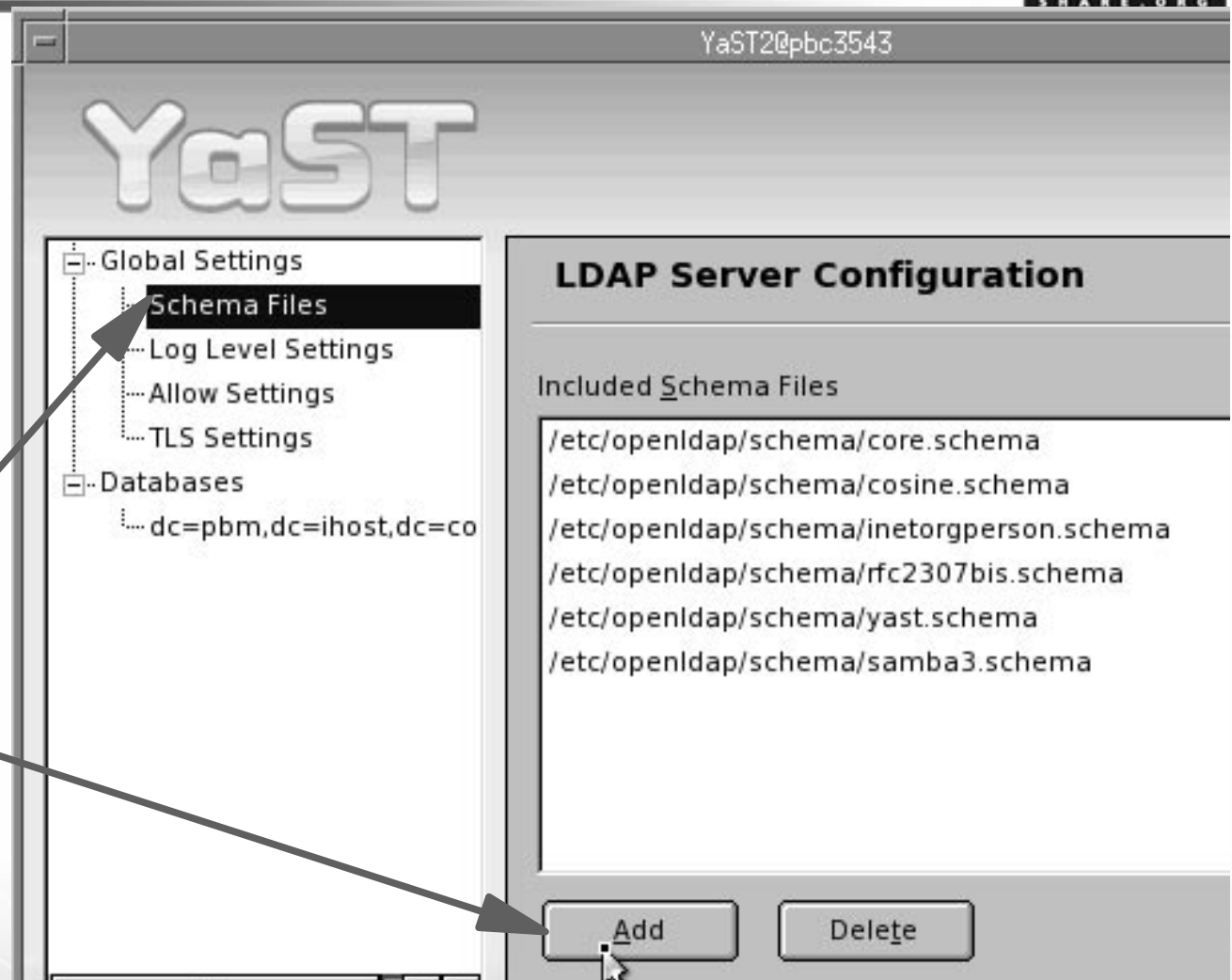
DHCP Server	DNS Server
DNS and Host Name	HTTP Server
Host Names	Kerberos Client
LDAP Client	LDAP Server
Mail Transfer Agent	NFS Client



# Configuring Samba-3 with LDAP (cont'd)

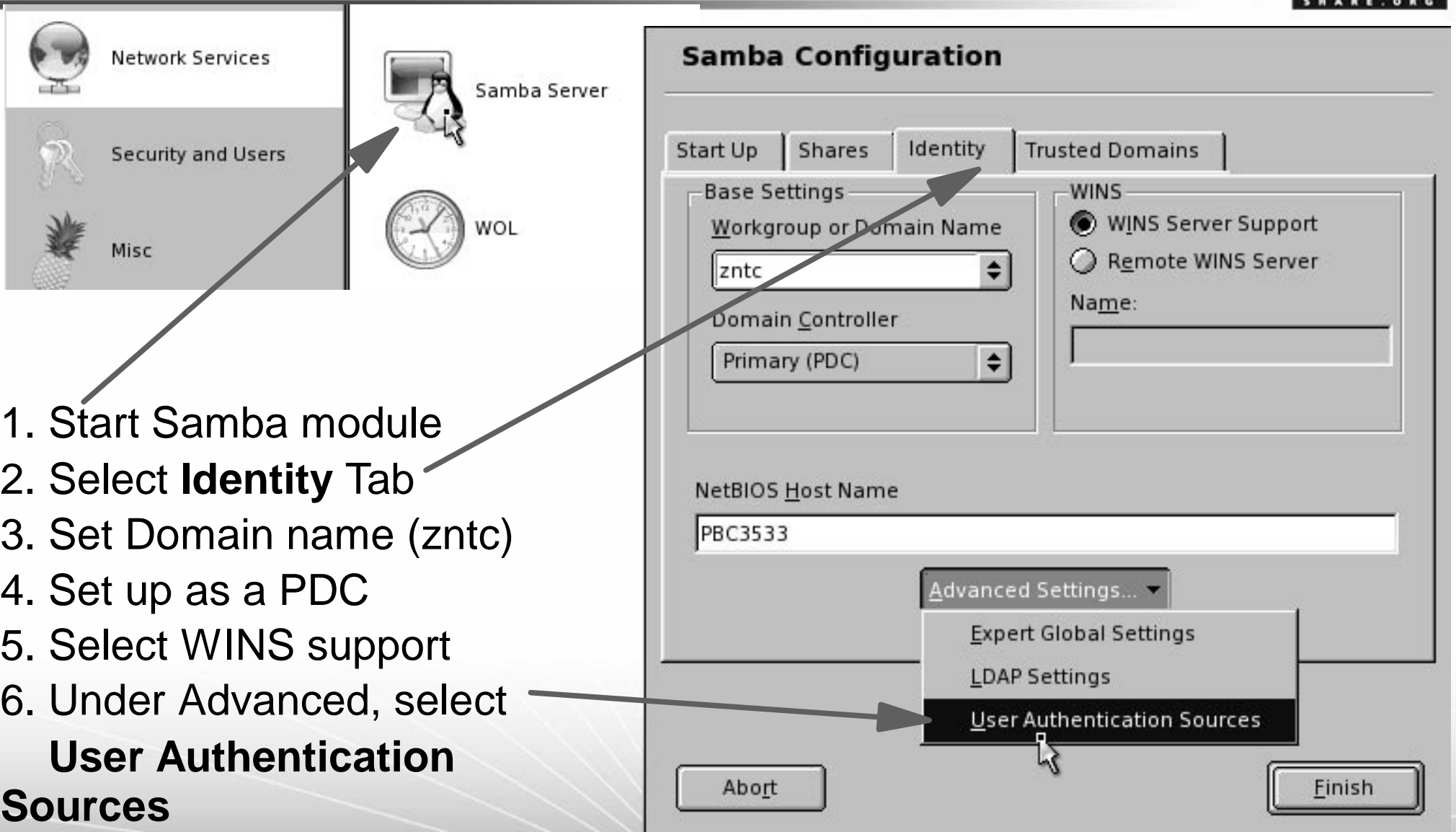


1. Click **Configure**
2. Select Schema files
3. Click **Add**
4. Choose samba3.schema
5. Click **Finish**



```
# grep samba /etc/openldap/slapd.conf
include          /etc/openldap/schema/samba3.schema
# ls /etc/openldap/schema/samba*
/etc/openldap/schema/samba3.schema
```

# Configuring Samba-3 with LDAP (cont'd)



The screenshot shows the Samba Configuration window with the Identity tab selected. The 'Workgroup or Domain Name' is set to 'zntc' and the 'Domain Controller' is set to 'Primary (PDC)'. The 'WINS' section has 'WINS Server Support' selected. The 'NetBIOS Host Name' is 'PBC3533'. The 'Advanced Settings...' dropdown menu is open, showing 'User Authentication Sources' selected. Arrows from the numbered list point to these specific settings.

Network Services  
Security and Users  
Misc

Samba Server  
WOL

### Samba Configuration

Start Up | Shares | **Identity** | Trusted Domains

Base Settings

Workgroup or Domain Name  
zntc

Domain Controller  
Primary (PDC)

WINS

WINS Server Support  
 Remote WINS Server

Name:

NetBIOS Host Name  
PBC3533

Advanced Settings...  
Expert Global Settings  
LDAP Settings  
**User Authentication Sources**

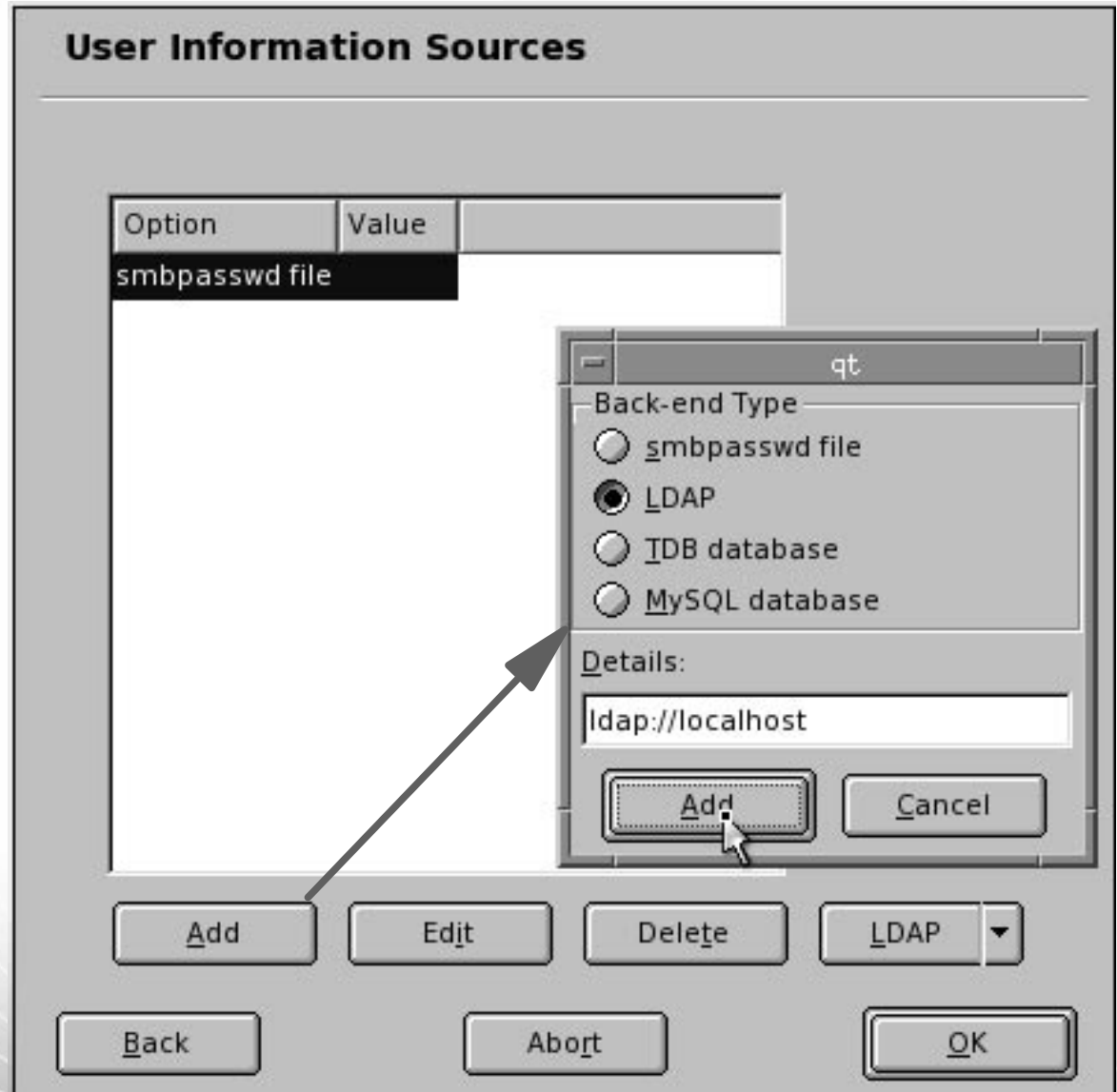
Abort Finish

1. Start Samba module
2. Select **Identity** Tab
3. Set Domain name (zntc)
4. Set up as a PDC
5. Select WINS support
6. Under Advanced, select **User Authentication Sources**

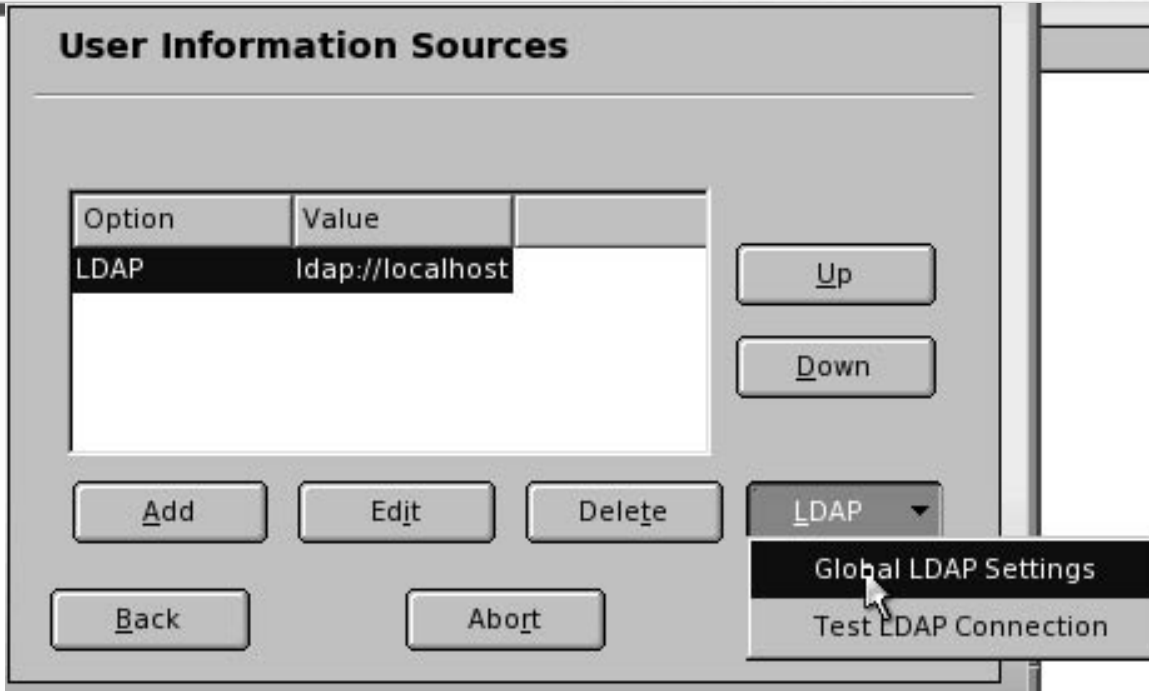
# Configuring Samba-3 with LDAP (cont'd)

1. Click **Add**
2. Choose **LDAP** back-end
3. Click **Add**
4. With "smbpasswd file" selected, click **Delete**

You should now have just LDAP as a backend



# Configuring Samba-3 with LDAP (cont'd)



1. Choose **LDAP** => **Global LDAP settings**
2. Click **Set LDAP Admin Password**
3. Set the password
4. Click **LDAP** => **Test LDAP conn'n**
5. Click **OK**
6. Click **Finish** (on Samba panel)

## LDAP Samba Server Options

Search Base DN:

dc=pbm,dc=ihost,dc=com

Administration DN:

cn=Administrator,dc=pbm,dc=ihost,dc=com

Set LDAP Administration Password

# Configuring Samba-3 with LDAP (cont'd)



▶ Look at the LDAP tree afterward

▶ Look at the smb.conf changes (some):

```
< workgroup = ZNTC
< ldap suffix = dc=pbm,dc=ihost,dc=com
< ldap group suffix = ou=group
< ldap user suffix = ou=people
< security = user
< encrypt passwords = yes
< passdb backend = ldapsam:ldap://localhost
< domain logons = yes
< idmap backend = ldapsam:ldap://localhost
< ldap admin dn = cn=Administrator,dc=pbm,dc=ihost,dc=com
< ldap idmap suffix = ou=Idmap
< ldap machine suffix = ou=Computers
< local master = yes
< wins support = yes
< netbios name = PBC3533
< add machine script =
    /sbin/yast /usr/share/YaST2/data/add_machine.ycp %m$
< domain master = yes
< preferred master = yes
< os level = 65
```

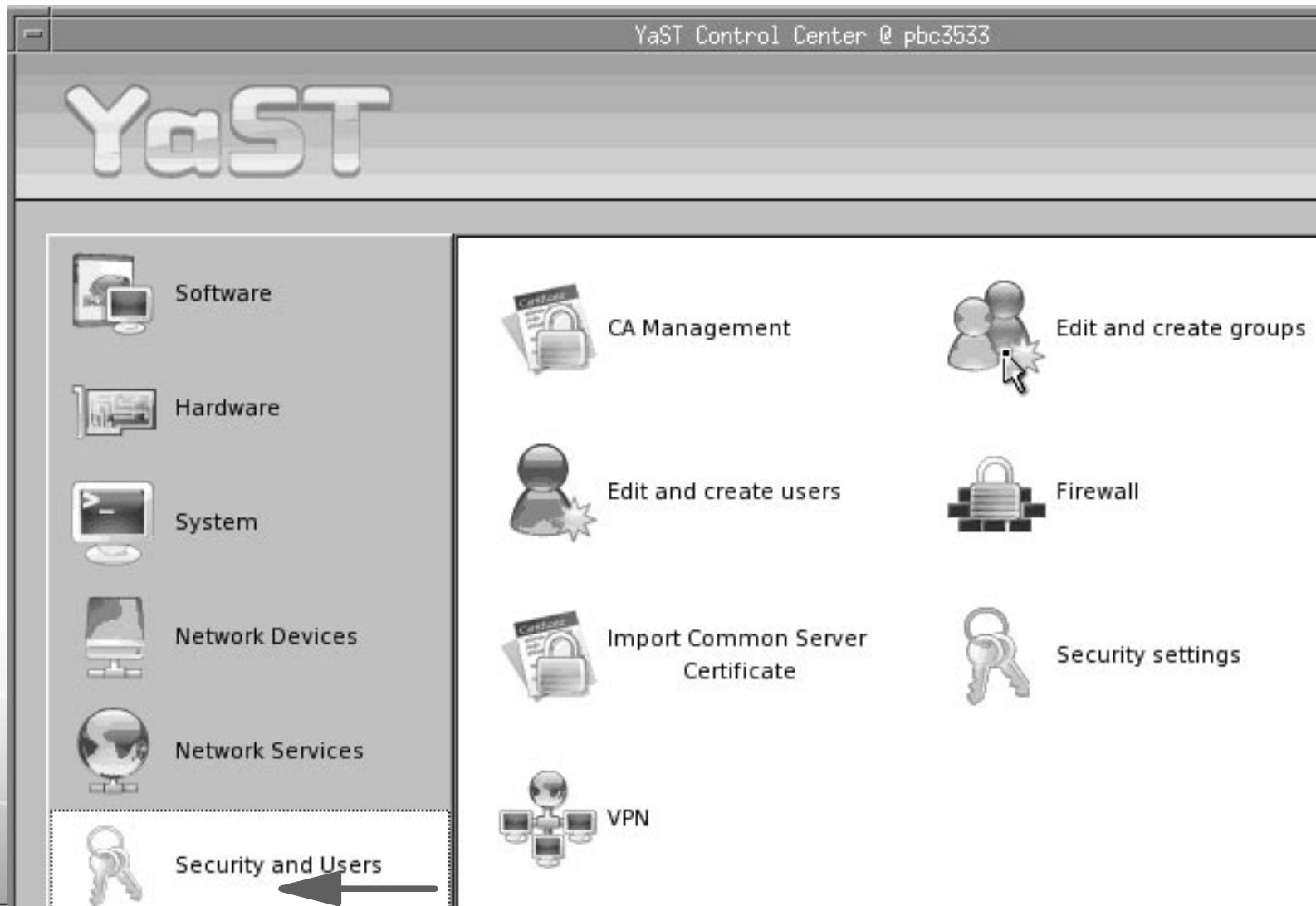
```
▼ localhost
  ▼ dc=pbm,dc=ihost,dc=com
    ▼ ou=ldapconfig
      cn=groupconfiguration
      cn=userconfiguration
      cn=grouptemplate
      cn=usertemplate
    ▼ ou=people
      ▶ uid=root
      ou=group
      ou=Computers
      ou=Idmap
      sambaDomainName=ZNTC
```




# Configuring Samba-3 with LDAP (cont'd)



- ▶ Create groups and users
  - Click **Edit and create groups** and enter LDAP Admin password



# Configuring Samba-3 with LDAP (cont'd)

 **User and Group Administration**


Users  Groups Filter: Custom

Group name	Group ID	Group members
------------	----------	---------------

▼

▼  ▼

1. Click **Add**
2. Enter **domainusers**
3. Click **Next**

 **Add a New LDAP Group**

Group Name:

Group ID (gid):

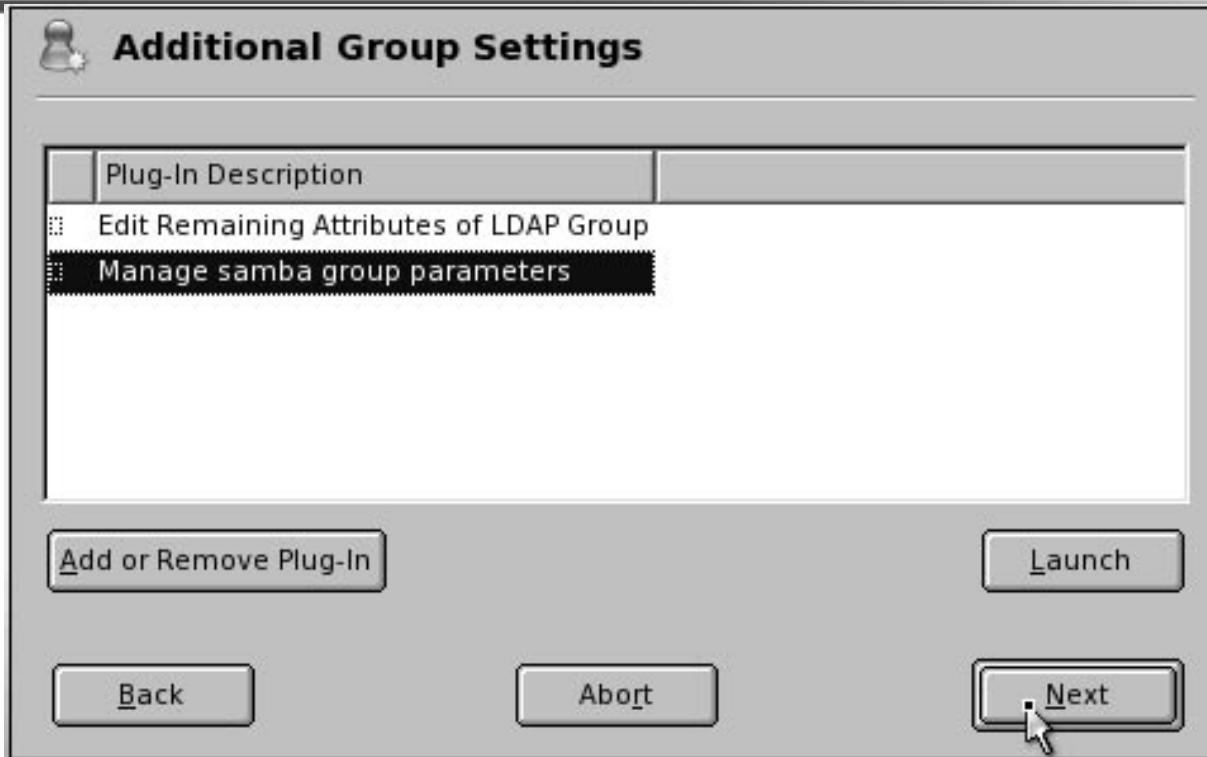
Enter a Password:

Reenter the Password:

Members of this Group:

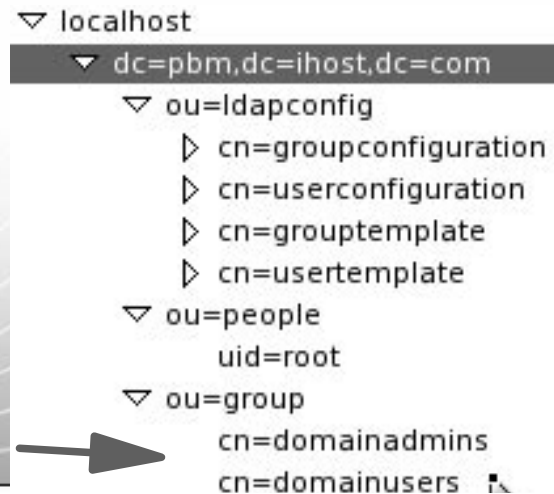
26

# Configuring Samba-3 with LDAP (cont'd)



4. Select **Manage Samba ...**
5. Click **Add or remove plug-in**
6. Click **Next**
7. Repeat 1-6 to add group for "domainadmins"

Verify with




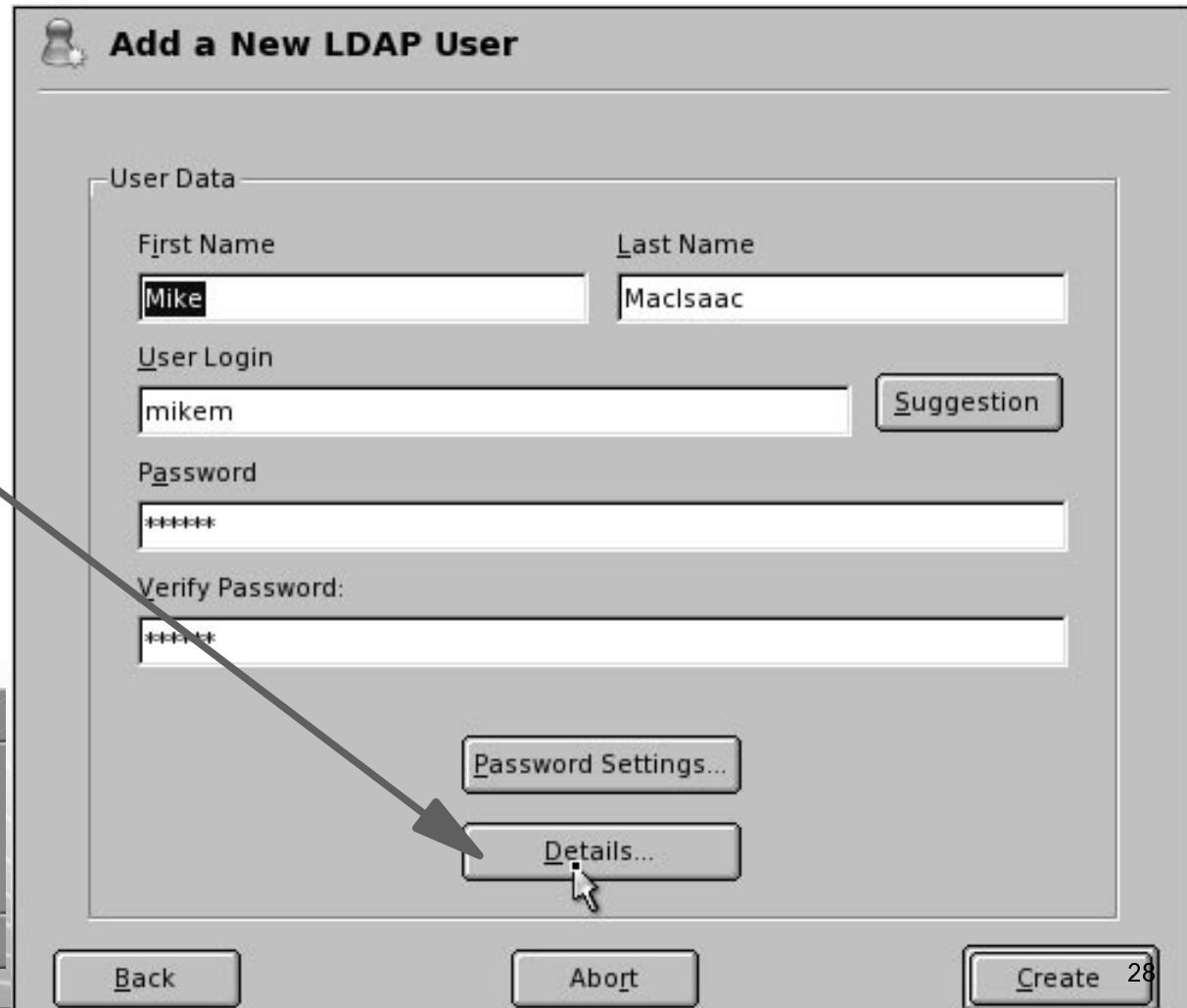
# Configuring Samba-3 with LDAP (cont'd)

Add a user

1. Click **Edit and create users**
2. Enter LDAP admin password
3. Click **Add**
3. Enter user name, password
4. Click **Details**



Edit and create users



# Configuring Samba-3 with LDAP (cont'd)



Add a user

5. Select domainadmins  
as default group

6. Click **Next**

7. Accept defaults on  
"Additional user settings"

8. Click **Create**

9. Click **Finish**

The screenshot shows the "Add/Edit User Properties - Details" dialog box in a Linux environment. The title bar includes a user icon and the text "Add/Edit User Properties - Details". The main content area is titled "Detailed Profile for User 'mikem'". It contains several fields and lists:

- User ID (uid):** A text box containing "1000".
- Home Directory:** A text box containing "/home/mikem" and a "Browse..." button.
- Login shell:** A dropdown menu showing "/bin/bash".
- Default group:** A dropdown menu with "domainadmins" selected. A mouse cursor is pointing at the "domainusers" option in the expanded list.
- Additional Group Membership:** A list with checkboxes for "users", "abuild", "at", "audio", "bin", and "cdrom".
- Additional LDAP Groups:** A list with checkboxes for "domainadmins" and "domainusers".

At the bottom of the dialog, there are three buttons: "Back", "Abort", and "Next".

# Configuring Samba-3 with LDAP (cont'd)



- ▶ Go back to Linux and see what changed:

```
# id mikem
id: mikem: No such user ← WHY?
# ldapsearch -x | grep mikem
# mikem, people, pbm.ihost.com
dn: uid=mikem,ou=people,dc=pbm,dc=ihost,dc=com
cn: mikem
homeDirectory: /home/mikem
sn: mikem
uid: mikem
# rcnscd restart
Shutting down Name Service Cache Daemon      done
Starting Name Service Cache Daemon           done
# id mikem
uid=1000(mikem) gid=1000(domainusers) groups=1000(domainusers)
```

# Configuring Samba-3 with LDAP (cont'd)

The screenshot shows a LDAP browser window with the following details:

- Objectclasses** tab selected.
- Name:** sambaSamAccount
- Description:** Samba 3.0 Auxilary SAM Account
- OID:** 1.3.6.1.4.1.7165.2.2.6
- Superior:** top
- Kind:** Auxiliary
- Obsolete
- Required attributes:** uid, sambaSID
- Allowed attributes:** cn, sambaLMPassWord, sambaNTPassWord, sambaPwdLastSet, sambaLogonTime, sambaLogoffTime, sambaKickoffTime, sambaPwdCanChange, sambaPwdMustChange, sambaAcctFlags, displayName, sambaHomePath, sambaHomeDrive, sambaLogonScript, sambaProfilePath

At the bottom of the window, it says: Schema search on 'cn=Subschema' on server 'localhost'

Important

# Time serving with NTP

- The Network Time Protocol (NTP) daemon in xntpd
  - ▶ In a sense all Linux time servers are clients
- Configure the software clock so Samba can serve time accurately
  - ▶ There are public time servers (stratum 1 and 2) on the Internet. See:  
<http://ntp.isc.org/bin/view/Servers/StratumTwoTimeServers>

- ▶ Find two servers your Linux image can get to

- ▶ Configuration file is /etc/ntp.conf:

```
# egrep -v "^$|^#" /etc/ntp.conf
server sundial.columbia.edu
server clock.nyc.he.net
driftfile /var/lib/ntp/drift/ntp.drift # path for drift file
logfile /var/log/ntp # alternate log file
```

- ▶ Start xntpd for this session and across reboots

```
# rcxntpd start
Try to get initial date from sundial.columbia.edu clock.nyc.he.net done
Starting network time protocol daemon (NTPD) done
# chkconfig xntpd on
# chkconfig xntpd
xntpd on
```



# Time serving with NTP (cont'd)

- ▶ Wait for time to settle down - few seconds to tens of minutes

```
# ntptrace | grep stratum
localhost: stratum 16, offset 0.000000, synch distance 0.000000
... a few minutes later
# ntptrace | grep stratum
localhost: stratum 2, offset 0.003003, synch distance 0.009264
```

- ▶ If Samba is running, it is now an *accurate* SMB time server
- ▶ Other Linux clients can set their clock nightly via the cron entry:

```
# cat /etc/cron.daily/set-clock
#!/bin/bash
/usr/sbin/ntpd -q
```

- Set the time from a Windows client
  - ▶ DOS command (Samba server is 9.57.26.222):

```
net time \\9.57.26.222 /set /yes
```
  - This can be put in autoexec.bat or a logon profile

# Solution - Set up a logical volume



## ■ Overall

- ▶ Get some DASD defined to the VM user ID
- ▶ Add the DASD in Linux
- ▶ Format each DASD, carve into a single partition and verify
- ▶ Create physical volumes for each DASD - SLES9 uses LVM2
- ▶ Verify physical volumes
- ▶ Create the volume group and verify
- ▶ Create a striped logical volume using most of the volume group
- ▶ Create a journalled file system and mount the logical volume
- ▶ Give group write privileges and make a Samba share of the directory:
- ▶ Set the LVM to come up at IPL (boot) time

# Solution - Set up a logical volume (cont'd)



- ▶ Get some DASD defined to the VM user ID

```
USER MP3KLNX6 LNX6 128M 512M      G
INCLUDE LNXDFLT
MDISK 100 3390 0001 3338 VM20F MR RPASS WPASS MPASS
MDISK 101 3390 0751 0100 VM218 MR RPASS WPASS MPASS
MDISK 200 3390 0001 3338 VM210 MR RPASS WPASS MPASS
MDISK 201 3390 0001 3338 VM211 MR RPASS WPASS MPASS
MDISK 202 3390 0001 3338 VM212 MR RPASS WPASS MPASS
MDISK 203 3390 0001 3338 VM213 MR RPASS WPASS MPASS
MDISK 204 3390 0001 3338 VM214 MR RPASS WPASS MPASS
MDISK 191 3390 0851 0050 VM218 MR RPASS WPASS MPASS
```

- ▶ Add the DASD in Linux (new process for SLES9)

```
# cd /etc/sysconfig/hardware
# cp hwcfg-dasd-bus-ccw-0.0.0100 hwcfg-dasd-bus-ccw-0.0.0200
# cp hwcfg-dasd-bus-ccw-0.0.0100 hwcfg-dasd-bus-ccw-0.0.0201
...
```

- ▶ Reboot Linux and the new dasd should be in /proc/dasd/devices

# Solution - Set up a logical volume (cont'd)



## ► Be sure you have LVM2 installed

```
# rpm -qa | grep lvm
# yast -i lvm2 // and some screens flash by - cool way to add RPMs
# rpm -qa | grep lvm
lvm2-2.00.15-0.8
```

## ► Format each DASD, carve into a single partition and verify

```
# for i in c d e f g
> do
> dasdfmt -b 4096 -y -f /dev/dasd$i
> fdasd -a /dev/dasd$i
> done
Finished formatting the device.
Rereading the partition table... ok
...
# dasd list
0100(ECKD) at ( 94: 0) is dasda : active, 2347 MB
0101(ECKD) at ( 94: 4) is dasdb : active, 70 MB
0200(ECKD) at ( 94: 8) is dasdc : active, 2347 MB
...
0204(ECKD) at ( 94: 24) is dasdg : active, 2347 MB
```

# Solution - Set up a logical volume (cont'd)



## ► Initialize LVM

```
# vgscan
  Reading all physical volumes.  This may take a while...
  No volume groups found
```

## ► Create physical volumes for each DASD

```
# pvcreate /dev/dasd[cdefg]1
pvcreate -- physical volume "dasdc1" successfully created
pvcreate -- physical volume "dasdd1" successfully created
pvcreate -- physical volume "dasde1" successfully created
pvcreate -- physical volume "dasdf1" successfully created
pvcreate -- physical volume "dasdg1" successfully created
```

## ► Verify physical volumes

```
# pvscan
pvscan -- reading all physical volumes (this may take a while...)
pvscan -- inactive PV "/dev/dasdc1" is in no VG [2.29 GB]
pvscan -- inactive PV "/dev/dasdd1" is in no VG [2.29 GB]
pvscan -- inactive PV "/dev/dasde1" is in no VG [2.29 GB]
pvscan -- inactive PV "/dev/dasdf1" is in no VG [2.29 GB]
pvscan -- inactive PV "/dev/dasdg1" is in no VG [2.29 GB]
pvscan -- tot: 5 [11.46 GB] / in use: 0 [0] / in no VG: 5 [11.46 GB]
```

# Solution - Set up a logical volume (cont'd)



## ► Create the volume group and verify:

```
# vgcreate datavg /dev/dasd[cdefg]1
Volume group "datavg" successfully created
# ls -ld /dev/datavg
dr-xr-xr-x    2 root      root          72 Jan 16 14:29 /dev/datavg/
# ls -l /dev/datavg
crw-r-----    1 root      disk         109,    0 Jan 16 14:06 group
# vdisplay datavg | grep Size
VG Size                11.43 GB
PE Size                 4 MB
Alloc PE / Size        0 / 0
Free PE / Size         2925 / 11.43 GB
```

# Solution - Set up a logical volume (cont'd)



- ▶ Create a striped logical volume using most of the volume group

```
# lvcreate --stripes 5 --size 11.4G -n lv1 /dev/datavg
logical volume "/dev/datavg/lv1" successfully created
# lvdisplay /dev/datavg/lv1
--- Logical volume ---
LV Name                /dev/datavg/lv1
VG Name                datavg
LV Write Access        read/write
LV Status              available
LV #                  1
# open                 0
LV Size                11.41 GB
...
# vgsdisplay datavg | grep Size
MAX LV Size           255.99 GB
VG Size               11.43 GB
PE Size               4 MB
Alloc PE / Size       2920 / 11.41 GB
Free PE / Size        5 / 20 MB
```

# Solution - Set up a logical volume (cont'd)



- ▶ Create a journalled file system and mount the logical volume

```
# mke2fs -j /dev/datavg/lv1
...
# mkdir /data
# mount /dev/datavg/lv1 /data
# df -h
```

Filesystem	Size	Used	Avail	Use%	Mounted on
/dev/dasda1	2.3G	1.6G	744M	69%	/
shmfs	62M	0	62M	0%	/dev/shm
/dev/datavg/lv1	12G	33M	11G	1%	/data

- ▶ Give group write privileges and make a Samba share of the directory:

```
# cd /
# chown root.users data
# chmod g+sw data
# ls -ld data
drwxrwsr-x  4 root  users          4096 Jul 22 13:27 data/
# cd /etc/samba
# vi smb.conf # add the entry
# cat smb.conf
...
[data]
    path = /data
    read only = no
```



# Solution - Set up a logical volume (cont'd)



## ► Set the LVM to come up at IPL (boot) time

```
# cd /etc
# cp zipl.conf zipl.conf.orig
# vi zipl.conf                                # add DASD 200-204
# cat zipl.conf
...
[ipl]
target=/boot/zipl
image=/boot/kernel/image
ramdisk=/boot/initrd
parameters="dasd=100-101,200-204 root=/dev/dasda1"
...
# zipl
# cp fstab fstab.orig
# vi /etc/fstab                                # and add a line
# cat /etc/fstab
/dev/dasda1          /                reiserfs  defaults      1 1
/dev/datavg/lv1     /data            ext3      acl           0 2
/dev/dasdb1         swap             swap      pri=42        0 0
devpts              /dev/pts        devpts    mode=0620,gid=5 0 0
proc                /proc           proc      defaults      0 0
# shutdown -r now
...
```

# Documentation and resources



## ■ Documentation

- ▶ *Migrating Windows servers to Samba*, Mike Maclsaac

<http://www.linuxvm.org/Present>

- ▶ SuSE docs, including Samba docs

[sharedocs]

path = /usr/share/doc/packages

- ▶ *Using Samba*, Jay Ts, Robert Eckstein, David Collier-Brown (2nd ed)

- ▶ SWAT - includes *Using Samba* on line

- ▶ *SAMBA Essentials for Windows Administrators*, Gary Wilson

- ▶ Redbooks

- *Linux for zSeries and S/390: Distributions*

<http://www.redbooks.ibm.com/abstracts/sg246264.html>

- *Understanding LDAP*, SG24-4986

<http://www.redbooks.ibm.com/abstracts/sg244986.html>

# Documentation and resources (cont'd)



## ■ Web sites

- ▶ Linuxvm.org - the Linux on zSeries portal:

<http://linuxvm.org>

- ▶ DeveloperWorks - IBM Boeblingen

<http://www10.software.ibm.com/developerworks/opensource/linux390/index.shtml>

- ▶ ISV applications for Linux on zSeries:

<http://www.ibm.com/servers/eserver/zseries/solutions/s390da/linuxproduct.html>

- ▶ z/VM and Linux:

<http://www.vm.ibm.com/linux>

- ▶ linux-390 archives:

<http://www.marist.edu/htbin/wlvindex?linux-390>

- ▶ z/VM publications:

<http://www.vm.ibm.com/pubs/>

## ■ Mailing lists

- ▶ linux-390 mailing list (subscribe at bottom of page)

<http://www.marist.edu/htbin/wlvindex?linux-390>

- ▶ Samba mailing list (this host or other mirror)

<http://us2.samba.org/samba/archives.html>

# Questions??



- Are there any questions?

???

# Birds of a Feather Advertisement



- **Linux Appliance BoF: Weds. at 6:00PM in room 207A** (session 0103)
- "The Linux on zSeries Appliance Cookbook: Featuring z/VM" will be discussed:
  - ▶ It is a draft redbook and associated tar file with EXECs and scripts
  - ▶ A goal is to approach the concept of "Linux appliances" on zSeries under z/VM
  - ▶ You can go "from LPAR to Linux cloning in two days" doing the following tasks:
    - Install and configure z/VM 5.1 from DVD
    - Install and configure a "golden image" Linux to be cloned from
    - Install and configure a "controller" Linux to clone, back up appliances, more
    - Create appliances such as Web server, LDAP server, File/print server, SNA server, 374x
    - Address z/VM and Linux backup, restore, service and monitoring requirements
- It is designed for people with mainframe/IT skills but not necessarily VM and Linux skills