Operating Systems

Lab Report #6

File and print server configuration

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OBJECTIVES

1、Teach the configuration method of NFS and samba services under Linux
2、Linux How the client access the file server
3、Capable of configNFS services
4、Can of samba printer sharing.

CODE AND EXECUTION

Assignment 1:Build nfs server

Step 1: install nfs server

Sudo apt install NFS-kernel-server

```
jerry@jerry-virtual-machine:~/Desktop$ sudo apt install nfs-kernel-server
[sudo] password for jerry:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  keyutils libevent-core-2.1-7 nfs-common rpcbind
Suggested packages:
  open-iscsi watchdog
The following NEW packages will be installed:
  keyutils libevent-core-2.1-7 nfs-common nfs-kernel-server rpcbind
0 upgraded, 5 newly installed, 0 to remove and 55 not upgraded.
Need to get 572 kB of archives.
After this operation, 2,017 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://mirrors.tuna.tsinghua.edu.cn/ubuntu jammy/main amd64 libevent-core-
2.1-7 amd64 2.1.12-stable-1build3 [93.9 kB]
Get:2 http://mirrors.tuna.tsinghua.edu.cn/ubuntu jammy/main amd64 rpcbind amd64
1.2.6-2build1 [46.6 kB]
Get:3 http://mirrors.tuna.tsinghua.edu.cn/ubuntu jammy/main amd64 keyutils amd64
 1.6.1-2ubuntu3 [50.4 kB]
Help http://mirrors.tuna.tsinghua.edu.cn/ubuntu jammy-updates/main amd64 nfs-co
md64 1:2.6.1-1ubuntu1.2 [241 kB]
Get:5 http://mirrors.tuna.tsinghua.edu.cn/ubuntu jammy-updates/main amd64 nfs-ke
```

Sudo apt install nfs-common

```
jerry@jerry-virtual-machine:~/Desktop$ sudo apt install nfs-common
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
nfs-common is already the newest version (1:2.6.1-1ubuntu1.2).
nfs-common set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 55 not upgraded.
```

Step 2: edit configure file

Sudo gedit /etc/exports

```
jerry@jerry-virtual-machine:~/Desktop$ sudo gedit /etc/exports

(gedit:5859): dconf-WARNING **: 10:24:27.630: failed to commit changes to dconf:
 Failed to execute child process “dbus-launch” (No such file or directory)

(gedit:5859): dconf-WARNING **: 10:24:27.634: failed to commit changes to dconf:
 Failed to execute child process “dbus-launch” (No such file or directory)

(gedit:5859): dconf-WARNING **: 10:24:27.834: failed to commit changes to dconf:
 Failed to execute child process “dbus-launch” (No such file or directory)

(gedit:5859): dconf-WARNING **: 10:24:27.834: failed to commit changes to dconf:
 Failed to execute child process “dbus-launch” (No such file or directory)

(gedit:5859): dconf-WARNING **: 10:24:27.834: failed to commit changes to dconf:
 Failed to execute child process “dbus-launch” (No such file or directory)

** (gedit:5859): WARNING **: 10:28:15.682: Set document metadata failed: Setting
```

Add the following context into the configure file:
/home/user/share(rw,sync,no_root——squash）*

```
 1 # /etc/exports: the access control list for filesystems which may be exported
 2 #               to NFS clients.  See exports(5).
 3 #
 4 # Example for NFSv2 and NFSv3:
 5 # /srv/homes       hostname1(rw,sync,no_subtree_check) hostname2(ro,sync,no_subtree_check)
 6 #
 7 # Example for NFSv4:
 8 # /srv/nfs4        gss/krb5i(rw,sync,fsid=0,crossmnt,no_subtree_check)
 9 # /srv/nfs4/homes  gss/krb5i(rw,sync,no_subtree_check)
10 /home/user/share*(rw,sync,no_rootz-squash)
```

Step 3: restart nfs server

Sudo /etc/init.d/nfs-kernel-server restart

```
jerry@jerry-virtual-machine:~/Desktop$ sudo /etc/init.d/nfs-kernel-server restar
t
Restarting nfs-kernel-server (via systemctl): nfs-kernel-server.service.
```

Step 4: check whether the client and server are connected

The ip address of this host is: 192.168.8.129

Ping 192.168.8.129

```
PING 192.168.8.129 (192.168.8.129) 56(84) bytes of data.
64 bytes from 192.168.8.129: icmp_seq=1 ttl=64 time=0.089 ms
64 bytes from 192.168.8.129: icmp_seq=2 ttl=64 time=0.041 ms
64 bytes from 192.168.8.129: icmp_seq=3 ttl=64 time=0.034 ms
64 bytes from 192.168.8.129: icmp_seq=4 ttl=64 time=0.031 ms
64 bytes from 192.168.8.129: icmp_seq=5 ttl=64 time=0.035 ms
64 bytes from 192.168.8.129: icmp_seq=6 ttl=64 time=0.037 ms
64 bytes from 192.168.8.129: icmp_seq=7 ttl=64 time=0.032 ms
64 bytes from 192.168.8.129: icmp_seq=8 ttl=64 time=0.036 ms
```

Step 5: View the shared directory on the server

Showmount -e IP
*Export list for IP: /home/user/share/**

Assignment 2: Build Samba server

Step 1: install samba server

Sudo apt install samba

```
jerry@jerry-virtual-machine:~/Desktop$ sudo apt install samba
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  attr ibverbs-providers libcephfs2 libgfapi0 libgfrpc0 libgfxdr0
  libglusterfs0 libibverbs1 librados2 librdmacm1 libsmbclient liburing2
  libwbclient0 python3-dnspython python3-gpg python3-markdown python3-pygment
  python3-requests-toolbelt python3-samba python3-tdb samba-common
  samba-common-bin samba-dsdb-modules samba-libs samba-vfs-modules tdb-tools
Suggested packages:
  python3-sniffio python3-trio python-markdown-doc python-pygments-doc
  ttf-bitstream-vera bind9 bind9utils ctdb ldb-tools ntp | chrony
  smbldap-tools winbind heimdal-clients
The following NEW packages will be installed:
  attr ibverbs-providers libcephfs2 libgfapi0 libgfrpc0 libgfxdr0
  libglusterfs0 libibverbs1 librados2 librdmacm1 liburing2 python3-dnspython
  python3-gpg python3-markdown python3-pygments python3-requests-toolbelt
```

Step 2: edit configure file

Sudo gedit /etc/samba/smb.conf

```
 1 #
 2 # Sample configuration file for the Samba suite for Debian GNU/Linux.
 3 #
 4 #
 5 # This is the main Samba configuration file. You should read the
 6 # smb.conf(5) manual page in order to understand the options listed
 7 # here. Samba has a huge number of configurable options most of which
 8 # are not shown in this example
 9 #
10 # Some options that are often worth tuning have been included as
11 # commented-out examples in this file.
12 #  - When such options are commented with ";", the proposed setting
13 #    differs from the default Samba behaviour
14 #  - When commented with "#", the proposed setting is the default
15 #    behaviour of Samba but the option is considered important
16 #    enough to be mentioned here
17 #
18 # NOTE: Whenever you modify this file you should run the command
```

Write the following text:

[share] # Windows 访问 Samba 服务器是显示目录名，顶格写
comment = share # 对该共享目录的描述，随便写
browseable = yes # 共享目录是否可见，no 不可见，yes 或不 写默认可见
path = /home/用戶/share # 共享的目录路径
create mask = 0777 # 创建文件的默认权限
directory mask = 0777 # 创建目录的默认权限
valid users = 用戶名 # 指定登录的用戶，该项不写，则默认对 所有人可见
force user = nobody # 指定的用戶可以进行登录，其他用戶没有 权限登录，nobody 不限制
force group = nogroup # 同上，指定用戶组
public = yes # 是否对所有登录成功的用戶可见
writable = yes # 写权限，目录的权限也要许可
available = yes # 同样是设置共享目录是否可见

step 3: Add user to Samba server

sudo smbpasswd -a user

```
jerry@jerry-virtual-machine:~/Desktop$ sudo smbpasswd -a jerry
New SMB password:
Retype new SMB password:
Added user jerry.
```

Step 4: restart samba

Sudo service smbd restart

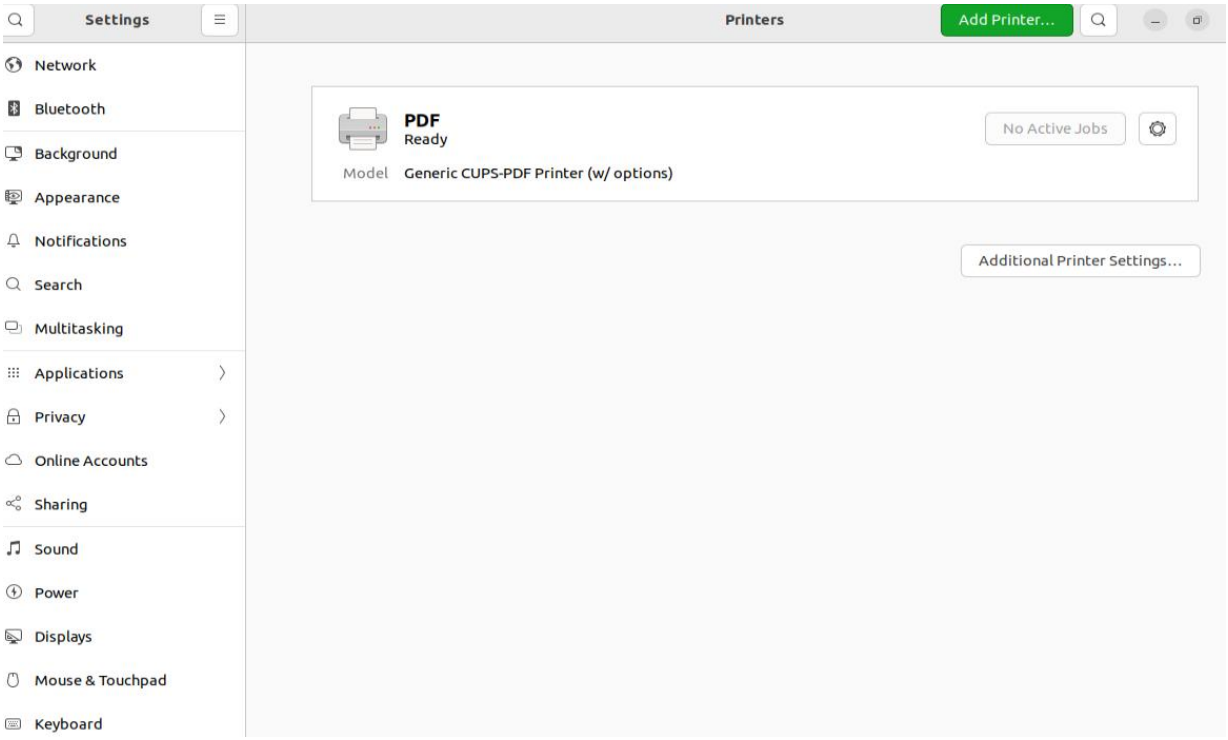
```
jerry@jerry-virtual-machine:~/Desktop$ sudo service smbd restart
Job for smbd.service failed because the control process exited with error code.
See "systemctl status smbd.service" and "journalctl -xeu smbd.service" for detai
ls.
```

Assignment 3: Samba printer realize

Step 1: install virtual printer

Sudo apt install printer-driver-cpus-pdf

```
jerry@jerry-virtual-machine:~/Desktop$ sudo apt install printer-driver-cups-pdf
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
  printer-driver-cups-pdf
0 upgraded, 1 newly installed, 0 to remove and 52 not upgraded.
Need to get 26.2 kB of archives.
After this operation, 251 kB of additional disk space will be used.
0% [Waiting for headers]
```



Step 2: configure Samba file

In printer part, edit :

Browsable=yes
Guest ok=yes

```
[printers]
   comment = All Printers
   browseable = yes
   path = /var/spool/samba
   printable = yes
   guest ok = yes
   read only = yes
   create mask = 0700
```

Step 3: restart Samba service

Sudo service smbd restart

```
jerry@jerry-virtual-machine:~/Desktop$ sudo service smbd restart
Job for smbd.service failed because the control process exited with error code.
See "systemctl status smbd.service" and "journalctl -xeu smbd.service" for detai
ls.
```

ANALYSIS

Analyze the behavior of each program. Explain the observed outputs, discuss any challenges encountered, and how they were resolved.

CONCLUSION

Summarize your findings and experiences from this lab assignment.

REFERENCES

List any references or resources you used to complete this lab assignment, if any.