Assignment 26 EASY

NIS: Provides centralized authentication and network information sharing. Users created on the NIS server are accessible on all NIS clients, allowing consistent user accounts across a network.

NFS: Enables file sharing across the network by allowing directories from one machine to be mounted and accessed on another, making it appear as if the shared directory is local.

Objectives:

Set up an NIS server on a single machine to manage user accounts.

Configure NFS to share directories on the same machine, accessible by NIS-authenticated users.

Steps

1. Install Required Packages

Start by installing NIS, NFS, and additional tools.

sudo apt update
sudo apt install nis nfs-kernel-server yp-tools ypbind -y

2. Configure NIS Server

Set the NIS Domain Name: Set the domain name for NIS, which is used for organizing network users.

sudo nano /etc/defaultdomain

Add a domain name (for example, example.com).

example.com

Configure NIS Server Settings: Edit the NIS configuration to set it as the server.

sudo nano /etc/ypserv.conf

Ensure the file allows connections from local IPs and modify if necessary.

Edit the NIS Makefile: Configure which files to manage centrally by NIS. By default, it includes user accounts, passwords, groups, and hosts.

sudo nano /var/yp/Makefile

Ensure these lines are uncommented to include passwd, group, and hosts files in the NIS maps:

Check these lines and uncomment them if necessary
all: passwd group hosts rpc services protocols netid ...

Initialize the NIS Database:

sudo ypinit -m

Follow the prompts, and enter 127.0.0.1 when it asks for a server.

Start and Enable NIS:

sudo systemctl start ypserv
sudo systemctl enable ypserv

3. Configure the NIS Client (Same Machine in This Case)

Edit the /etc/yp.conf file:

sudo nano /etc/yp.conf

Add the following line to specify the NIS domain and server:

domain example.com server 127.0.0.1

Set the NIS Domain Name for the client:

sudo domainname example.com

Configure the /etc/nsswitch.conf File: Ensure NIS is listed as a source for passwd, group, and shadow.

sudo nano /etc/nsswitch.conf

Modify these lines to look like:

passwd: compat nis
group: compat nis
shadow: compat nis

Start and Enable NIS Client Service:

sudo systemctl start ypbind
sudo systemctl enable ypbind

4. Set Up NFS for File Sharing

Create a Directory to Share:

sudo mkdir -p /srv/shared_folder
sudo chown nobody:nogroup /srv/shared_folder

sudo chmod 777 /srv/shared_folder

Configure NFS Exports: Define the directory and network permissions in /etc/exports.

sudo nano /etc/exports

Add this line to export the directory to the local machine (127.0.0.1):

/srv/shared_folder 127.0.0.1(rw,sync,no_subtree_check)

Export the Shared Directory:

sudo exportfs -a

Start and Enable NFS Server:

```
sudo systemctl start nfs-kernel-server
sudo systemctl enable nfs-kernel-server
```

5. Test NIS and NFS Setup

Create NIS Users and Groups:

Add users that will be shared via NIS.

```
sudo adduser nisuser1
sudo adduser nisuser2
```

Mount the NFS Directory (as a simulated client):

sudo mount -t nfs 127.0.0.1:/srv/shared_folder /mnt

Switch User and Access Shared Folder:

Log in as an NIS user and navigate to the shared directory.

```
su - nisuser1
cd /mnt
```

Verify Access: Create or read files in /mnt as the NIS user to verify shared access.

Summary of Commands

This is a consolidated command list for your reference:

```
# Install required packages
sudo apt update
sudo apt install nis nfs-kernel-server yp-tools ypbind -y

# Set NIS domain
```

```
echo "example.com" | sudo tee /etc/defaultdomain

# Configure NIS Server (Initialize NIS)
sudo nano /etc/ypserv.conf
sudo nano /var/yp/Makefile
sudo ypinit -m
sudo systemctl start ypserv
sudo systemctl enable ypserv

# Configure NIS Client (on the same machine)
sudo nano /etc/yp.conf
sudo nano /etc/nsswitch.conf
sudo domainname example.com
sudo systemctl start ypbind
sudo systemctl enable ypbind

# NFS Setup
sudo mkdir -p /srv/shared_folder
sudo chown nobody:nogroup /srv/shared_folder
sudo chmod 777 /srv/shared_folder
echo "/srv/shared_folder 127.0.0.1(rw,sync,no_subtree_check)" | sudo tee -a
/etc/exports
sudo exportfs -a
sudo systemctl start nfs-kernel-server
sudo systemctl enable nfs-kernel-server

# Test setup
sudo adduser nisuser1
sudo adduser nisuser2
sudo mount -t nfs 127.0.0.1:/srv/shared_folder /mnt
su - nisuser1
cd /mnt
```

This setup will allow NIS-authenticated users to access an NFS shared folder on a single Ubuntu machine, simulating a centralized user and file-sharing environment.