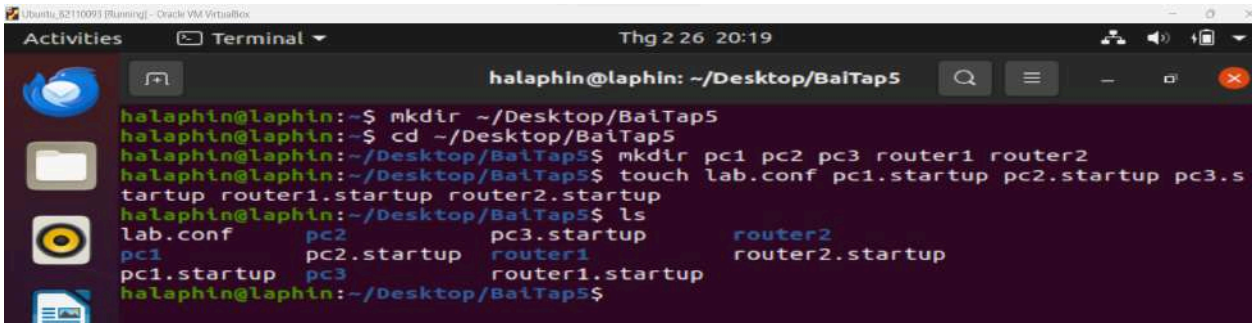
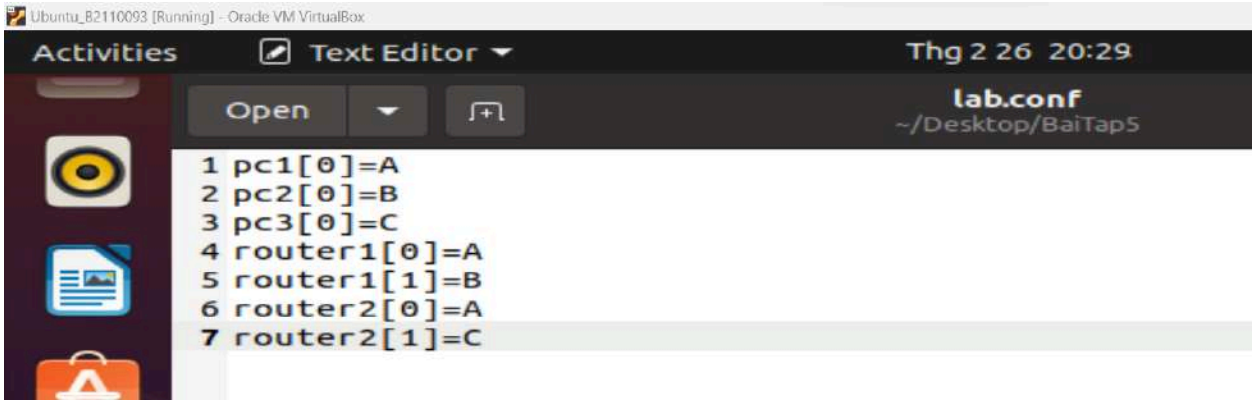
LAB 2

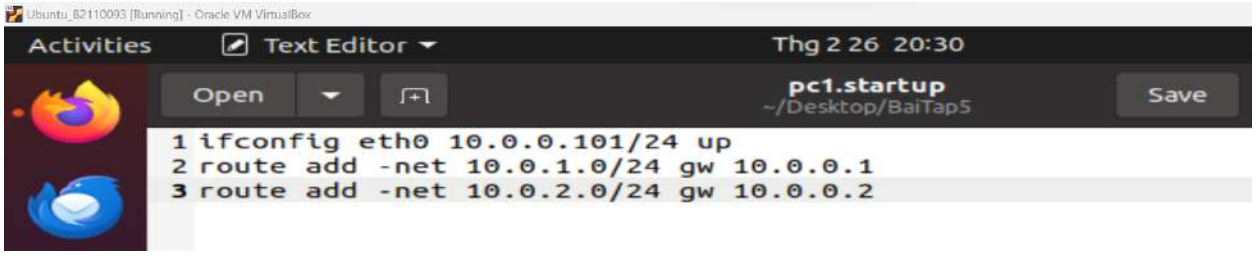
Họ tên và MSSV:Ha La Phin B2110093

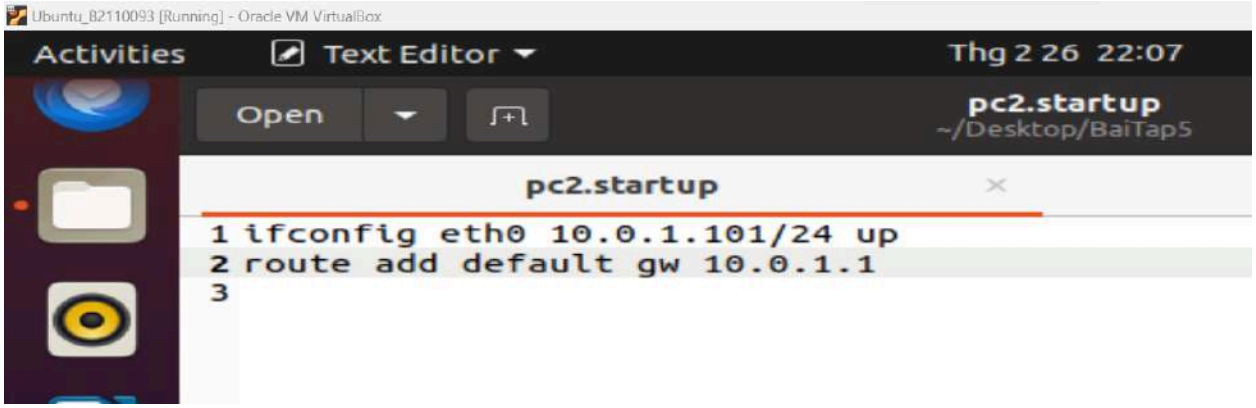
Nhóm học phần: 11

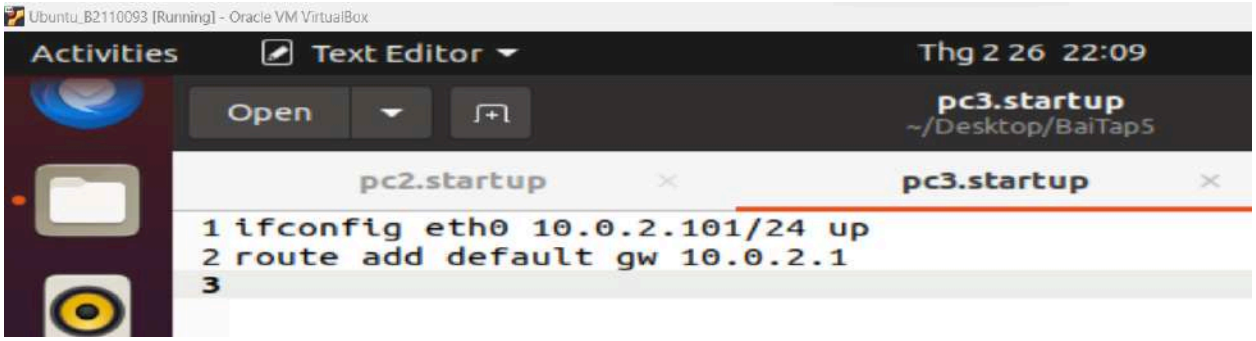
Bài 5:



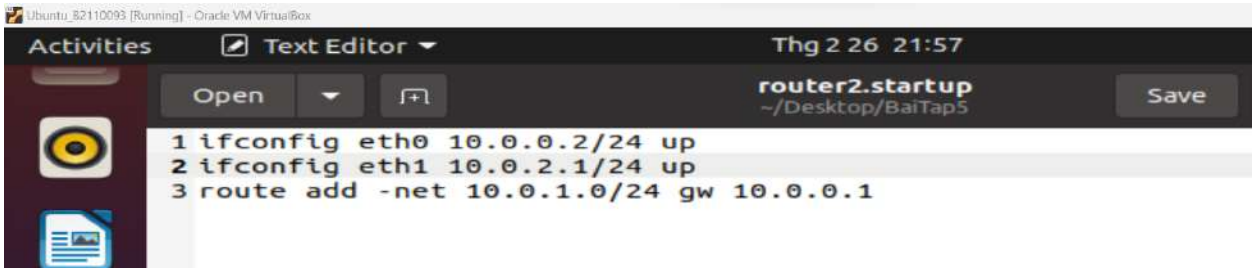

Ubuntu_B2110093 [Running] - Oracle VM VirtualBox
Activities
Text Editor
Thg 2 26 20:29
Open
lab.conf
~/Desktop/BaiTap5
1 pc1[0]=A
2 pc2[0]=B
3 pc3[0]=C
4 router1[0]=A
5 router1[1]=B
6 router2[0]=A
7 router2[1]=C

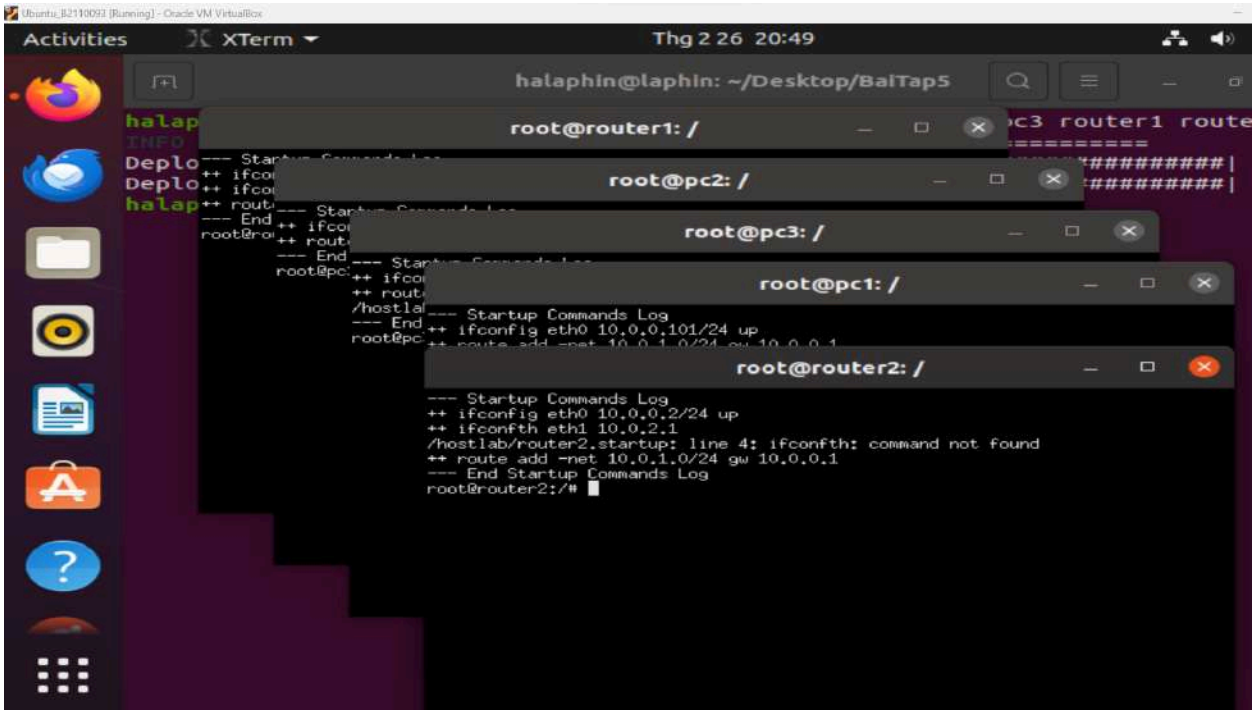

Ubuntu_B2110093 [Running] - Oracle VM VirtualBox
Activities
Text Editor
Thg 2 26 20:30
Open
pc1.startup
~/Desktop/BaiTap5
Save
1 ifconfig eth0 10.0.0.101/24 up
2 route add -net 10.0.1.0/24 gw 10.0.0.1
3 route add -net 10.0.2.0/24 gw 10.0.0.2

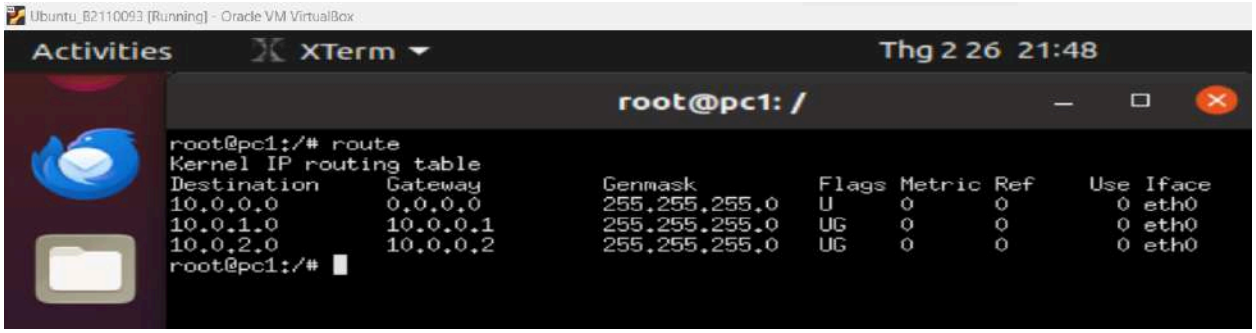

Ubuntu_B2110093 [Running] - Oracle VM VirtualBox
Activities
Text Editor
Thg 2 26 22:07
Open
pc2.startup
~/Desktop/BaiTap5
pc2.startup
1 ifconfig eth0 10.0.1.101/24 up
2 route add default gw 10.0.1.1
3

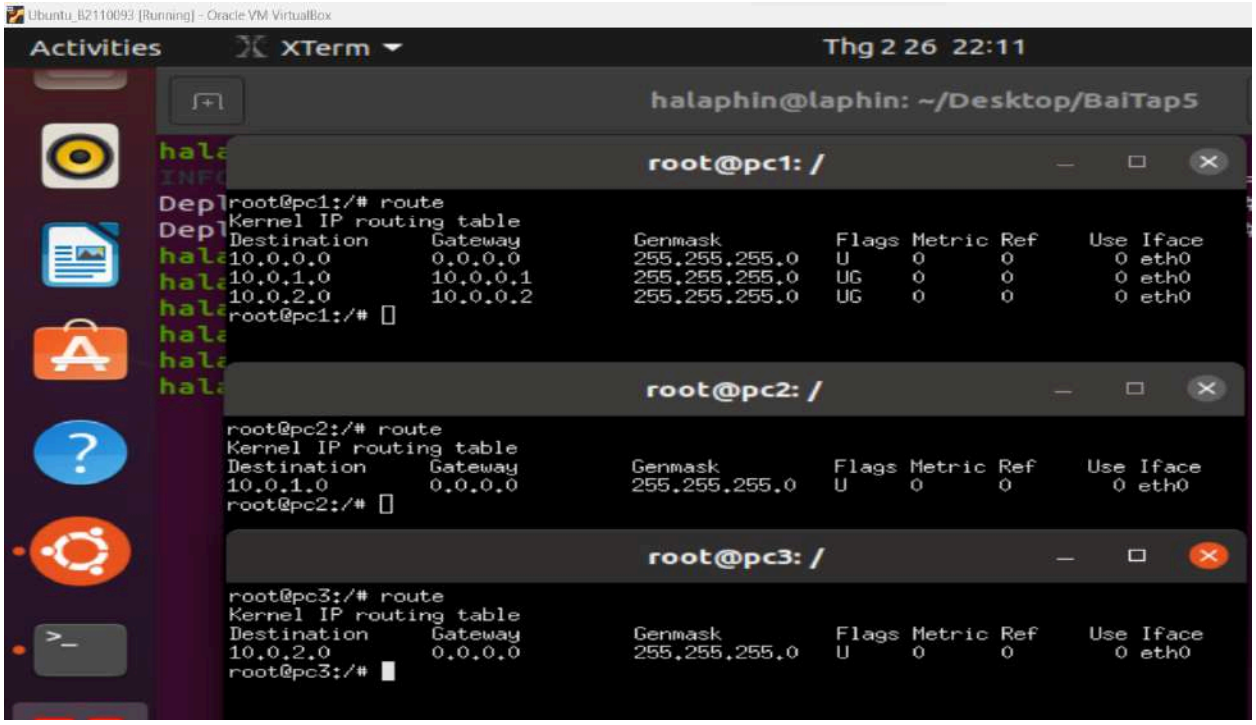

Ubuntu_B2110093 [Running] - Oracle VM VirtualBox
Activities
Text Editor
Thg 2 26 22:09
Open
pc3.startup
~/Desktop/BaiTap5
pc2.startup
pc3.startup
1 ifconfig eth0 10.0.2.101/24 up
2 route add default gw 10.0.2.1
3

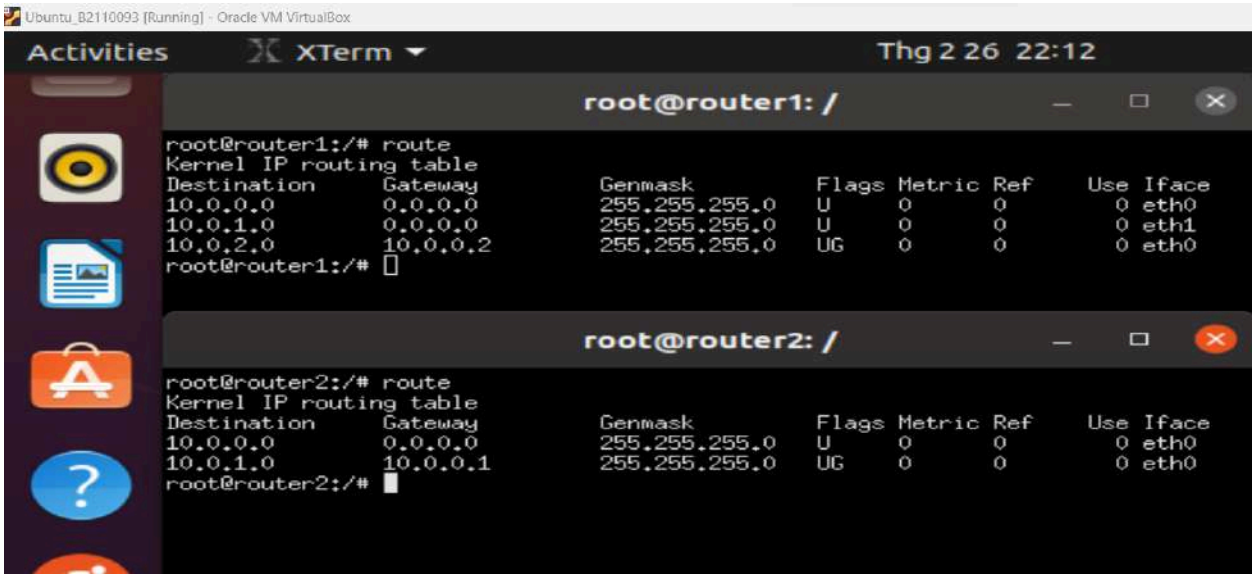

Activities
Text Editor
Thg 2 26 20:46
Open
router1.startup
~/Desktop/BaiTap5
Save
1 ifconfig eth0 10.0.0.1/24 up
2 ifconfig eth1 10.0.1.1/24 up
3 route add -net 10.0.2.0/24 gw 10.0.0.2

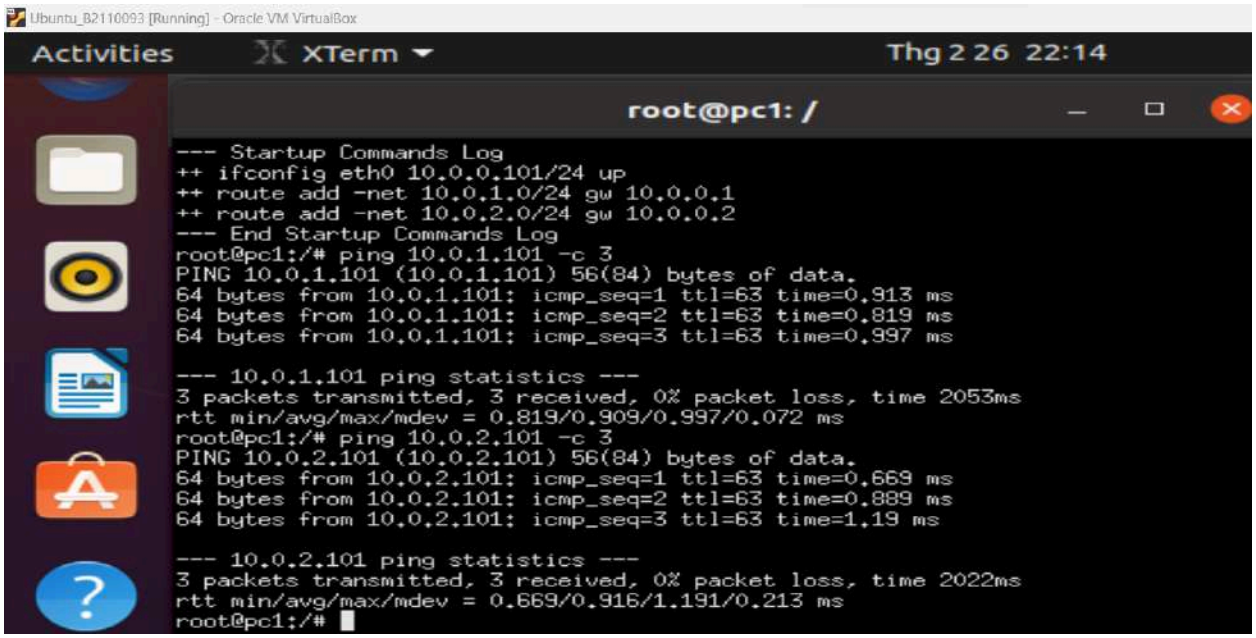

Activities
Text Editor
Thg 2 26 21:57
Open
router2.startup
~/Desktop/BaiTap5
Save
1 ifconfig eth0 10.0.0.2/24 up
2 ifconfig eth1 10.0.2.1/24 up
3 route add -net 10.0.1.0/24 gw 10.0.0.1


Activities
XTerm
Thg 2 26 20:49
halaphin@laphin: ~/Desktop/BaiTap5
root@router1: /
root@pc2: /
root@pc3: /
root@pc1: /
root@router2: /
--- Startup Commands Log
++ ifconfig eth0 10.0.0.101/24 up
--- Startup Commands Log
++ ifconfig eth0 10.0.0.2/24 up
++ ifconfth eth1 10.0.2.1
/hostlab/router2.startup: line 4: ifconfth: command not found
++ route add -net 10.0.1.0/24 gw 10.0.0.1
--- End Startup Commands Log
root@router2:/#

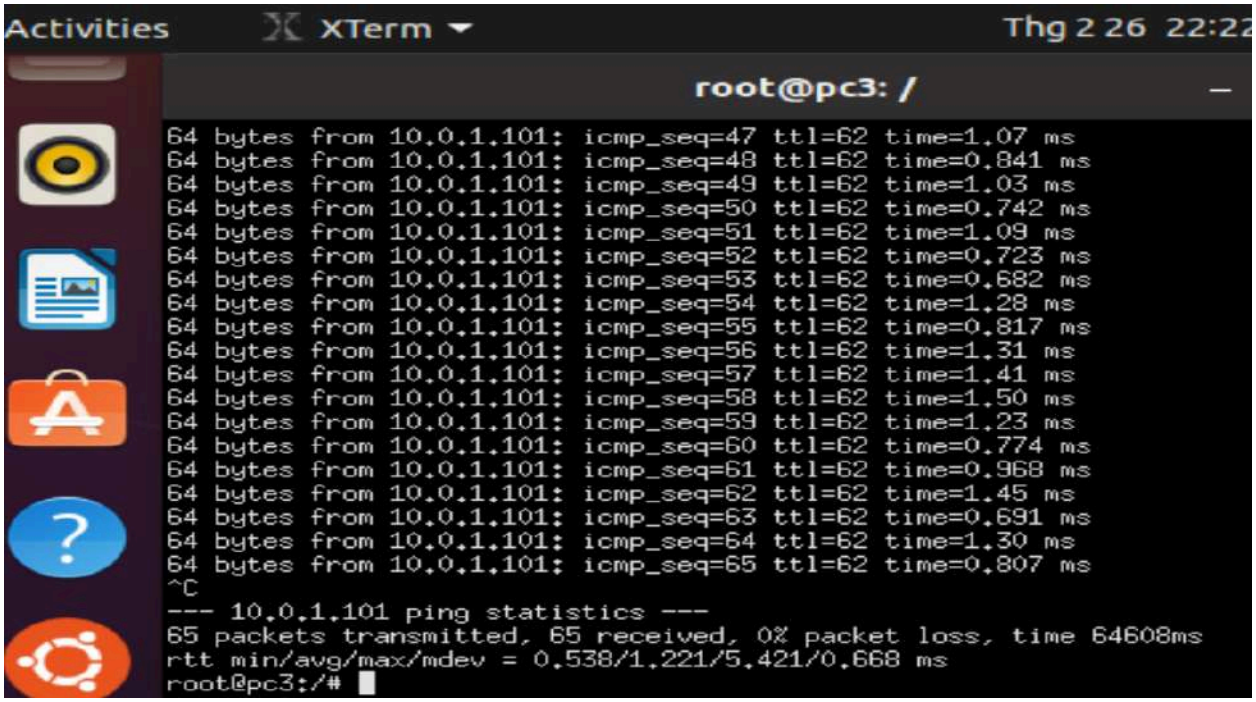

Activities
XTerm
Thg 2 26 21:48
root@pc1: /
root@pc1:/# route
Kernel IP routing table
Destination Gateway Genmask Flags Metric Ref Use Iface
10.0.0.0 0.0.0.0 255.255.255.0 U 0 0 0 eth0
10.0.1.0 10.0.0.1 255.255.255.0 UG 0 0 0 eth0
10.0.2.0 10.0.0.2 255.255.255.0 UG 0 0 0 eth0
root@pc1:/#

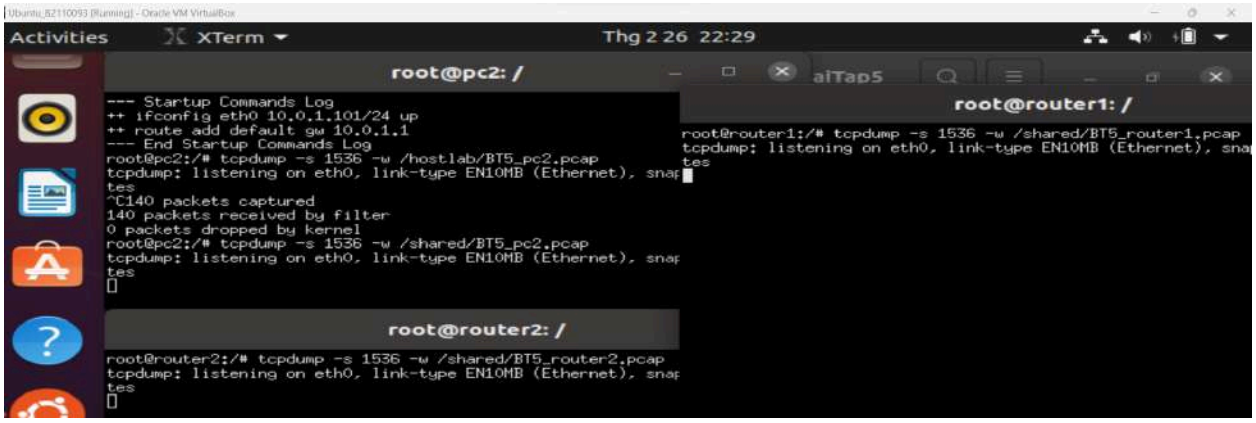

Ubuntu_B2110093 [Running] - Oracle VM VirtualBox
Activities
XTerm
Thg 2 26 22:11
halaphin@laphin: ~/Desktop/BaiTap5
root@pc1: /
root@pc1:/# route
Kernel IP routing table
Destination Gateway Genmask Flags Metric Ref Use Iface
10.0.0.0 0.0.0.0 255.255.255.0 U 0 0 0 eth0
10.0.1.0 10.0.0.1 255.255.255.0 UG 0 0 0 eth0
10.0.2.0 10.0.0.2 255.255.255.0 UG 0 0 0 eth0
root@pc1:/#
root@pc2: /
root@pc2:/# route
Kernel IP routing table
Destination Gateway Genmask Flags Metric Ref Use Iface
10.0.1.0 0.0.0.0 255.255.255.0 U 0 0 0 eth0
root@pc2:/#
root@pc3: /
root@pc3:/# route
Kernel IP routing table
Destination Gateway Genmask Flags Metric Ref Use Iface
10.0.2.0 0.0.0.0 255.255.255.0 U 0 0 0 eth0
root@pc3:/#


Ubuntu_B2110093 [Running] - Oracle VM VirtualBox
Activities
XTerm
Thg 2 26 22:12
root@router1: /
root@router1:/# route
Kernel IP routing table
Destination Gateway Genmask Flags Metric Ref Use Iface
10.0.0.0 0.0.0.0 255.255.255.0 U 0 0 0 eth0
10.0.1.0 0.0.0.0 255.255.255.0 U 0 0 0 eth1
10.0.2.0 10.0.0.2 255.255.255.0 UG 0 0 0 eth0
root@router1:/#
root@router2: /
root@router2:/# route
Kernel IP routing table
Destination Gateway Genmask Flags Metric Ref Use Iface
10.0.0.0 0.0.0.0 255.255.255.0 U 0 0 0 eth0
10.0.1.0 10.0.0.1 255.255.255.0 UG 0 0 0 eth0
root@router2:/#

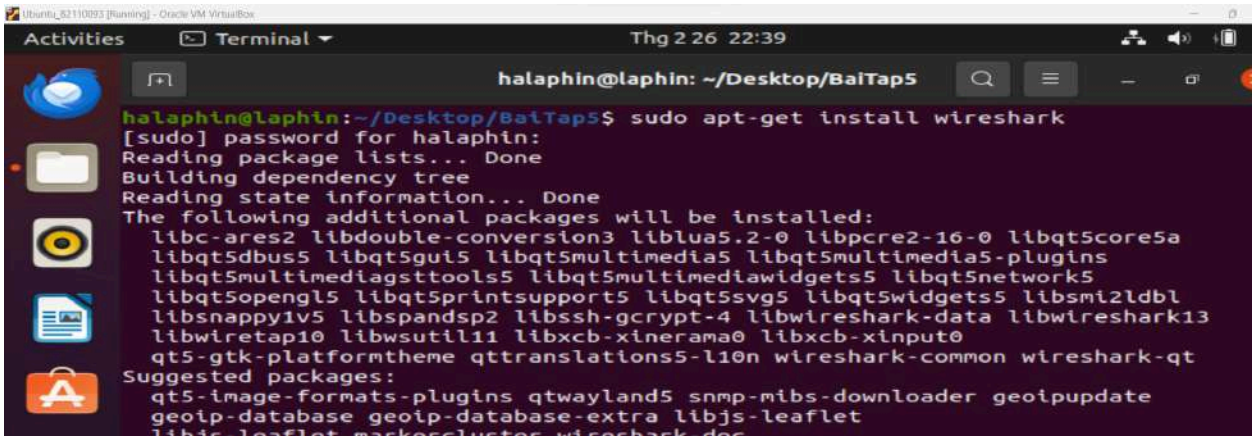


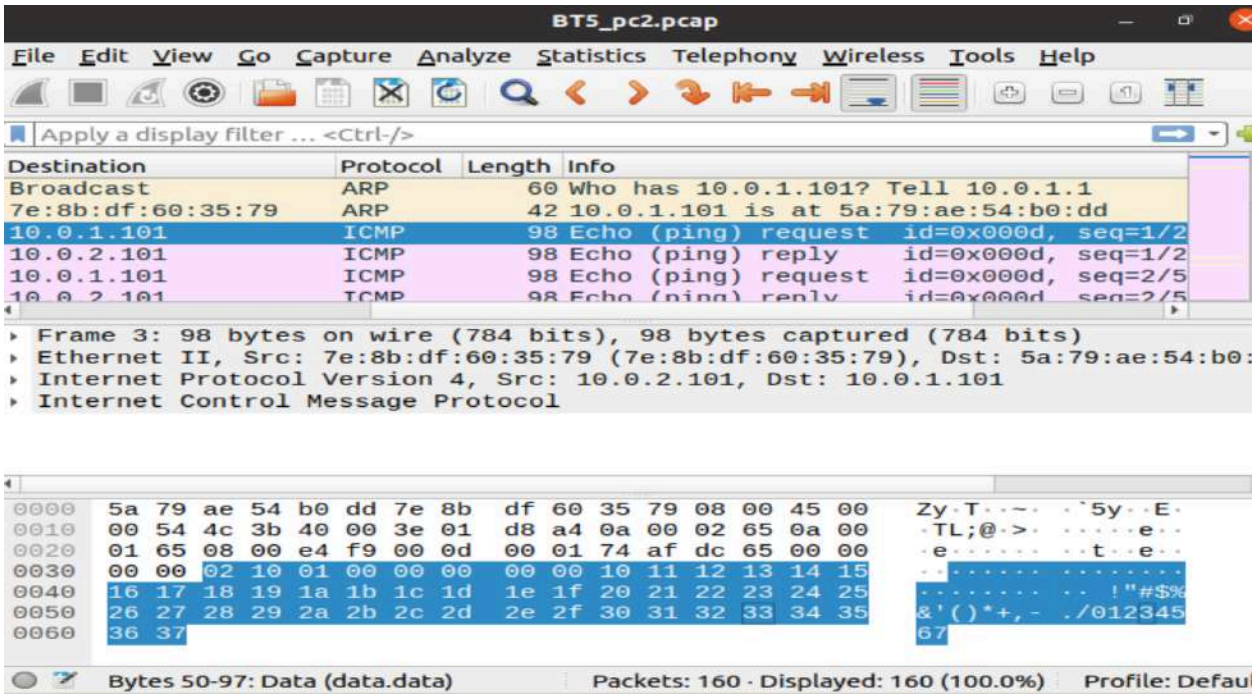
Kiểm tra và không thấy lỗi !



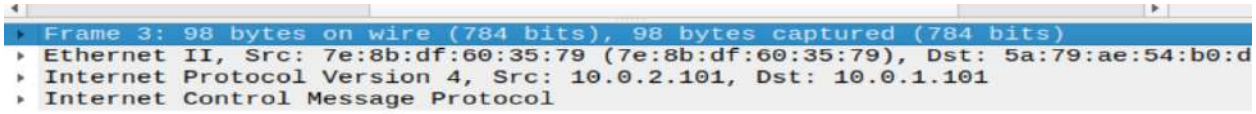


Dowload Wireshark

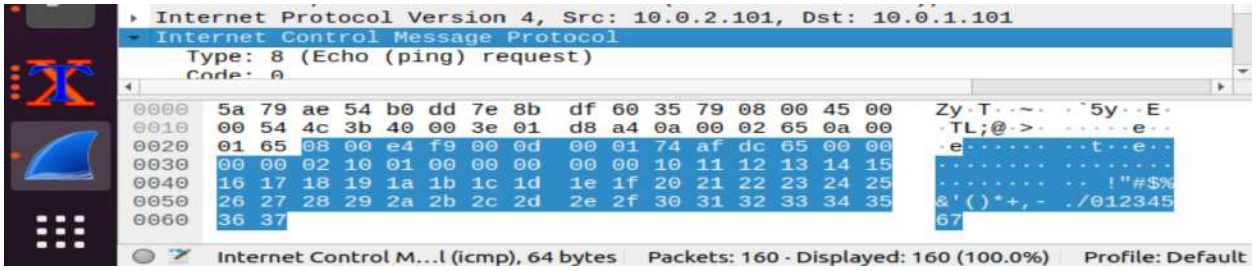


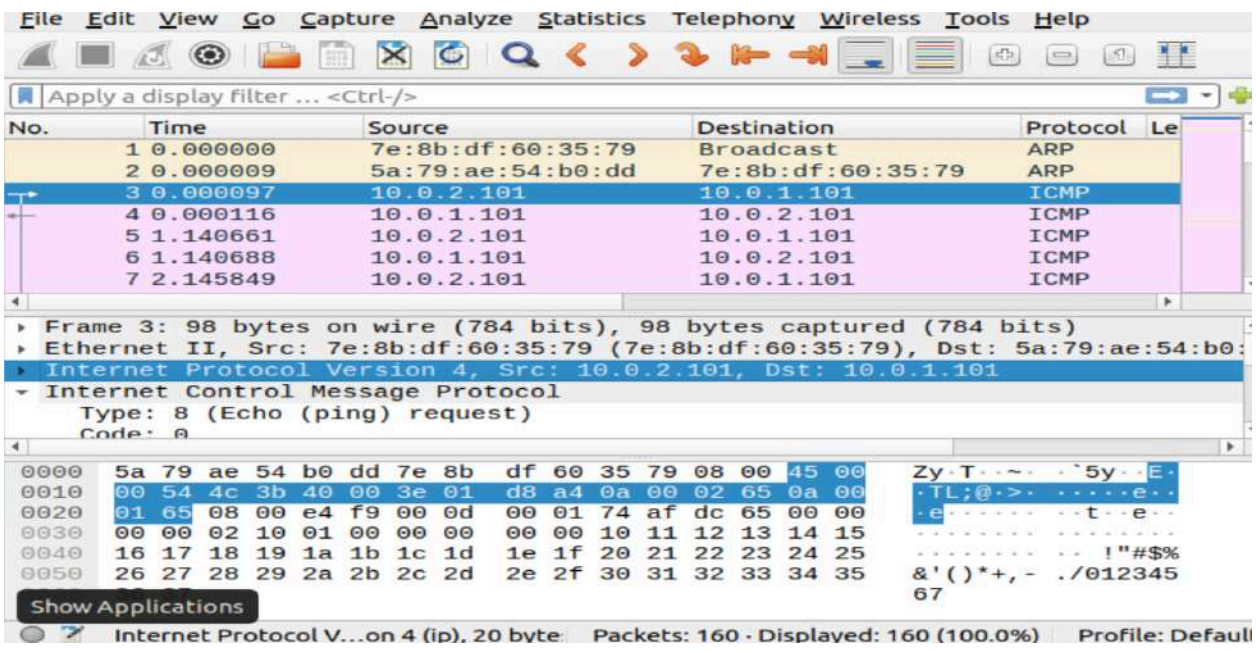


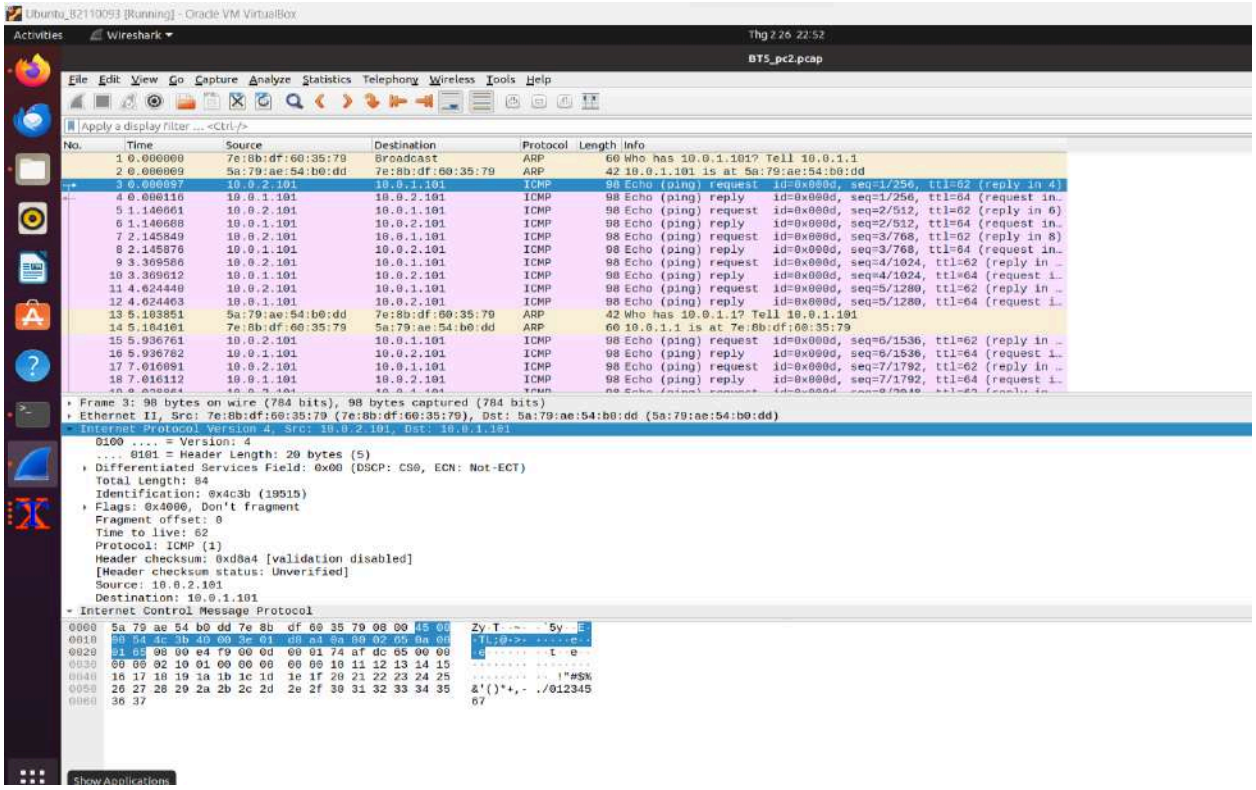
Toàn bộ khung số 3 có kích thước là 98 Bytes



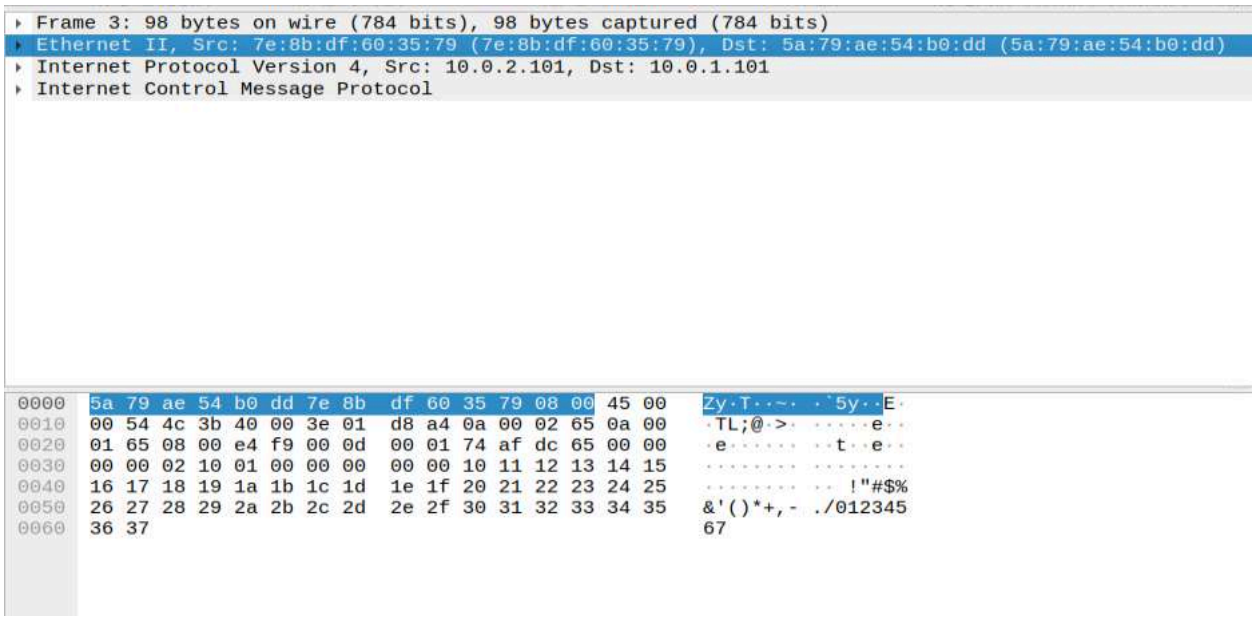
- Header Internet Control Message Protocol:
  - Gói tin sử dụng giao thức ICMP
  - Giao thức này hoạt động trên Network Layer của mô hình OSI
  - Thông điệp có độ dài 48 bytes, nội dung thông điệp là:


Internet Protocol Version 4, Src: 10.0.2.101, Dst: 10.0.1.101
Internet Control Message Protocol
Type: 8 (Echo (ping) request)
Code: 0
0000 5a 79 ae 54 b0 dd 7e 8b df 60 35 79 08 00 45 00
0010 00 54 4c 3b 40 00 3e 01 d8 a4 0a 00 02 65 0a 00
0020 01 65 08 00 e4 f9 00 0d 00 01 74 af dc 65 00 00
0030 00 00 02 10 01 00 00 00 00 00 10 11 12 13 14 15
0040 16 17 18 19 1a 1b 1c 1d 1e 1f 20 21 22 23 24 25
0050 26 27 28 29 2a 2b 2c 2d 2e 2f 30 31 32 33 34 35
0060 36 37
Internet Control M...l (icmp), 64 bytes
Packets: 160 - Displayed: 160 (100.0%)
Profile: Default


File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
Apply a display filter ... <Ctrl-/>
No. Time Source Destination Protocol Le
1 0.000000 7e:8b:df:60:35:79 Broadcast ARP
2 0.000009 5a:79:ae:54:b0:dd 7e:8b:df:60:35:79 ARP
3 0.000097 10.0.2.101 10.0.1.101 ICMP
4 0.000116 10.0.1.101 10.0.2.101 ICMP
5 1.140661 10.0.2.101 10.0.1.101 ICMP
6 1.140688 10.0.1.101 10.0.2.101 ICMP
7 2.145849 10.0.2.101 10.0.1.101 ICMP
Frame 3: 98 bytes on wire (784 bits), 98 bytes captured (784 bits)
Ethernet II, Src: 7e:8b:df:60:35:79 (7e:8b:df:60:35:79), Dst: 5a:79:ae:54:b0:
Internet Protocol Version 4, Src: 10.0.2.101, Dst: 10.0.1.101
Internet Control Message Protocol
Type: 8 (Echo (ping) request)
Code: 0
0000 5a 79 ae 54 b0 dd 7e 8b df 60 35 79 08 00 45 00
0010 00 54 4c 3b 40 00 3e 01 d8 a4 0a 00 02 65 0a 00
0020 01 65 08 00 e4 f9 00 0d 00 01 74 af dc 65 00 00
0030 00 00 02 10 01 00 00 00 00 00 10 11 12 13 14 15
0040 16 17 18 19 1a 1b 1c 1d 1e 1f 20 21 22 23 24 25
0050 26 27 28 29 2a 2b 2c 2d 2e 2f 30 31 32 33 34 35
Show Applications
Internet Protocol V...on 4 (ip), 20 byte
Packets: 160 · Displayed: 160 (100.0%)
Profile: Defaul

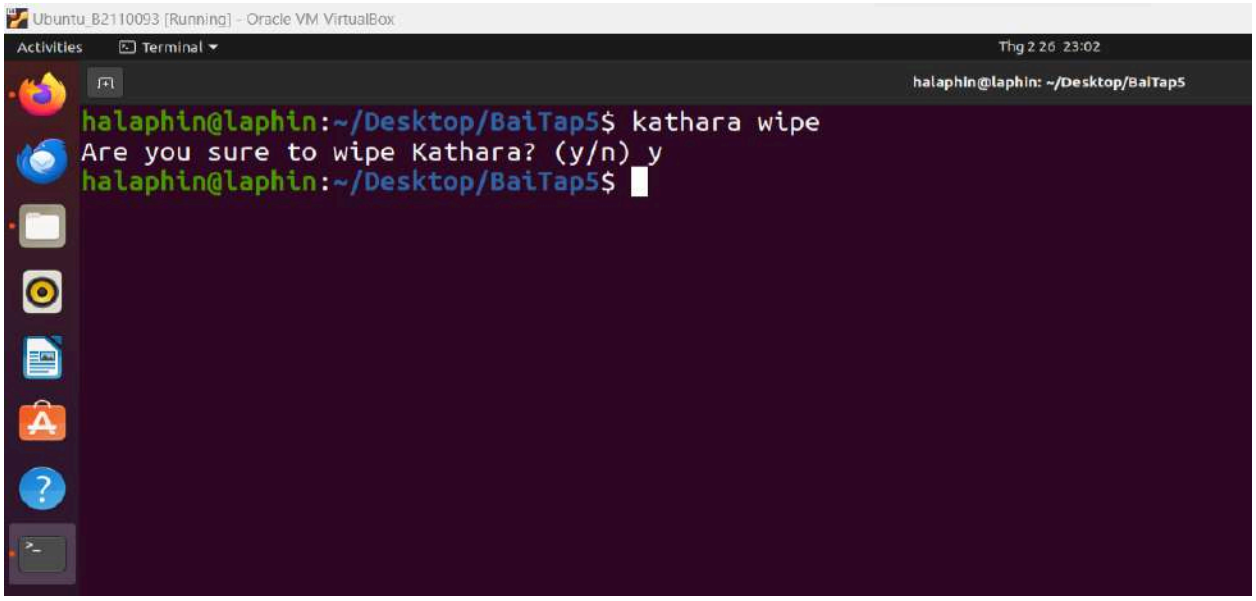

Ubuntu_82110093 [Running] - Oracle VM VirtualBox
Activities
Wireshark
Thg 2 26 22:52
BTS_pc2.pcap
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
Apply a display filter ... <Ctrl-/>
No. Time Source Destination Protocol Length Info
1 0.000000 7e:8b:df:60:35:79 Broadcast ARP 60 Who has 10.0.1.101? Tell 10.0.1.1
2 0.000009 5a:79:ae:54:b0:dd 7e:8b:df:60:35:79 ARP 42 10.0.1.101 is at 5a:79:ae:54:b0:dd
3 0.000097 10.0.2.101 10.0.1.101 ICMP 98 Echo (ping) request id=0x000d, seq=1/256, ttl=62 (reply in 4)
4 0.000116 10.0.1.101 10.0.2.101 ICMP 98 Echo (ping) reply id=0x000d, seq=1/256, ttl=64 (request in…
5 1.140661 10.0.2.101 10.0.1.101 ICMP 98 Echo (ping) request id=0x000d, seq=2/512, ttl=62 (reply in 6)
6 1.140688 10.0.1.101 10.0.2.101 ICMP 98 Echo (ping) reply id=0x000d, seq=2/512, ttl=64 (request in…
7 2.145849 10.0.2.101 10.0.1.101 ICMP 98 Echo (ping) request id=0x000d, seq=3/768, ttl=62 (reply in 8)
8 2.145876 10.0.1.101 10.0.2.101 ICMP 98 Echo (ping) reply id=0x000d, seq=3/768, ttl=64 (request in…
9 3.369586 10.0.2.101 10.0.1.101 ICMP 98 Echo (ping) request id=0x000d, seq=4/1024, ttl=62 (reply in …
10 3.369612 10.0.1.101 10.0.2.101 ICMP 98 Echo (ping) reply id=0x000d, seq=4/1024, ttl=64 (request i…
11 4.624440 10.0.2.101 10.0.1.101 ICMP 98 Echo (ping) request id=0x000d, seq=5/1280, ttl=62 (reply in …
12 4.624463 10.0.1.101 10.0.2.101 ICMP 98 Echo (ping) reply id=0x000d, seq=5/1280, ttl=64 (request i…
13 5.103851 5a:79:ae:54:b0:dd 7e:8b:df:60:35:79 ARP 42 Who has 10.0.1.1? Tell 10.0.1.101
14 5.104101 7e:8b:df:60:35:79 5a:79:ae:54:b0:dd ARP 60 10.0.1.1 is at 7e:8b:df:60:35:79
15 5.936761 10.0.2.101 10.0.1.101 ICMP 98 Echo (ping) request id=0x000d, seq=6/1536, ttl=62 (reply in …
16 5.936782 10.0.1.101 10.0.2.101 ICMP 98 Echo (ping) reply id=0x000d, seq=6/1536, ttl=64 (request i…
17 7.016091 10.0.2.101 10.0.1.101 ICMP 98 Echo (ping) request id=0x000d, seq=7/1792, ttl=62 (reply in …
18 7.016112 10.0.1.101 10.0.2.101 ICMP 98 Echo (ping) reply id=0x000d, seq=7/1792, ttl=64 (request i…
Frame 3: 98 bytes on wire (784 bits), 98 bytes captured (784 bits)
Ethernet II, Src: 7e:8b:df:60:35:79 (7e:8b:df:60:35:79), Dst: 5a:79:ae:54:b0:dd (5a:79:ae:54:b0:dd)
Internet Protocol Version 4, Src: 10.0.2.101, Dst: 10.0.1.101
0100 .... = Version: 4
.... 0101 = Header Length: 20 bytes (5)
Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)
Total Length: 84
Identification: 0x4c3b (19515)
Flags: 0x4000, Don't fragment
Fragment offset: 0
Time to live: 62
Protocol: ICMP (1)
Header checksum: 0xd8a4 [validation disabled]
[Header checksum status: Unverified]
Source: 10.0.2.101
Destination: 10.0.1.101
Internet Control Message Protocol
0000 5a 79 ae 54 b0 dd 7e 8b df 60 35 79 08 00 45 00
0010 00 54 4c 3b 40 00 3e 01 d8 a4 0a 00 02 65 0a 00
0020 01 65 08 00 e4 f9 00 0d 00 01 74 af dc 65 00 00
0030 00 00 02 10 01 00 00 00 00 00 10 11 12 13 14 15
0040 16 17 18 19 1a 1b 1c 1d 1e 1f 20 21 22 23 24 25
0050 26 27 28 29 2a 2b 2c 2d 2e 2f 30 31 32 33 34 35
0060 36 37
Show Applications

- Header Internet Protocol Version 4:
  - IP của máy gửi dữ liệu là 10.0.2.101 của PC3
  - IP của máy nhận dữ liệu là 10.0.1.101 của PC2
  - Định danh ID của gói tin IP này là 0x4c3b. Định danh của 1 gói tin giúp máy nhận dữ liệu có thể xác định từng gói riêng biệt, để ghép chúng lại sau khi tác ra trong quá trình truyền trong mạng
  - Độ dài Header là 20 bytes. Phần Header bao gồm những trường sau:
    - Version (4 bits)
    - Header Length (4 bits)
    - Differentiated Services Field (6 bits)
    - Total Length (16 bits)
    - Identification (16 bits)
    - Flags (3 bits)
    - Time to Live (8 bits)
    - Header Checksum (16 bits)
    - Source Address (32 bits)
    - Destination Address (32 bits)
  - Trường Total Length có độ dài là 84 bytes. Message + Header = 64 + 20 = 84

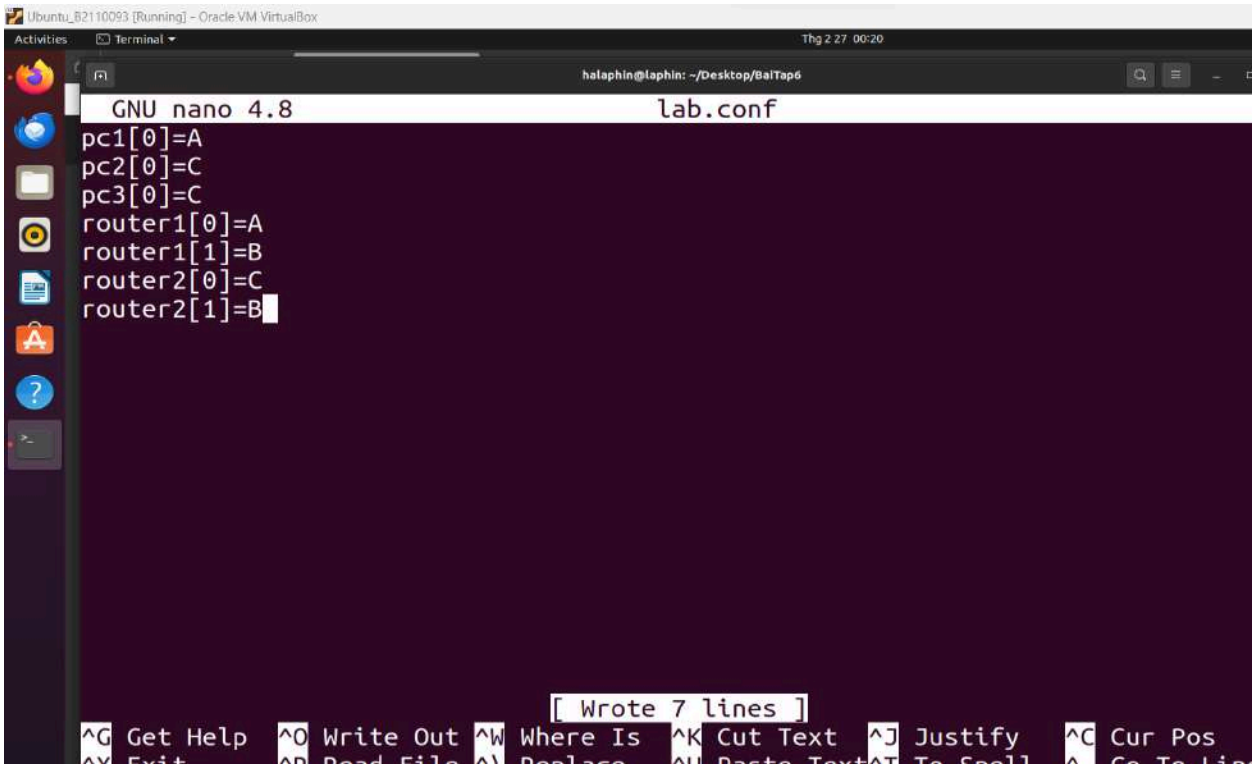


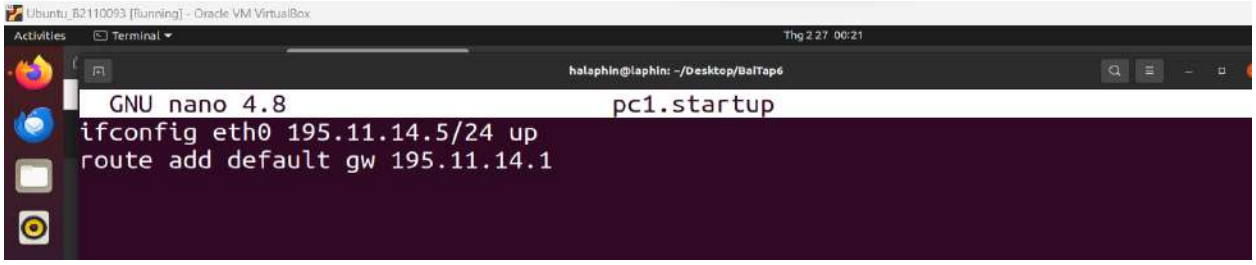
```
▸ Frame 3: 98 bytes on wire (784 bits), 98 bytes captured (784 bits)
▾ Ethernet II, Src: 7e:8b:df:60:35:79 (7e:8b:df:60:35:79), Dst: 5a:79:ae:54:b0:dd (5a:79:ae:54:b0:dd)
  ▸ Destination: 5a:79:ae:54:b0:dd (5a:79:ae:54:b0:dd)
  ▸ Source: 7e:8b:df:60:35:79 (7e:8b:df:60:35:79)
    Type: IPv4 (0x0800)
▸ Internet Protocol Version 4, Src: 10.0.2.101, Dst: 10.0.1.101
▸ Internet Control Message Protocol
```

- Header Ethernet II:
  - Địa chỉ MAC của máy gửi dữ liệu là7e:8b:df:60:35:79, đây là địa chỉ của router1. Vì trong quá trình truyền tải dữ liệu, địa chỉ MAC của tập nguồn tin luôn thay đổi, do mỗi khi qua một router thì sẽ mở gói và đóng gói. Do vậy, địa chỉ MAC nguồn của gói sẽ là địa chỉ MAC cuối cùng mà nó đi qua
  - Địa chỉ MAC của máy nhận dữ liệu là5a:79:aeb0:dd, đây là địa chỉ của pc2
  - Trường type mang giá trị là 0x0800. Thông tin thể hiện là IPv4
  - Payload có chiều dài là 28 bytes

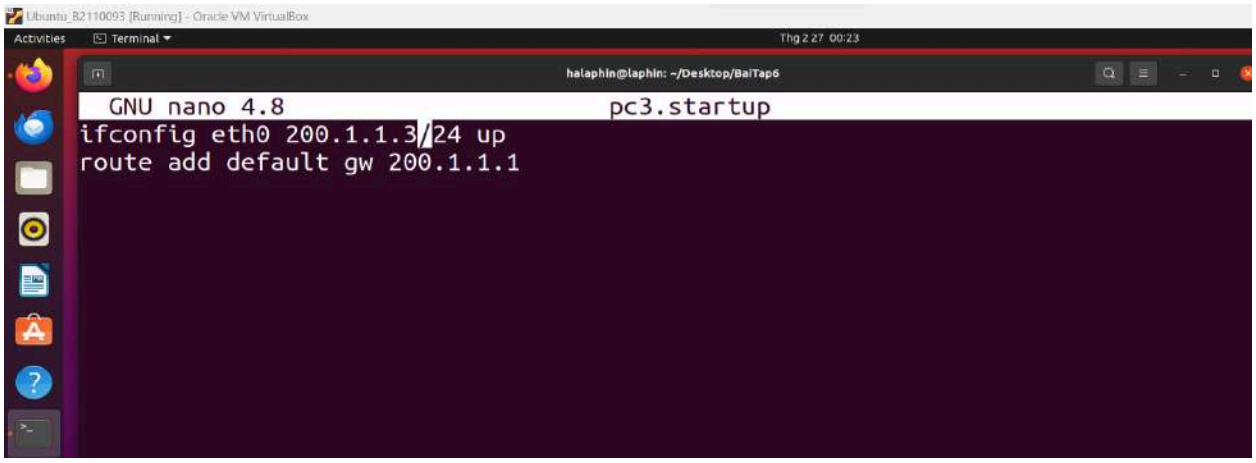


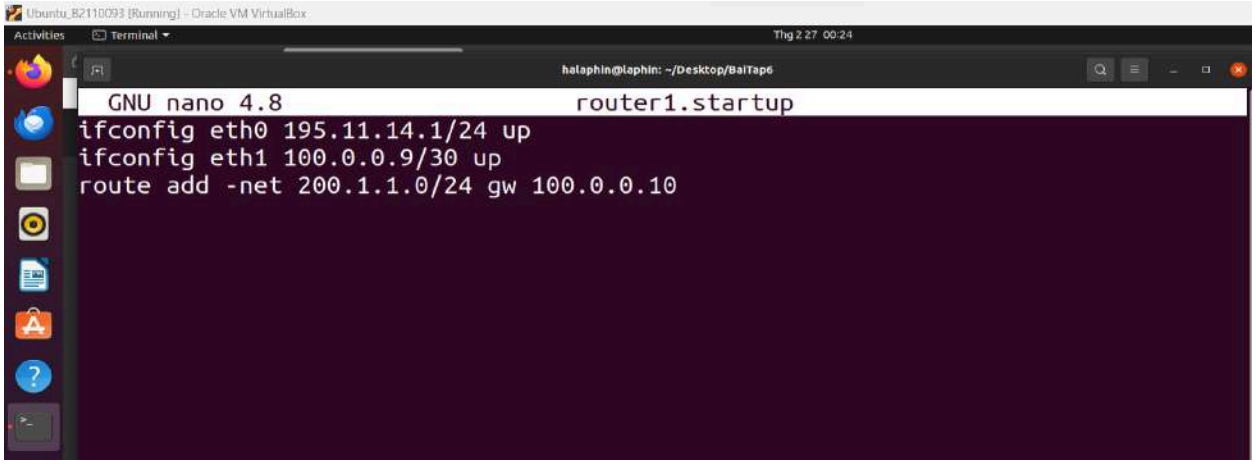
Bài 6 :

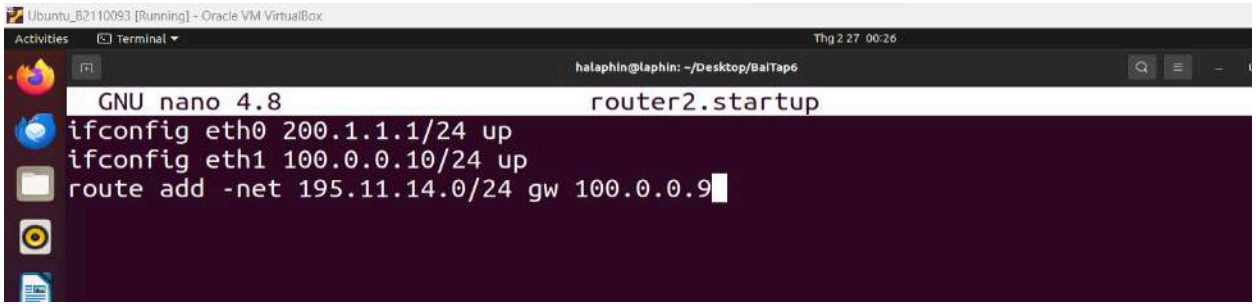

Ubuntu_B2110093 [Running] - Oracle VM VirtualBox
Activities
Terminal
Thg 2 27 00:20
halaphin@laphin: ~/Desktop/BaiTap6
GNU nano 4.8
lab.conf
pc1[0]=A
pc2[0]=C
pc3[0]=C
router1[0]=A
router1[1]=B
router2[0]=C
router2[1]=B
[Wrote 7 lines]
^G Get Help
^O Write Out
^W Where Is
^K Cut Text
^J Justify
^C Cur Pos

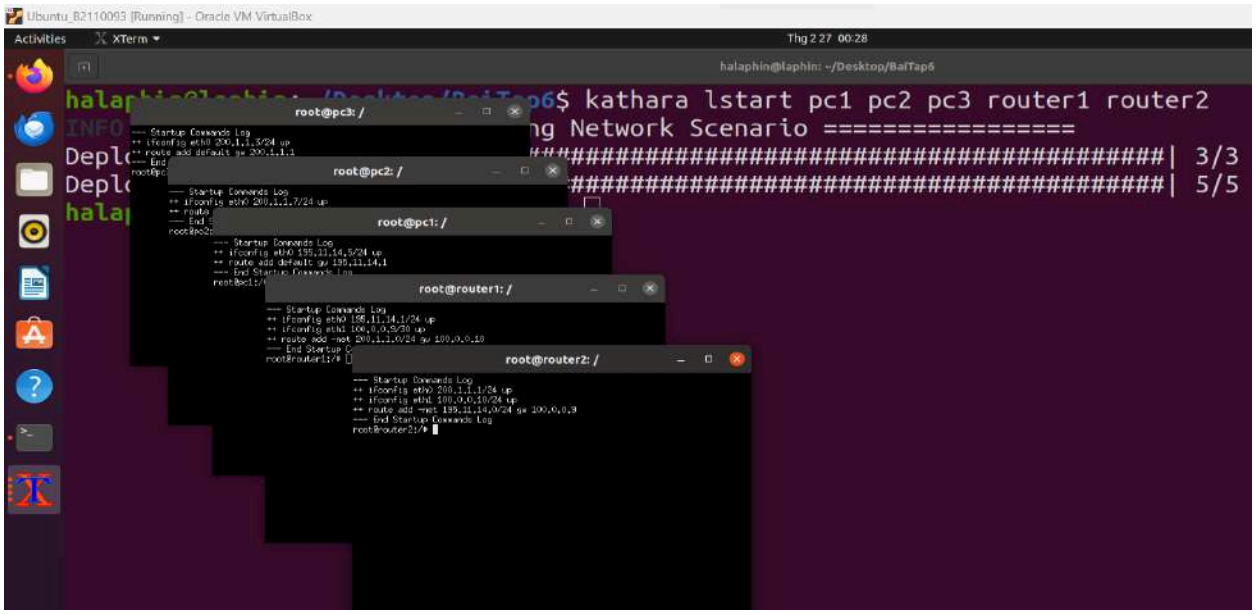

Ubuntu_B2110093 [Running] - Oracle VM VirtualBox
Activities
Terminal
Thg 2 27 00:21
halaphin@laphin: ~/Desktop/BaiTap6
GNU nano 4.8
pc1.startup
ifconfig eth0 195.11.14.5/24 up
route add default gw 195.11.14.1

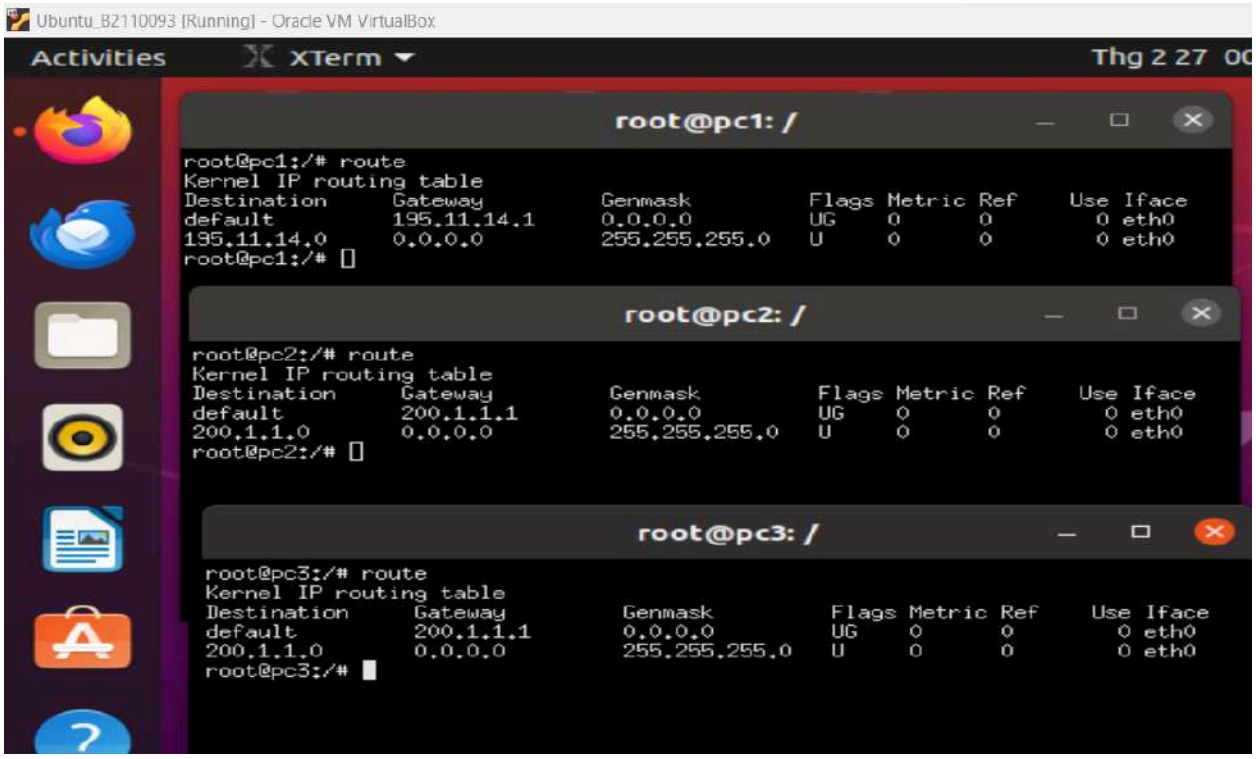

halaphin@laphin: ~/Desktop/BaiTap6
GNU nano 4.8
pc2.startup
ifconfig eth0 200.1.1.7/24 up
route add default gw 200.1.1.1

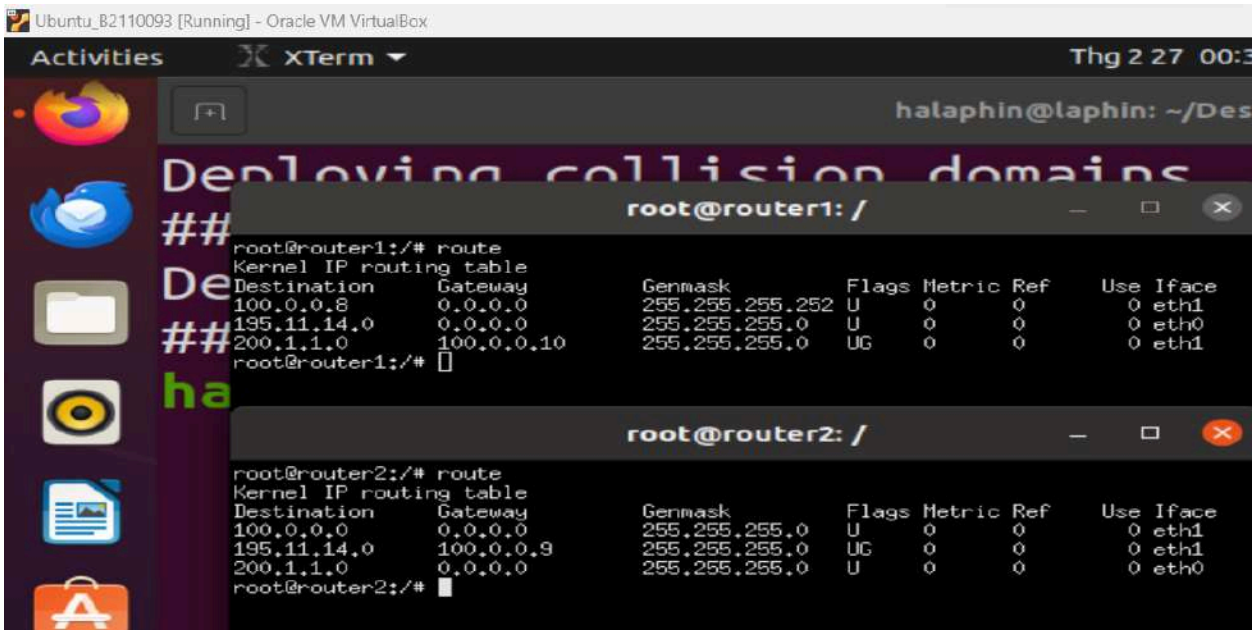

Ubuntu_B2110093 [Running] - Oracle VM VirtualBox
Activities
Terminal
Thg 2 27 00:23
halaphin@laphin: ~/Desktop/BaiTap6
GNU nano 4.8
pc3.startup
ifconfig eth0 200.1.1.3/24 up
route add default gw 200.1.1.1


Ubuntu_B2110093 [Running] - Oracle VM VirtualBox
Activities
Terminal
Thg 2 27 00:24
halaphin@laphin: ~/Desktop/BaiTap6
GNU nano 4.8
router1.startup
ifconfig eth0 195.11.14.1/24 up
ifconfig eth1 100.0.0.9/30 up
route add -net 200.1.1.0/24 gw 100.0.0.10

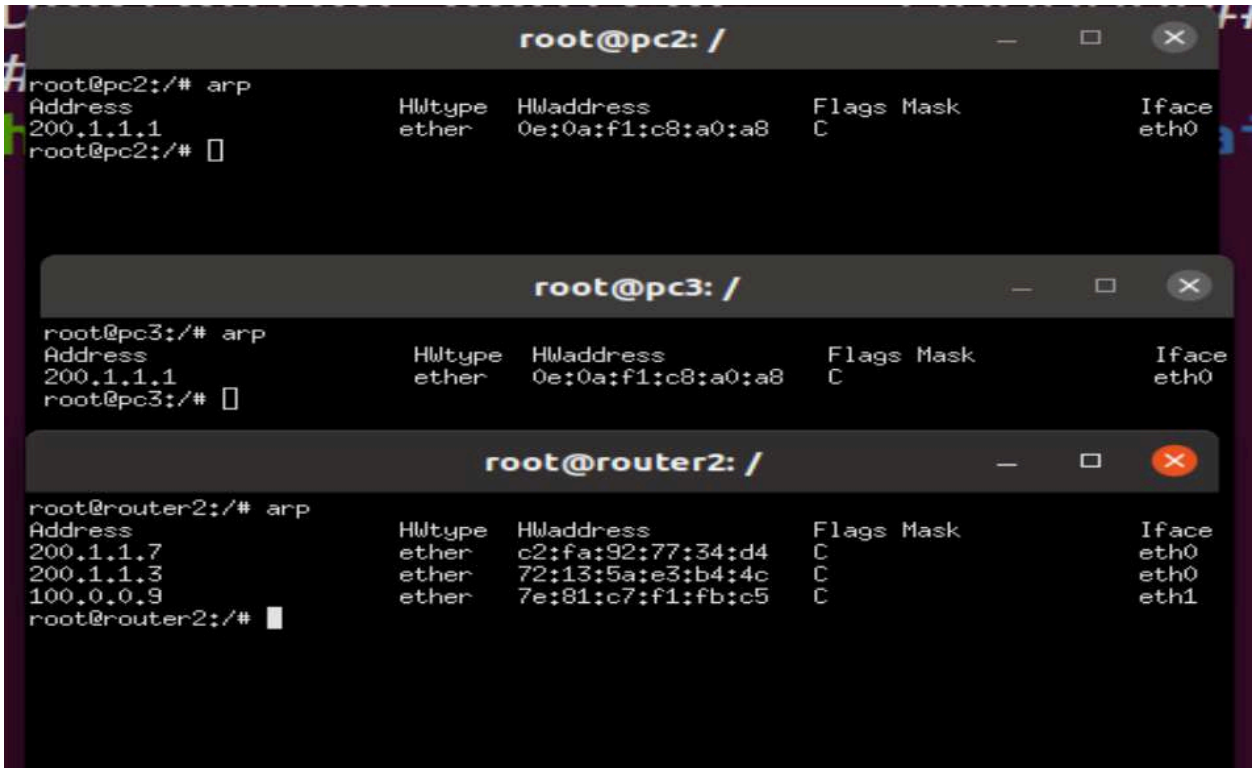

Ubuntu_B2110093 [Running] - Oracle VM VirtualBox
Activities
Terminal
Thg 2 27 00:26
halaphin@laphin: ~/Desktop/BaiTap6
GNU nano 4.8
router2.startup
ifconfig eth0 200.1.1.1/24 up
ifconfig eth1 100.0.0.10/24 up
route add -net 195.11.14.0/24 gw 100.0.0.9

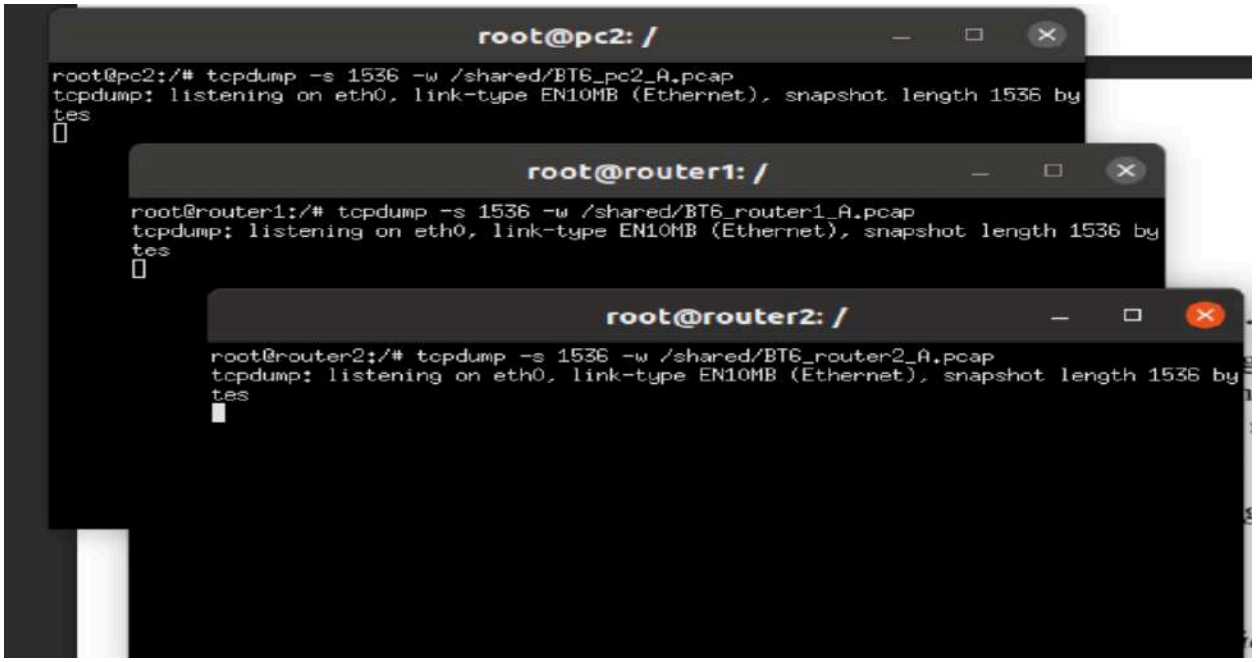

Ubuntu_B2110093 [Running] - Oracle VM VirtualBox
Activities
XTerm
Thg 2 27 00:28
halaphin@laphin: ~/Desktop/BaiTap6
$ kathara lstart pc1 pc2 pc3 router1 router2
Network Scenario
3/3
5/5
root@pc3: /
root@pc2: /
root@pc1: /
root@router1: /
root@router2: /

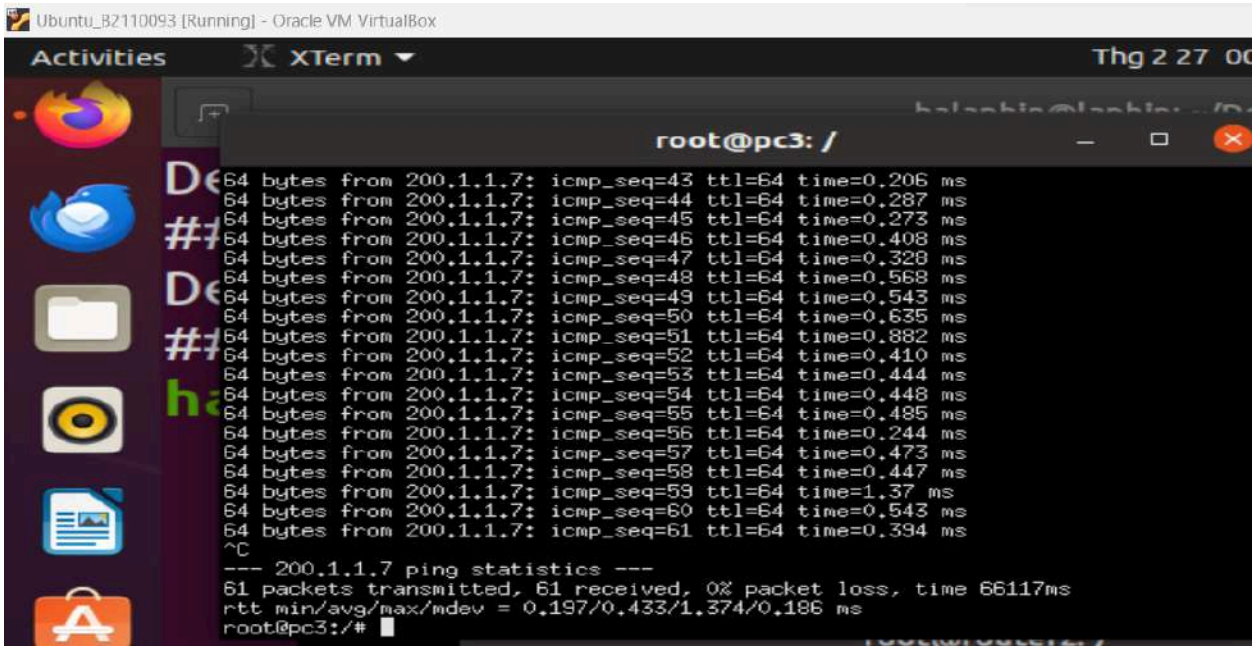

Ubuntu_B2110093 [Running] - Oracle VM VirtualBox
Activities
XTerm
Thg 2 27 00
root@pc1: /
root@pc1:/# route
Kernel IP routing table
Destination Gateway Genmask Flags Metric Ref Use Iface
default 195.11.14.1 0.0.0.0 UG 0 0 0 eth0
195.11.14.0 0.0.0.0 255.255.255.0 U 0 0 0 eth0
root@pc1:/#
root@pc2: /
root@pc2:/# route
Kernel IP routing table
Destination Gateway Genmask Flags Metric Ref Use Iface
default 200.1.1.1 0.0.0.0 UG 0 0 0 eth0
200.1.1.0 0.0.0.0 255.255.255.0 U 0 0 0 eth0
root@pc2:/#
root@pc3: /
root@pc3:/# route
Kernel IP routing table
Destination Gateway Genmask Flags Metric Ref Use Iface
default 200.1.1.1 0.0.0.0 UG 0 0 0 eth0
200.1.1.0 0.0.0.0 255.255.255.0 U 0 0 0 eth0
root@pc3:/#

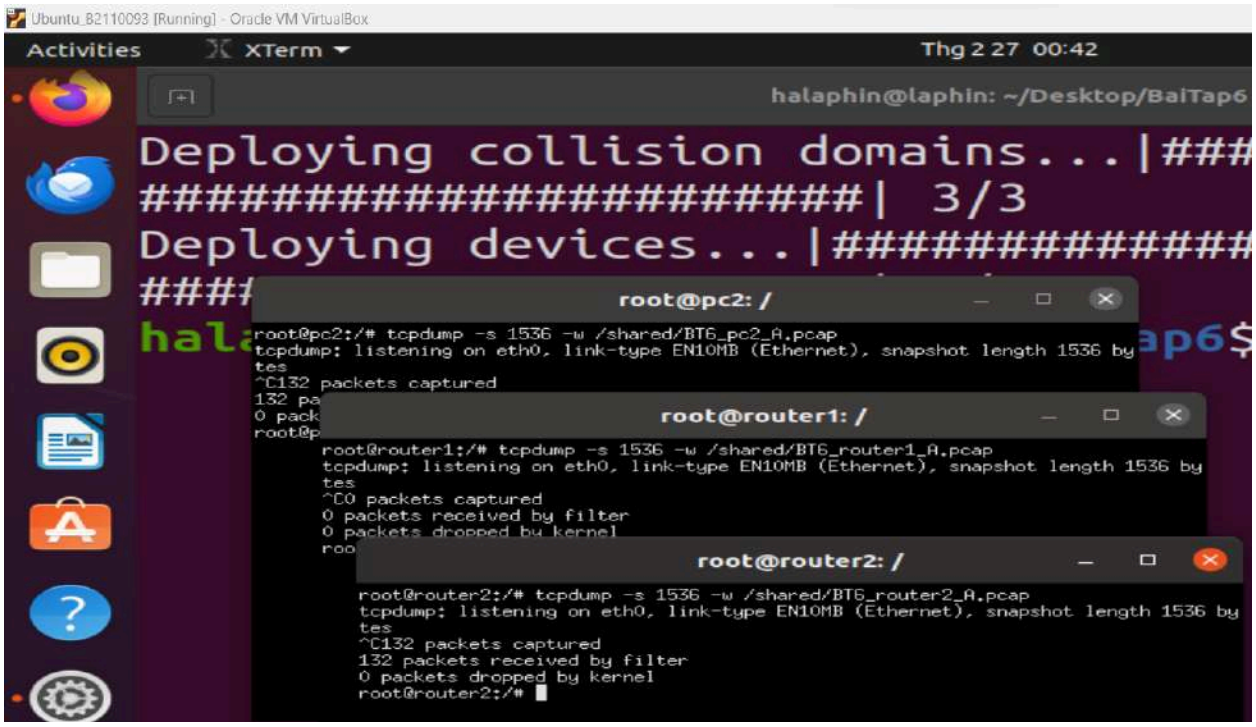


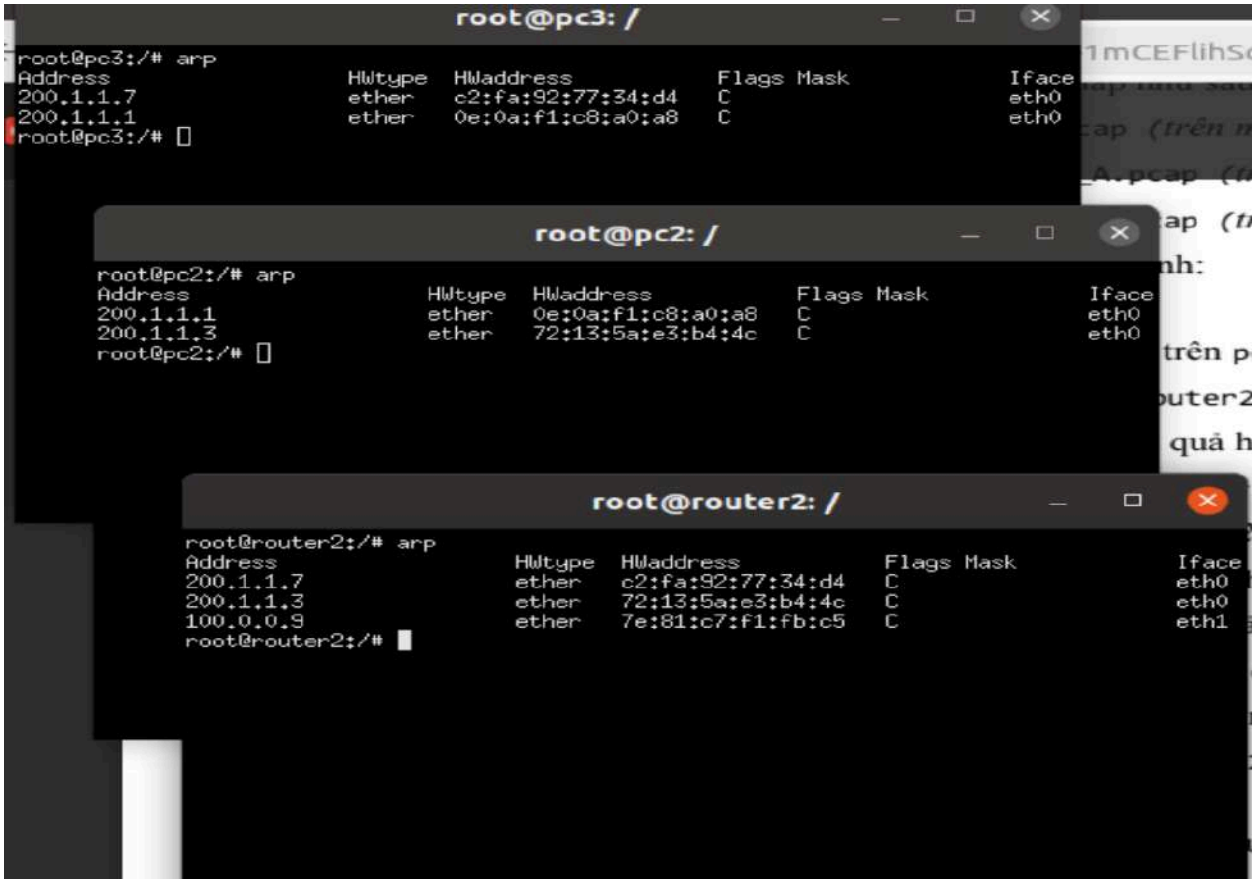
Giao thức ARP giữa 2 thiết bị trong cùng nhánh mạng LAN C:



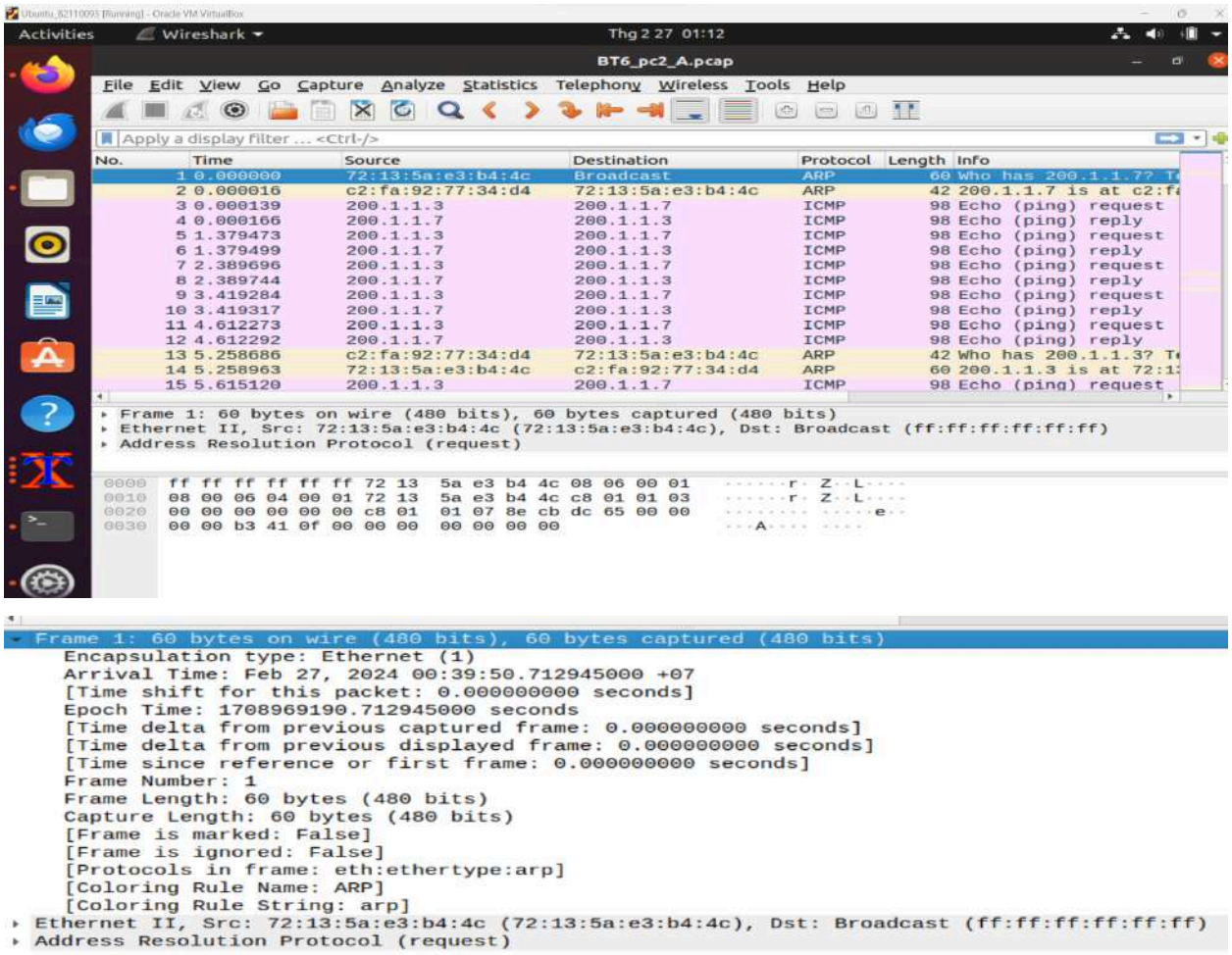

root@pc2: /
root@pc2:/# tcpdump -s 1536 -w /shared/BT6_pc2_A.pcap
tcpdump: listening on eth0, link-type EN10MB (Ethernet), snapshot length 1536 by
tes
root@router1: /
root@router1:/# tcpdump -s 1536 -w /shared/BT6_router1_A.pcap
tcpdump: listening on eth0, link-type EN10MB (Ethernet), snapshot length 1536 by
tes
root@router2: /
root@router2:/# tcpdump -s 1536 -w /shared/BT6_router2_A.pcap
tcpdump: listening on eth0, link-type EN10MB (Ethernet), snapshot length 1536 by
tes


Ubuntu_B2110093 [Running] - Oracle VM VirtualBox
Activities
XTerm
Thg 2 27
root@pc3: /
64 bytes from 200.1.1.7: icmp_seq=43 ttl=64 time=0.206 ms
64 bytes from 200.1.1.7: icmp_seq=44 ttl=64 time=0.287 ms
64 bytes from 200.1.1.7: icmp_seq=45 ttl=64 time=0.273 ms
64 bytes from 200.1.1.7: icmp_seq=46 ttl=64 time=0.408 ms
64 bytes from 200.1.1.7: icmp_seq=47 ttl=64 time=0.328 ms
64 bytes from 200.1.1.7: icmp_seq=48 ttl=64 time=0.568 ms
64 bytes from 200.1.1.7: icmp_seq=49 ttl=64 time=0.543 ms
64 bytes from 200.1.1.7: icmp_seq=50 ttl=64 time=0.635 ms
64 bytes from 200.1.1.7: icmp_seq=51 ttl=64 time=0.882 ms
64 bytes from 200.1.1.7: icmp_seq=52 ttl=64 time=0.410 ms
64 bytes from 200.1.1.7: icmp_seq=53 ttl=64 time=0.444 ms
64 bytes from 200.1.1.7: icmp_seq=54 ttl=64 time=0.448 ms
64 bytes from 200.1.1.7: icmp_seq=55 ttl=64 time=0.485 ms
64 bytes from 200.1.1.7: icmp_seq=56 ttl=64 time=0.244 ms
64 bytes from 200.1.1.7: icmp_seq=57 ttl=64 time=0.473 ms
64 bytes from 200.1.1.7: icmp_seq=58 ttl=64 time=0.447 ms
64 bytes from 200.1.1.7: icmp_seq=59 ttl=64 time=1.37 ms
64 bytes from 200.1.1.7: icmp_seq=60 ttl=64 time=0.543 ms
64 bytes from 200.1.1.7: icmp_seq=61 ttl=64 time=0.394 ms
^C
--- 200.1.1.7 ping statistics ---
61 packets transmitted, 61 received, 0% packet loss, time 66117ms
rtt min/avg/max/mdev = 0.197/0.433/1.374/0.186 ms
root@pc3:/#

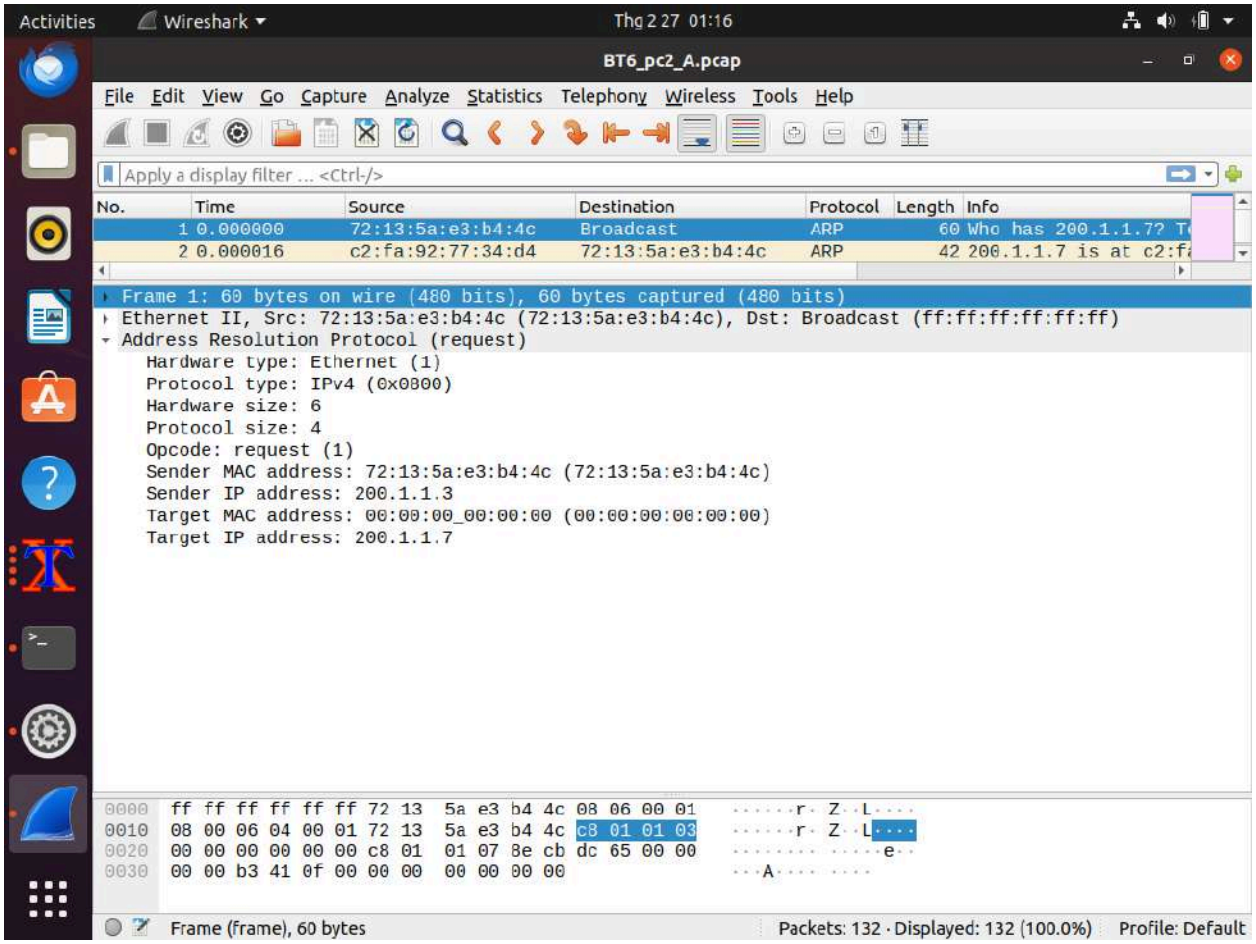




- pc3 có thông tin địa chỉ mạng của pc2 và pc2 có thông tin địa chỉ mạng của pc3, router2 thì không thay đổi

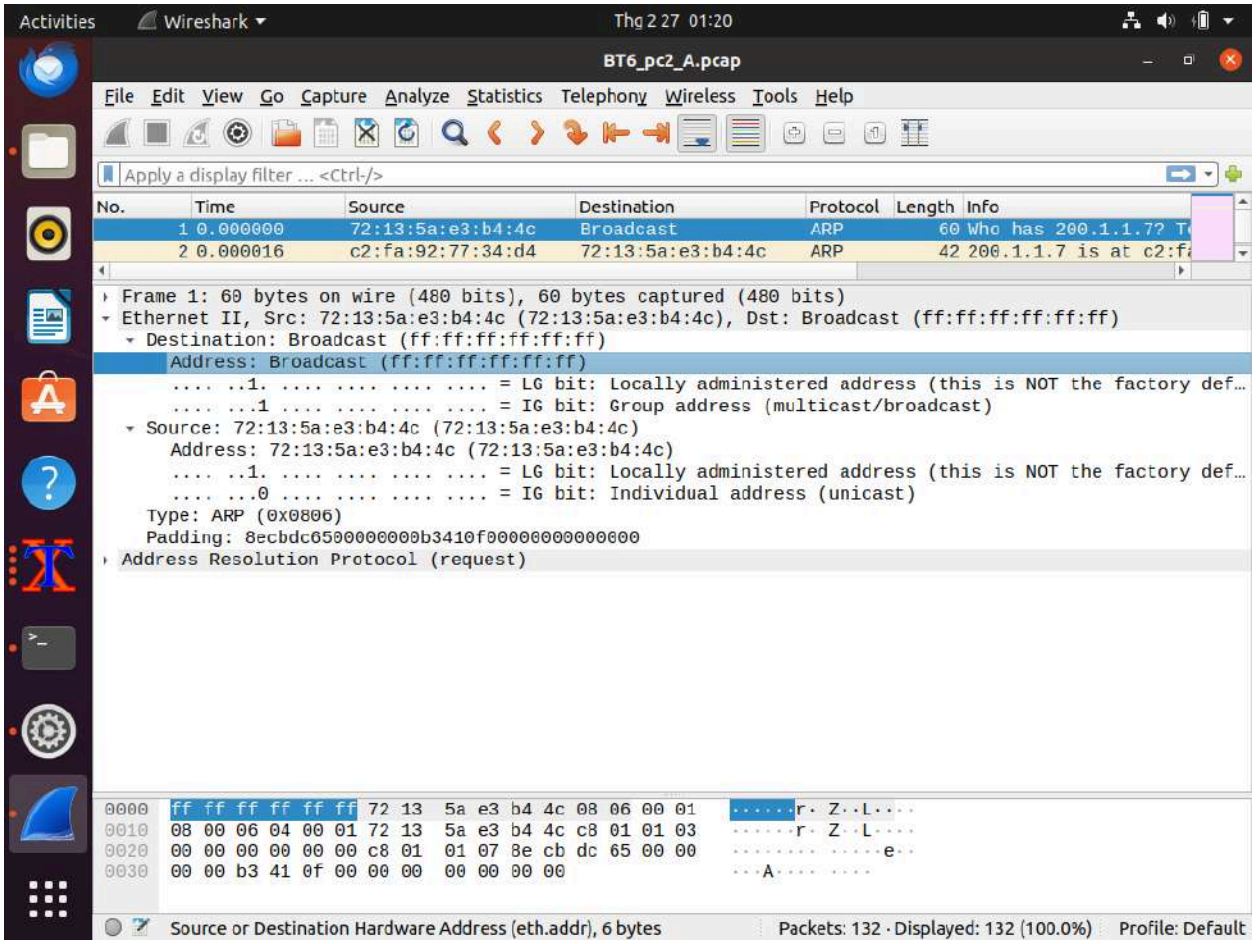


- Frame 1 có kích thước 60 bytes



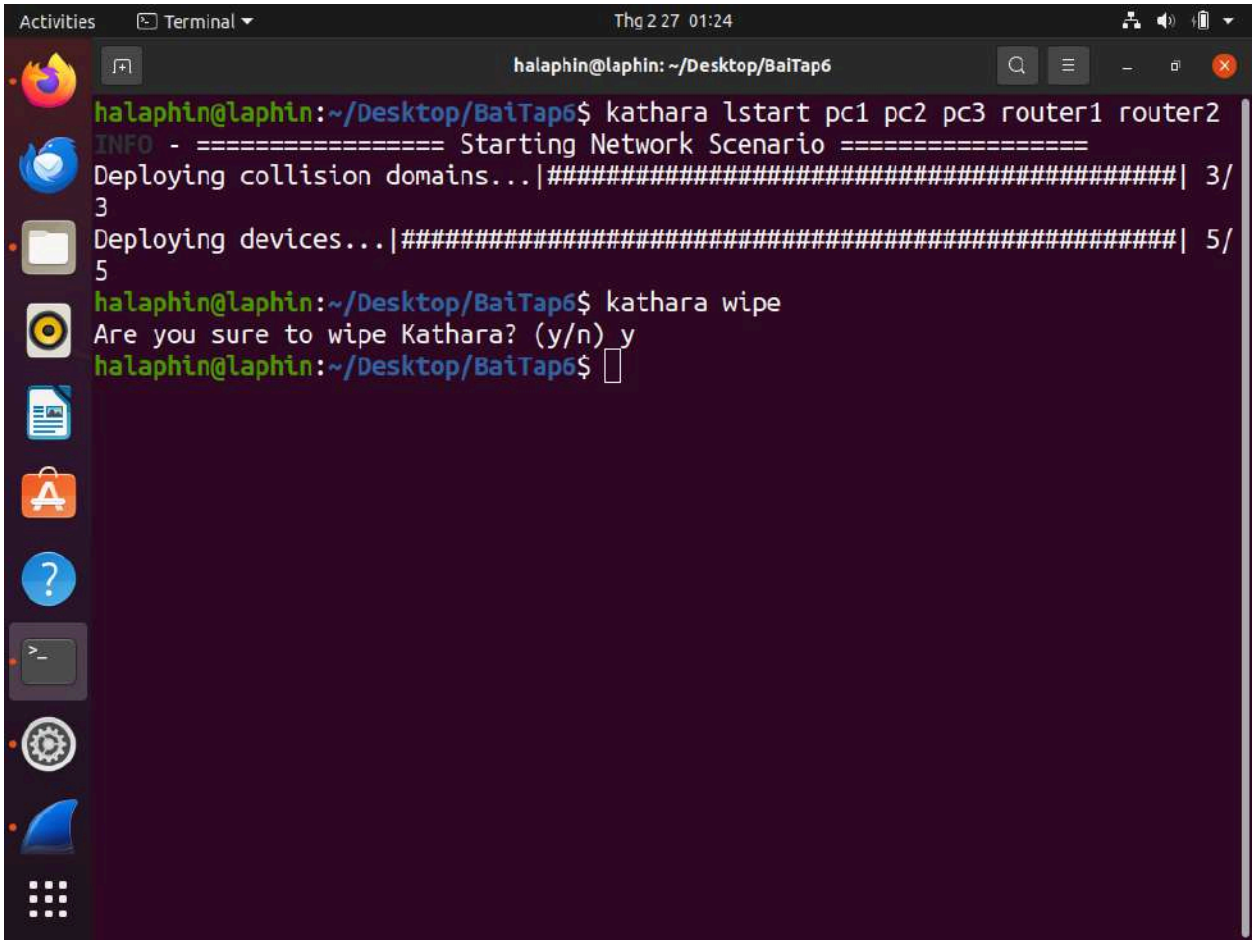
1. Trường Opcode có giá trị là 0x0001 thể hiện thông tin request, và còn có giá trị là 0x0002 thể hiện thông tin reply
2. Địa chỉ IP của máy gửi dữ liệu là 200.1.1.3 và địa chỉ MAC là 72:13:5a:e3:b4:4c
3. Địa chỉ IP của máy gửi dữ liệu là 200.1.1.7 và không có địa chỉ MAC

Chọn khung Ethenet II :

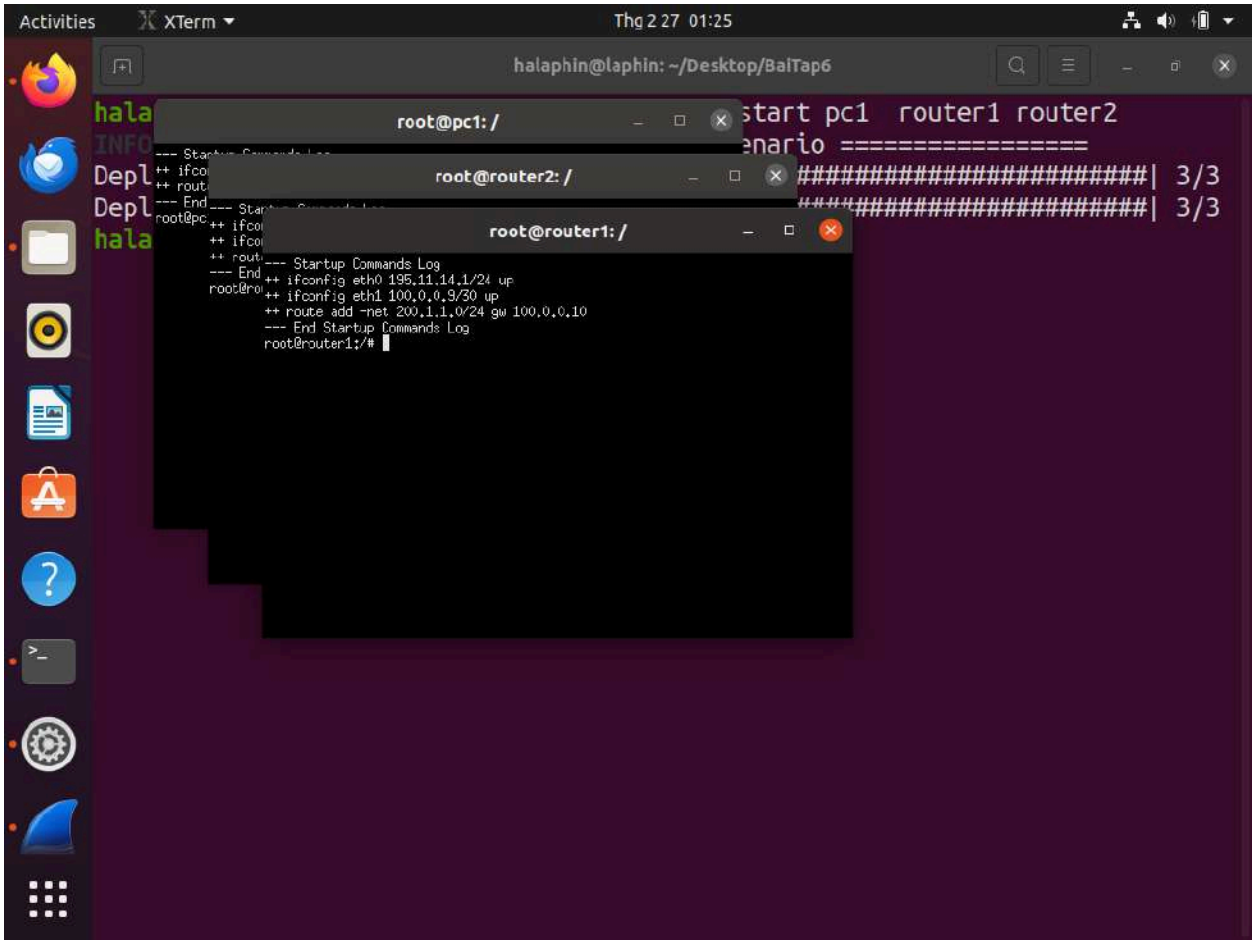


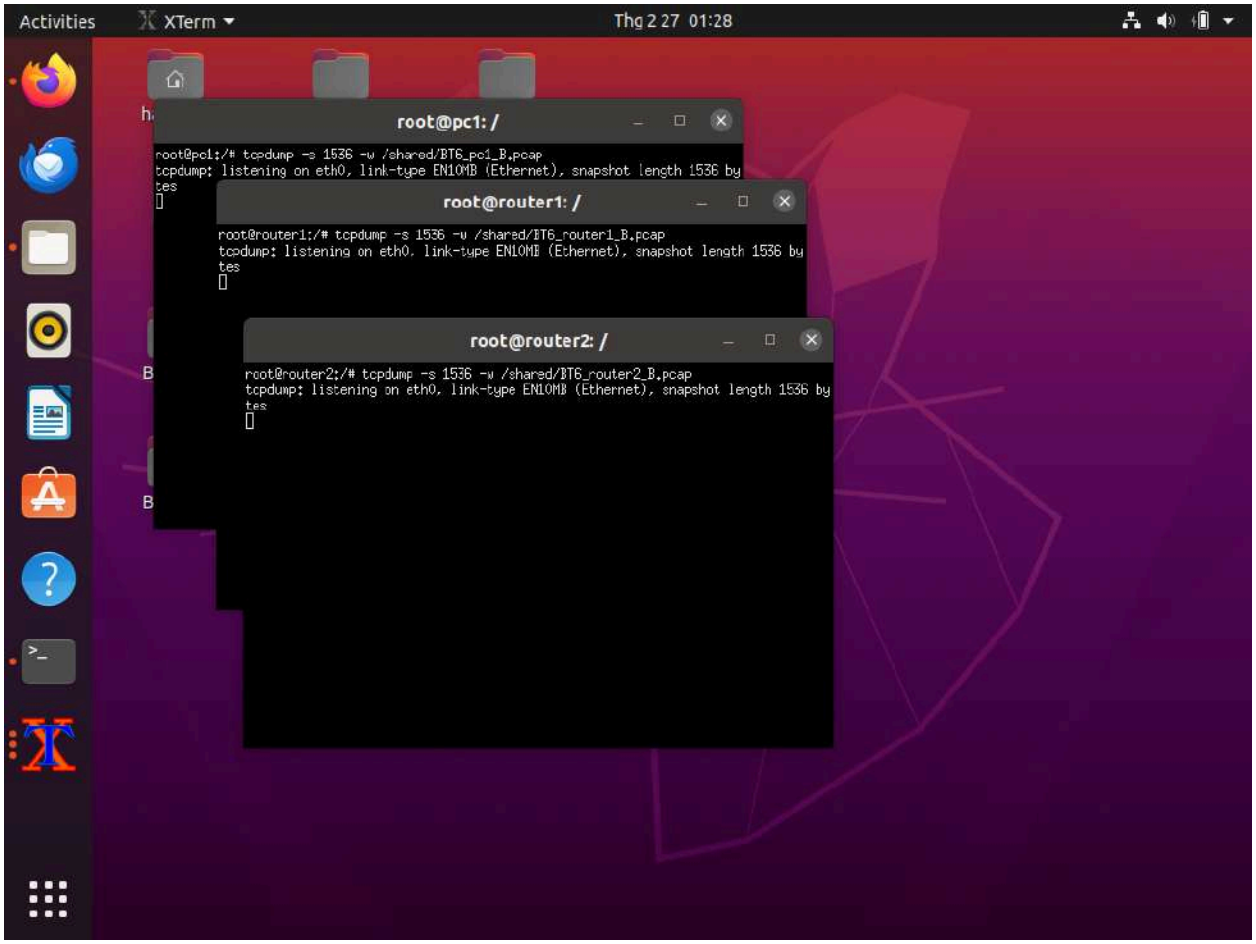
1. Địa chỉ MAC của máy gửi dữ liệu là 72:13:5a:e3:b4:4c, đây là địa chỉ của pc3
2. Địa chỉ MAC của máy nhận dữ liệu là ff:ff:ff:ff:ff:ff, địa chỉ MAC không ở thiết bị nào
3. Trường Type có giá trị là 0x8606, thể hiện là giao thức là ARP

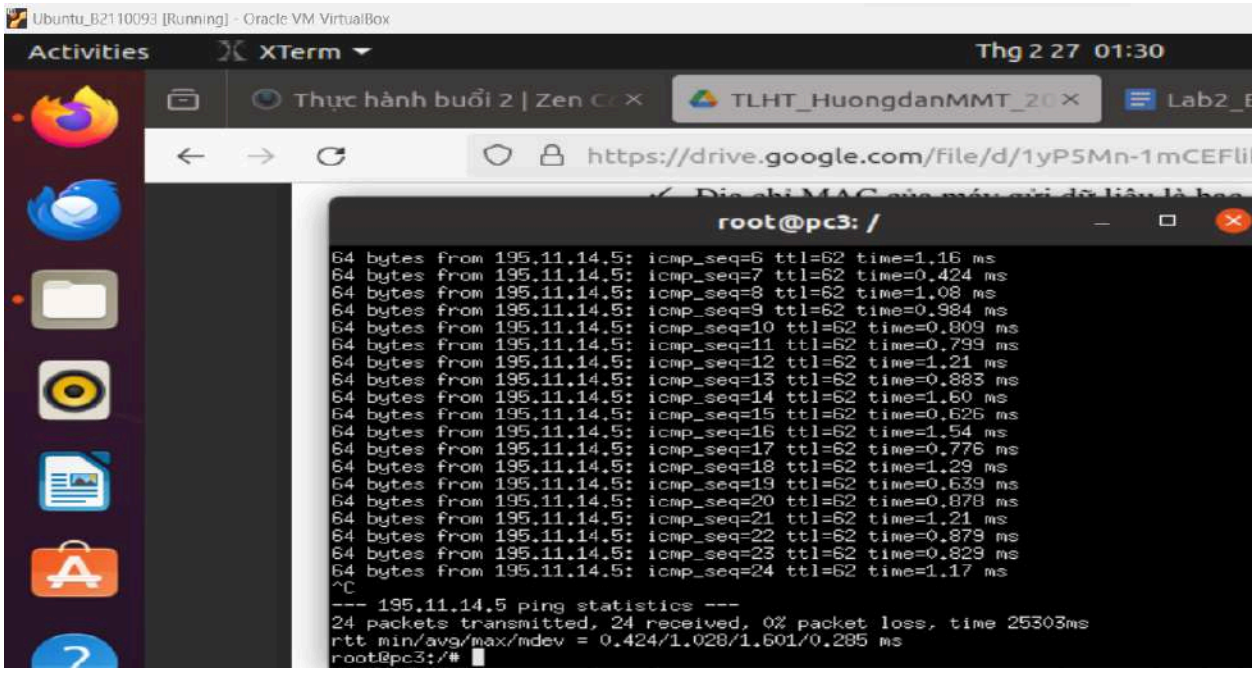
Hủy mạng ảo bằng lệnh lwipe sau khi đã thực hiện xong phần 2.3.2.1

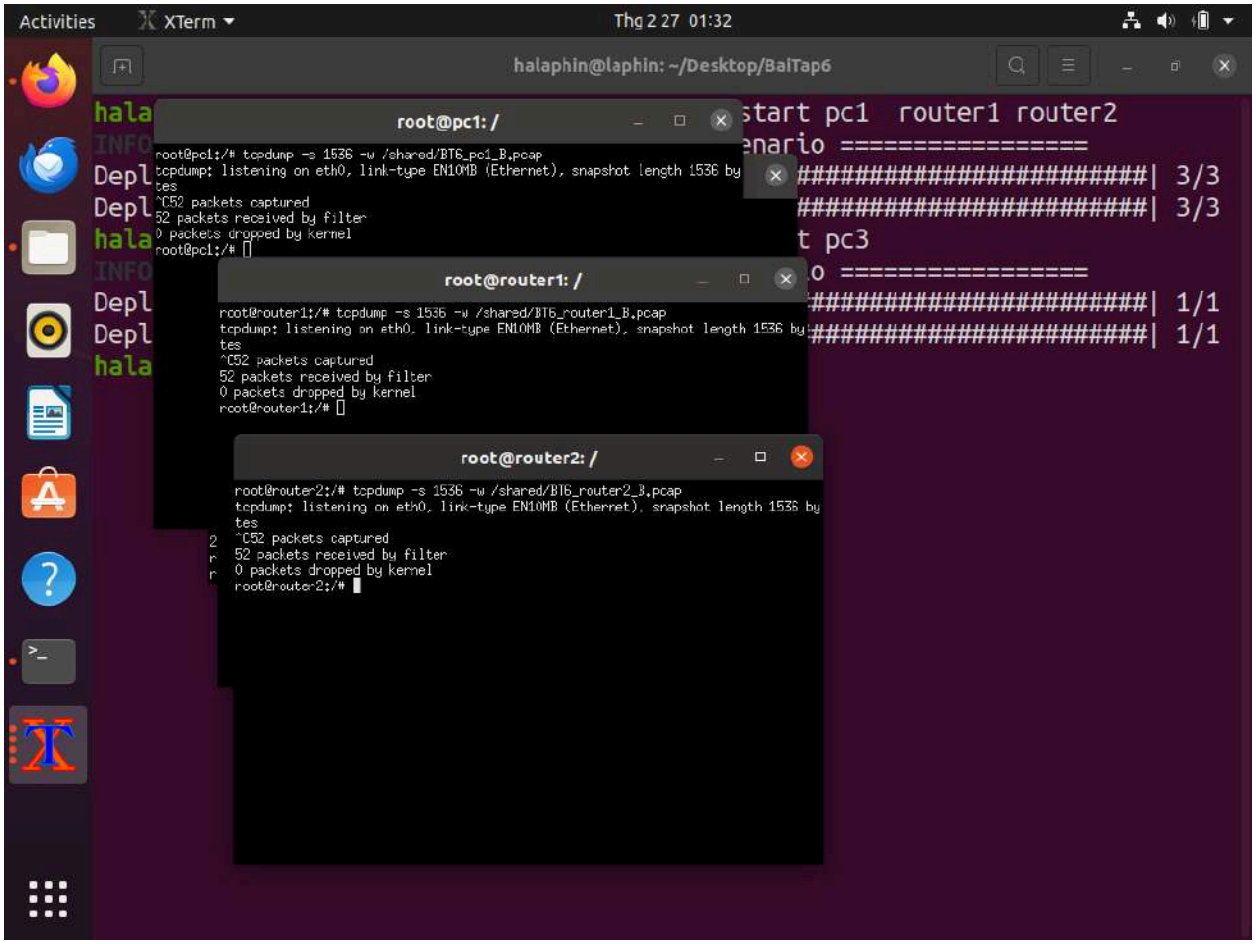


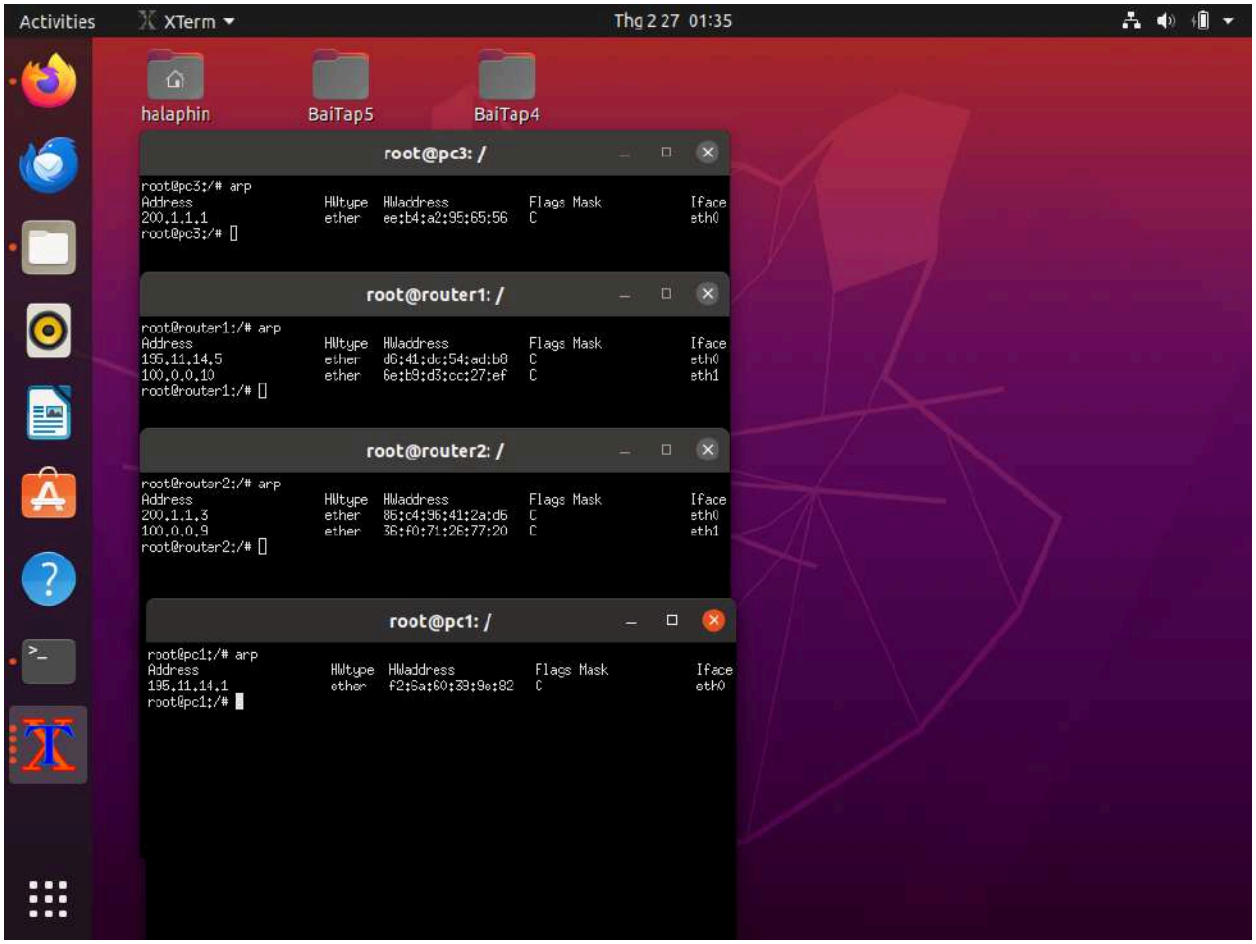
2.3.2.2. Giao thức ARP giữa 2 thiết bị khác nhánh mạng LAN


Activities
XTerm
Thg 2 27 01:25
halaphin@laphin: ~/Desktop/BaiTap6
root@pc1: /
root@router2: /
root@router1: /
--- Startup Commands Log
++ ifconfig eth0 195.11.14.1/24 up
++ ifconfig eth1 100.0.0.9/30 up
++ route add -net 200.1.1.0/24 gw 100.0.0.10
--- End Startup Commands Log
root@router1:/#

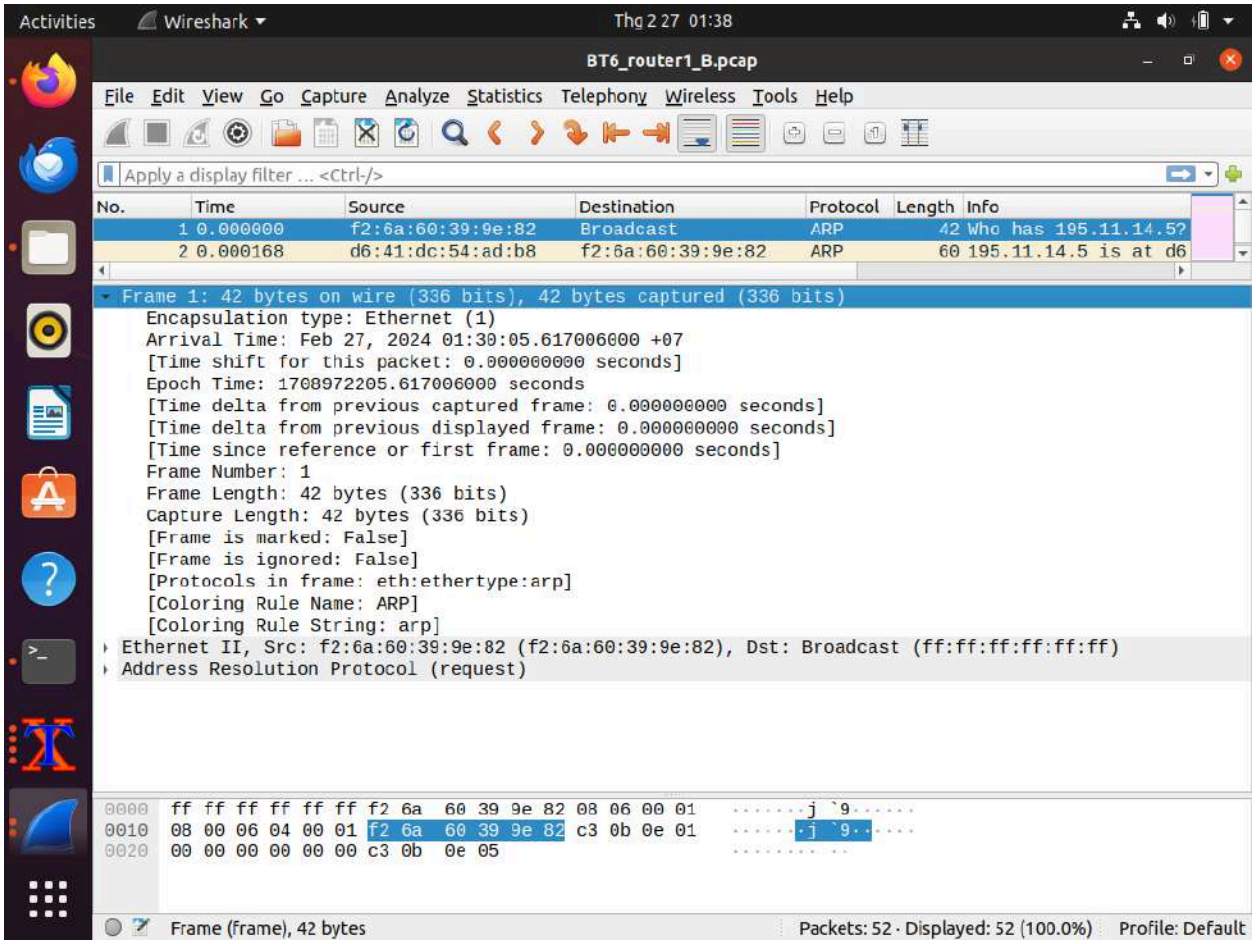

Activities
XTerm
Thg 2 27 01:28
root@pc1: /
root@pc1:/# tcpdump -s 1536 -w /shared/BT6_pc1_B.pcap
tcpdump: listening on eth0, link-type EN10MB (Ethernet), snapshot length 1536 by
tes
root@router1: /
root@router1:/# tcpdump -s 1536 -w /shared/BT6_router1_B.pcap
tcpdump: listening on eth0, link-type EN10MB (Ethernet), snapshot length 1536 by
tes
root@router2: /
root@router2:/# tcpdump -s 1536 -w /shared/BT6_router2_B.pcap
tcpdump: listening on eth0, link-type EN10MB (Ethernet), snapshot length 1536 by
tes


Ubuntu_B2110093 [Running] - Oracle VM VirtualBox
Activities
XTerm
Thg 2 27 01:30
Thực hành buổi 2 | Zen
TLHT_HuongdanMMT_2
Lab2_B
https://drive.google.com/file/d/1yP5Mn-1mCEFli
root@pc3: /
64 bytes from 195.11.14.5: icmp_seq=6 ttl=62 time=1.16 ms
64 bytes from 195.11.14.5: icmp_seq=7 ttl=62 time=0.424 ms
64 bytes from 195.11.14.5: icmp_seq=8 ttl=62 time=1.08 ms
64 bytes from 195.11.14.5: icmp_seq=9 ttl=62 time=0.984 ms
64 bytes from 195.11.14.5: icmp_seq=10 ttl=62 time=0.809 ms
64 bytes from 195.11.14.5: icmp_seq=11 ttl=62 time=0.799 ms
64 bytes from 195.11.14.5: icmp_seq=12 ttl=62 time=1.21 ms
64 bytes from 195.11.14.5: icmp_seq=13 ttl=62 time=0.883 ms
64 bytes from 195.11.14.5: icmp_seq=14 ttl=62 time=1.60 ms
64 bytes from 195.11.14.5: icmp_seq=15 ttl=62 time=0.626 ms
64 bytes from 195.11.14.5: icmp_seq=16 ttl=62 time=1.54 ms
64 bytes from 195.11.14.5: icmp_seq=17 ttl=62 time=0.776 ms
64 bytes from 195.11.14.5: icmp_seq=18 ttl=62 time=1.29 ms
64 bytes from 195.11.14.5: icmp_seq=19 ttl=62 time=0.639 ms
64 bytes from 195.11.14.5: icmp_seq=20 ttl=62 time=0.878 ms
64 bytes from 195.11.14.5: icmp_seq=21 ttl=62 time=1.21 ms
64 bytes from 195.11.14.5: icmp_seq=22 ttl=62 time=0.879 ms
64 bytes from 195.11.14.5: icmp_seq=23 ttl=62 time=0.829 ms
64 bytes from 195.11.14.5: icmp_seq=24 ttl=62 time=1.17 ms
^C
--- 195.11.14.5 ping statistics ---
24 packets transmitted, 24 received, 0% packet loss, time 25303ms
rtt min/avg/max/mdev = 0.424/1.028/1.601/0.285 ms
root@pc3:/#

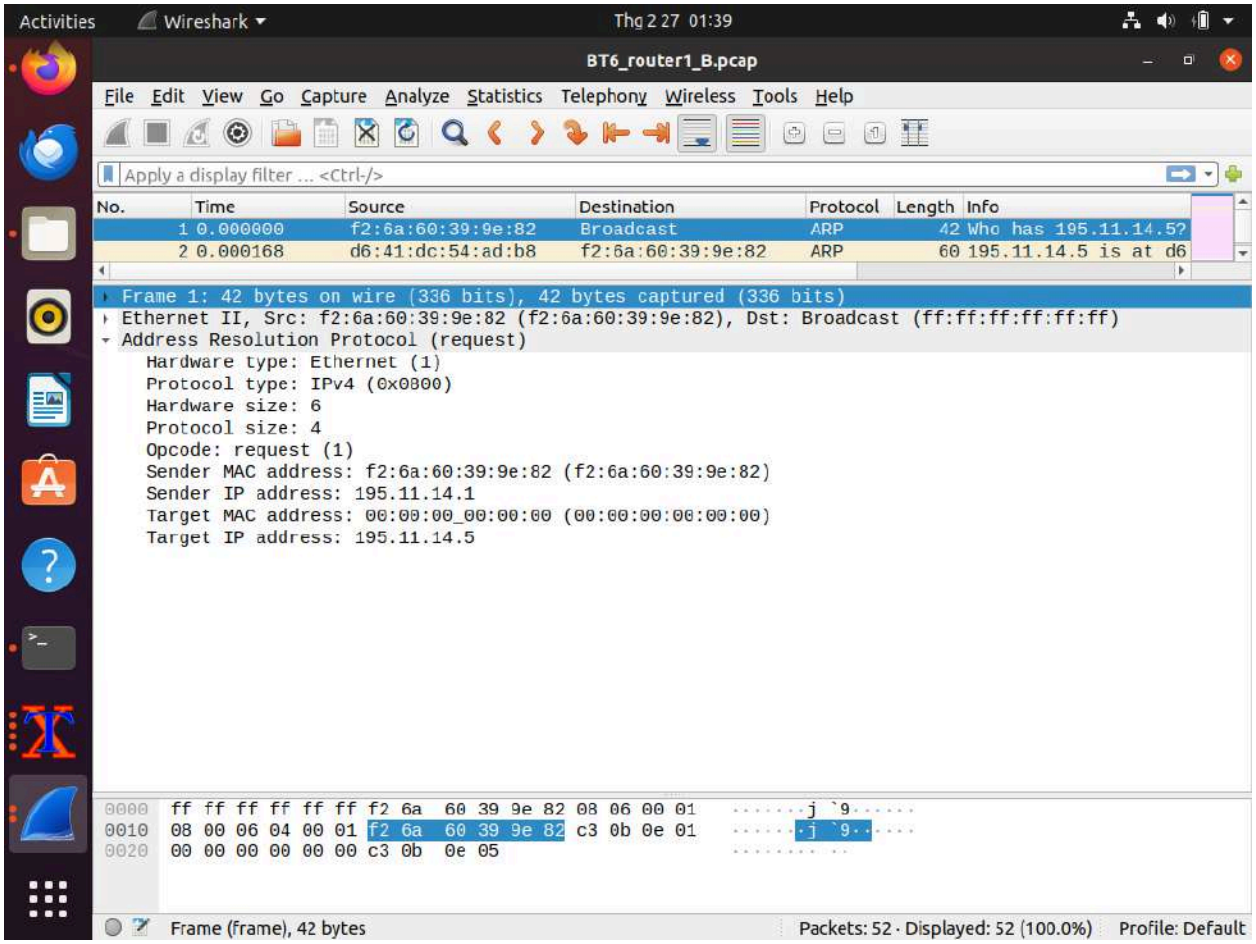

Activities
XTerm
Thg 2 27 01:32
halaphin@laphin: ~/Desktop/BaiTap6
root@pc1: /
root@pc1:/# tcpdump -s 1536 -w /shared/BT6_pc1_B.pcap
tcpdump: listening on eth0, link-type EN10MB (Ethernet), snapshot length 1536 by
tes
^C52 packets captured
52 packets received by filter
0 packets dropped by kernel
root@pc1:/#
root@router1: /
root@router1:/# tcpdump -s 1536 -w /shared/BT6_router1_B.pcap
tcpdump: listening on eth0, link-type EN10MB (Ethernet), snapshot length 1536 by
tes
^C52 packets captured
52 packets received by filter
0 packets dropped by kernel
root@router1:/#
root@router2: /
root@router2:/# tcpdump -s 1536 -w /shared/BT6_router2_B.pcap
tcpdump: listening on eth0, link-type EN10MB (Ethernet), snapshot length 1536 by
tes
^C52 packets captured
52 packets received by filter
0 packets dropped by kernel
root@router2:/#
start pc1 router1 router2
enario ==========
##########| 3/3
##########| 3/3
t pc3
o ==========
##########| 1/1
##########| 1/1



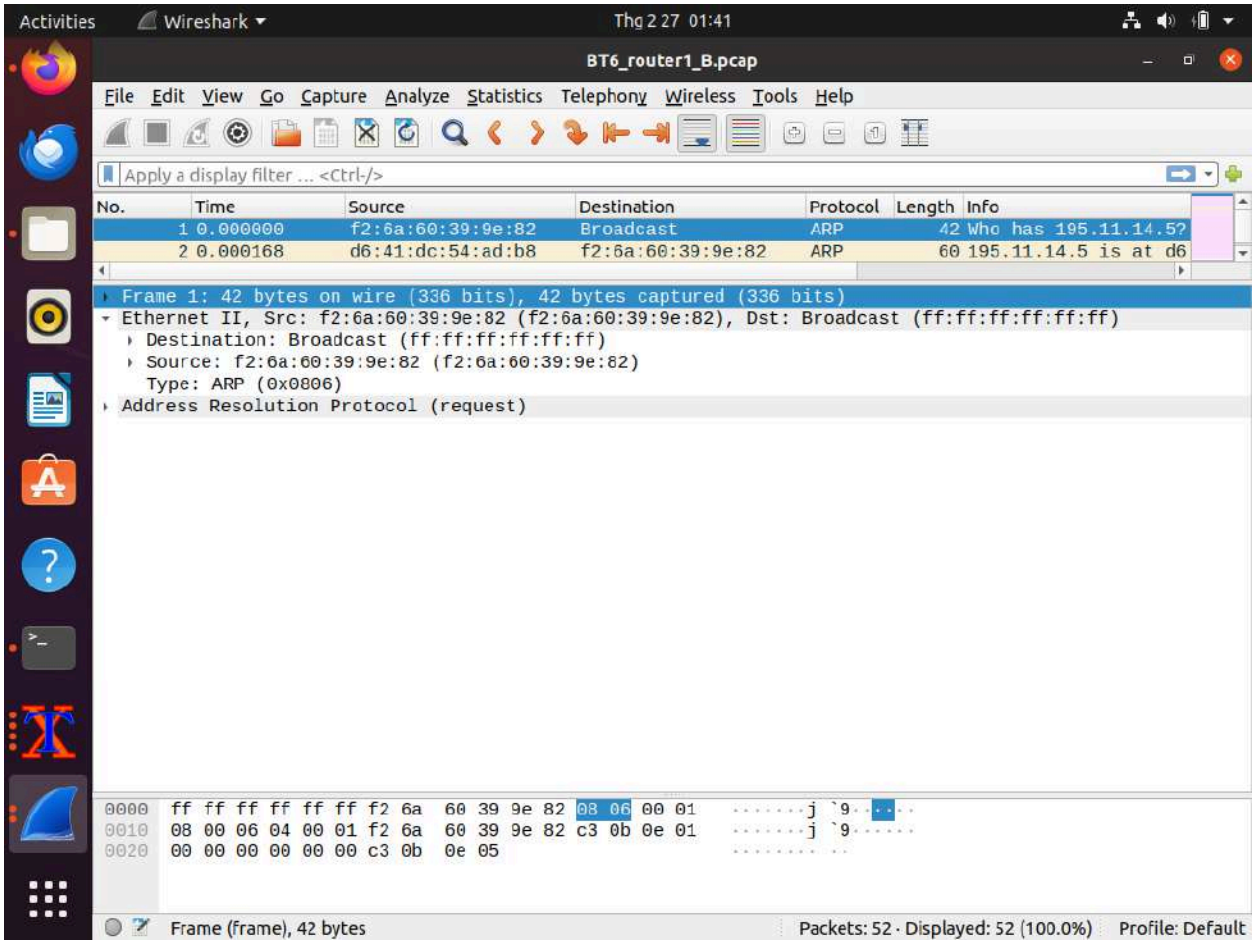
- pc3 có thông tin địa chỉ mạng của router2 vì cần đi qua router2 để đến pc1, pc3 trong phần 2.3.2.1 thì có thông tin địa chỉ mạng của pc2
- router2 có thông tin địa chỉ mạng của pc3 và router1, router2 trong phần 2.3.2.1 thì không có thông tin gì
- router1 có thông tin địa chỉ mạng của pc1 và router2
- pc1 thì có thông tin địa chỉ mạng của router1



- Frame 1 có kích thước 42 bytes

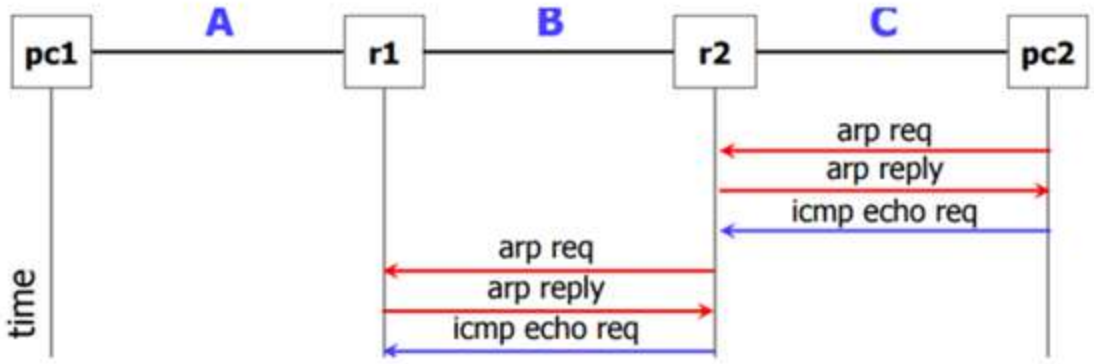


- Header Address Resolution Protocol:
  - Trường Opcode có giá trị là 0x0001 thể hiện thông tin request; Nó còn có thể có giá trị 0x0002 thể hiện thông tin reply
  - Địa chỉ IP của máy gửi dữ liệu là 195.11.14.1 và địa chỉ MAC là f2:6a:60:39:9e:82
  - Địa chỉ IP của máy nhận dữ liệu là 195.11.14.5 và không có địa chỉ MAC



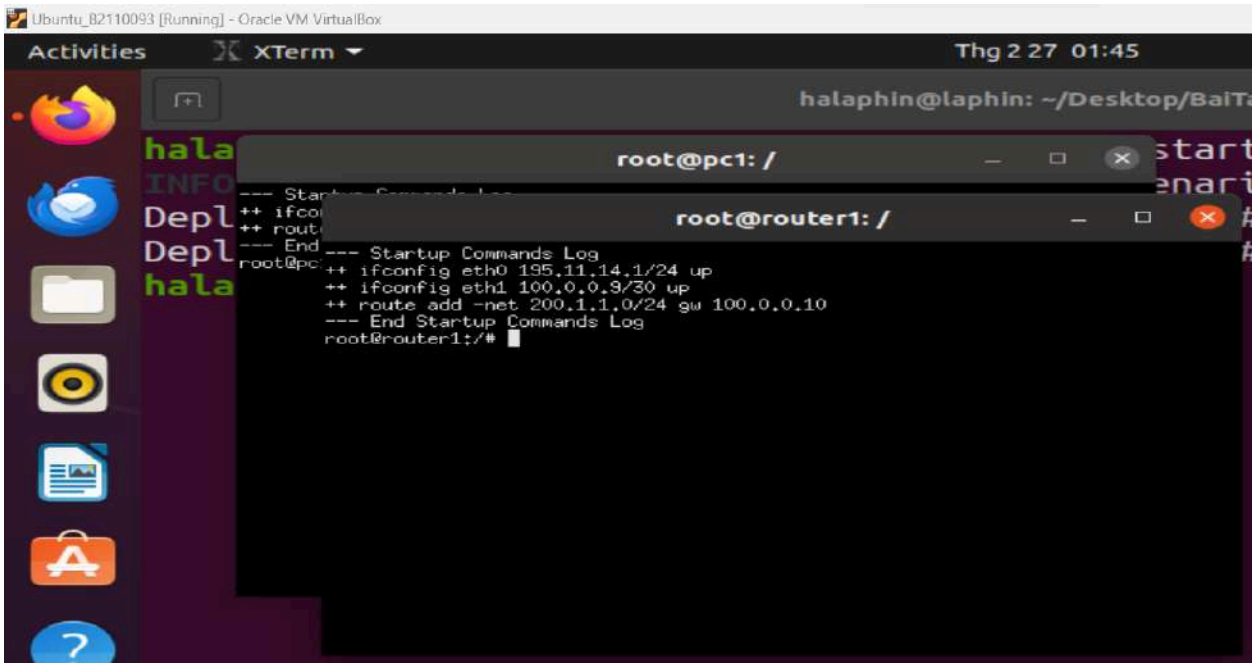
- Header Ethernet II:
  - Địa chỉ MAC của máy gửi dữ liệu là fa:6a:60:39:9e:82:, đây là địa chỉ của router1
  - Địa chỉ MAC của máy nhận dữ liệu là ff:ff:ff:ff:ff:ff, địa chỉ MAC không là của máy nào; Nó là địa chỉ Broadcast, có nghĩa là tất cả thiết bị trong mạng đó sẽ đều nhận được gói tin
  - Trường Type có giá trị là 0x0806, thể hiện giao thức ARP

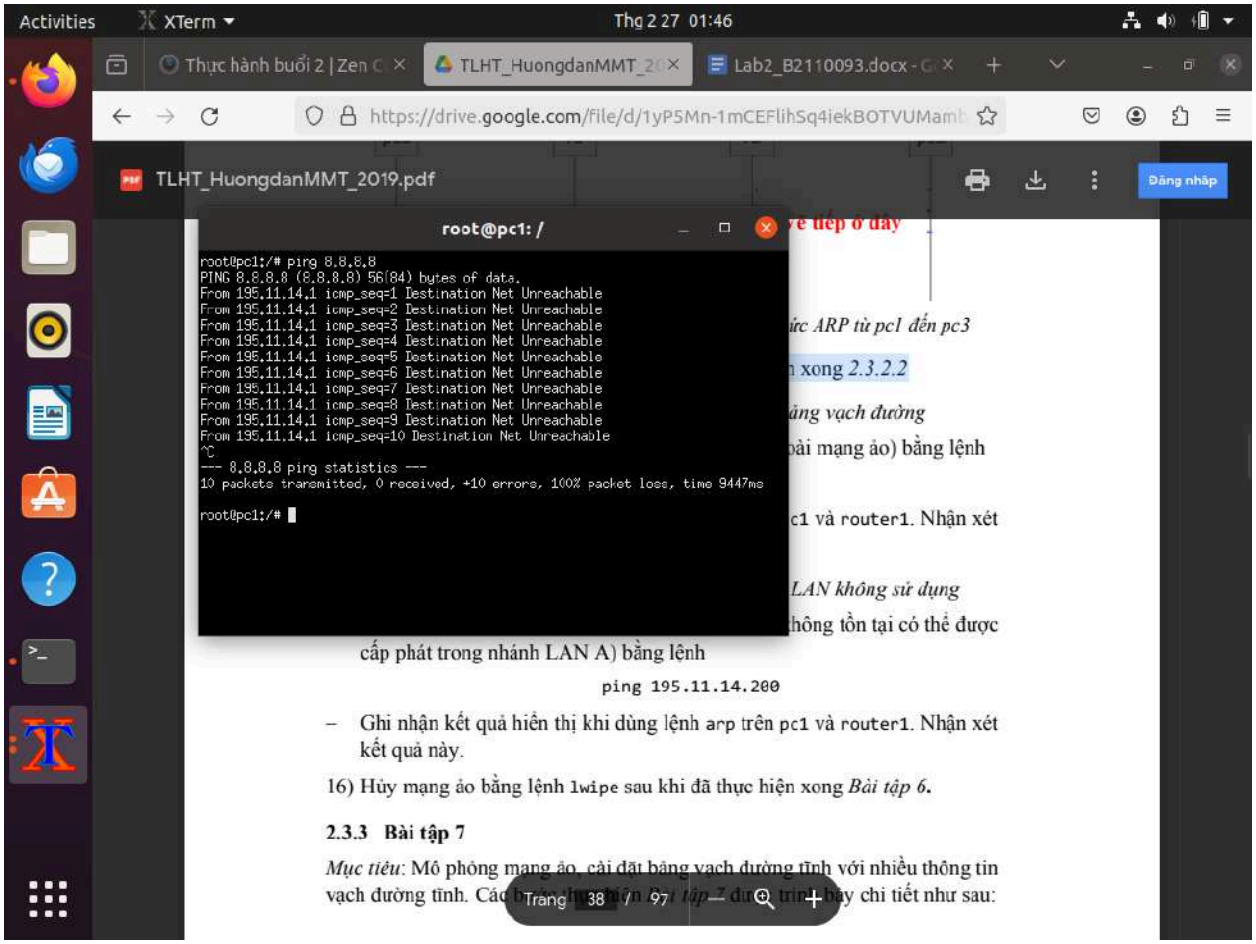
Vẽ sơ đồ tuần tự (sequence diagram) thể hiện vai trò của giao thức ARP



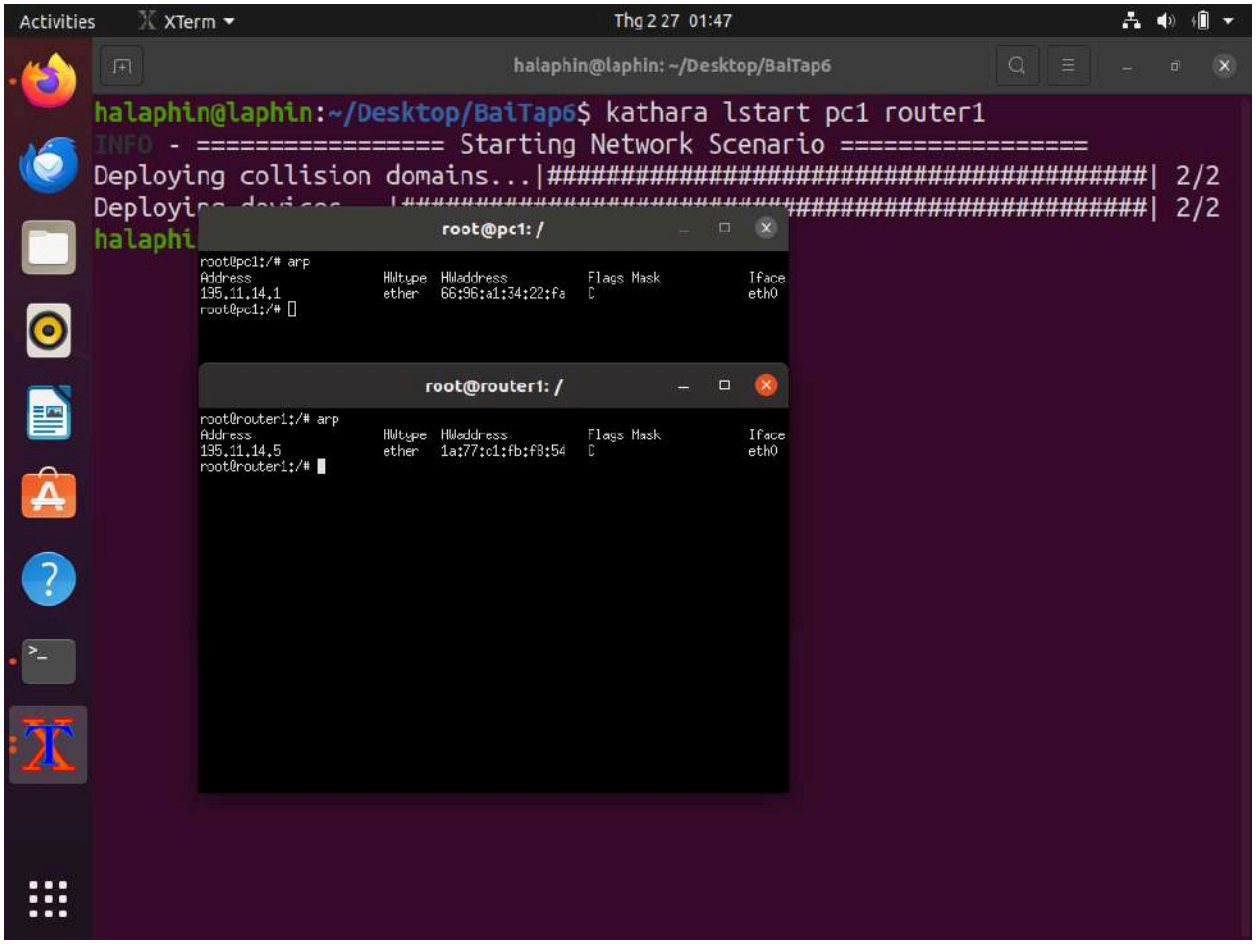
trong việc truyền tải dữ liệu từ pc3 đến pc1 bằng lệnh ping

15) Hủy mạng ảo bằng lệnh lwipe sau khi đã thực hiện xong 2.3.2.2

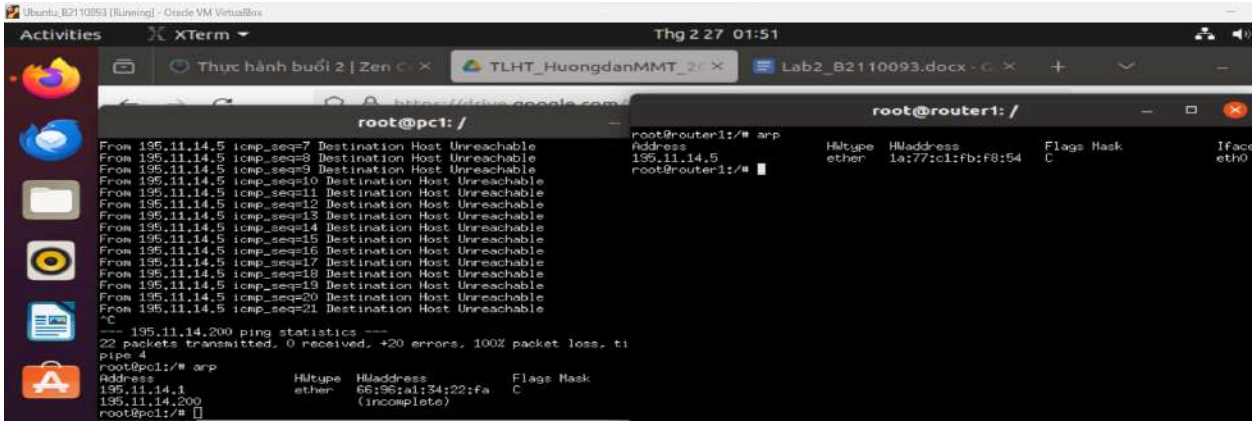



Activities
XTerm
Thg 2 27 01:46
Thực hành buổi 2 | Zen
TLHT_HuongdanMMT_2
Lab2_B2110093.docx
https://drive.google.com/file/d/1yP5Mn-1mCEFlihSq4iekBOTVUMamb
TLHT_HuongdanMMT_2019.pdf
Đăng nhập
root@pc1: /
root@pc1:/# ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
From 195.11.14.1 icmp_seq=1 Destination Net Unreachable
From 195.11.14.1 icmp_seq=2 Destination Net Unreachable
From 195.11.14.1 icmp_seq=3 Destination Net Unreachable
From 195.11.14.1 icmp_seq=4 Destination Net Unreachable
From 195.11.14.1 icmp_seq=5 Destination Net Unreachable
From 195.11.14.1 icmp_seq=6 Destination Net Unreachable
From 195.11.14.1 icmp_seq=7 Destination Net Unreachable
From 195.11.14.1 icmp_seq=8 Destination Net Unreachable
From 195.11.14.1 icmp_seq=9 Destination Net Unreachable
From 195.11.14.1 icmp_seq=10 Destination Net Unreachable
^C
--- 8.8.8.8 ping statistics ---
10 packets transmitted, 0 received, +10 errors, 100% packet loss, time 9447ms
root@pc1:/#
ping 195.11.14.200
2.3.3 Bài tập 7
Trang 38 / 97

-

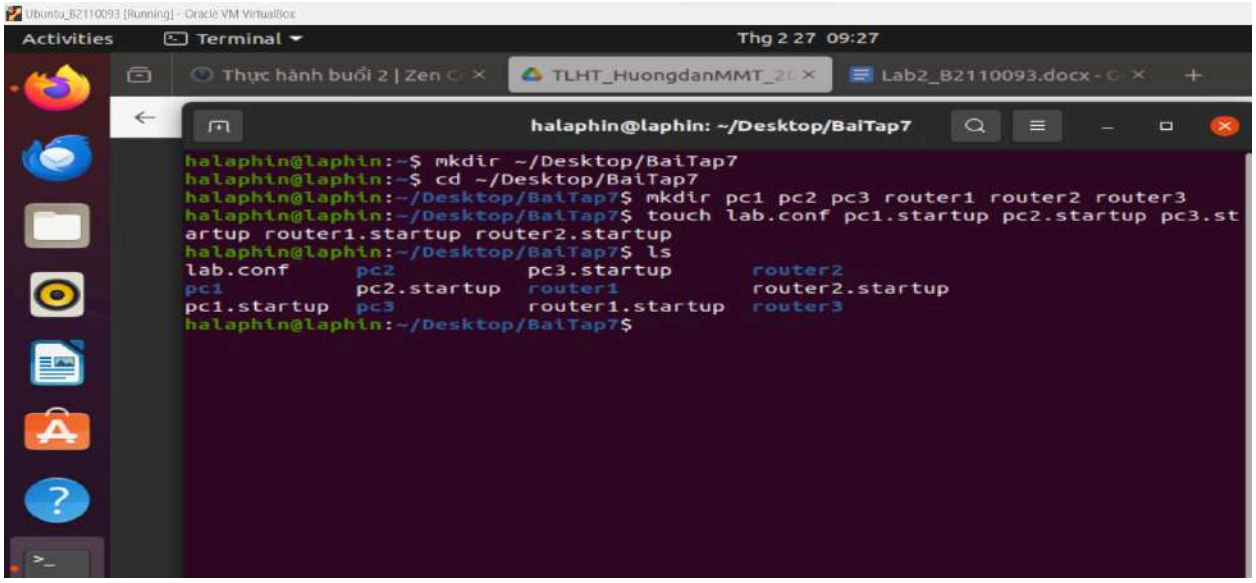


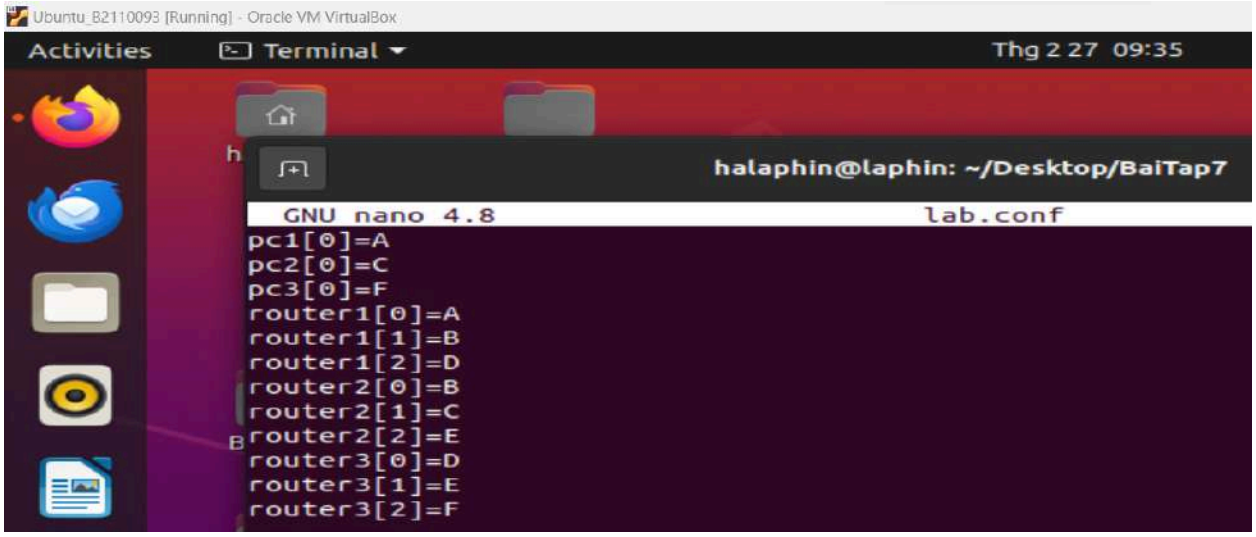
- Pc1 Không thể ping đến đại chỉ 8.8.8.8

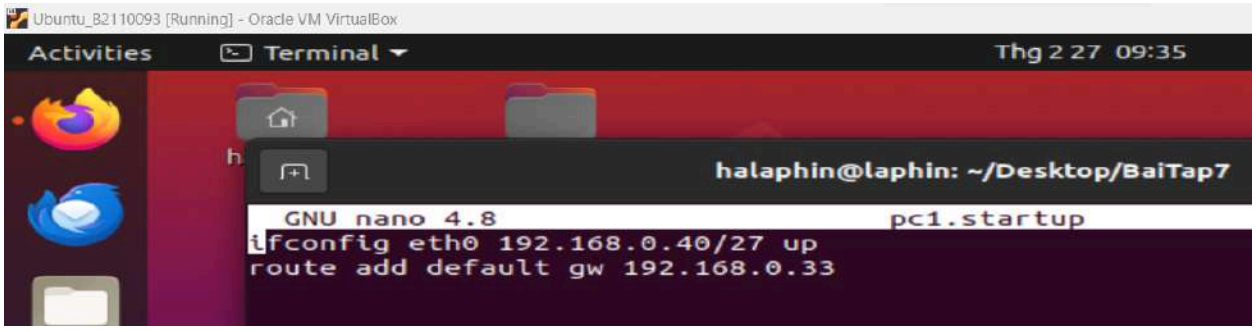


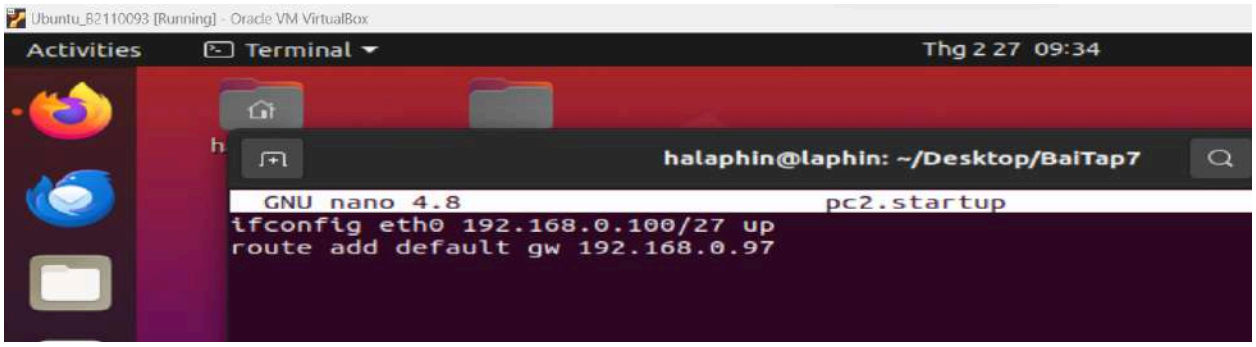
- pc1 không ping được 195.11.14.200 nhưng bảng ARP vẫn hiện 195.11.14.200 (không hoàn thiện)
- router1 không thay đổi

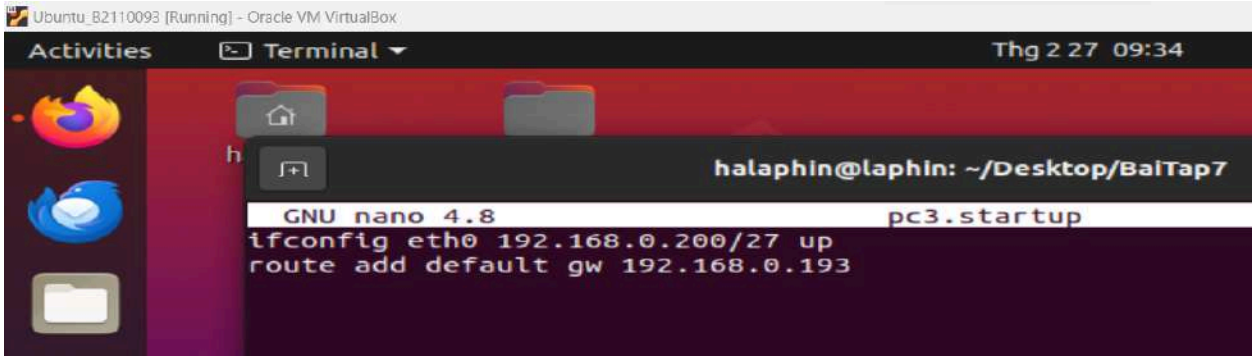
Bài 7:

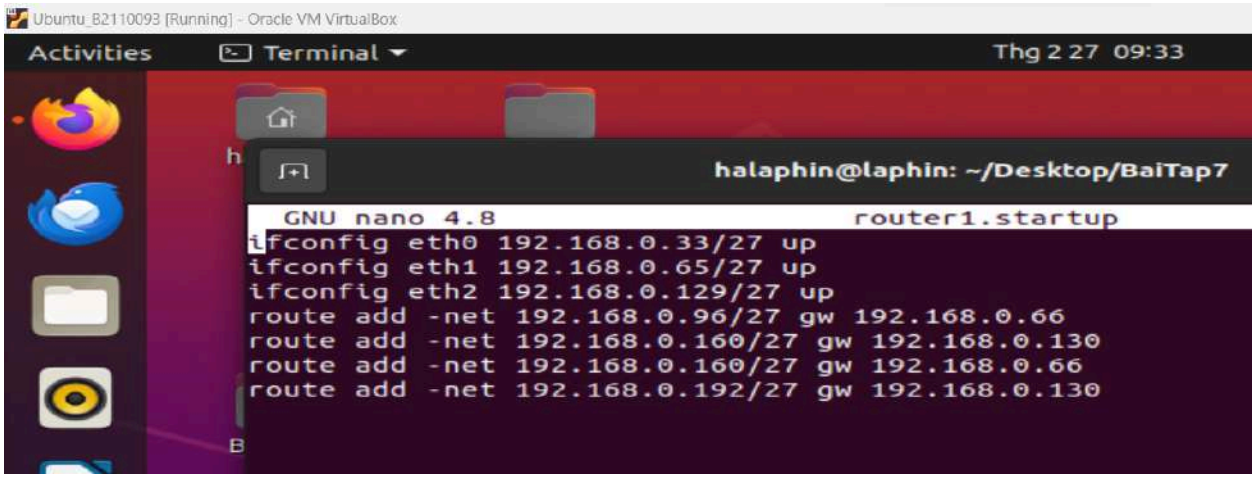

Ubuntu_B2110093 [Running] - Oracle VM VirtualBox
Activities
Terminal
Thg 2 27 09:27
Thực hành buổi 2 | Zen
TLHT_HuongdanMMT_2
Lab2_B2110093.docx
halaphin@laphin: ~/Desktop/BaiTap7
halaphin@laphin:~$ mkdir ~/Desktop/BaiTap7
halaphin@laphin:~$ cd ~/Desktop/BaiTap7
halaphin@laphin:~/Desktop/BaiTap7$ mkdir pc1 pc2 pc3 router1 router2 router3
halaphin@laphin:~/Desktop/BaiTap7$ touch lab.conf pc1.startup pc2.startup pc3.st
artup router1.startup router2.startup
halaphin@laphin:~/Desktop/BaiTap7$ ls
lab.conf pc2 pc3.startup router2
pc1 pc2.startup router1 router2.startup
pc1.startup pc3 router1.startup router3
halaphin@laphin:~/Desktop/BaiTap7$

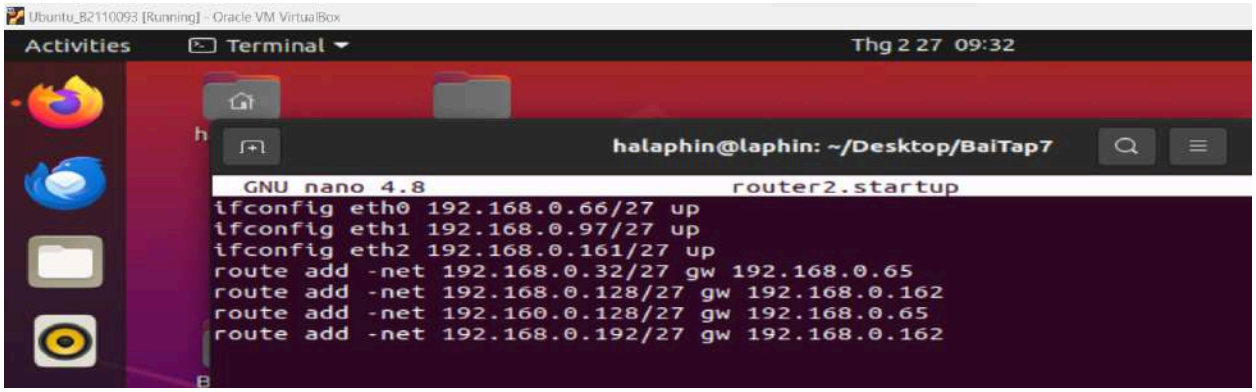

Ubuntu_B2110093 [Running] - Oracle VM VirtualBox
Activities
Terminal
Thg 2 27 09:35
halaphin@laphin: ~/Desktop/BaiTap7
GNU nano 4.8
lab.conf
pc1[0]=A
pc2[0]=C
pc3[0]=F
router1[0]=A
router1[1]=B
router1[2]=D
router2[0]=B
router2[1]=C
router2[2]=E
router3[0]=D
router3[1]=E
router3[2]=F

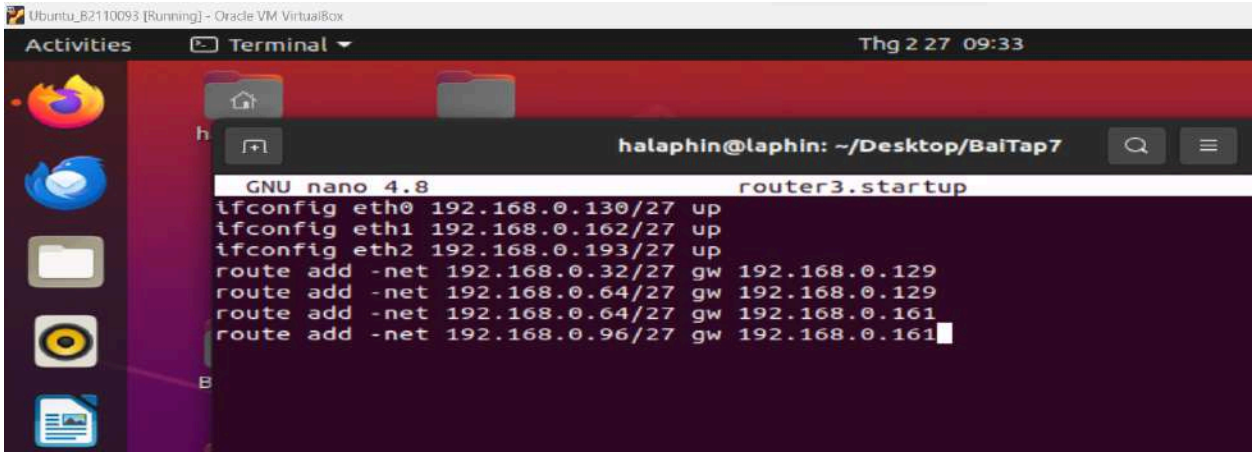

Ubuntu_B2110093 [Running] - Oracle VM VirtualBox
Activities
Terminal
Thg 2 27 09:35
halaphin@laphin: ~/Desktop/BaiTap7
GNU nano 4.8
pc1.startup
ifconfig eth0 192.168.0.40/27 up
route add default gw 192.168.0.33

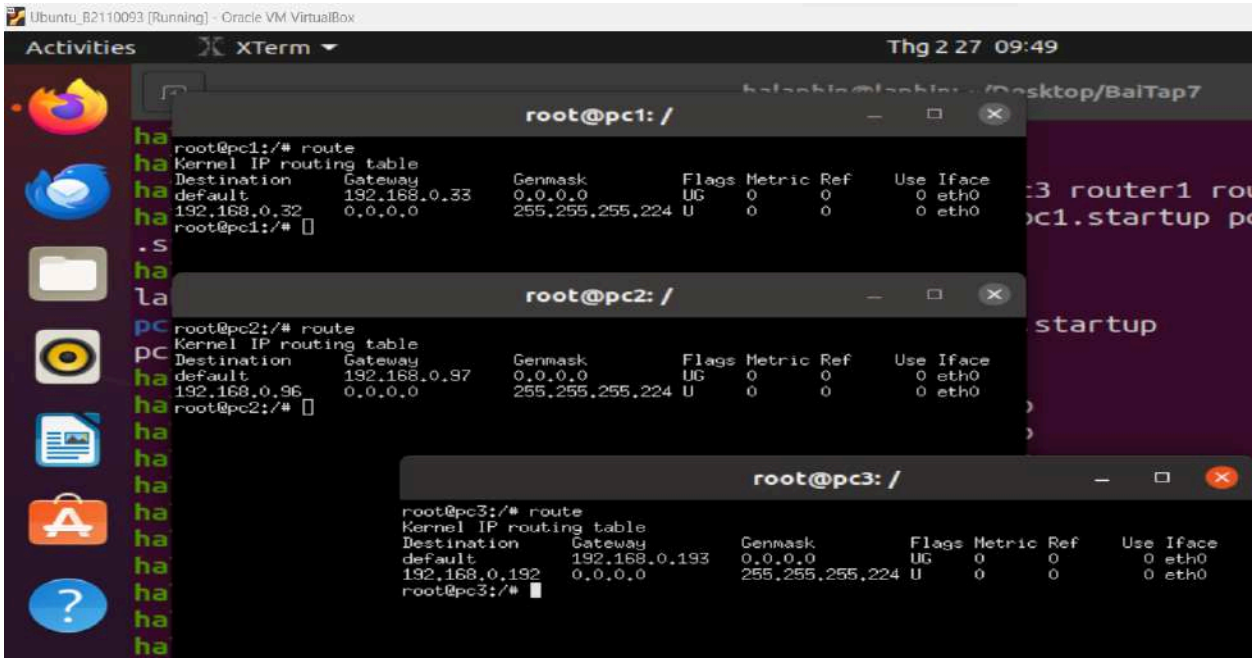

Ubuntu_B2110093 [Running] - Oracle VM VirtualBox
Activities
Terminal
Thg 2 27 09:34
halaphin@laphin: ~/Desktop/BaiTap7
GNU nano 4.8 pc2.startup
ifconfig eth0 192.168.0.100/27 up
route add default gw 192.168.0.97

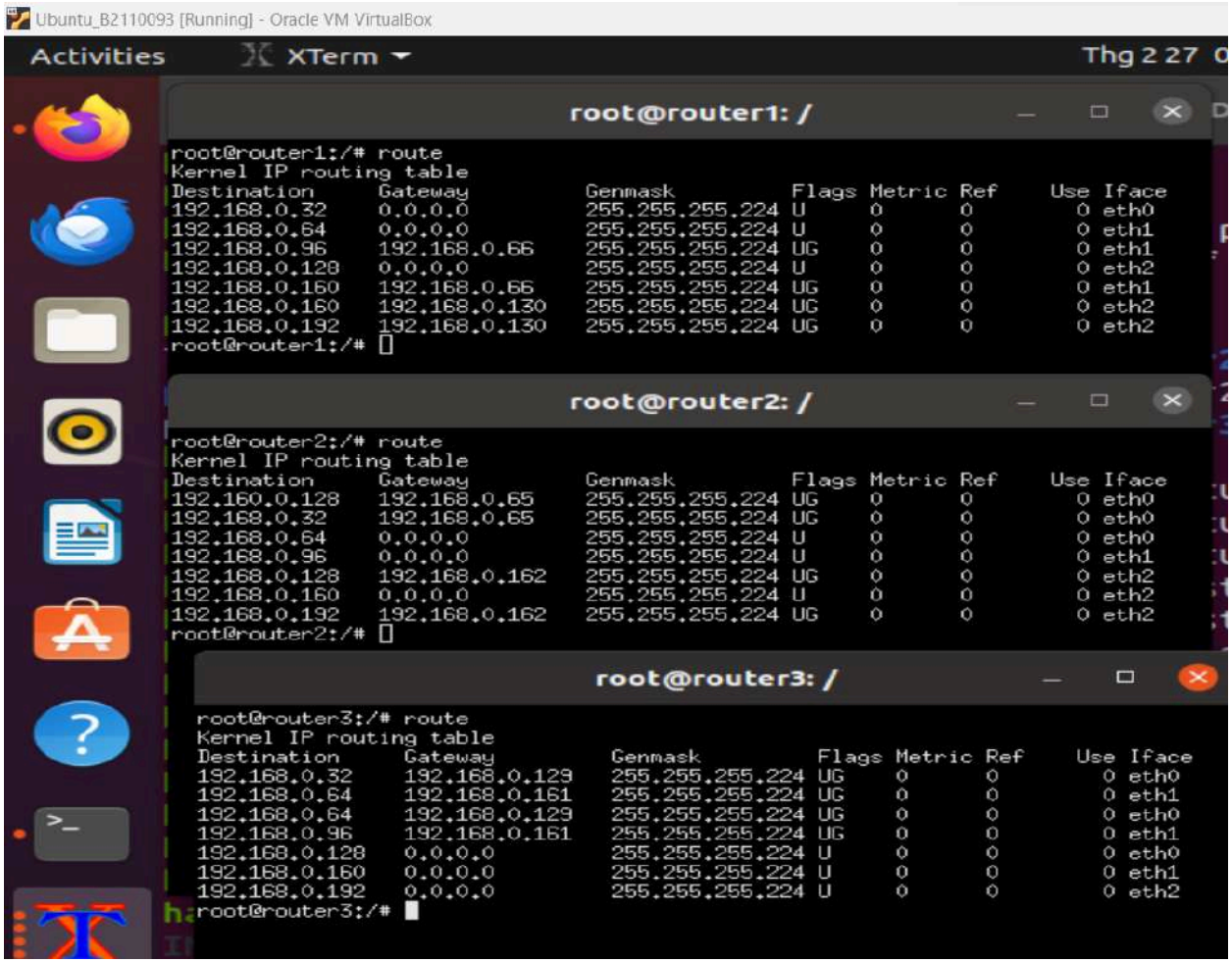

Ubuntu_B2110093 [Running] - Oracle VM VirtualBox
Activities
Terminal
Thg 2 27 09:34
halaphin@laphin: ~/Desktop/BaiTap7
GNU nano 4.8 pc3.startup
ifconfig eth0 192.168.0.200/27 up
route add default gw 192.168.0.193

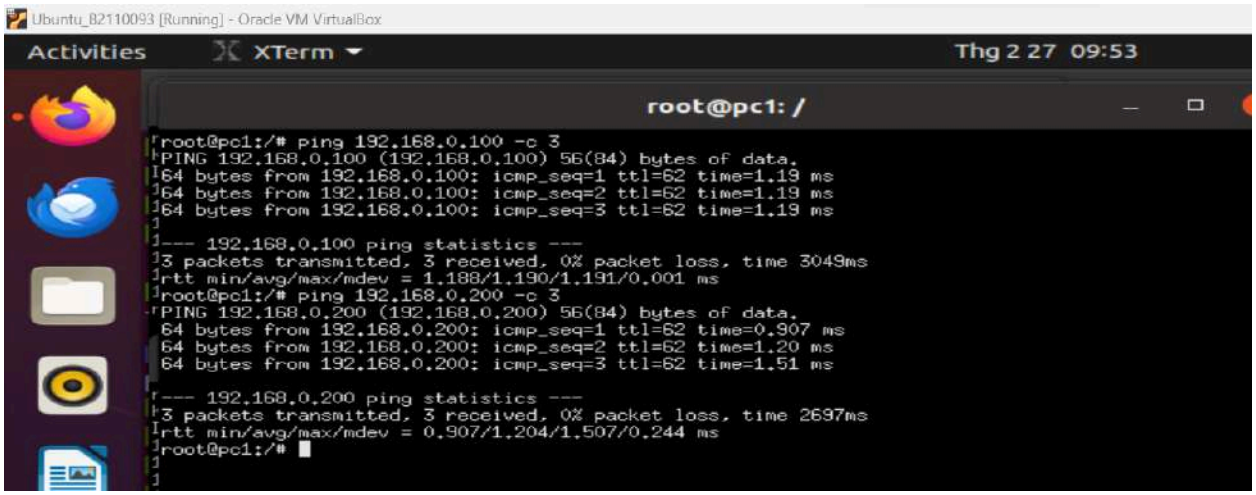

Ubuntu_B2110093 [Running] - Oracle VM VirtualBox
Activities
Terminal
Thg 2 27 09:33
halaphin@laphin: ~/Desktop/BaiTap7
GNU nano 4.8 router1.startup
ifconfig eth0 192.168.0.33/27 up
ifconfig eth1 192.168.0.65/27 up
ifconfig eth2 192.168.0.129/27 up
route add -net 192.168.0.96/27 gw 192.168.0.66
route add -net 192.168.0.160/27 gw 192.168.0.130
route add -net 192.168.0.160/27 gw 192.168.0.66
route add -net 192.168.0.192/27 gw 192.168.0.130


Ubuntu_B2110093 [Running] - Oracle VM VirtualBox
Activities
Terminal
Thg 2 27 09:32
halaphin@laphin: ~/Desktop/BaiTap7
GNU nano 4.8 router2.startup
ifconfig eth0 192.168.0.66/27 up
ifconfig eth1 192.168.0.97/27 up
ifconfig eth2 192.168.0.161/27 up
route add -net 192.168.0.32/27 gw 192.168.0.65
route add -net 192.168.0.128/27 gw 192.168.0.162
route add -net 192.160.0.128/27 gw 192.168.0.65
route add -net 192.168.0.192/27 gw 192.168.0.162

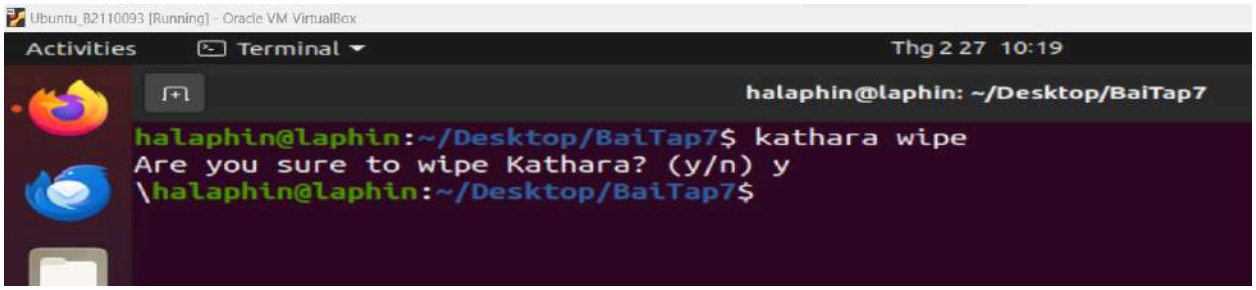

Ubuntu_B2110093 [Running] - Oracle VM VirtualBox
Activities
Terminal
Thg 2 27 09:33
halaphin@laphin: ~/Desktop/BaiTap7
GNU nano 4.8
router3.startup
ifconfig eth0 192.168.0.130/27 up
ifconfig eth1 192.168.0.162/27 up
ifconfig eth2 192.168.0.193/27 up
route add -net 192.168.0.32/27 gw 192.168.0.129
route add -net 192.168.0.64/27 gw 192.168.0.129
route add -net 192.168.0.64/27 gw 192.168.0.161
route add -net 192.168.0.96/27 gw 192.168.0.161


Ubuntu_B2110093 [Running] - Oracle VM VirtualBox
Activities
XTerm
Thg 2 27 09:49
root@pc1: /
root@pc1:/# route
Kernel IP routing table
Destination Gateway Genmask Flags Metric Ref Use Iface
default 192.168.0.33 0.0.0.0 UG 0 0 0 eth0
192.168.0.32 0.0.0.0 255.255.255.224 U 0 0 0 eth0
root@pc1:/#
root@pc2: /
root@pc2:/# route
Kernel IP routing table
Destination Gateway Genmask Flags Metric Ref Use Iface
default 192.168.0.97 0.0.0.0 UG 0 0 0 eth0
192.168.0.96 0.0.0.0 255.255.255.224 U 0 0 0 eth0
root@pc2:/#
root@pc3: /
root@pc3:/# route
Kernel IP routing table
Destination Gateway Genmask Flags Metric Ref Use Iface
default 192.168.0.193 0.0.0.0 UG 0 0 0 eth0
192.168.0.192 0.0.0.0 255.255.255.224 U 0 0 0 eth0
root@pc3:/#





Pc1 ping thành công đến pc2 và pc3


Ubuntu_B2110093 [Running] - Oracle VM VirtualBox
Activities
Terminal
Thg 2 27 10:19
halaphin@laphin: ~/Desktop/BaiTap7
halaphin@laphin:~/Desktop/BaiTap7$ kathara wipe
Are you sure to wipe Kathara? (y/n) y
\halaphin@laphin:~/Desktop/BaiTap7$