What is NFS?

NFS (Network File System) is a distributed file system protocol that allows users to share directories and files over a network. It enables a client system to mount a remote filesystem as if it were local, facilitating file access and collaboration across multiple machines.

How NFS Works

1. **NFS Server**: Hosts the shared directories and files.
2. **NFS Client**: Mounts the shared directories and accesses them as if they were local.
3. **Protocol**: Uses the RPC (Remote Procedure Call) mechanism to request file operations from the server.
4. **Communication**: Typically runs over TCP/UDP on port 2049.

Installing and Configuring NFS on Ubuntu/Kali Linux

Step 1: Install NFS Server on Ubuntu

Run the following command on the **NFS Server**:

bash

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sudo apt update && sudo apt install nfs-kernel-server -y

Step 2: Create a Shared Directory

Create a directory to share with clients:

bash

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sudo mkdir -p /mnt/nfs_share

Step 3: Set Permissions

Grant access to all users:

bash

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sudo chown -R nobody:nogroup /mnt/nfs_share

sudo chmod -R 777 /mnt/nfs_share

Step 4: Configure NFS Exports

Edit the NFS configuration file:

bash

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sudo nano /etc/exports

Add the following line (replace <client-ip> with the actual client's IP):

bash

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/mnt/nfs_share <client-ip>(rw,sync,no_subtree_check)

For all clients:

bash

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/mnt/nfs_share *(rw,sync,no_subtree_check)

Save and exit.

Step 5: Restart NFS Service

Apply the changes by restarting the NFS service:

bash

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sudo systemctl restart nfs-kernel-server

Step 6: Allow NFS Through Firewall (If Enabled)

bash

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sudo ufw allow from <client-ip> to any port nfs

sudo ufw enable

Configuring NFS Client on Kali Linux (or another Ubuntu machine)

Step 1: Install NFS Client

bash

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sudo apt update && sudo apt install nfs-common -y

Step 2: Create a Mount Point

bash

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sudo mkdir -p /mnt/nfs_client

Step 3: Mount the NFS Share

bash

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sudo mount <server-ip>:/mnt/nfs_share /mnt/nfs_client

Replace <server-ip> with the actual IP of the NFS server.

Step 4: Verify Mounting

bash

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df -h

ls -l /mnt/nfs_client

Step 5: Permanent Mounting (Optional)

To automatically mount on boot, add the following line to /etc/fstab:

ruby

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<server-ip>:/mnt/nfs_share /mnt/nfs_client nfs defaults 0 0

Testing NFS

1. On the **server**, create a file inside /mnt/nfs_share:

bash

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echo "Hello from NFS Server" | sudo tee /mnt/nfs_share/test.txt

2. On the **client**, check if the file exists:

bash

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cat /mnt/nfs_client/test.txt

If the setup is correct, you should see **"Hello from NFS Server"**.

Uninstall NFS (If Needed)

On the Server:

bash

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sudo apt remove --purge nfs-kernel-server -y

sudo rm -rf /mnt/nfs_share

On the Client:

bash

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sudo umount /mnt/nfs_client

sudo apt remove --purge nfs-common -y

This setup allows you to seamlessly share files between Ubuntu and Kali Linux using NFS. 🚀