Lab 6

2020 12 15   16:34

ssh to alex
scp lab5

sudo python ./net.py

xterm h1
ifconfig

```
root@bowen-VirtualBox:~/lab6/lab6# ifconfig
h1-eth0    Link encap:Ethernet   HWaddr 00:00:00:00:00:05
           inet addr:10.0.0.105  Bcast:10.0.0.255  Mask:255.255.255.0
           inet6 addr: fe80::200:ff:fe00:5/64 Scope:Link
           UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
           RX packets:162 errors:0 dropped:0 overruns:0 frame:0
           TX packets:15 errors:0 dropped:0 overruns:0 carrier:0
           collisions:0 txqueuelen:1000
           RX bytes:23204 (23.2 KB)  TX bytes:2238 (2.2 KB)
```

route -n

```
root@bowen-VirtualBox:~/lab6/lab6# route -n
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
0.0.0.0         10.0.0.111      0.0.0.0         UG    0      0        0 h1-eth0
10.0.0.0        0.0.0.0         255.255.255.0   U     0      0        0 h1-eth0
```

Q1: subnet = 10.0.0.0/24
Q2: yes
Q3:

```
mininet> h1 tracepath srv1 -n
 1?: [LOCALHOST]                                    pmtu 1500
 1:  10.0.0.10                                         1.478ms reached
 1:  10.0.0.10                                         1.225ms reached
     Resume: pmtu 1500 hops 1 back 1
```

switch is transparent in the network

Q4: 10.0.0.111
Q5:

```
root@bowen-VirtualBox:~/lab6/lab6# ping 8.8.8.2
PING 8.8.8.2 (8.8.8.2) 56(84) bytes of data.
From 10.0.0.105 icmp_seq=1 Destination Host Unreachable
From 10.0.0.105 icmp_seq=2 Destination Host Unreachable
From 10.0.0.105 icmp_seq=3 Destination Host Unreachable
^C
```


cant reach

```
--- 8.8.8.2 ping statistics ---
6 packets transmitted, 0 received, +3 errors, 100% packet loss, time 5034ms
pipe 3
```
cant reach
the packet is not going to the right router (to be fixed
in Q7)

Q6: yes
run wireshark& on xterm h1
dhclient h1-eth0

```
Frame 3: 356 bytes on wire (2848 bits), 356 bytes captured (2848 bits) on interface 0
Ethernet II, Src: 00:00:00_00:00:0a (00:00:00:00:00:0a), Dst: 00:00:00_00:00:05 (00:00:00:00:00:05)
Internet Protocol Version 4, Src: 10.0.0.10, Dst: 10.0.0.105
User Datagram Protocol, Src Port: 67, Dst Port: 68
Bootstrap Protocol (ACK)
```

dhcp server ip: 10.0.0.10
srv1

Q7:
change
dhcp-option=3,10.0.0.111
to
dhcp-option=3,10.0.0.1
to specify the correct router

Q8:
```
root@bowen-VirtualBox:~/lab6/lab6# ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=62 time=2.01 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=62 time=0.328 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=62 time=0.053 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=62 time=0.062 ms
^C
--- 8.8.8.8 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3000ms
rtt min/avg/max/mdev = 0.053/0.614/2.015/0.816 ms
```
yes

Q9:
sudo service network-manager stop
yes
when DNS server is changed to 8.8.8.8, which has A record
for test.net => 8.8.8.2

Q10:
intGW
```
3 0.557289325    10.0.0.105            8.8.8.8          ICMP      100 Echo (ping) request  id=0x24f1, seq=13/3328, ttl=64
```
converts internal IP to 2.2.2.2

Q11:

Q10:
intGW

```
4 0.557304108    2.2.2.2           8.8.8.8          ICMP      100 Echo (ping) request  id=0x24f1, seq=13/3328, ttl=63
```

converts internal IP to 2.2.2.2

Q11:
xterm intGW
iptables -I FORWARD -s 10.0.0.11 -j DROP