Week #8 – NFS and FTP

Overview of the week's objectives

Week #8 will cover NFS, Module O4L9, and FTP Module O4L10.

Network File System (NFS) is a protocol that defines how one computer can access the files of a remote computer as if the files were stored locally.

Network File System is a popular service that is often run in a corporate environment and allows remote users to access centrally located files and folders.

Technicians and administrators entering the real world should have a basic understanding of the NSF protocol and services and should be able to configure and manage a Network File System. This lesson serves as a basic introduction to the Network File System.

The file transfer protocol is the standard protocol to transfer a file between two computers on the internet. Like http, SMB, and email, FTP (file transfer protocol) uses TCP/IP to accomplish file transfers.

In this lesson, you will explore the FTP protocol and learn how to install an FTP server on a Fedora-based system.

Learning to use FTP is a critical function for a budding Linux administrator who wishes to access files stored on remote servers, or simply wish to transfer files from one computer to the next.

Please refer to all "PREVIOUS WEEK's OVERVIEWS" for details / advice relating to, or concerning, each of the tasks detailed in the remainder of this overview. You are responsible for recommendations or instructions noted in them!

TODO List

Please refer to all previous "Week's Overview PDFs" for details / advice about each of the tasks detailed in the remainder of this overview. While we focus on instructions specific to this week's material herein, previous instructions still apply.

Learning Activity			Time in hours		Points
			Expected	Spent	
Reading Assignments	O4L9 O4L10	Online Module Guides &Videos	2		
Practice Assignments	O4L9-PQ O4L10-PQ	Taking Practice Quizzes	2		
		Working on PAs & Participating to PA forums	7		
Graded Assignments	W8-GQ	Taking Graded Quiz	1		2
		Participating to Discussion forums			1
			12		3

Task #1 – Reading Assignments

You will find one "online module guide" document in this week's folder per module.

Refer to all previous "Week's Overview PDFs" for detailed instructions on how to use online module guides, practice quizzes *and our* support forum *while working on this task.*

Task #2 – Practice Assignments

Refer to "ALL PREVIOUS WEEK's Overview PDF" files for detailed instructions applying to all Practice Assignments.

These activities were designed to help you think critically about the topics covered in this lesson and to assess whether your knowledge and application of the content meets the stated objectives. You will need to research each topic and complete the assignment as instructed. Do not rely only on the contents of this lesson or on Wikipedia to complete these assignments.

PA #1 : Lab – Configure Linux Distro (C4L5A1)

1. Setup a fresh Debian or Ubuntu Virtual machine.
2. From a terminal, enter: **#sudo apt-get install nfs-kernel-server nfs-common portmap**

3. Create a directory on the server called **student**
4. Modify the /etc/export file so that the folder "student" is available via NFS on your local LAN :   **(/student 192.168.1.0/24(rw,sync))**

Note: If you make changes to the /etc/exports file, use **#exportfs** (a command to redeploy the changes then restart the NFS service). (Some users prefer to use **# /etc/init.d/nfs-kernel-server start**).

The NFS service must be restarted after every change of the /etc/exports file. This is one of the most problematic areas when configuring NFS and can lead to extra troubleshooting time later on.

5. Install and configure a fresh Ubuntu Virtual Machine to use as a client. Make sure the client is configured to an identical IP address schema and subnet as the NFS server.

Example:
NFS Server: IP address: 192.168.0.100
NFS Client: IP address: 192.168.0.101

6. On the client, create a directory named **student**

7. From the terminal enter: **#mount ipaddress:/home/urname/student** where *urname* is your user ID

8. Use the terminal program on the client and issue this command: #showmount

#showmount is a command used to show a valid Network File System directory

9. Take a screen capture of the #showmount results and upload to your instructor via the drop box for this lesson.

PA #2 : Lab – Automount a Folder (C4L5F1)

1. For the exercise in Lab 1 (C4L9A1), create an */etc/fstab* file to automount the folder on the NFS server.
2. Take a snapshot of your /etc/fstab commands and submit to your instructor via the dropbox.

PA #3 : Lab – Troubleshoot space character (C4L9A3)

Perform Lab 1 again but in step 4 for the /etc/export file, insert a space character between the IP address and the (rw,sync) command

(((/student 192.168.1.0/24 (rw,rsync))

Reinitialize both server and client services.

Send an report to your instructor via the drop box explaining the results.

Make sure to review the troubleshooting sections of this lesson and explain your findings in detail and how they compared to the troubleshooting tips in this lesson.

PA#4 : Lab – Change IP Address (C4L9A4)

1. Change your client's IP address to 10.10.25.10.
2. Leave all of the server configurations as per Lab 1.
3. Reboot both server and client virtual machines.
4. Attempt to mount the server from the client machine.
5. Send a report to your instructor via the dropbox detailing your findings and explain the results.
6. Include any error messages that you received and explain them to your instructor.

PA #5 : Lab – Bonus Activity (C4L9A5)

1. Research Clonezilla on the Internet (www.clonezilla.org) .
2. Watch this video on setting up a Clonezilla lab environment.
3. Setup and test your own NFS Clonezilla network and save a Clonezilla image to your NFS server.

4. Prepare a one page summary on your Clonezilla lab experience and submit it to your instructor via the dropbox.
5. Outline any difficulties you encountered and include your comments on how this tool (CloneZilla)would be used in a corporate or personal environment.

PA #6 : Lab – Archive Configuration Files (C4L10A1)

Archive all your configuration files from **/etc/vsftpd** and turn into the drop box for this assignment. Please submit a tar.bz2 archive and follow the standard naming convention of:
firstname_lastname_course4_lesson10_lab1.tar.bz2 to receive credit.

Include a screen capture of you testing the FTP server as an anonymous user using your local user ID.   .

PA #7 : Lab – Limit Users to Home Directory (C4L10A2)

Change your configuration files to jail all your users with the exception of a single user to their home directories. Allow anonymous users to upload files to a specific directory under the **/var/ftp/pub** tree.

Test your configuration using all possible options (anonymous, jailed user, and un-jailed user) and capture the tests using screen captures or video.

Archive all of your configuration files from **/etc/vsftpd** and turn into the drop box for this lab. Submit a tar.bz2 archive and follow the standard naming convention of:
firstname_lastname_course4_lesson10_lab2.tar.bz2 to receive credit.

PA #8 : Lab – Updating Configuration File (C4L10A2)

Using the configuration file found on your Linux server, submit a written explanation for each line in the file.

Add an additional 10 lines to the file that would help you configure your server to be more secure and/or provide more functionality.

Test these lines and make sure that they work. Provide screen captures of your testing and include your name.

Task #3 – Use the "Support forum

Refer to all previous "Week's Overview PDFs" for detailed instructions applying to all discussion forums assignments.

PA #9 : Forum – Using NFS in Business a Setting (C4L9F1)

XYZ, Inc is a new company that has been granted some funding through the Small Business Association. XYZ, Inc plans to design and market a new product that received rave reviews in test marketing campaigns.

XYZ, Inc. has recently hired you to lead a group of technicians in the design and rollout of an 80-workstation environment using centralized management. The CEO has informed you that the company has limited financial resources and that they want to put as much money as possible in to research and development of their featured new product, but the computer network is essential to designing and distributing the new product.

Within your group, discuss possible scenarios, advantages, and disadvantages of NFS at XYZ, Inc. Prepare a two-page summary for submission to your CEO covering your findings. You must respond actively to your peers and add to the discussion.

PA #10 : Forum – Diskless Remote Workstations (C4L9F1)

Could XYZ, Inc go with diskless remote workstations in the previous FORUM?

Research practical, real world supporting situations and share your findings in this forum. You must respond to at least two comments from your peers.

PA #11 : Forum – Allow Users to Access their Folders (C4L9A3)

Your centralized server will contain the following folders:
a. Marketing
b. Sales
c. Finance
d. HR

Use the Internet to research examples and additional information on the /etc/exports file process.
Your group needs to discuss and design how you would create an /etc/export file that would allow users access to their particular folder. The users are:

a. Bob Tyler - *HR Department*
b. Susan Patrick- *Sales Department*
c. Frank Burns and Fred Martin- *Finance Department*
d. Mary Smith and Mike Bishop - *Marketing*
e. Joe Jones - *CEO*

PA #12 : Forum – Version of NFS (C4L9F4)

In the XYZ, Inc scenario provided in Forum 3, which version of NFS should your group use to make folders available to individual users via the /etc/export file?

Explain why you would choose that particular version of NFS.

Support your choice by preparing a one page memo to your instructor with your selection and supportive comments.

PA #13 : Forum – Remote Access (C4L9A5)

What version of NSF would you recommend in this scenario if you wanted to grant access to your workers from home or outside the immediate vicinity of your normal work environment (local LAN)?

What additional services and protocols would you need to add to provide secure NFS services to external workers?

Submit your findings to the forum. Be sure to engage at least two classmates in helpful discussion or questions.

PA #14 : Forum – Ricks with FTP servers (C4L10F1)

Describe the risks of running an FTP server on a corporate file server. Add to your post ways you can minimize this risk.

Once you respond to the forum topic, comment on two other submissions from your classmates. Your responses should be substantial.

PA #15 : Forum – Alternative to FTP (C4L10F2)

What options are available other than FTP to exchange files from one user to another?

What other commands do the same thing?

Once you respond to the question, comment constructively on two responses from your classmates. Agree, disagree, and support your opinions using resources found on the Internet.

Task #4 – Graded quizzes

Refer to all previous "Week's Overview PDFs" and "ALL PREVIOUS WEEK's Overview PDF" for detailed instructions applying to all graded quizzes.