

· 四川大学计算机学院学院

实验报告

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课程名称	操作系统课程设计	实验课时	2
实验项目	Linux 下 DNS 和 FTP 服务器配置	实验时间	2024. 4. 15
实验目的	使用 Linux 环境配置 DNS 和 FTP 服务器,使用 nslookup 查询验证,使用 get 和 put 从 FTP 服务器上传和下载文件		
实验环境	Ubuntu 操作系统		
实验内容	<p>一、DNS 服务器配置</p> <p>1. 替换源</p> <p>使用命令直接替换</p> <pre>mountain@Lumous:~\$ sudo sed -i "s@http://.*archive.ubuntu.com@https://mirrors.tuna.tsinghua.edu.cn@g" /etc/apt/sources.list</pre> <p>2. 安装 bind9</p> <pre>mountain@Lumous:~\$ sudo apt install bind9</pre> <p>3. 创建 zone 文件及其修改</p> <pre>mountain@Lumous:~\$ cd /etc/bind mountain@Lumous:/etc/bind\$ ls bind.keys db.127 db.empty named.conf named.conf.local rndc.key db.0 db.255 db.local named.conf.default-zones named.conf.options zones.rfc1918 mountain@Lumous:/etc/bind\$ sudo cp db.empty example.zone mountain@Lumous:/etc/bind\$ ls bind.keys db.127 db.empty example.zone named.conf.default-zones named.conf.options zones.rfc1918 db.0 db.255 db.local named.conf named.conf.local rndc.key mountain@Lumous:/etc/bind\$ sudo vim example.zone</pre>		

```
; BIND reverse data file for empty rfc1918 zone
;
; DO NOT EDIT THIS FILE - it is used for multiple zones.
; Instead, copy it, edit named.conf, and use that copy.
;
$TTL      86400
@         IN      SOA      ns.test.com. root.test.com. (
                        1          ; Serial
                        604800     ; Refresh
                        86400      ; Retry
                        2419200    ; Expire
                        86400 )    ; Negative Cache TTL
;
@         IN      NS       ns.test.com.
ns        IN      A        192.168.1.1
www       IN      A        192.168.1.2
```

4. 关联 zone 文件

```
mountain@Lumous:/etc/bind$ sudo vim named.conf.local
```

```
//
// Do any local configuration here
//

// Consider adding the 1918 zones here, if they are not used in your
// organization
//include "/etc/bind/zones.rfc1918";

zone "test.com" {
type master;
file "/etc/bind/example.zone";
};
```

5. 重启服务生效

```
mountain@Lumous:~$ sudo systemctl restart named
```

6. nslookup 查询实验验证

```
mountain@Lumous:~$ nslookup www.test.com localhost
Server:          localhost
Address:         127.0.0.1#53

Name:   www.test.com
Address: 192.168.1.2
```

实验内容

二、FTP 服务器搭建

1. 安装 vsftpd 并启动 ftp 服务

```
mountain@Lumous:~$ sudo apt install vsftpd
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libwrap0 ssl-cert
The following NEW packages will be installed:
```

```
mountain@Lumous:~$ sudo apt install ftp
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
ftp is already the newest version (20210827-4build1).
ftp set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 95 not upgraded.
```

```
mountain@Lumous:~$ sudo systemctl start vsftpd.service
```

刷新防火墙

```
mountain@Lumous:~$ sudo iptables -F
```

2. 连接实验验证

```
mountain@Lumous:~$ ftp localhost
Connected to localhost.
220 (vsFTPd 3.0.5)
Name (localhost:laiwei): laiwei
331 Please specify the password.
Password:
230 Login successful.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> bye
221 Goodbye.
```

3. 修改配置文件

```
mountain@Lumous:~$ sudo vim /etc/vsftpd.conf
write_enable=YES
#
# Default umask for local users is 077. You may wish to change this to 022,
# if your users expect that (022 is used by most other ftpd's)
#local_umask=022
```

4. 使用 get 和 put 命令

```
ftp> get test.txt
local: test.txt remote: test.txt
229 Entering Extended Passive Mode (|||15035|)
150 Opening BINARY mode data connection for test.txt (0 bytes).
0 0.00 KiB/s
226 Transfer complete.
```

	<pre>ftp> put shell1.sh local: shell1.sh remote: shell1.sh 229 Entering Extended Passive Mode (56282) 550 Permission denied.</pre>
实验结果	<p>成功使用 nslookup 查询到预定结果，成功使用 get 和 put 从 FTP 服务器上传和下载文件，成功按照步骤在 linux 环境下完成 DNS 和 FTP 服务器的配置和使用</p>
小 结	<p>本次实验通过 Linux 系统成功配置了 DNS 和 FTP 服务器。DNS 配置实现了域名解析功能，确保网络访问的顺畅；FTP 服务器搭建则实现了文件的上传与下载，便于文件共享与管理。实验过程中，对系统命令和配置有了更深的了解，也提高了实践操作能力。</p>
指导老师 评 议	<div>成绩评定：</div> <div>指导教师签名：</div>