



Linux Integration with Windows using Samba

August 2004

Overview



- Samba is a popular open source package that allows communication over the SMB/CIFS protocol
- Samba essentially allows you to turn your Red Hat Enterprise Linux server into a Windows server and/or client
 - Share home directories
 - Share printers
 - Support roaming profiles
 - Support domain login and authentication
- Exceptional scaling capabilities, flexible design
- Help consolidate all authentication, printing, and file sharing to a single system, or cluster of similar systems



Installation

- RHEL ships with Samba 3.0
- “rpm -ivh”
 - samba, samba-client, samba-common
 - redhat-config-samba
- “chkconfig samba on”
- “service samba start”

Configuration



- Applications -> System Settings -> Server Settings -> Samba
 - Graphical samba configuration tool
 - Helpful for most basic setups
- SWAT
 - Configure samba via the web (runs via xinetd, tcp port 901)
 - Requires root password. Default installation is insecure.
 - Can re-arrange lines, formatting and remove comments
 - Useful for “playing” and understanding samba quickly
- All configuration is in `/etc/samba/smb.conf`
- “testparm”
 - utility that you should run to check for errors in `smb.conf`

smb.conf



- List of shares, designated with []'s
- Each share has any number of name=value pairs
- Three special shares
 - global: global settings and default values
 - homes: automatically creates unspecified shares (and more!)
 - printers: automatically create shares for all printers (one each)
- [global]
 - workgroup=chicago
 - netbios name=server1
 - security=user

File Shares



- [tmp] # creates a share called
"tmp"
comment = "Temporary Public Storage"
writeable=yes
path=/tmp
public=yes # don't require a password
- [homes] # a special share!
browseable=no
writeable=yes
valid users=%u administrator
force user=%u

File Sharing, Adding Users



- When clicking on a share, Windows automatically sends the username and password that you use to login
- Windows send the password in encrypted form, not compatible with the password hashing of UNIX crypt
 - User account must exist on UNIX side!
 - Add user's encrypted password with “smbpasswd -a”
 - stored in /etc/samba/smbpasswd
- smb.conf provides a password section to help keep passwords in sync. (LDAP is another option)
- When “user” logs in, the samba process has uid “user” and traditional UNIX file permissions take affect

Printer Sharing



- Exceptional scalability
 - Over 1000 print queues on a single machine
- Windows clients sends raw device specific data
- RHEL uses CUPS for printing
- [global]
 - printcap name=/etc/printcap
 - load printers=yes
 - cups options=raw
- [printers]
 - path=/var/spool/samba
 - guest ok=yes
 - printable=yes
- When adding a printer to windows, user will have to select the print driver for that specific printer

Point'n'Print



- Create a [print\$] share that stores printer drivers
 - This allows windows clients to simply “add” a printer and automatically get the printer driver installed for them
 - The printer driver is usually installed via an NT admin, but there are many other ways do this as well

Primary Domain Controller



“Unlimited” client connections!

- [global]

os level = 64

preferred master = yes

local master = yes

domain master = yes

domain logins = yes

logon home = \\%L\%U\profile # <WinME style

logon drive = H:

logon path = \\%L\profiles\%U

Keep a browse list

PDC

login scripts / roaming

- [profiles]

path=/home/samba/profiles

writeable=yes

browseable=no

create mask=0600

directory mask=0700

Must exist!



Login Scripts

- Registry patches, virus updates, backups, etc.
- [global]
 logon script = netlogin.bat
- [netlogon]
 path=/home/netlogon
 read only=yes
- Logon script can be any windows executable
- Must have execute bit set under Linux

PDC Accounts



- User accounts required on UNIX and Samba side, like before
- Accounts for machines must also be setup (trust accounts)
 - Can be created by hand
 - `useradd -d /dev/null -s /sbin/false machine_name$`
 - `passwd -l machine_name$`
 - `smbpassword -a -m machine_name # no dollar sign!`
 - Or by script in smb.conf's [global] share
 - `add user script = /usr/bin/useradd ...`

LDAP Authentication



- Used in place of smbpasswd file
- LDAP can improve performance (database/indexed based)
- LDAP supports replication
- Can store extra information such as:
 - home directory, password details, etc.
- Central authentication source (use PAM!)
- [global]

ldap admin dn = "cn=Manager,dc=syroidmanor,dc=com"

ldap server = localhost

ldap port = 389

ldap ssl = no

ldap suffix = "ou=Users,dc=syroidmanor,dc=com"

Security



- Firewall UDP/TCP ports 137-139
- Security is largely a social issue
 - Only require your users to remember one password
 - Create one website to change all passwords
 - Use scripts to sync passwords (smb.conf can help)
 - Use LDAP, KRB5, or Active Directory

- [global]

interfaces = eth0

hosts allow = 127. 192.168.1.

unix password sync = yes

passwd program = /usr/bin/passwd %u

passwd chat = ...

log file = /var/log/samba/log.%m

log level = 2

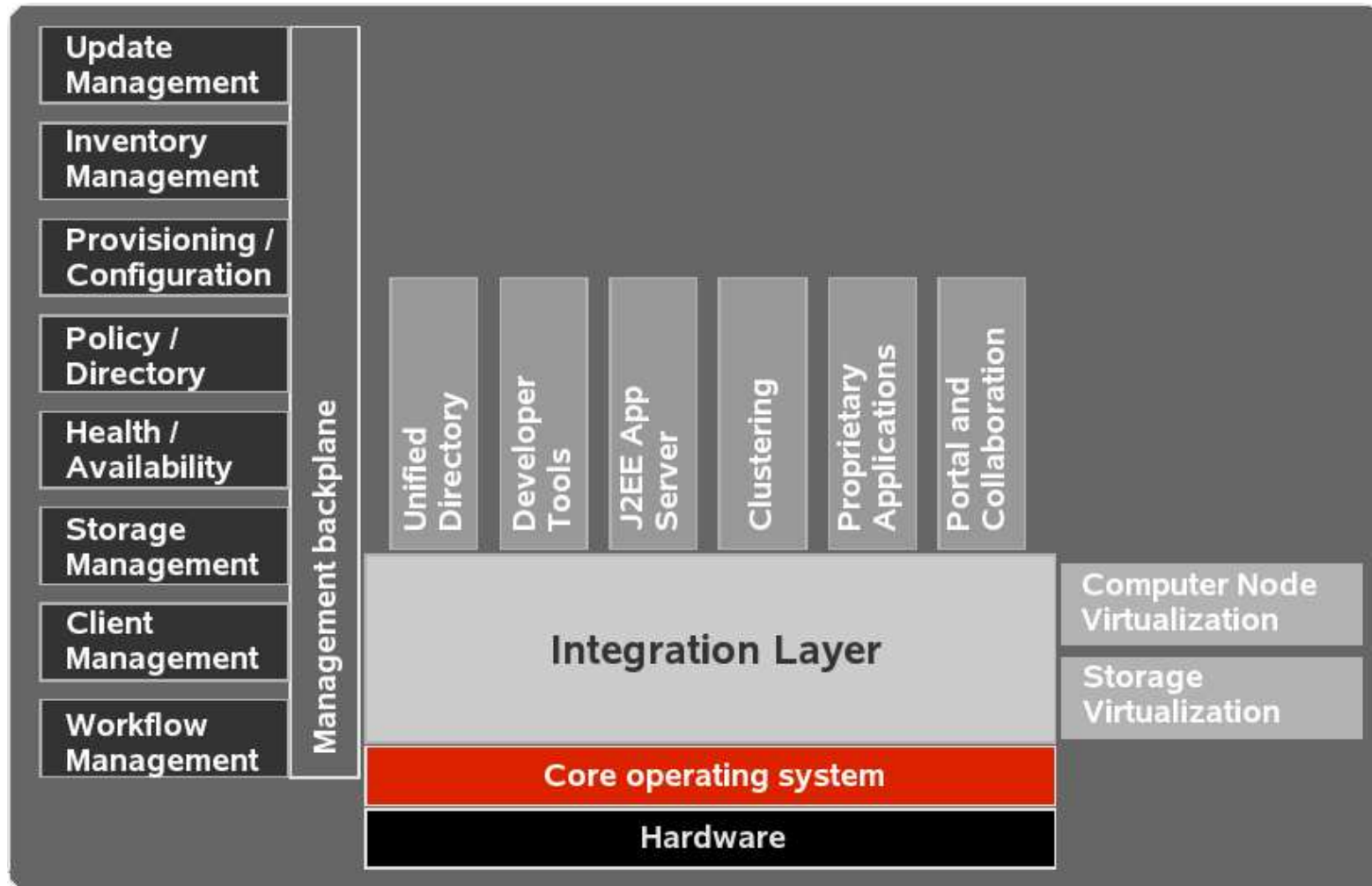
max log size = 50 # in kilobytes

Linux as a client



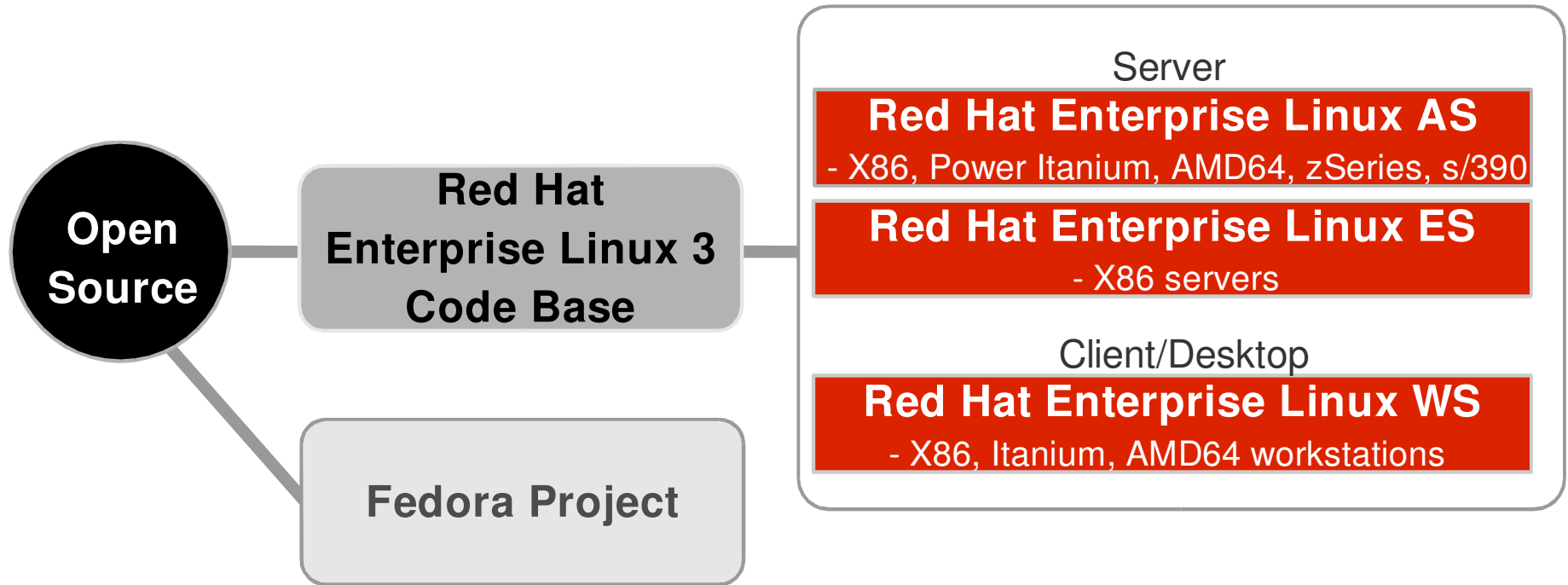
- “smbclient”
 - Userspace command line tool like “ftp”
 - Connects to printer shares also (server expects raw data.)
- Kernel module smbfs
- Authenticating (authconfig)
 - Winbind, emulate a windows member!
 - use “pam_windbind” Pluggable Authentication Module
 - Use “nss_windbind” for Name Service Switch
 - Microsoft Services for UNIX alternative (free, no source)
 - Windows server provides nis, Insecure
 - Use “nss_nis” and “pam_nis”
 - PADL, requires modifying Active Directory schema
 - Use “nss_ldap” and “pam_ldap” or “pam_krb5”

Open Source Architecture



- Extend Linux and open source further up the solution stack
- Multiple technologies, layered horizontally
 - Enables leverage across complete product portfolio
- Growing application base based on open source Java

Red Hat OS Products and Projects



- Stability and quality with extended release cycle
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- **One price covers everything:**
 - **Red Hat Enterprise Linux**
 - Product & Documentation
 - **Upgrades and Maintenance**
 - Customers get new releases at no extra charge
 - Red Hat Network delivers updates and errata (e.g. security & bug fixes)
 - **Technical Support**
 - Up to 24x7 with 1 hr response & unlimited calls
- **No Client Access Licenses**
- **Predictable and manageable budget = no surprises**

IBM – Red Hat Product Certification

- IBM eServer System Certification
 - Most IBM eServers are Red Hat certified today
 - Specific models can be searched for at:
<http://hardware.redhat.com>
- IBM Software Group
 - Red Hat Enterprise Linux is a Tier 1 operating system platform
 - IBM Software Group is committed to having all middleware and infrastructure applications certified for RHEL as quickly as possible upon general availability
- >1,000 Applications Certified with Red Hat Enterprise Linux
 - Including BEA, BMC, Computer Associates, Oracle, Peoplesoft, SAP and Veritas

Upcoming Red Hat Sessions

O36 Technical Overview: Linux 2.6 kernel features and Red Hat Enterprise Linux

Wednesday	08:30 am -	09:15 am	Salon 3
Thursday	04:00 pm -	05:15 pm	Salon 3

O37 Red Hat Enterprise Linux Security

Thursday	08:30 am -	09:15 am	Salon 3
Friday	08:30 am -	09:15 am	Salon 4

O38 Migrating from Solaris/Unix to Red Hat Enterprise Linux

Thursday	02:15 pm -	03:30 pm	Salon 3
Friday	10:15 am -	11:30 am	Salon 12

O39 Linux Integration with Windows Using Samba

Tuesday	04:15 pm -	05:30 pm	Salon 3
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