**Unix/Linux Networking**

This is the process of Linux servers communicating with each other, sharing resources, integrating them together, even with servers on another OS like Windows-to-Linux.

**Samba in Linux**

Samba is an open-source software suite that runs on Unix/Linux based platforms but is able to communicate with Windows clients like a native application.

Samba package need to be installed it using yum tool.

Yum looks the package in a Centos/RedHat repository of package online and install it.

**Requirement for Practice Lab Setup:**

Linux Server and Windows Server.

Main directory: /etc/samba

Main file: /etc/samba/smb.conf

**Install samba**

#yum install samba –y

**Create the samba share directory**

#mkdir /sharepoint

#chmod 777 /sharepoint

**Create the samba user**

#useradd <sambauser>

#smbpasswd –a <sambauser>

**Configure the smb.conf file**

#vim /etc/samba/smb.conf and enter the following script:

[samba]

comment = samba test

path = /sharepoint

browsable = yes

public = yes

valid users = <sambauser>

writable = yes

then save & quit.

Open the firewall on the Desktop (GUI)

System menu

Administration

Firewall

Check both samba and samba client if unchecked.

Apply – Yes

Back to remote shell (putty)

#iptables -nL – to check to opened ports

Open the samba port on the firewall

Ports 137 138 139 445

#cat /etc/sysconfig/iptables – to verify

**Start the samba deamon**

#service smb start

#chkconfig --level 35 smb on

#chcon -t samba\_share\_t /sharepoint

**Next is on Windows server**

Connect a windows client to the share.

Now you go on the laptop, open window/file explorer, type in [\\ipaddress\_of\_linuxserver](file:///\\ipaddress_of_linuxserver)

Then login with the samba user’s credential (samba username and password). You will be able to see the samba share and to map to it.

Note: if this doesn’t work for you, you may need to turn on network discovery in the Network & sharing center.

* Control Panel
* Programs
* Turn windows features on
* Expand the smb 1.0/cifs file sharing
* Check smb1.0/cifs client option
* Ok
* Restart you windows server.

login using the samba account and you will access your samba shared folder, then you can mount it as a drive on your windows server.

* Right click on samba folder in windows
* Choose map network drive
* Leave it at default drive
* Finished
* Go back to This PC and you will see it mapped as a harddrive for easy access.

**NFS in Linux**

**Network File System** (NFS) allows remote hosts to mount file systems over a network and interact with those file systems as though they are mounted locally. This enables system administrators to consolidate resources onto centralized servers on the network.

* Need two Linux servers to set up as NFS server and client.
* The nfs daemon is disabled by default and must be enabled
* Nfs ports on the firewall must be opened
* The main nfs file is /etc/exports (it is not present and need to be created just for the first time)

**Create the directory to be shared.**

#mkdir /project

#chmod 777 /project

#touch /etc/exports – (configuration file)

#vi /etc/exports and enter /project \*(rw,sync)

**Open the firewall on from the shell prompt**

#setup

* Firewall
* Customize
* Activate NFS4
* Ok
* Quit

**OR**

**Open the firewall on from the Desktop console (GUI)**

* System
* Administration
* Firewall
* Check NFS4
* Apply

**Then open the ports Rpc udp and Rpc tcp from the Desktop console**

* System
* Administration
* Firewall
* Other ports – Add – look for III – add for both udp & tcp – Apply
* Yes
* Trusted Interface
* Check eth1 – Apply – Yes.

**Turn on nfs daemon**

#service nfs start

#chkconfig --level 35 nfs on

**Display NFS shares**

#showmount -e

**Next is on the Client Server**

Display the shares available

#showmount -e nfs\_server\_ipaddr (this will display all the nfs shares available on the NFS server)

Create a folder on client sever which will be mounted to the folder on NFS server

#mkdir /nfsclient

#chmod 777 /nfsclient

#mount -t nfs <nfs\_server\_ipaddress>:/project/ nfsclient

#cd /nfsclient

#ls -l

You can go to the NFS server and #cd /project, #ls -l, put in some stuff like files and folders

Go back to NFS Client to confirm it #cd /nfsclient, #ls -l

**Make the mount permanent in /etc/fstab**

<nfs\_server\_ipaddress>:/project /nfsclient nfs defaults 0 0

Save & quit.

#cd /nfsclient

#makdir funfair

Go check it on the other side.