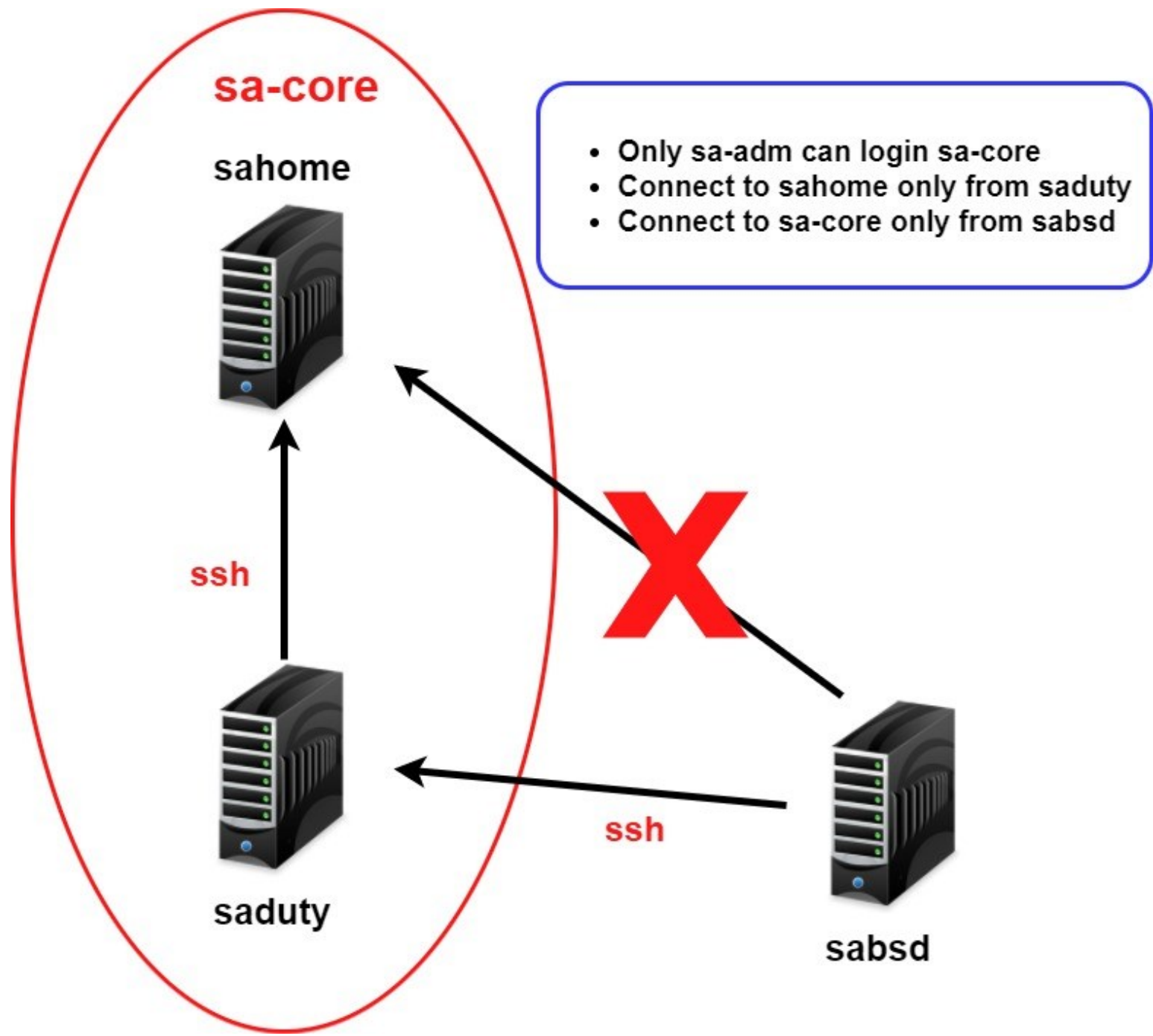


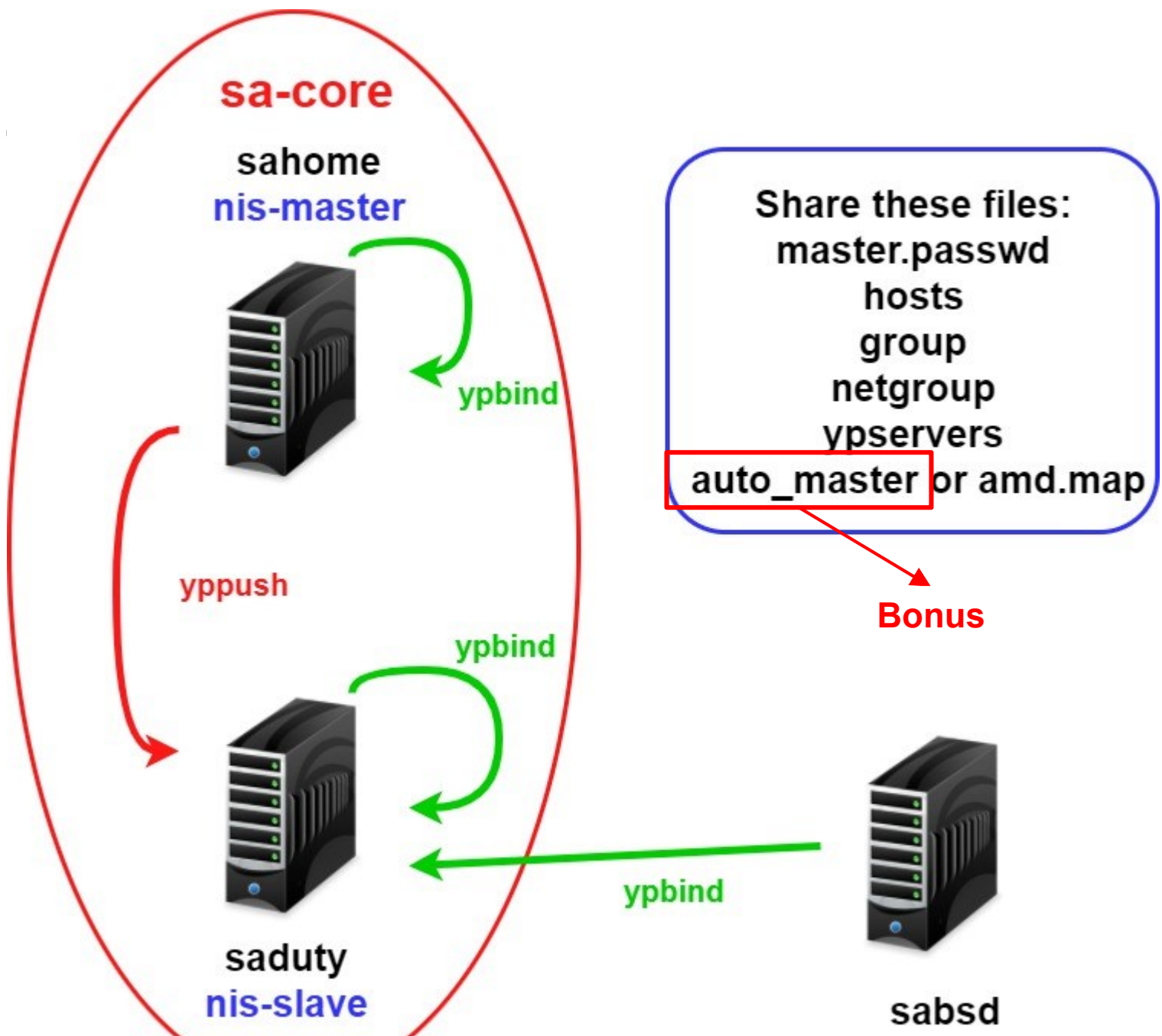


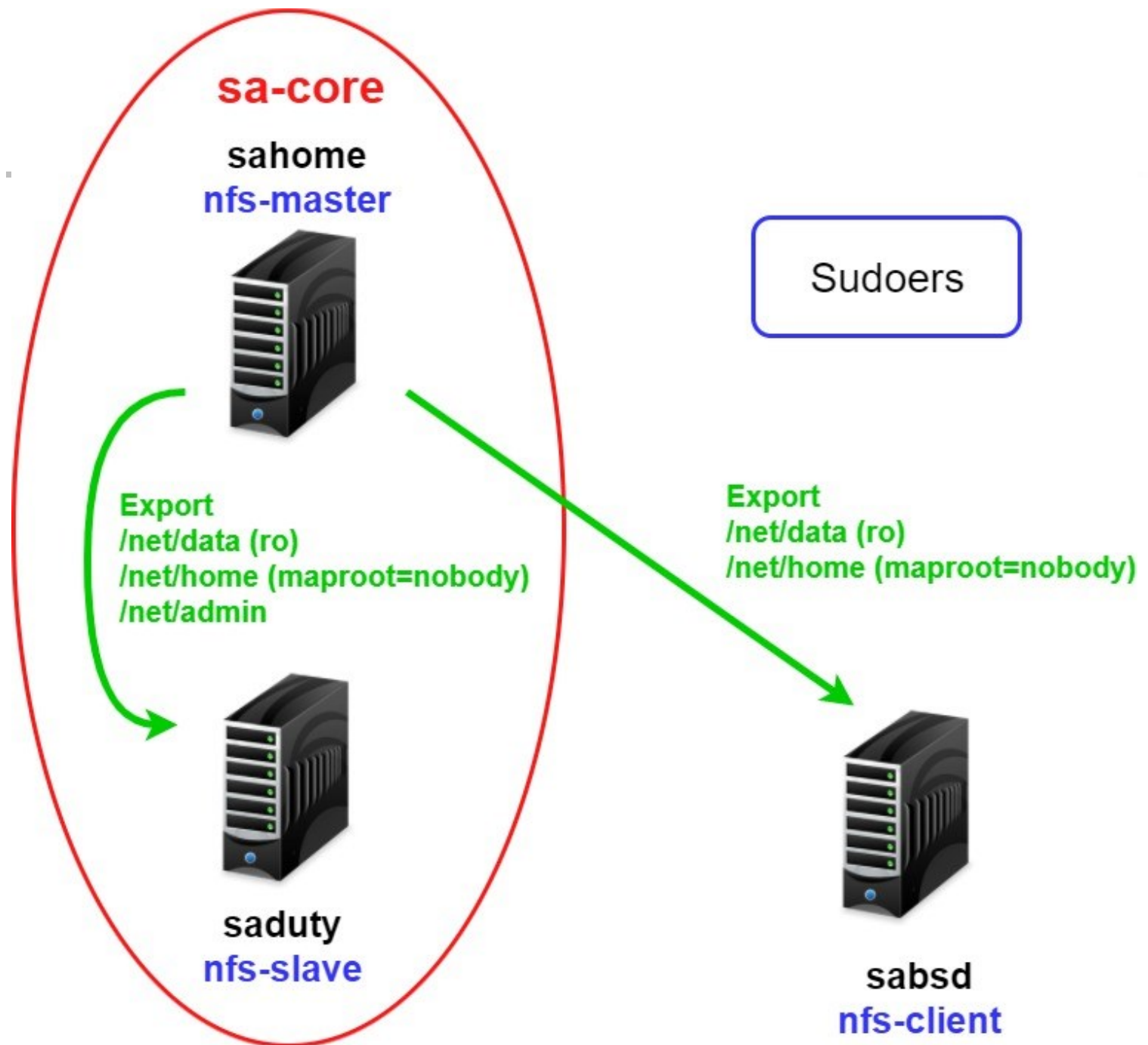
System Administration HW5

- Micro Computer Center

weicc, zjlin







Requirements (1) - Overview

❑ Machines

- sahome: NFSv4 Server, NIS Master Server, (NIS Client)
- saduty: NIS Slave Server, (NIS/NFSv4 Client)
- sabsd: (NIS/NFSv4 Client)

❑ Groups

- sysadm: can access /net/data/sata, can sudo everything but su and any shells
- 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)

Requirements (2) - sahome

❑ NFSv4

- exports
 - /net/home
 - /net/data
 - /net/admin

❑ NIS

- Bind priority: sahome > saduty

❑ login

- sa-adm only
- Only from saduty

Requirements (3) - saduty

❑ NFSv4

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

❑ NIS

- Bind priority: saduty > sahome

❑ login

- sa-adm only

Requirements (4) - sabsd

❑ NFSv4

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

❑ NIS

- Bind priority: saduty>sahome

❑ login

- ALL

Requirement (5)

- ❑ All machines share `/net/data/sudoers`
- ❑ All user's home directory must be in `/net/home` except root
- ❑ Auto-start all services
- ❑ Auto-mount all folders with `amd` or `autofs`
- ❑ NFSv4 use `nfsuserd` mapping `uid` and `username`
- ❑ `/etc/exports` must be NFSv4 format
- ❑ User can change password on NIS Clients
- ❑ NIS share file must be in `/var/yp/src`
 - `confiure /var/yp/Makefile`

Rup

- ❑ You can run rup on all servers.

```
SA2017-HW5-master [/var/yp/src] -root- rup
SA2017-HW5-slav   1:21pm up    2 days, 16:30, load average: 0.36 0.48 0.48
SA2017-HW5-mast  1:21pm up    2 days, 16:48, load average: 0.11 0.27 0.31
SA2017-HW5-clie  1:21pm up    1 day, 22:12, load average: 0.36 0.46 0.41
SA2017-HW5-     1:21pm up    1 day, 22:12, load average: 0.36 0.46 0.41
```

ZFS snapshot

❑ Using ZFS snapshot to create snapshot

- `zroot/net/home@5min-<date> * 2`
- `zroot/net/home@15min-<date> * 3`
- `zroot/net/home@1hour-<date> * 2`
- e.g. `zroot/net/home@5min-20171221-1555`

❑ Using crontab or any tools

❑ The script must run at least 2 hour

- `5min * 2`
- `15min * 3`
- `1hour * 2`

Log server

- ❑ Sahome as a Log server
 - others use syslog to transfer log to sahome

- ❑ Use syslog to record all machine's sshd log
 - store at `/net/data/ssh/`

- ❑ newsyslog for log rotation
 - separated by day, store 10 days
 - compressed to `.bz2`

Step 1 - Setup sahome as NIS Master Server

- ❑ Edit `/etc/rc.conf`
 - `nis_server`, `nisdomainname`, `yppasswdd`
- ❑ Edit `/var/yp/Makefile`
 - `#NOPUSH = "True"`
 - `$(YPSRCDIR) = < to be modified >`
 - `TARGETS = < to be modified >`
- ❑ Create `/var/yp/src/hosts`, `/var/yp/src/group...etc`
 - Edit `/var/yp/src/master.passwd` & `/var/yp/src/group` to create your accounts
- ❑ Initial and start services
 - `ypinit`
 - `service [ypserv | ypbind | rpcbind] [start | restart | stop]`
 - services started order is important!

Step 2 - Setup NIS Clients

- ❑ Add NIS Servers' IP to /etc/hosts
- ❑ Edit /etc/master.passwd & /etc/group
 - vipw
 - vigr
- ❑ Edit /etc/nsswitch.conf
 - hosts : files nis dns
- ❑ Edit /etc/rc.conf
 - nis_client, nis_client_flags, nisdomainname
 - Modify ypbind sequence (on every clients)
- ❑ Testing tools
 - ypcat
 - ypwhich

Step 3 - Setup saduty as a NIS Slave Server

- ❑ Edit `/etc/rc.conf`
 - `nis_server`, `nisdomainname`
- ❑ Edit `/var/yp/ypservers` (on `cshome`)
- ❑ Initial and (re)start services
 - `ypinit`

Step 4 - Setup NFSv4 environment

- ❑ Edit /etc/rc.conf
 - autofs (NFS Client)
 - nfs_server, mountd, nfsv4_server, nfsuserd, nfsuserd_flags (NFS Server)
- ❑ ZFS create dataset
 - zroot/net/
 - zroot/net/home
 - zroot/net/data
 - zroot/net/admin
- ❑ Edit /etc/exports (NFSv4 Server)
 - Must be NFSv4 format
- ❑ Edit autofs.map / amd.map

Step 4 - Setup NFSv4 environment (Cont.)

❑ Initial and start services

- `service [rpcbind | nfsd | nfsuserd | mountd] [start | restart | stop]`

❑ Do something for mapping uid/gid and user/group

- `nfsuserd`

Step 5 - Finishing

- ❑ sudoers (/usr/local/etc/sudoers)
 - Including other sudoers file from /net/data/sudoers
 - man sudoers to see more about “include”.
- ❑ Login permissions
 - only sa-adm(netgroup) can login sa-core.
- ❑ sahome:/etc/hosts.allow
 - sa-adm(netgroup) only can login sahome from saduty.
- ❑ /net/data/sata
 - sysadm only
- ❑ If you restart rpcbind, all of service based on rpc also need to restart

After NIS & NFS servers.

- ❑ Rup

- rpc

- ❑ Log server

- syslog

- ❑ ZFS snapshot

Help

- ❑ Email ta@nasa.cs.nctu.edu.tw
- ❑ Goto [CSCC@EC3F](#)

Bonus - share autofs.map

❑ Share autofs.map by yp

- yp key map name must be auto_master_forSA
- ypcat -k auto_master_forSA
- So you need share auto_master_forSA and autofs.map defined in auto_master_forSA

❑ Hint

- Reference workstation
- /var/yp/Makefile

Bonus - Script to create account

- ❑ Write a script to create accounts on NIS
 - random password
 - read from <account_info> file only contain username, fullname
 - e.g. zjlin, Zih-Jing
 - define group by args
 - e.g. ./autocreate gcs <gcs_account.txt>
 - user home directory must be created on NFS
 - you can use any language to implement