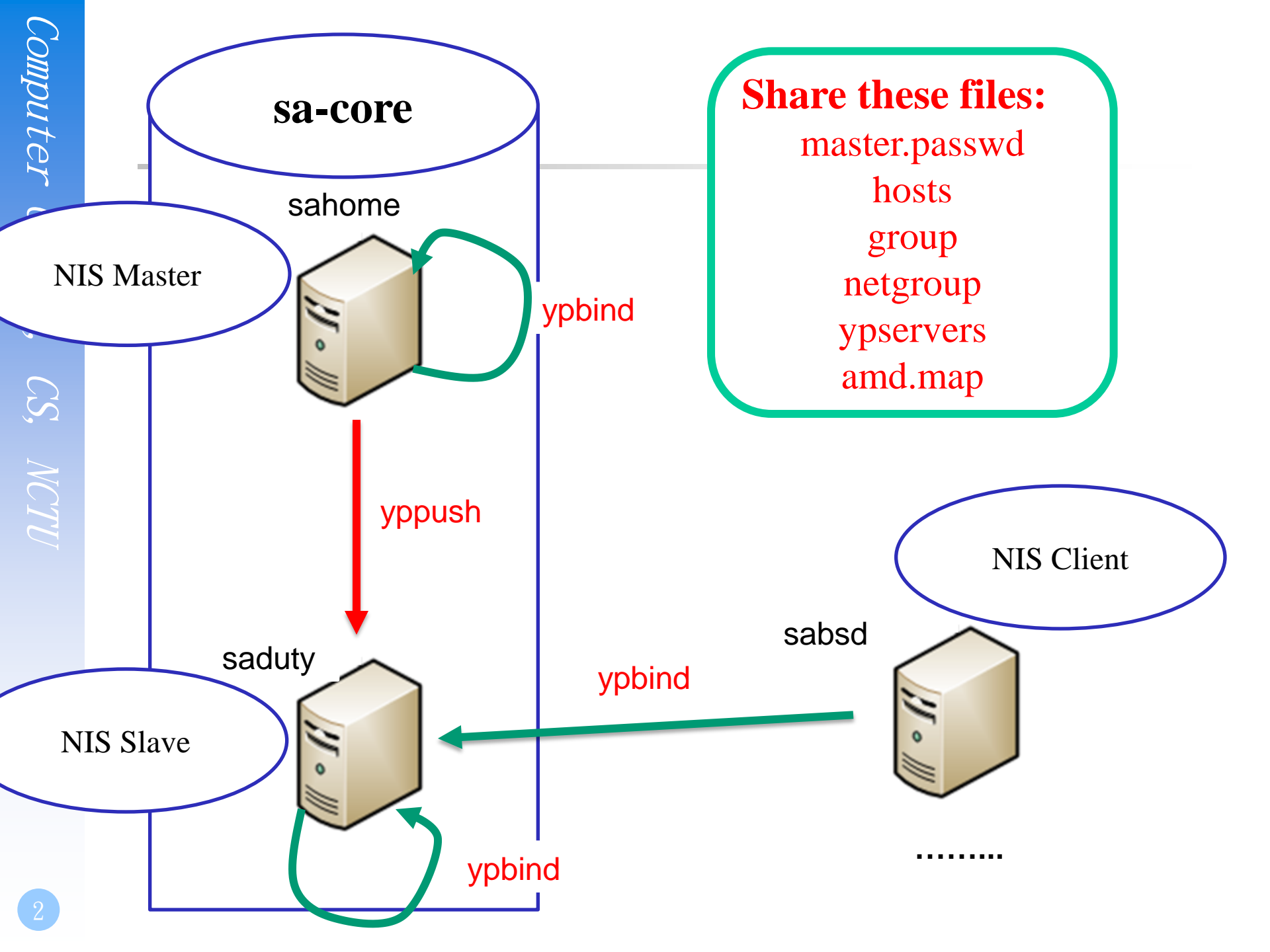


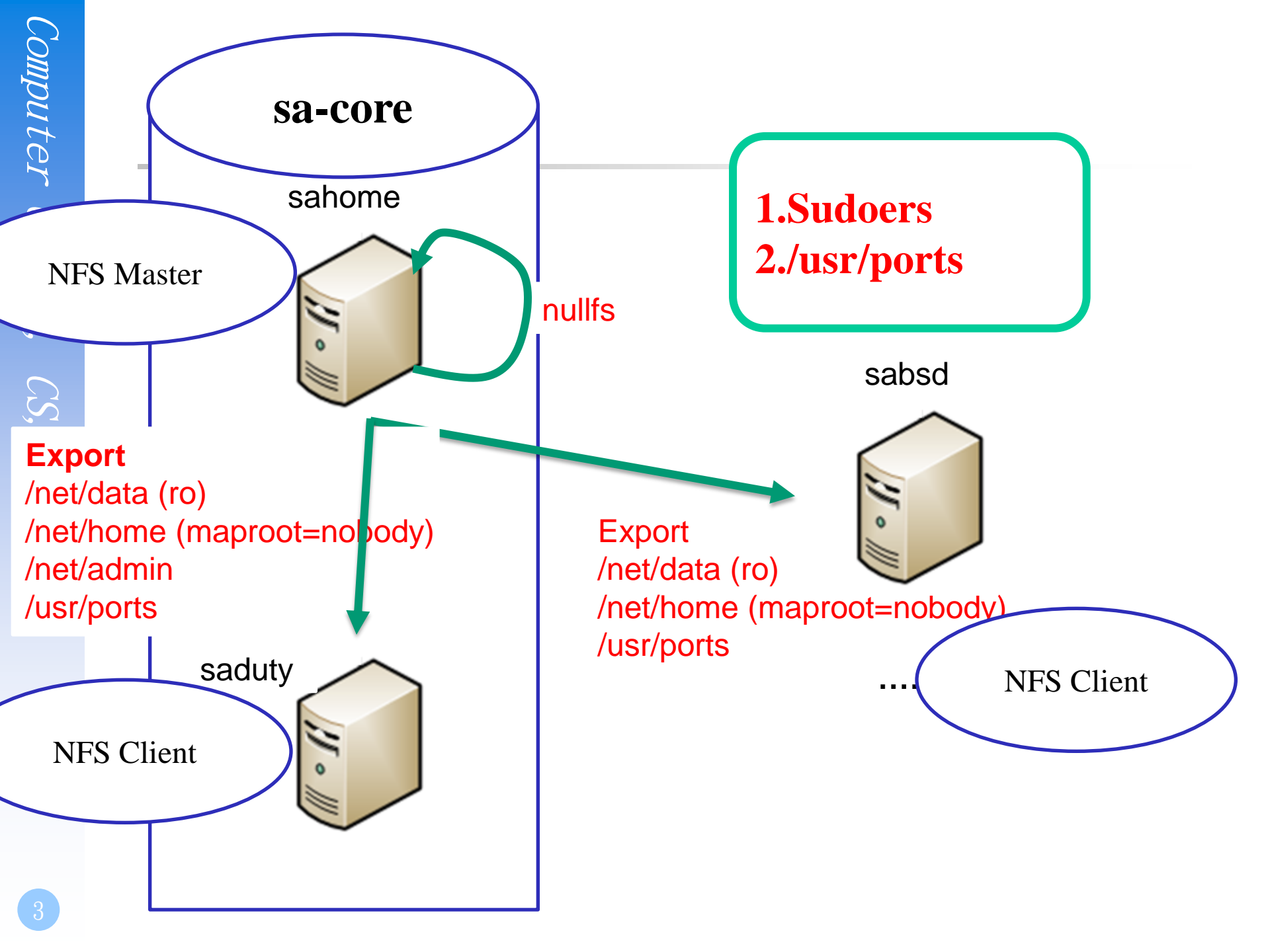


System Administration Final Project - Micro Computer Center

hwchiu



Share these files:
master.passwd
hosts
group
netgroup
ypservers
amd.map



Export

/net/data (ro)
 /net/home (maproot=nobody)
 /net/admin
 /usr/ports

1.Sudoers
2./usr/ports

nullfs

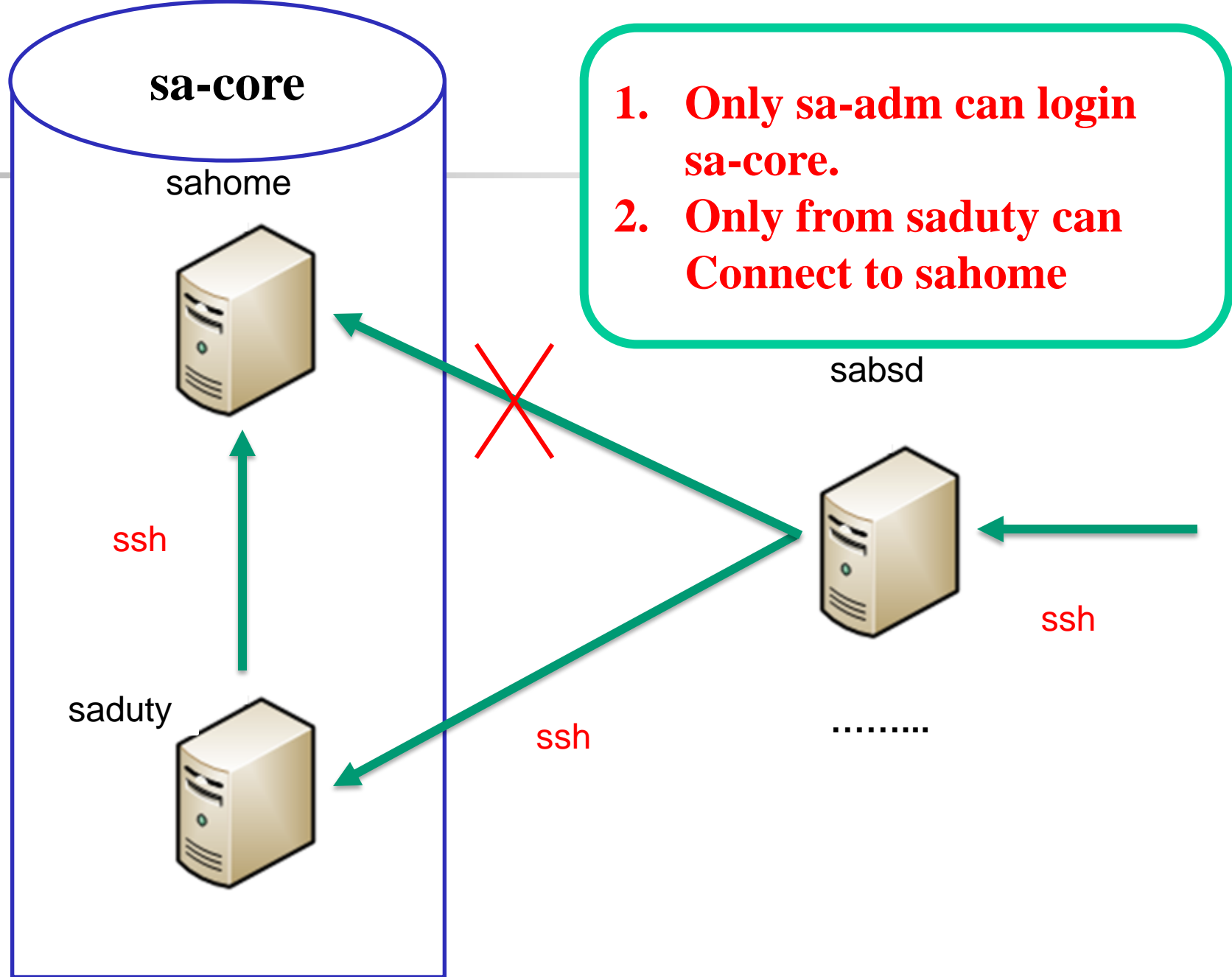
sabsd

Export
 /net/data (ro)
 /net/home (maproot=nobody)
 /usr/ports

saduty

... NFS Client

NFS Client



Requirement (1/5)

- Overview

❑ Machines

- sahome: NFS Server, NIS Master Server, (NIS Client)
- saduty: NIS Slave Server, (NIS/NFS Client)
- sabsd: (NIS/NFS Client)

❑ Groups

- sysadm: can access /net/data/sata
- nctucs: everyone

❑ Netgroups

- sa-adm: admin **users**, can login **sa-core**
- sa-core: core **machines** (sahome and saduty)
- sa-bsd: all freebsd **machines** (sahome, saduty, sabsd)

Requirement (2/5)

- sahome

nullfs

- /net/home -> /vol/home
- /net/data -> /vol/data
- /net/admin -> /vol/admin

NIS

- Bind priority: sahome>saduty

login

- sa-adm only
- Only from saduty

Requirement (3/5)

- saduty

NFS

- /net/home -> sahome:/vol/home (maproot=nobody)
- /net/data -> sahome:/vol/data (ro)
- /net/admin -> sahome:/vol/admin (ro)

NIS

- Bind priority: saduty>sahome

login

- sa-adm only

Requirement (4/5)

- sabsd

NFS

- /net/home -> sahome:/vol/home (maproot=nobody)
- /net/data -> sahome:/vol/data (ro)

NIS

- Bind priority: saduty>sahome

login

- All

Requirement (5/5)

- 1-3 members a team
- All machines share /net/data/sudoers
- All user's home directory must in /net/home/
- Auto-start all services
- Auto-mount all folders
- User can change password on NIS Clients

Step 1

- Setup sahome as NIS Master Server

- ❑ Edit /etc/rc.conf
 - nis_server, nisdomainname, yppasswdd
- ❑ Edit /var/yp/Makefile
 - #NOPUSH = "True"
 - HOSTS = \$(YPDIR)/hosts
 - GROUP = \$(YPDIR)/group
 - AMDHOST = \$(YPDIR)/amd.map
- ❑ Create /var/yp/hosts, /var/yp/group...etc
 - Edit /var/yp/master.passwd & /var/yp/group to create your accounts
 - Edit /var/yp/hosts to fit your environment
- ❑ Initial and start services

Step 2

- Setup NIS Clients

- ❑ Add NIS Servers' IP to /etc/hosts
- ❑ Edit /etc/master.passwd & /etc/group
 - vipw
- ❑ Edit /etc/nsswitch.conf
 - hosts : files nis dns
- ❑ Edit /etc/rc.conf
 - nis_client, nisdomainname, ypbind

- ❑ Testing tools
 - ypcat
 - ypwhich

Step 3

- Setup NFS environment

❑ Nullfs (NFS Server)

- `$ mount_nullfs /vol/home /net/home`
- In **/etc/fstab**: `/vol/home /net/home nullfs rw 2 2`

❑ Edit /etc/exports (NFS Server)

❑ Edit /etc/rc.conf

- `amd` (NFS Client)
- `nfs_server`, `mountd` (NFS Server)

❑ Edit amd.map (NIS Server)

Step 4

- Setup saduty as a NIS Slave Server

- Edit /etc/rc.conf
 - nis_server, nisdomainname, ypxfrd
 - Modity ypbind sequence (on every clients)
- Edit /var/yp/ypservers (on cshome)
- Initial and (re)start services

Step 5

- Finishing

- ❑ sudoers (/usr/local/etc/sudoers)
 - Including other sudoers file from /net/data/sudoers
 - man sudoers to see more about “include”.
- ❑ sahome:/etc/hosts.allow
 - sa-adm only can login sahome from saduty.
- ❑ /net/data/sata
 - sysadm only/
- ❑ Login permissions
 - only sa-adm can login sa-core.

After NIS & NFS servers.

- RUP.
- Ports tree.
- Log server.
- Backup.

Rup

- ❑ You can run rup on all servers.

```
16:25 hwchiu@sahome [~] >rup
saduty      4:25pm up           1:13, load average: 0.00 0.00 0.00
sabsd       4:25pm up           33 mins, load average: 0.00 0.00 0.00
sahome      4:25pm up            4 mins, load average: 0.04 0.26 0.16
```


Ports tree

- ❑ Sahome exports it /usr/ports.
- ❑ Write /etc/make.conf
 - DISTDIR
 - WRKDIRPREFIX
- ❑ Write a program which will update ports tree.
 - It must be automatically executed at 1:30 A.M everyday on sahome.

Log server

- ❑ Sahome as a Log server.
- ❑ Write a program which will record the ssh information everyday.
 - When
 - Who
 - Where
 - Ex: Dec 14 17:26:10 hwchiu login saduty fail from 192.168.157.139
- ❑ The program must be automatically executed at 0:30 A.M everyday on sahome.

Log server (continue)

- ❑ Your program should write the result to `/net/data/ssh/`
- ❑ The filename should follow the rule
 - Year_Month_Day
 - Example. 2013_Dec_13

```
/net/data/ssh/  
├── 2013_Dec_13  
├── 2013_Dec_14  
└── 2013_Dec_15
```

Backup

- ❑ Use rsync to archive user's home directory on sahome.
- ❑ Write a program to backup user's home directory every 4 hours.
- ❑ The backup files should be put in `/net/data/backup/`
- ❑ We only maintain 10 copies.
 - hourly.0 (recently backup)
 - hourly.1
 - hourly.2
 - ...
 - hourly.9

Backup Example

❑ Home directory:

```
/vol/home/  
├── hwchiu  
└── sppsorg
```

❑ Backup directory:

```
/vol/data/backup/  
├── hourly.0  
│   ├── hwchiu  
│   └── sppsorg  
├── hourly.1  
│   ├── hwchiu  
│   └── sppsorg  
├── hourly.2  
│   ├── hwchiu  
│   └── sppsorg  
├── hourly.3  
│   ├── hwchiu  
│   └── sppsorg  
├── hourly.4  
│   ├── hwchiu  
│   └── sppsorg  
├── hourly.5  
│   ├── hwchiu  
│   └── sppsorg  
├── hourly.6  
│   ├── hwchiu  
│   └── sppsorg  
├── hourly.7  
│   ├── hwchiu  
│   └── sppsorg  
├── hourly.8  
│   ├── hwchiu  
│   └── sppsorg  
└── hourly.9  
    ├── hwchiu  
    └── sppsorg
```

Help

- ❑ Go to bsd*.cs.nctu.edu.tw
- ❑ IRC channel #nctuNASA on freenode
- ❑ Newsgroup cs.course.sysadmin
- ❑ BBS bs2.to board CS-SysAdmin
- ❑ Email ta@nasa.cs.nctu.edu.tw
- ❑ Goto CSCC to ask professional 3F!

Appendix

Appendix A – mount_nullfs

❑ \$ man exports

A host may be specified only once for each local file system on the server and there may be only one default entry for each server file system that applies to all other hosts.

❑ The command

- `mount_nullfs <origin> <new_path>`
- For example
 - *% mkdir /home/allhome* make a directory for Real NFS Home
 - *% mkdir /home/for_nis* make a directory for NFS Home exports
 - *% mount_nullfs /home/allhome /home/for_nis* mount it

❑ Use it in /etc/fstab

- Change the fstype to nullfs
- For example
 - */home/allhome /home/for_nis nullfs rw 2 2*