Homework 3

frank

ZFS
- Automatic Snapshot Script

❑ Specification

- Usage: ./zbackup [[--list | --delete] target dataset [ID] | target dataset [rotation count]]
- Example

```
$ sudo ./zbackup data/to/backup 5
$ sudo ./zbackup data/to/backup 5
$ sudo ./zbackup --list data/to/backup
ID      Dataset          Time
1       data/to/backup   2016-10-05 10:12:23
2       data/to/backup   2016-10-05 10:14:25
```

ZFS
- Automatic Snapshot Script

❑ Specification

- Create (Default)
  - No more than ***rotation count*** snapshots per dataset
  - If no ***rotation count*** specified, max 20 snapshots are allowed
  - If ***rotation count*** has reached, delete the very first one
- List
  - List the snapshot created by zbackup
  - If dataset is specified, list only the snapshot of that dataset
  - Otherwise, list all of the snapshot
- Delete
  - Delete snapshots created by zbackup
  - Must specify dataset
  - If ID is specified, delete that one
  - Otherwise delete them all

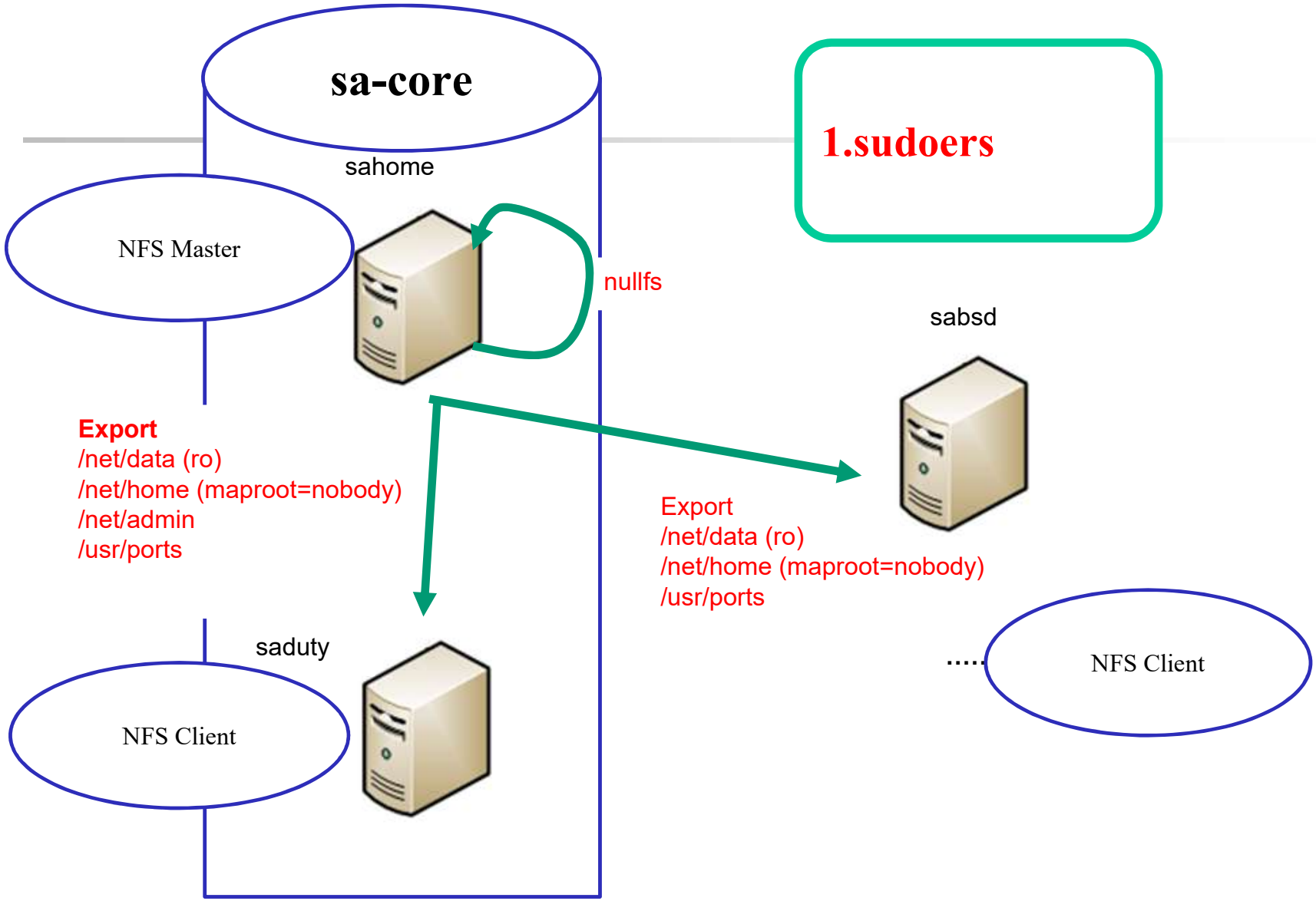
ZFS

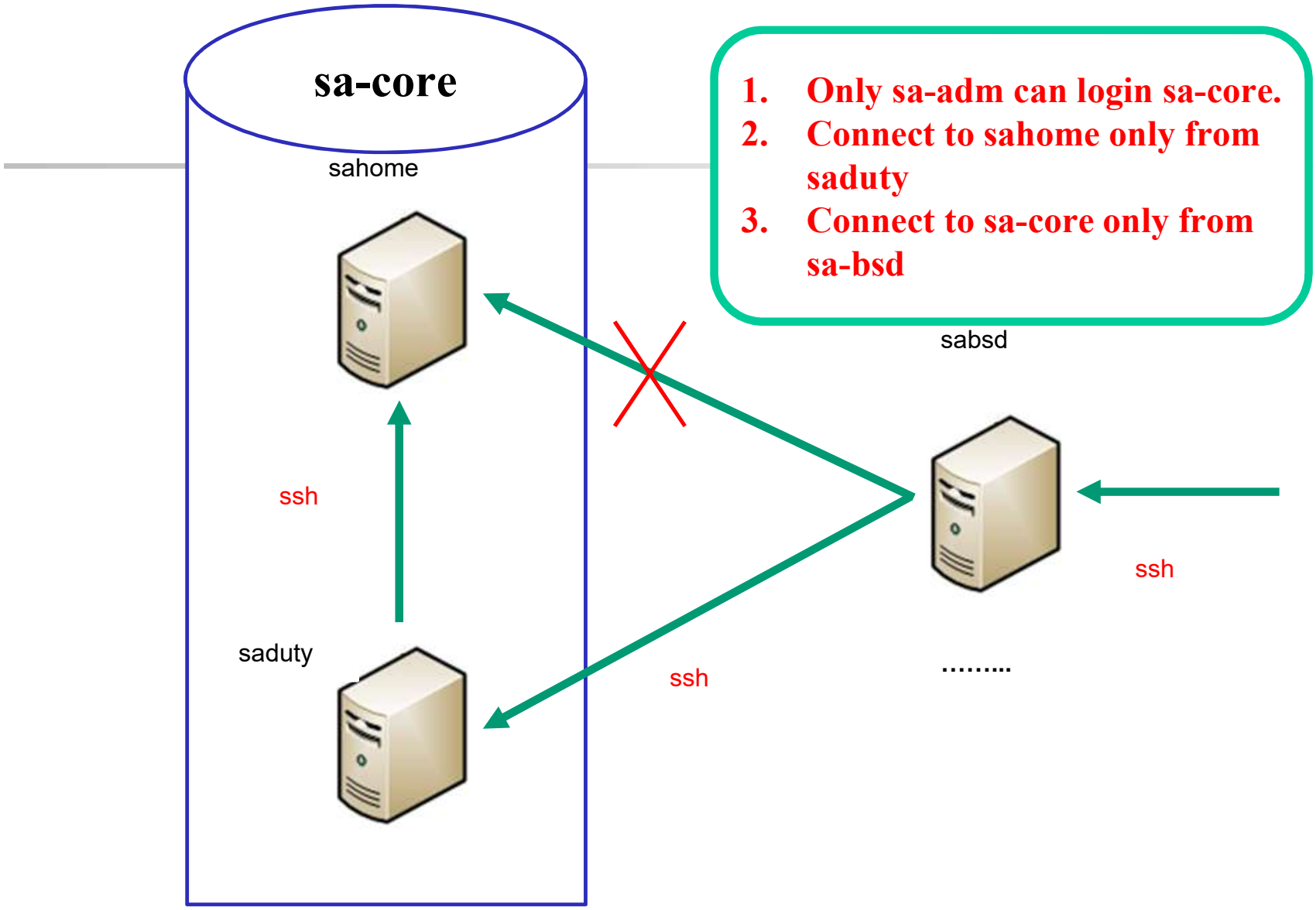
- Backup to google drive

- Backup your dataset to google drive
- Must compress with xz
- Must encrypt with aes256
- The filename should be dataset/to/backup@2016-10-12.xz.enc
- Download it and roll back

System Administration Practice HW3
- Micro Computer Center

pschiu


sa-core
sahome
1.sudoers
NFS Master
nullfs
sabsd
Export
/net/data (ro)
/net/home (maproot=nobody)
/net/admin
/usr/ports
Export
/net/data (ro)
/net/home (maproot=nobody)
/usr/ports
saduty
NFS Client
NFS Client


sa-core
sahome
1. Only sa-adm can login sa-core.
2. Connect to sahome only from saduty
3. Connect to sa-core only from sa-bsd
sabsd
ssh
saduty
ssh
ssh
.....

Requirements (1) - Overview

- Machines
  - sahome: NFS Server
  - saduty: NFS Client
  - sabsd: NFS Client
- Groups
  - sysadm: can access /net/data/sata, can sudo everything but **su** and any shells
  - nctucs: everyone

Requirements (2) - sahome

- nullfs
  - /net/home => /vol/home
  - /net/data => /vol/data
  - /net/admin => /vol/admin
- login
  - sa-adm only
  - Only from saduty

Requirements (3)
- saduty

- NFS
  - /net/home => sahome:/vol/home (maproot=nobody)
  - /net/data => sahome:/vol/data (ro)
  - /net/admin => sahome:/vol/admin (ro)
- login
  - sa-adm only

Requirements (4)
- sabsd

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

Requirement (5)

- All machines share /net/admin/sudoers
- All user's home directory must be in /net/home except root
- Auto-start all services

Step 1
- 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
  - nfs_server, mountd (NFS Server)

Step 2
- Finishing

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

Help

- Go to bsd*.cs.nctu.edu.tw
- IRC channel #nctuNASA on freenode
- Email ta@nasa.cs.nctu.edu.tw
- Goto CSCC to ask TA @ EC3F!
- Join our Facebook Group
  - https://www.facebook.com/groups/328840520802507/

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***

Appendix

Appendix B – sshd_config

- $ man sshd_config

  OpenSSH SSH daemon configuration file

Additional Bonus

- Create NFS Server from zpool.
- Build NIS to resolve some synchronize issue.
- Refer page 6 to draw your own “Micro Computer Center” topology diagrams.
  - You have few option of software to finish this task.
    - Microsoft Visio (you can download from ca.nctu.edu.tw)
    - Online Diagram editor (Gliffy / draw.io / Others)
    - Microsoft PowerPoint (not recommended)
  - Including more information as possible. (ip, port, service, hostname, etc.)