Module 2

NFS File Sharing

- Features of NFSv4
- NFS Network Shares for Group Collaboration
- Using Kerberos to Control Access to Network Shares

NFS v4 Features:

- Kerberos Integration.
- Uses Port 2049 which means that it can be managed through Firewall.
- Higher Performance than NFSv3.
- Supports the ACL using nfs4_setfacl and nfs4_getfacl Commands.
- Main Packages :

1- **nfs_utils** : it Provides the NFS Daemon for NFS Server.

2- **nfs4-acl-tools** : Command line ACL Utility for NFSv4 Client.

- Controlling NFS using Kerberos Authentication

Creating Principals :
A- Kerberos Part:

- Kadmin.local

```
## Adding the Host Principal for both ( Server and Client ):
addprinc host/server.cloud.com
addprinc host/client.cloud.com
## then we can add NFS Principal for both ( Server and Client ):
addprinc nfs/server.cloud.com
addprinc nfs/client.cloud.com
## Then we need to make a local copy of the keytab file for the server :
ktadd host/server.cloud.com
Ktadd nfs/server.cloud.com
## Now we need to make a copy of the keytab file for the client :
ktadd –k /client.keytab host/client.cloud.com
ktadd –k /client.keytab nfs/client.cloud.com
## Exit from the kadmin.local and copy the keytab file from /client.keytab to the client :
scp /client.keytab client.cloud.com:/etc/krb5.keytab
```

- ## To verify that client keytab file is Ok from the client :

```
kinit -k -t /etc/krb5.keytab nfs/client.cloud.com
klist
```

##Now It must show the krbtgt validation time.

Kerborized NFS Options :

B- NFS Part:

- sec=krb5 :

This option provides Kerberos user authentication ONLY while the client request is confirmed with the keytab file.

- sec=krb5i :

In addition to the krb5 option , it provides integrity communication with Kerberos.

- sec=krb5p :

In addition to krb5i option , it provides traffic encryption so it is the most secured option.

Kerborized NFS :

- On the NFS Client we need to enable and start this service :

```
# systemctl restart nfs-client.target
# systemctl enable nfs-client.target
```

- On the NFS Server we need to enable and start this service :

```
# systemctl restart nfs-server.service
# systemctl enable nfs-server.service
```

- Adjust the Selinux and firewall for the /nfs on the NFS Server

```
# semanage fcontext –a –t public_content_rw_t “/nfs(/*.)?”
# restorecon –Rv /nfs
# firewall-cmd --permanent --add-service=nfs --add-service=mountd --add-service=rpc-bind
# firewall-cmd --reload
```

- On the /etc/fstab file on the client machine :

```
# server.cloud.com:/nfs   /share   nfs   sec=krb5p 0 0
# mount -a
```