#473730 - Configure NFS Server and Client

Objective:

This task involves setting up an NFS server on an Ubuntu machine and configuring an NFS client on an OpenSUSE machine to access a shared directory.

Scenario:

You need to share a directory '/tmp/project_data' from an Ubuntu server with an OpenSUSE client using the NFS protocol. The shared directory should be mounted persistently at '/mnt/myproject' and accessible for read-only operations on the client.

Completion Criteria:

- NFS server is configured on Ubuntu with the shared directory exported.
- NFS client is installed and configured on OpenSUSE.
- The shared directory is mounted on the OpenSUSE client with read-only access.

NFS (Network File System) is a protocol that enables you to mount remote directories on your server, allowing multiple clients to access and write to shared storage. It offers a reliable and efficient way to manage and access remote resources over a network, ideal for environments requiring regular access to shared files.

Setting Up an NFS Server on Ubuntu

- Install

```
root@ubuntu:~# apt install nfs-kernel-server
Reading package lists ... Done
Building dependency tree
Reading state information ... Done
nfs-kernel-server is already the newest version (1:1.3.4-2.5ubuntu3.7).
0 upgraded, 0 newly installed, 0 to remove and 69 not upgraded.
root@ubuntu:~#
```

❖ Configure the Shared Directory and set permission.

```
root@ubuntu:~# mkdir -p /tmp/project_data
root@ubuntu:~# chmod 755  /tmp/project_data/
```

➢ **Modify the Exports File:**

- Insert a new line to configure the directory for read-only sharing.
- ro: Grants read-only permissions.
- sync: Ensures writes are synchronous.

➢ **Activate the Export Configuration:**

- Use the exportfs -arv command to apply the changes.

```
root@ubuntu:~# cat /etc/exports | tail -n 2
/tmp/project_data  *(ro,sync)

root@ubuntu:~# exportfs -arv
exportfs: /etc/exports [1]: Neither 'subtree_check' or 'no_subtree_check' specified for export "*:/tmp/project_data".
  Assuming default behaviour ('no_subtree_check').
  NOTE: this default has changed since nfs-utils version 1.0.x

exporting *:/tmp/project_data
```

➢ Restart and enable NFS Server.

```
root@ubuntu:~# systemctl restart nfs-server.service
root@ubuntu:~# systemctl enable nfs-server.service
root@ubuntu:~#
```

Setting Up an NFS Client on SUSE

- Install NFS

```
opensuse:~ # zypper install nfs-client
Loading repository data...
Warning: Repository 'openSUSE-Leap-15.0-Update' appears to be outdated. Consider usi
Warning: Repository 'openSUSE-Leap-15.0-Update-Non-Oss' appears to be outdated. Cons
Reading installed packages...
'nfs-client' is already installed.
No update candidate for 'nfs-client-2.1.1-lp150.4.10.1.x86_64'. The highest availabl
Resolving package dependencies...

Nothing to do.
```

- Create mount

```
opensuse:~ # mkdir -p /mnt/myprojec
```

1. **Set Up Persistent Mount:**
   - Modify the /etc/fstab file.
   - Insert the appropriate line for the mount.
   - Mount all filesystems using the mount -a command.

- Check mounting is properly done with command "df -hT".

```
opensuse:~ # df -hT | tail -n 1
192.168.240.133:/tmp/project_data nfs4       12G  6.3G  4.4G  59% /mnt/myprojec
opensuse:~ #
```

On Ubuntu NFS Server:

✓ On server we can create file and modify file.

```
root@ubuntu:~# cd /tmp/project_data/
root@ubuntu:/tmp/project_data# touch abc
root@ubuntu:/tmp/project_data# ls
abc
root@ubuntu:/tmp/project_data# echo "HEllo" > abc
root@ubuntu:/tmp/project_data# ls
abc
root@ubuntu:/tmp/project_data# cat abc
HEllo
```

On the openSUSE NFS Client:

- The ability to view and read the file 'abc' created on the NFS server confirms that the NFS mount is functioning and files are accessible.
- However, attempting to create a new file 'ab' result in a "Read-only file system" error, indicating that the NFS share is mounted with read-only permissions on the client.

```
opensuse:/mnt/myprojec # ls
abc  xyz
opensuse:/mnt/myprojec # cat abc
HEllo
opensuse:/mnt/myprojec # touch ab
touch: cannot touch 'ab': Read-only file system
opensuse:/mnt/myprojec #
```

Thank You
dasaremahir333@gmail.com