Comp 3980 - Lab #3

Configuring NFS and Samba on Linux Systems

Objective: To learn how configure and use **NFS** and **Samba**.

- The NFS implementation under Red Hat Linux is similar to that of any Unix OS.
  - File systems to be exported via NFS are listed in ***/etc/exports***.
  - Shared directories are accessed through the ***mount*** command.
  - NFS uses the client/server model.

- Samba is an Open Source tool compatible with **SMB**, the **S**erver **M**essage **B**lock protocol.
- Configured by editing ***/etc/smb.conf***

Concepts and Background

NFS Concepts

- **Client Side**

  - Must have the ***portmap*** daemon running.
  - Performs the mount. For example:

    mount -t nfs servername:/home/ftp/pub /mnt/directory

  - **mount** associates a shared directory on the network with a mount point in your local filesystem.
  - The above command will mount an exported directory from an NFS server and access it as if it were local to your machine.
  - ***linuxconf*** can also be used to define an NFS mount.

- **Server Side**

  - The server must have three daemons running:

    portmap: maps calls made from other machines to the correct NFS daemon.
    rpc.nfsd: translates NFS requests into requests on the local filesystems.
    rpc.mountd: mounts and unmounts filesystems.

  - To verify that these services are running, use:

    rpcinfo -p nfsserver

- File systems to be exported via NFS are defined in **/etc/exports**. Here is an example:

    /home/ftp/pub *.milliways.bcit.ca(ro) beetelgeuse.bcit.ca(rw)
    /home/nfstest/documents zaphod.magrathea.com(rw)
    /data 192.168.66.105/255.255.255.0

- Each entry specifies one exported directory and its access permissions.
- Hostnames can contain wildcards, as shown above.
- IP addresses of hosts can be specified individually or using a network/netmask specification.

Samba

- An open source implementation of the SMB protocol used in Windows networking.
- It can be used to provide Windows users with "network neighborhood" access to Linux filesystems and printers.
- ***smbd*** is the daemon that provides SMB file sharing and print services.
- ***nmbd*** is the daemon that provides name resolution for NetBIOS clients.
- ***/etc/smb.conf*** is Samba's configuration file. It defines global options such as naming conventions, access permissions, log files and authentication rules.
- It also defines filesystem shares and the access permissions granted to users.
- ***smbclient*** lists shares on a running Samba server.

Getting Started

Configure NFS

- Create a test user:

    adduser nfstest

- The ***adduser*** command automatically created **/home/nfstest**. We can use this directory and user id to share files.
- Create a test file in that directory.
- Add a line similar to the one below to ***/etc/exports***:

    /home/nfstest 192.168.0.0/255.255.255.0

- Make sure that the files are being exported:

    /usr/sbin/exportfs -v

- Restart the NFS daemon in ***/etc/rc.d/init.d***.
- Check with ***rpcinfo -p localhost***; this should list ***nfsd***, ***mountd***, ***rpcbind***.
- Have your neighbor try to mount **/home/nfstest** and access the test file.

Configure Samba

- The idea is to share the files in the **/home/nfstest** directory with other Windows users.
- Add the following lines to the "Share Definitions" of ***/etc/smb.conf***:

  [NFSHARE]
  comment = Windows Share to the NFS challenged, poor souls
  path = /home/nfstest
  public = yes
  writable = yes
  guest ok = yes
  printable = no

- In the **[GLOBALS]** section enter your workgroup:

  Workgroup=CST323

- Restart Samba.
- Explore your own Samba shares:

  /etc/rc.d/init.d/smb status

- Check the mount:

  smbclient -L localhost

- When prompted for a password, simply hit Enter. You should see everything your machine is offering as a SMB share.
- Have someone on a Windows machine mount your shared directory from "network neighborhood".

Deliverables:

Demonstrate that you have NFS and Samba configured properly and functioning. Run NFS and Samba on one machine and then access files on your shares from a Windows XP machine.

Due Date: You must complete this lab and demonstrate it by **October 5 - 1120 hrs**.