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ITA711S – Lab 3 **2023 - Sem. 1**

Distributed File Systems with Samba

Theory

Distributed File Systems (DFS) allow users of physically distributed computers to share data and storage resources by using a common file system. A typical configuration for a DFS would be a collection of workstations and mainframes that are connected by a local area network. Ideally, a distributed file system aims to organize file and directory services of individual servers into a global directory in such a way that access to remote data is not dependent on location but is identical from any client. Accessibility of files by all users of the global file system is hierarchical and directory-based.

Objective

This laboratory exercise aims to help you understand installing and configuring Samba, a service designed to allow UNIX/Linux machine to serve the role of a Windows domain controller and/or printer and file server. Samba is one of the strategies used for DFS.

Tools/Equipment

- Windows 8/10 (Alternative installation under a virtual environment)
- Linux Operating System (Alternative installation under a virtual environment)
- Samba package (where it is not available with the Linux/Unix environment)
- **/etc/samba/smb.conf** the main file for Samba which you will be editing for this lab.

Lab Exercise

1) Configure your system to start the Samba server, preferably at runlevel 3 and runlevel 5. Ensure that you start the actual Samba at this time as well.

2) Open your firewall to allow incoming traffic on ports 137-139 and 445 for both UDP and TCP only from the desired IP address (you can use a private address of your client).

    a) What IP Address have you configured: _____ . _____ . _____ . _____

    b) Why do you need this configuration (ports and IP?) _____

3) Make appropriate changes to your firewall by changing settings in the **/etc/sysconfig/iptables.**

    a) What do you do to effect changes to your firewall? _____

    b) What command do you use for a) above? _____

4) Create a new user on your system so that the user can log in to the machine.

   Username: _____

5) Edit the Samba configuration file (/etc/samba/smb.conf) to support the following:

   a) A NetBIOS name of your choice: _____

   b) A Workgroup name (e.g. *Sambapc*): _____

   c) A server string of your choice, such as "*My Samba Server*": _____

   d) Ensure your server announces properly so that your Samba server will be visible from local machines network places (*Hint:* use *ipconfig* on a Windows box as appropriate). Troubleshoot as necessary.

   e) Only hosts on your local area network should be able to connect to Samba.

   f) Configure a Linux home directory that is accessible over the network when the owner is logged in from a Windows system.

      Directory name: _____ Accessible? Yes / No _____

      Troubleshoot and document where necessary

   g) A shared **/tmp** directory available to users with accounts on your Linux machine when logged in from a Windows system.

   h) Another shared, writable directory where access is limited to the specific usernames for you and anyone else allowed to login.

      Directory: _____ Access Type: _____ (e.g. rx)

6) After the change has been made to this restart Samba to effect the changes made.

   a) What command is used to restart the samba? _____

   b) What type of file is the samba configuration? _____

7) On the Windows box, use **My Network Places** and access the "Entire Network". Go to Windows Servers, and choose the server name (e.g. sambapc). If it is working properly, you should be able to log into your file share from there.

8) Create matching Samba accounts using the **smbpasswd** command where appropriate. Troubleshoot where appropriate and document your efforts!

Evaluation

1) Identify some versions of Samba, such as version 3, and show what features they offer to overcome shortcomings of previous versions.

2) Discuss the differences (and functions) of the three types of accounts, namely Windows user accounts, Samba accounts to match the Windows accounts, and Linux user accounts.

3) What is the significance of using Samba over traditional DFS such as NFS?

>>> End of Lab <<<