



Homework 5b: Samba

Network-based File Sharing (1)

❑ NFS (UNIX-based)

- mountd is responsible for mount request
- nfsd and nfsiod

❑ CIFS (Microsoft)

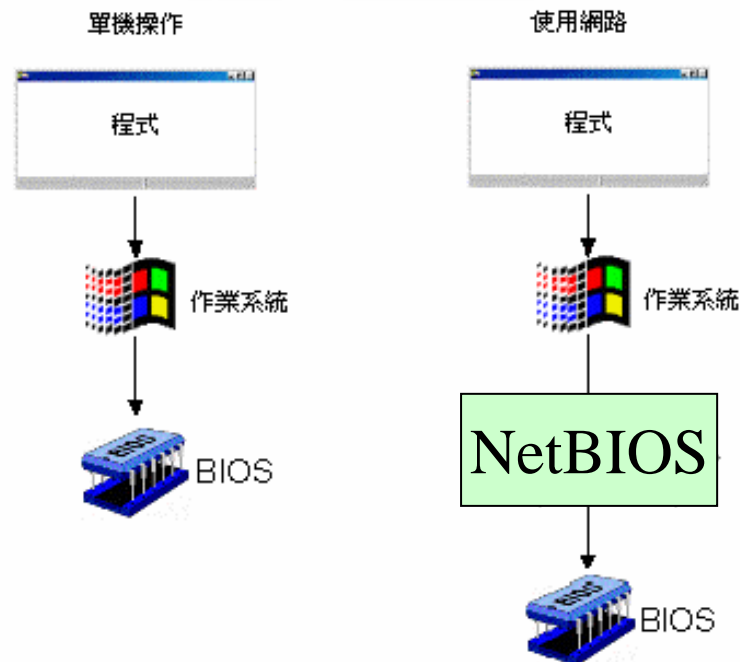
- Common Internet File System
- 網路芳鄰

Applikation		
SMB		
NetBIOS		
NetBEUI	TCP/IP	IPX/SPX
NDIS (2, 3, 3 1, 4, 5)-Interface		
Karten-Treiber (MAC)		
Netzwerk-Karte		

Network-based File Sharing (2)

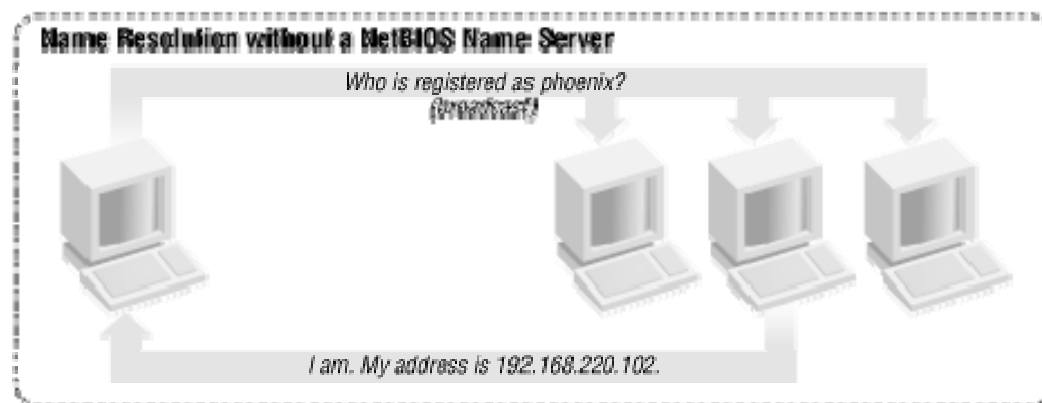
❑ Difference between local filesystem and network filesystem when accessing

- NetBIOS (API)
 - Used to share or access network-based filesystem just as BIOS does in local filesystem

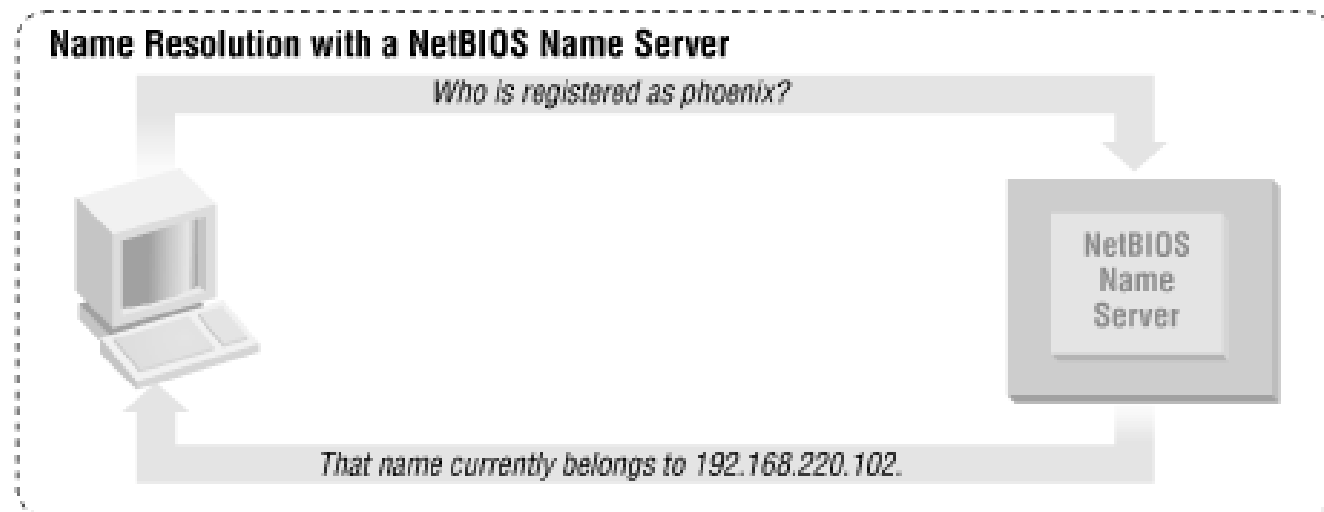
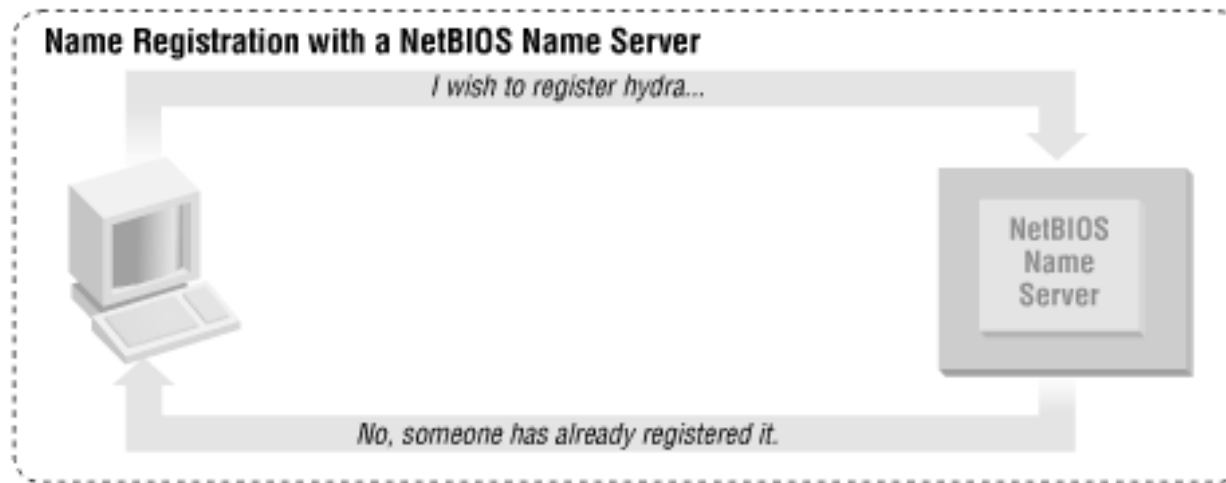


Network-based File Sharing (3)

- NetBEUI (transport protocol)
 - Transfer NetBIOS commands across network
 - Each host can claim a name not used in network
 - NetBIOS Name Server or not



Network-based File Sharing (4)



UNIX-Windows communication

❑ SAMBA

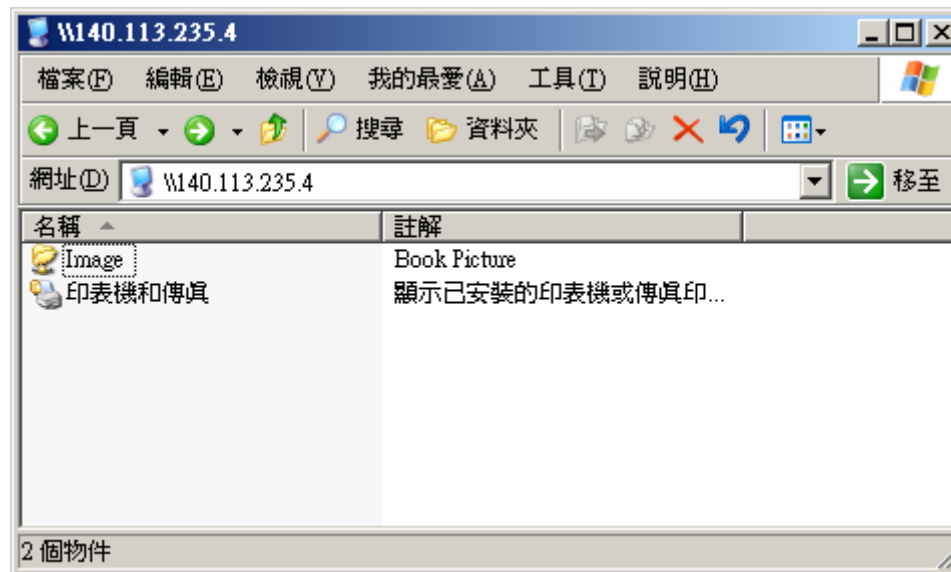
- A UNIX application that speak SMB protocol
- Designed by Andrew Tridgwell, in 1991
- Original Name: Server Message Block (SMB)

Applikation		
SMB		
NetBIOS		
NetBEUI	TCP/IP	IPX/SPX
NDIS (2, 3, 3.1, 4, 5)-Interface		
Karten-Treiber (MAC)		
Netzwerk-Karte		

What SAMBA can do?

❑ Sharing

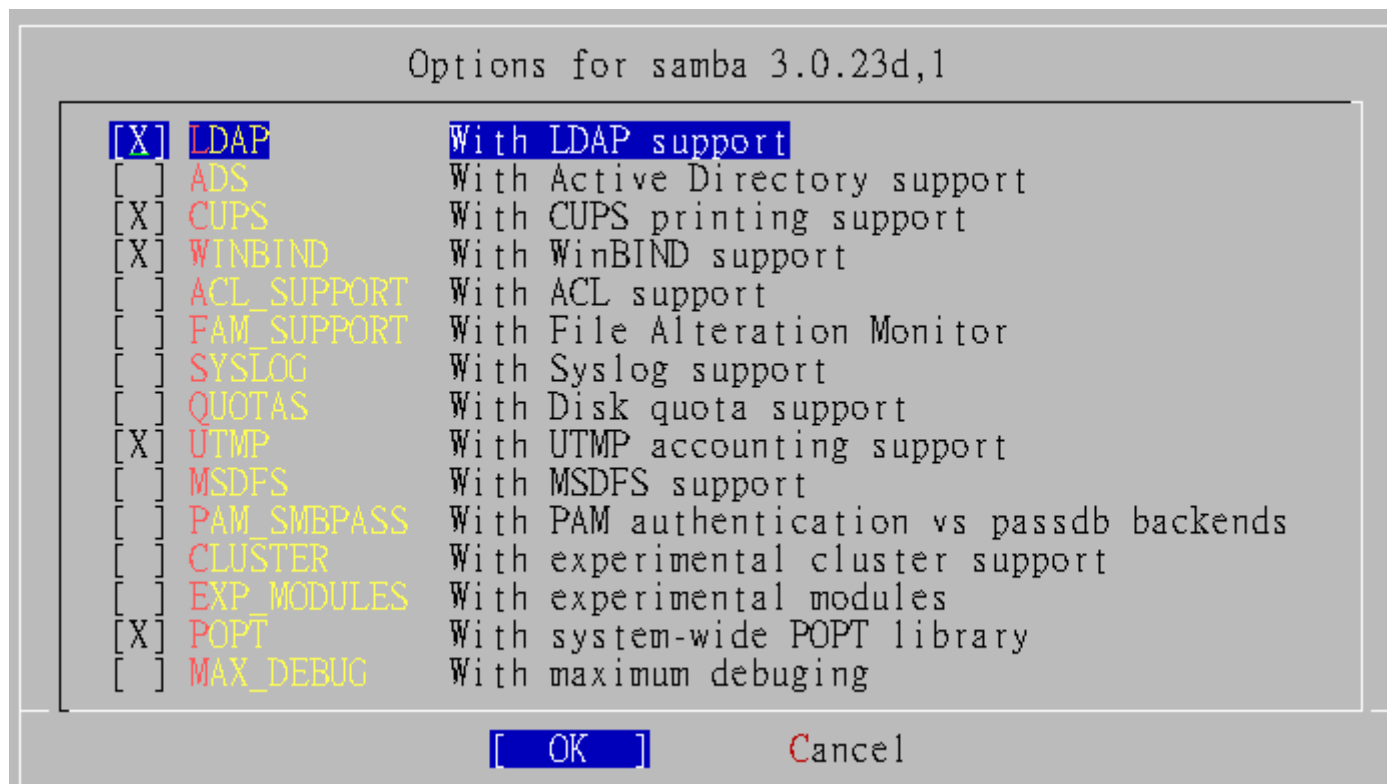
- Sharing files or printers just like Microsoft does
- Authenticate user identity just like Microsoft does
- Resolve NetBIOS name just like Microsoft does



Install SAMBA

❑ Using ports

- % cd /usr/ports/net/samba
- % make; make install; make clean



SAMBA components

❑ Configuration files

- /usr/local/etc/smb.conf.default → /usr/local/etc/smb.conf
- /usr/local/etc/lmhosts

❑ Major execution files

- smbd (/usr/local/sbin/smbd)
 - Management of sharing directories, files and printers
- nmbd (/usr/local/sbin/nmbd)
 - Resolve NetBIOS name and manage workgroup
- smbpasswd (/usr/local/bin/smbpasswd)
 - Change a user's SMB password

SAMBA configuration file

❑ smb.conf

- Three sections
 - Global Setting
 - Printer Sharing Setting
 - Home Sharing Setting

```
# comments
[global]
para1 = value1
...

[printers]
para2 = value2
...

[homes]
para3 = value3
...

[share-dir]
para4 = value4
...
```

SAMBA configuration file – Global Setting (1)

❑ Global Configuration

- **workgroup**
 - Group name to join
 - Ex: workgroup = chwong
- **server string**
 - Description of this host
 - Ex: server string = Samba Server of SA Course
- **netbios name**
 - NetBIOS name of this host
 - Ex: netbios name = sabsd
- **Charset Settings**
 - "display charset", "unix charset", "dos charset"
 - Ex:
 - display charset = CP950
 - unix charset = CP950
 - dos charset = CP950
- **hosts allow**
 - Apply to all services, regardless of individual service setting;
 - Ex: hosts allow = 140.113.235. , 140.113.

SAMBA configuration file – Global Setting (2)

- guest ok (or public = yes)
 - If this is yes, no password is required
 - Ex: guest ok = no
- guest account
 - If guest can use this samba service, any guest request will map to this guest account
 - Ex: guest account = ftp
- log file
 - Full path of log file
 - Ex: log file = /var/log/samba/log.%m
- max log size (KB)
 - Ex: max log size = 500

SAMBA configuration file – Global Setting (3)

- security = [share/user/server/domain]
 - share: no need of id and password to login
 - user: default option, login with id and password
 - server: check id and password by another server
 - domain: check id and password by domain controller
- Ex:
 - security = user
 - passwd backend = tdbsam

SAMBA configuration file – Global Setting (4)

❑ Example of global setting

```
[global]
workgroup           = chwong
server string       = sabsd samba server
netbios name        = sabsd
display charset     = CP950
unix charset        = CP950
dos charset         = CP950
printcap name       = /etc/printcap
load printers       = yes
printing            = cups
log file             = /var/log/samba/log.%m
max log size        = 500
security            = user
passdb backend      = tdbsam
```

Samba parameters

❑ Default parameters in samba

- %m
 - Client NetBIOS name
- %M
 - Client Hostname
- %I
 - Client IP
- %L
 - Samba server NetBIOS name
- %h
 - Samba server Hostname
- %H
 - User home directory
- %U
 - Login name
- %T
 - Current Date time

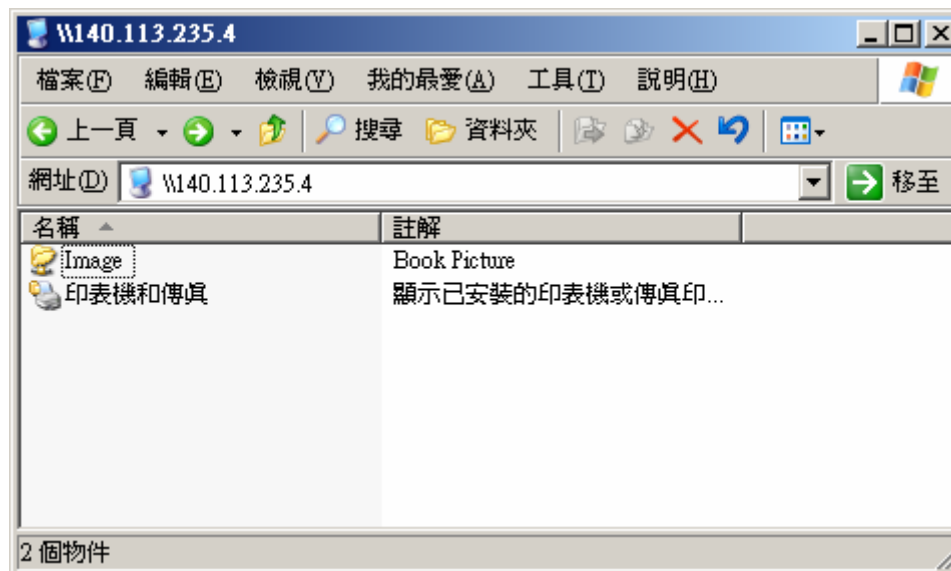
SAMBA configuration file – Home Sharing Setting (1)

- ❑ Home sharing setting
 - comment
 - Description of this directory
 - path
 - Sharing directory path
 - browseable
 - Display sharing name or not
 - read only , writeable
 - write list
 - Only users on this can write content if read only
 - create mode / create mask
 - Default permission when file is created
 - directory mode / directory mask
 - Default permission when directory is created
 - guest ok (or public = yes)

SAMBA configuration file – Home Sharing Setting (2)

❑ Example of home sharing

```
[Image]
comment          = Book Picture
path              = /home/image
read only         = no
public            = yes
writable          = yes
create mode       = 0664
directory mode    = 0775
```



Starting SAMBA

❑ Script

- `/usr/local/etc/rc.d/samba.sh {start|stop}`

SAMBA password

❑ smb password file

- Now samba stores accounts and passwords in tdb
 - Default database path: /var/db/samba

❑ smbpasswd command

- -a
 - Add new user
- -d
 - Let some account in smbpasswd file can not login (to disable)
- -e
 - Let some disable account resume (to enable)

Tool: smbclient (1)

- ❑ A client program that can talk to an SMB server
- ❑ Usage:
 - -L [hostname]
 - List sharable resource
 - -U [username]
 - Login with username

Tool: smbclient (2)

```
sabsd [/home/chwong] -chwong- smbclient -L sabsd -U chwong  
Password:
```

```
Domain=[SABSD] OS=[Unix] Server=[Samba 3.0.23c]
```

Sharename	Type	Comment
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Image	Disk	Book Picture
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Disk

Book Picture

IPC\$	IPC	IPC Service (sabsd)
-------	-----	---------------------

IPC

IPC Service (sabsd)

ADMIN\$	IPC	IPC Service (sabsd)
---------	-----	---------------------

IPC

IPC Service (sabsd)

```
Domain=[SABSD] OS=[Unix] Server=[Samba 3.0.23c]
```

Server	Comment
--------	---------

Comment

Workgroup	Master
-----------	--------

Master

SWAT (1)

☐ Edit /etc/inetd.conf

- Unmark

```
swat stream tcp nowait/400 root /usr/local/sbin/swat swat
```

☐ Restart inetd

☐ Browse <http://sabsd.cs.nctu.edu.tw:901/>


SWAT (2)

❑ Root access

