UNIVERSIDADE DA BEIRA INTERIOR
Faculdade de Engenharia
Departamento de Informática

Redes e Serviços Internet
2012/2013
2º semestre
Curso de Licenciatura em
Engenharia Informática
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Lab Sheet 6

Installing a FTP server

The goal of this worksheet is to allow you to understand how to install and configure a File Transfer Protocol server in the Lab. Now is the time to check your basic knowledge of the FTP protocol.

Check the references at the bottom of this sheet, it may be useful to understand the concepts involved.

Lab work is team work. At the end of this sheet there are some suggestions on where to find more information on the subjects discussed here. All the answers to the exercices must be noted in your lab-book, or in a document created with that purpose. Remember that a well document experimental activity is always a precious help in the future; on the contrary, a non-documented experimental activity is nothing more than a mere visit to the Lab.

Also: after the class, please be leave the workbenches in proper condition! Remember, your workplace may be seen as a mirror of your work.

If you need help, please ask your teacher.

Enjoy your work!

Install a FTP server (vsftpd) and configure it in Fedora.

1. Save the initial configuration by copying the configuration file to a backup file
   `# cp /etc/vsftpd/vsftpd.conf /etc/vsftpd/vsftpd.conf.original`

2. Edit the configuration file to change the welcome message.
   `# pico /etc/vsftpd/vsftpd.conf`

   (lines and related files **`banner_file=/etc/vsftpd/welcome.banner`** and **`ftpd_banner==Welcome to my vsFTPd Server`**.)

3. Start the service (**`/etc/rc.d/init.d/vsftpd start`**), and test the **`anonymous`** access to the server (check for eventual startup errors using the command **`grep vsftpd /var/log/messages`**).

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4. Create an initial document repository (e.g. RFC) for the FTP server. Use the address **`http://www.rfc-editor.org/download.html`** or other mirror to select the RFC files you want to make available in your server. Place the files in the **`/var/ftp/pub`** folder.
5. Define the server to show messages for each directory. Activate this feature by changing these configuration lines **`dirmessage_enable=YES`** and **`message_file=.message`**. Create the message files in the corresponding directories.
6. Check the remote access to your FTC server from other computers in the laboratory. Download some files and check the generated traffic in the server and client machines using **`wireshark, follow tcp stream`**.
7. Create security certificates to allow the server to use encryption. The certificates may be generated using the following commands:
```
# cd /etc/pki/tls/certs
# make vsftpd.pem
# openssl x509 -in /etc/pki/tls/certs/vsftpd.pem -noout -text
# chmod 600 /etc/pki/tls/certs/vsftpd.pem
```
8. Change the configuration file **`/etc/vsftpd/vsftpd.conf`** and add the lines:
```
ssl_enable=YES
force_local_logins_ssl=YES
ssl_tlsv1=YES
rsa_cert_file=/etc/pki/tls/certs/vsftpd.pem
```
9. Restart the service with **`/etc/init.d/vsftpd restart`**
10. Use the **`gftp`** client to access the FTP server with encryption (check the traffic with wireshark).
11. Install a TELNET server in your computer (**`yum install telnet-server`**).
12. Restrict the access to allow only machines from your workbench (use **`only_from`** in the file **`/etc/xinetd.d/telnet`**).
13. Open a TELNET session and test the TELNET communication using wireshark and follow TCP stream.
14. Remote and secure access may be achieved with programs/protocols such as ssh (preferable to rsh, rlogin, rcp). (Why?). *ssh* uses a client/server architecture and uses port 22 using SSL. It allows the encryption and the communication using the private and public key concept.

    (see `http:// www.suso.org/docs/shell/ssh.pdf`).

    Install a ssh server (openssh) and change the Fedora configuration (**`yum install openssh openssh-clients openssh-server –y)`.**
15. Start the service (**`/etc/init.d/sshd start`**).
16. Create the user **`aluno`** (**`adduser`**). Make the necessary changes to the ssh server to allow access only from this new account (**`/etc/ssh/sshd_config`**). Use only the version 2 of the protocol.

17. Test the service and the configurations to access as a client to other ssh servers in the laboratory (**`ssh aluno@ip_do_servidor`**). Check if the public keys of the servers are stored in each user area at **`~/.ssh/known_hosts`**, try to interpret each line.
18. The **`slogin`** substitutes, with advantage, the **`rlogin`** and the **`rsh`**, why? Use wireshark to demonstrate this.
19. Describe briefly the advantages of using **`ssh`**. Why should we use the version 2 of the protocol.
20. Use **`scp`** to copy RFCs from one of the servers on your workbench to your ftp site (**`scp /var/ftp/pub/ root@ip_do_servidor:/var/ftp/pub/rfc4250.txt)`.**
21. Use sftp to change the same transfer. This command is similar to **`ftp`** (**`sftp utilizador@sistema`**) being the equivalent commands **`cd, lcd, get, put mget,mput`** among others.
22. Is there any advantage to use ftp instead of ftp?
23. Create a secure ssh tunnel to interact with telnet servers in your workbench. To activate the secure tunnel by using port forwading you need to execute two commands:

```
ssh -L 2222:ip_servidor_telnet:23 ip_servidor_ssh
telnet localhost 2222
```

24. Check the previous communication using wireshark. What is the difference to the telnet communication?

Visite the following Internet sites:

- http://www.vivaolinux.com.br/artigo/Instalando-e-configurando-um-servidor-FTP/
- http://www.techotopia.com/index.php/Configuring_Fedora_Linux_Remote_Access_using_SSH
- http://www.cisl.ucar.edu/nets/intro/staff/siemsen/tools/ssh.html