

# Tools for Windows System Support

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# Agenda

## 1. Tools for User Support

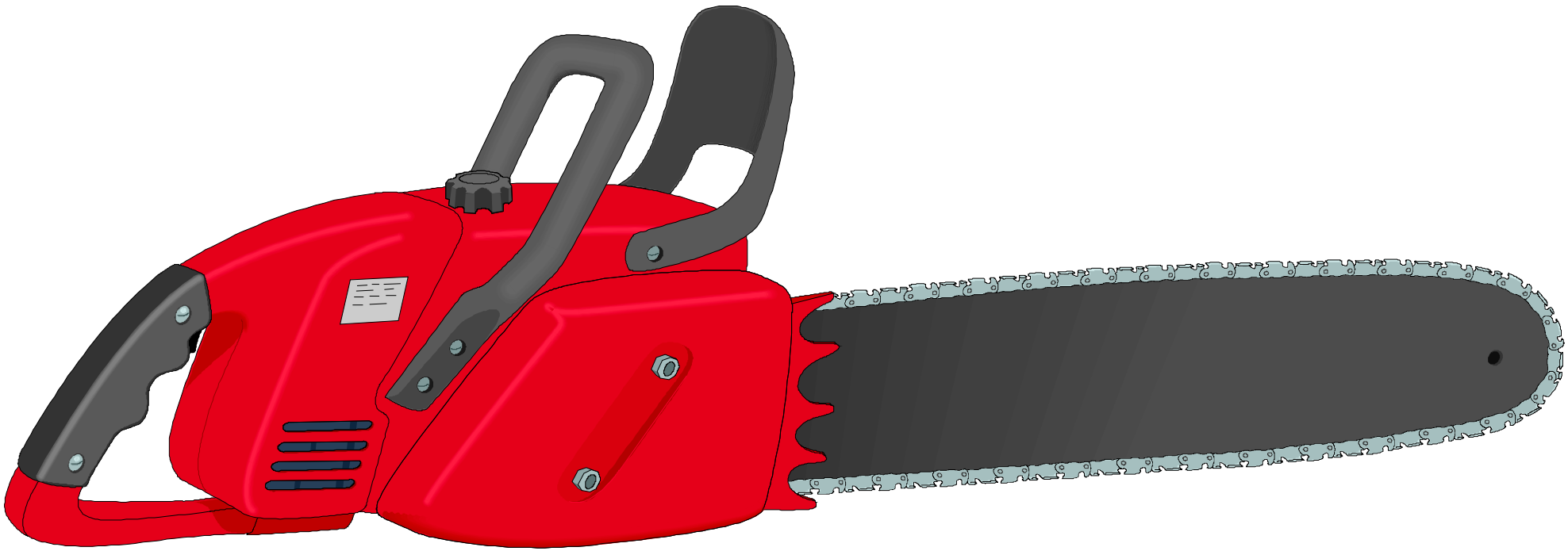
- System Design
- User Education

## 2. Software Tools for Servers

- Samba: file, print, authentication
- Poptop: Virtual Private Network (VPN)

## 3. Software Tools for Workstations

- Windows : Cygwin (Xserver)
- Linux OS : VMWare (hardware emulation)



What's that noise?!?

# Tools for User Support

# Userbase

## Administrative Staff

20 Windows workstations

5 Linux workstations

25 users

## Student labs (CDF)

100 Windows

100 Linux

50 Xterms (Linux)

6 application & compute servers (Linux)

3000 users

# Network Design Considerations

- Security
- Reliability
- Redundancy
- User preference

# Security: UTorSUS.reg

REGEDIT4

[HKEY\_LOCAL\_MACHINE\SOFTWARE\Policies\Microsoft\Windows\WindowsUpdate\AU]

"NoAutoUpdate"=dword:00000000

"AUOptions"=dword:00000004

"ScheduledInstallTime"=dword:00000004

"UseWU Server"=dword:00000001

"ScheduledInstallDay"=dword:00000000

"RescheduleWaitTime"=dword:00000004

"NoAutoRebootWithLoggedOnUsers"=dword:00000000

[HKEY\_LOCAL\_MACHINE\SOFTWARE\Policies\Microsoft\Windows\WindowsUpdate]

"WU Server"="http://update.utoronto.ca"

"WU Status Server"="http://update.utoronto.ca"

# Security: lock down C:

```
xcaccls.exe "C:\Documents and Settings\All users\Start Menu" \  
    /T /E /C          \  
    /G Administrators:F  \  
    /G System:F         \  
    /G Users:R
```

Other examples:

```
    "Creator owner":C  
    Users:RW
```



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# Redundancy

- “Belt and suspenders” approach
- Windows 2000 offline files
- Webmail

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- Security
- Reliability
- Redundancy
- User preference

# User Choice

- Web browsers
- Email clients
- OS's

# Design Summary

There are two ways of constructing a software design; one way is to make it so simple that there are obviously no deficiencies and the other way is to make it so complicated that there are no obvious deficiencies. The first method is far more difficult. - C. A. R. Hoare

# User Support Tools

- **Manuals and books**
- FAQ's
- Webpages
- Tutorials

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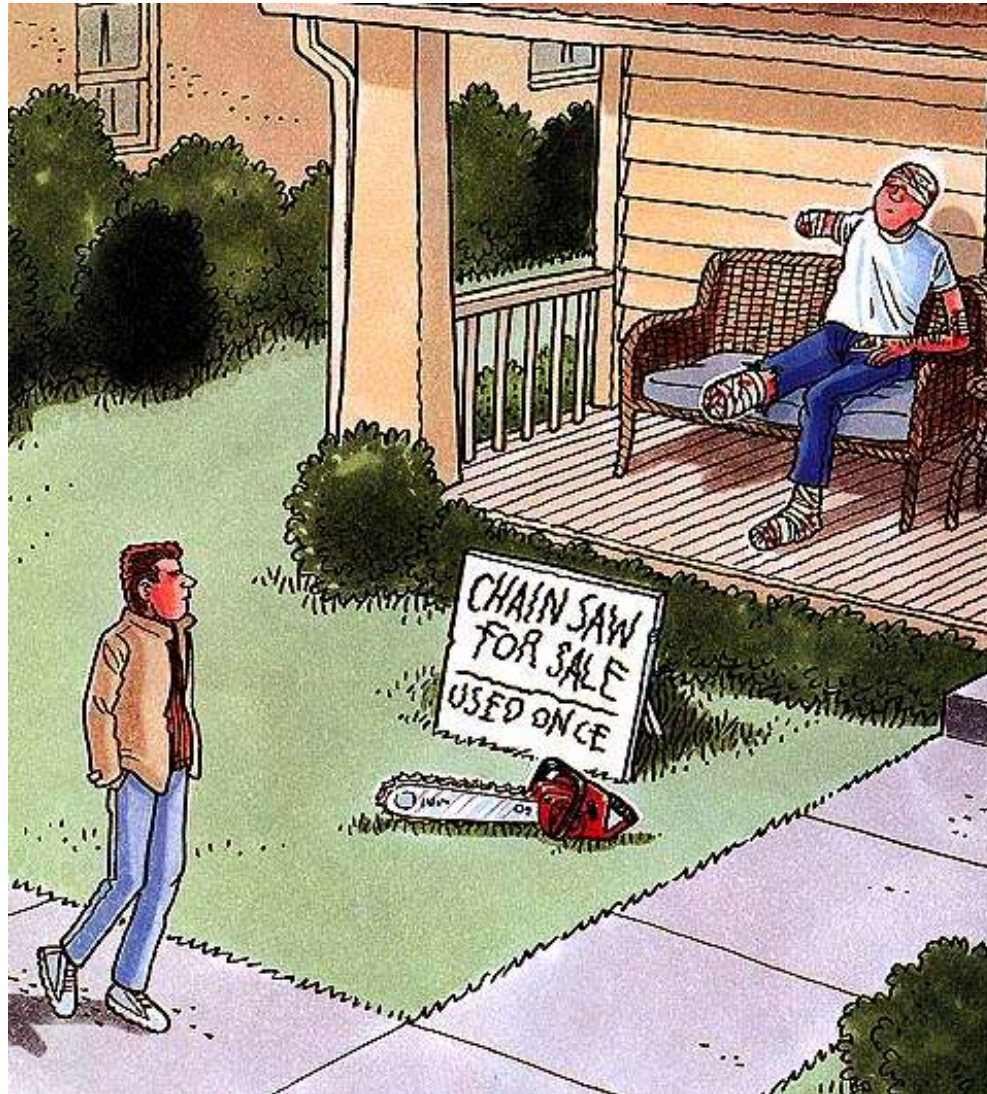
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# Education Summary



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## 1. “Wetware” Tools for Users

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# Network layouts

- Mainframe  
ASCII “dumb” terminals
- Peer to peer
- Boot from Network
- Windows PDC
- Samba PDC

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- Mainframe  
ASCII “dumb” terminals
- **Peer to peer** (Macintosh, staff only)
- Boot from Network
- Windows PDC
- Samba PDC

# Network layouts

- Mainframe  
ASCII “dumb” terminals
- Peer to peer
- **Boot from Network** (Netware, 1<sup>st</sup> year students)  
1991-1997
- Windows PDC
- Samba PDC

# Network layouts

- Mainframe  
ASCII “dumb” terminals
- Peer to peer
- Boot from Network
- **Windows PDC** (Staff 1995-2004)
- Samba PDC



# Network layouts

- Mainframe  
ASCII “dumb” terminals
- Peer to peer
- Network boot  
DOS/Win3.1 diskless machines
- Windows PDC
- **Samba PDC** (Students 1997 → Staff 2004 →)

# What is Samba?

- Samba is a suite of tools for sharing resources such as printers and files across a network
- Runs on many platforms (Unix, BSD, OS X, Netware, VMS, OS/2)
- Provides authenticated access to file and print services
- Client software for Windows, Mac and Linux

# Why Samba?

- Solaris server experience (vs Netware)
- Easy remote server administration (ct WinNT)
- No client install on Windows machines
- Unification with Unix filesystem (first year vs up-per year, TA's instructors)
- Server hardware spare parts
- Free

# Samba Experience

- Installed samba versions 1.19a to 3.0
- Sparcstation 5 running Solaris  
Dell GX1 running RH 7.3
- WinNT 4.0, Win 2000, Win XP clients
- Occasional bugs, issues, gotchas
- Overall very positive

# Samba Overview

- 2 daemons *smbd, nmbd*
- */etc/samba/smb.conf*
- */etc/samba/smbpasswd*
- Scripts for password change and printing
- Assorted client software *smbclient smbpasswd smbstatus*
- SWAT

# Samba: PDC

## /etc/samba/smb.conf

### [global]

```
workgroup = CDF
domain master = yes
logon path = \\%L%\%U\NTPProfile
logon home = \\%L%\%U
logon drive = h:
```

### [netlogon]

```
comment = Network Logon Service
path = /cdfpc/netlogon
guest ok = no
writable = yes
locking = no
public = no
```

# Samba: PDC

- Create user accounts for machines in `/etc/passwd`
- Run `'smbpasswd -ma machinename'`
- From Windows machine join domain
- ▶ *Change root password for smb authentication*

# Samba: Passwords

## 1) Run crypt to generate /etc/shadow entry

```
perl -e 'crypt ($password, $salt) `;
```

## 2) Python snippet to generate smbpasswd

```
def NTPasswordHash( self, password ):  
    """Returns a 32-character MD4 password hash (Win NT and above)."""  
    from Crypto.Hash import MD4  
    md4 = MD4.new()  
    md4.update( unicode(password).encode('utf-16-le') )  
    md4hash = md4.hexdigest().upper()  
    return md4hash
```



# Samba: home directory

[homes]

comment = Home Directories

browseable = no

writable = yes

public = no

hide dot files = yes

directory mask = 700

create mask = 600

# Samba: Printers

`/etc/samba/smb.conf`

```
load printers = yes  
printcap name = /etc/samba/printcap
```

```
[printers]
```

```
comment = All Printers  
path = /var/samba/spool  
browseable = yes  
print command = /cdfpc/sbin/smbprnfilt %u %p %l %m;\n                /local/bin/lpr -P %p %s; /bin/rm -f %s  
lpq command = /local/bin/lpq -P%p  
lprm command = /cdfpc/sbin/smbprn %u %U %p %l %m %j  
printable = yes
```

# Samba: Printers

- Run `smbd` on print server
- Can filter jobs before printing
- Can send popups (using `smbclient`) when job is *submitted* – not post notification

# Samba: Shares

`/etc/samba/smb.conf`

`[staff]`

`comment = system maintenance workspace`

`path = /admin`

`public = yes`

`printable = no`

`browseable=no`

`writable = yes`

`create mask = 664`

`directory mask = 775`

`valid users = @staff`

# Samba: Preexec

`/etc/samba/smb.conf`

`[wwwsetup]`

`preexec = /cdfpc/sbin/wwwsetup %H`

`comment = Setup CDF Home Page function`

`path = %H`

`browseable = no`

`writable = no`

`guest ok = no`

`follow symlinks = no`

`preexec close = yes`

# Samba: smbclient

- Unix command line utility
- Provides ftp like functionality to Windows system

```
% smbclient //b2200-01.cdf.toronto.edu/c$ \  
password -U B2200-01\Administrator \  
-c 'PUT newApp.Ink winnt\profiles\All Users\Desktop '
```

# PoPToP

- Point to Point Tunneling Protocol Server
- Open Source [poptop.sourceforge.net](http://poptop.sourceforge.net)
- Separate passwords from unix accounts
- Works with Window's VPN client
- Appears like new NIC when active

# PoPToP

- All traffic between nodes is encrypted
- No need to forward ports
- Works for UDP traffic also
- Protects smb without need for SSL



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# Xservers

- Xwin32 Starnet
- eXceed Hummingbird
- Xwin.exe <http://www.cygwin.com/xfree/>

# Xservers

- xdmcp cannot be tunnelled over ssh, use in trusted networks
- For secure connections over untrusted networks run WM locally, tunnel X clients over ssh with '-X'

# VMWare

- Provides x86 hardware emulation
- Runs on x86 hardware (no Sparc)
- Commercial product
- <http://www.vmware.com/>

# VMWare

- Used at DCS to provide access to AMS, MS Office for Linux users
- VM can join domain
- ▶ Automatic Updates can be problem

# Services for Unix

- Provides selection of unix command line utilities (no X server)
- Comparable to GNU utilities
- Free as of Jan 2004
- <http://www.microsoft.com/windows/sfu/>

# Conclusion

# Resources

- [www.samba.org](http://www.samba.org)
- Using Samba (O'Reilly)
- [www.poptop.org](http://www.poptop.org)
- [www.cygwin.com](http://www.cygwin.com)
- [www.vmware.com](http://www.vmware.com)
- [www.microsoft.com/windows/sfu](http://www.microsoft.com/windows/sfu)