任务10：浙大校网VPN

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搞定在校网上拨VPN出校。

实现目的

1 了解Acadia或RPi或WRTnode中如何对网络进行配置;
2 了解Acadia或RPi或WRTnode中如何对VPN进行连接。

硬件

- Acadia或RPi或WRTnode板一块;
- 5V/1A电源一个;
- microUSB线一根;
- USB-TTL串口线一根（FT232RL芯片或PL2303芯片）。

以下为自备（可选）器材:

- PC（Windows/Mac OS/Linux）一台;
- 声卡一个;
- 以太网线一根（可能还需要路由器等）。软件
- PC上的USB-TTL串口线配套的驱动程序;
- PC上的串口终端软件，如minicom、picocom、putty等;
- PC上的SSH软件，如putty等。

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实验步骤

1 Acadia设定mac地址

```
root@Acadia:~# sudo ifconfig eth0 down hw ether 3C:97:0E:17:EF:16
root@Acadia:~# sudo ifconfig eth0 up
eth0: Freescale FEC PHY driver [Generic PHY] (mii_bus:phy_addr=1:01, irq=-1)
root@Acadia:~# PHY: 1:01 - Link is Up - 100/Full

root@Acadia:~# ifconfig
eth0      Link encap:Ethernet  HWaddr 3c:97:0e:17:ef:16
          inet addr:192.168.1.12  Bcast:192.168.1.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:592 errors:0 dropped:0 overruns:0 frame:0
          TX packets:467 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:548773 (548.7 KB)  TX bytes:30334 (30.3 KB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:188 errors:0 dropped:0 overruns:0 frame:0
          TX packets:188 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:20754 (20.7 KB)  TX bytes:20754 (20.7 KB)
```

2　设定静态ip,网关，子网掩码

```
root@Acadia:~# sudo vi /etc/network/interfaces
```

```
# interfaces(5) file used by ifup(8) and ifdown(8)
#iface lo inet loopback

# The loopback interface
 auto lo
 iface lo inet loopback
 auto eth0
 iface eth0 inet static
 #your static IP
 address 222.205.49.45
 #your gateway IP
 gateway 222.205.49.1
 netmask 255.255.255.0
 #your network address "family"
 network 10.5.1.9
 broadcast 192.168.1.255
~
~
```

3. 设定DNS

```
root@Acadia:~# sudo vi /etc/resolv.conf
```

```
nameserver 10.10.0.21
```

3.重启网络

```
root@Acadia:~# sudo /etc/init.d/networking restart
```

测试内网成功

```
PING www.nexushd.org (10.13.87.106): 56 data bytes
64 bytes from 10.13.87.106: icmp_seq=0 ttl=60 time=33.472 ms
64 bytes from 10.13.87.106: icmp_seq=1 ttl=60 time=151.473 ms
64 bytes from 10.13.87.106: icmp_seq=2 ttl=60 time=60.629 ms
64 bytes from 10.13.87.106: icmp_seq=3 ttl=60 time=14.951 ms
```

4.安装一个xlt2p的包

```
root@Acadia:~# sudo apt-get install xl2tpd
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following extra packages will be installed:
  libpcap0.8 ppp
The following NEW packages will be installed:
  libpcap0.8 ppp xl2tpd
0 upgraded, 3 newly installed, 0 to remove and 0 not upgraded.
Need to get 489 kB of archives.
After this operation, 1144 kB of additional disk space will be used.
Do you want to continue [Y/n]?
```

5.下载vpn脚本

```
 vpn-zjudia:~# wget http://file.cc98.org/uploadfile/2013/2/21/22291222732.txt -
--2015-03-29 23:51:59--  http://file.cc98.org/uploadfile/2013/2/21/22291222732.t
Resolving file.cc98.org (file.cc98.org)... 10.10.98.77
Connecting to file.cc98.org (file.cc98.org)|10.10.98.77|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 4727 (4.6K) [text/plain]
Saving to: `vpn-zju'

100%[======================================>] 4,727       --.-K/s   in 0s

2015-03-29 23:51:59 (78.6 MB/s) - `vpn-zju' saved [4727/4727]

root@Acadia:~#
Meta-Z for help | 115200 8N1 | NOR | Minicom 2.7 | VT102 | Offline | ]-AH01UPGN
```

6.更改路径

```
root@Acadia:~# mv ./vpn-zju /usr/sbin/vpn-zju
```

7. 更改权限

```
root@Acadia:~# chmod u+x /usr/sbin/vpn-zju
```

8.配置账号

```
root@Acadia:~# vpn-zju -c
rm: cannot remove `/etc/ppp/peers/zjuvpn': No such file or directory
Username: 3120104243@c
Password:
```

9.拨号上网

```
root@Acadia:~# sudo vpn-zju
[MSG] Disconnecting VPN ... Done!
tail: cannot open `/var/log/zjuvpn' for reading: No such file or directory
[MSG] Trying to bring up vpn... 0
[LOG] pppd: Couldn't open the /dev/ppp device: No such file or directory
[MSG] Trying to bring up vpn... 1
[MSG] Trying to bring up vpn... 2
[MSG] Trying to bring up vpn... 3
```

10.测试外网数据

```
PING www.a.shifen.com (115.239.210.27): 56 data bytes
Request timeout for icmp_seq 0
64 bytes from 115.239.210.27: icmp_seq=1 ttl=53 time=184.452 ms
64 bytes from 115.239.210.27: icmp_seq=2 ttl=53 time=441.325 ms
Request timeout for icmp_seq 3
Request timeout for icmp_seq 4
Request timeout for icmp_seq 5
Request timeout for icmp_seq 6
64 bytes from 115.239.210.27: icmp_seq=7 ttl=53 time=8.771 ms
```

成功。

感想:

学习了一下浙大校网VPN在嵌入式上的使用。
深入理解了linux下的网路配置的方法。
通过学习这次实验，让我们更加方便的进入嵌入式的学习。