



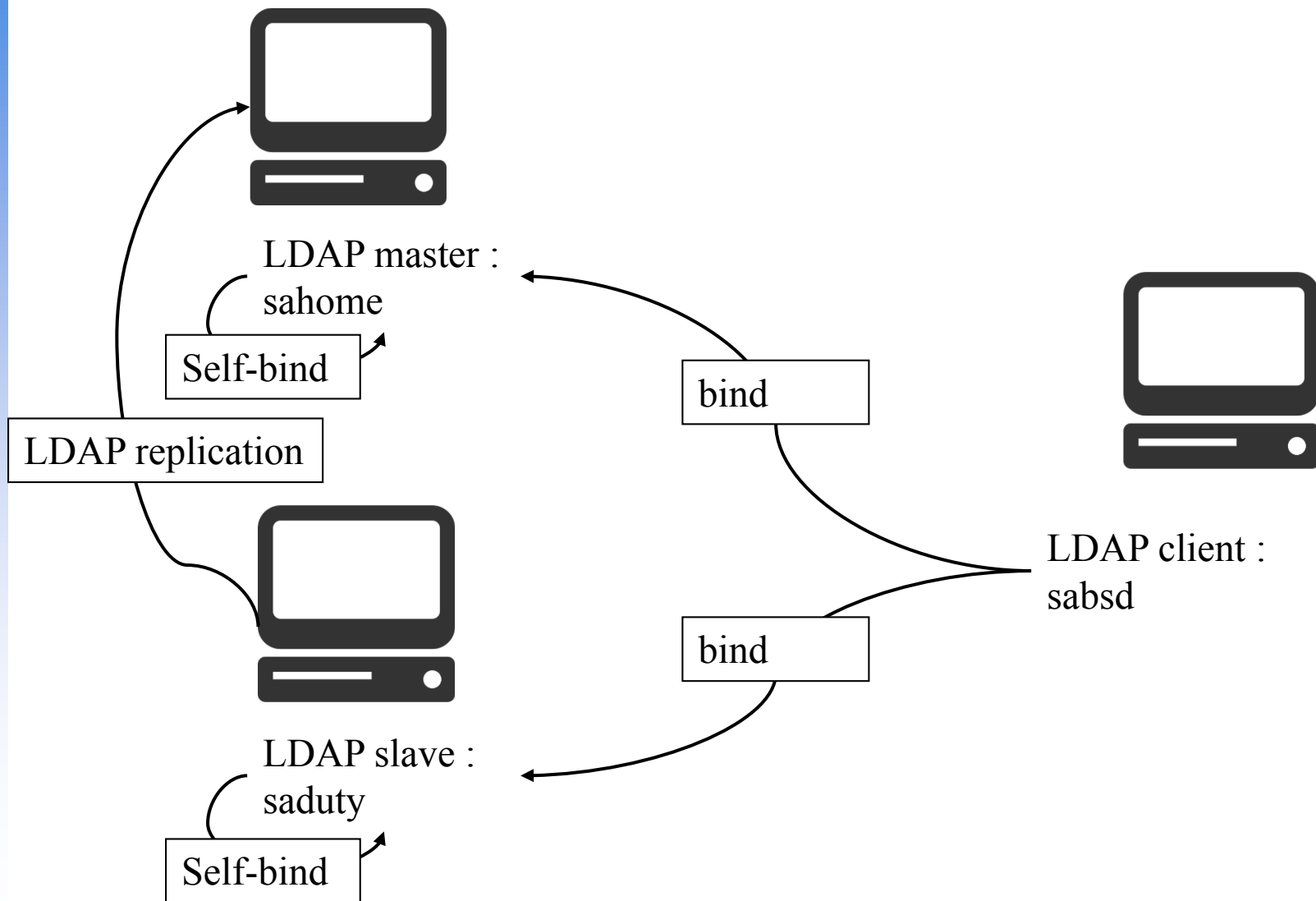
# System Administration Practice

## Homework6 - LDAP login + Puppet + Jail

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# LDAP – Overview (Total 60%)



# LDAP Base Requirement (35%)

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- 3 accounts (sauser, sata, saadm) in LDAP (5%)
- User info must includes (5%)
  - telephoneNumber
  - postalAddress
  - birthdate
- Basic LDAP ACL (5%)
  - Every one can access user info except userPassword
  - Self and manager(rootdn) can 'write' passwd
- Password must encrypted (5%)
- Master works (5%)
- Slave works (5%)
- Replication between master and slave (5%)

<http://www.openldap.org/doc/admin23/syncrepl.html>

# LDAP Advanced Requirement (25%)

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LDAP over SSL (ldaps) on master and slave (5%)

Password script for LDAP user (5%)

<https://www.freebsd.org/doc/en/articles/ldap-auth/client.html>

User Policy (15%)

# LDAP - User policy

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- ❑ sauser – allow to login on all hosts (5%)
  - Can access user info except userPassword
  
- ❑ sata – allow to login all hosts (5%)
  - Can access user info except userPassword
  - If login on sahome, sata can ‘write’ others password. (ACL)
  
- ❑ saadm – only allow to login on sahome (ACL) (5%)
  - Visible on other hosts
  - Can ‘write’ information of every user.

# Puppet (Total 35%)

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- Setup (10%)
  - sahome is the puppet master
  - all machines are puppet agents
- Manifest to control different host (5%)
- File Distribution (5%)
- Offline user management (5%)
- Service deployment (5%)
- Command execution (5%)

# Puppet – Setup (10%)

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- ❑ Master (4%)
  - On sahome
  - Run puppetmaster service
  - Daemon runs without any error
- ❑ Master agent (2%)
  - On sahome
  - Master as agent of itself
  - Using ‘puppet agent -t’ to fetch any manifest and execute
- ❑ Normal agent (4%, 2% for each)
  - On saduty, sabsd
  - Using ‘puppet agent -t’ to fetch any manifest and execute
  - Make sure the certificates are correct

# Puppet – Node Manifest (5%)

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- ❑ Define three node definition in site.pp
- ❑ Node ‘master’ (2%)
  - Apply on sahome
  - Should create an empty file called ‘/tmp/sa-puppet-master’
- ❑ Node ‘slave’ (2%)
  - Apply on saduty
  - Should create an empty file called ‘/tmp/sa-puppet-slave’
- ❑ Node ‘default’ (1%)
  - Apply on all machines, excludes sahome and saduty
    - In this homework, it will apply on sabsd
  - Should create an empty file called ‘/tmp/sa-puppet-default’



# Puppet – File Distribution (5%)

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- ❑ Distribute files to agents
  - You need to write modules
- ❑ Single file (3%)
  - Will modify /etc/hosts
  - Three versions of ‘/etc/hosts’ files should be distributed to sahome, saduty and sabsd respectively
    - You may create multiple modules
  - Make sure your puppet still work correctly
- ❑ Directory (2%)
  - Create a directory called ‘sa-demo’, put some files under it
  - Recursively distribute the directory to all agents
  - Target path /tmp/sa-demo

# Puppet – Offline User Management (5%)

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- Change root's shell into /bin/sh
- We will change the shell back to /bin/csh to test your module
- Apply on sabsd

# Puppet – Service Deployment (5%)

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- ❑ Install pure-ftpd on sabsd via puppet module
- ❑ Enable pure-ftpd service
  - Must keep running after reboot
  - Test it by using service pure-ftpd start/stop
- ❑ You need to transfer pure-ftpd.conf before start the service
  - pure-ftpd.conf must provided by puppet module
- ❑ Make sure you have declared dependency
- ❑ When demo, TA may:
  - Remove your pure-ftpd.conf
  - Remove the pure-ftpd package
  - Stop the pure-ftpd service
- ❑ Make sure your puppet module can handle above situations

# Puppet – Command Execution (5%)

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- ❑ sabsd runs a script given by master
  - The script can be downloaded from:  
<https://nasa.cs.nctu.edu.tw/sa/2015/files/sa-hw6>
- ❑ Script filename
  - /root/sa-hw6
- ❑ Script must be executable (file mode)
  - Working directory: /tmp
  - Run as ‘nobody’
  - euid = 65534, egid = 65534
- ❑ Note:
  - This script requires package ‘ruby’ installed
  - Remember to add ‘/usr/local/bin’ as your path (for ruby)

# Puppet – Command Execution

## - How to verify your work

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❑ Result : /tmp/sa-demo-out on agents

```
Date: 2015-12-22 14:40:59 +0800
Checking PATH: /root ==> true
Checking CWD: /tmp ==> true
Checking EUID: 65534 ==> true
Checking EGID: 65534 ==> true
```

❑ Grading

- Executable : 2%
- PATH : 1%
- CWD : 1%
- EUID 、 EGID: 1%

# Jail (10 %)

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- Originally, you may use 3 (virtual) machines to install FreeBSD
- Now, Use only 1 machine with Jail
- Create a jail for each host

# Deadline

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- Date: 1/20 (May subject to minor adjustment)
- Demo after final exam
- More details about demo will be announced soon

# Help!

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- ❑ Newsgroup cs.course.sysadm
- ❑ BS2 board CS-SysAdmin
- ❑ CSCC (EC building 3F)
- ❑ ta@nasa.cs.nctu.edu.tw (For complex problems)
- ❑ IRC channel #nctuNASA (Recommend)
  - passwd: ILoveCSCC
  - Use screen or tmux to stay online, so TAs can tag you to answer your questions.
- ❑ Before you ask a question...
  - 提問的智慧: How To Ask Questions The Smart Way
  - <http://mis.ndhu.edu.tw/docu/question.htm>