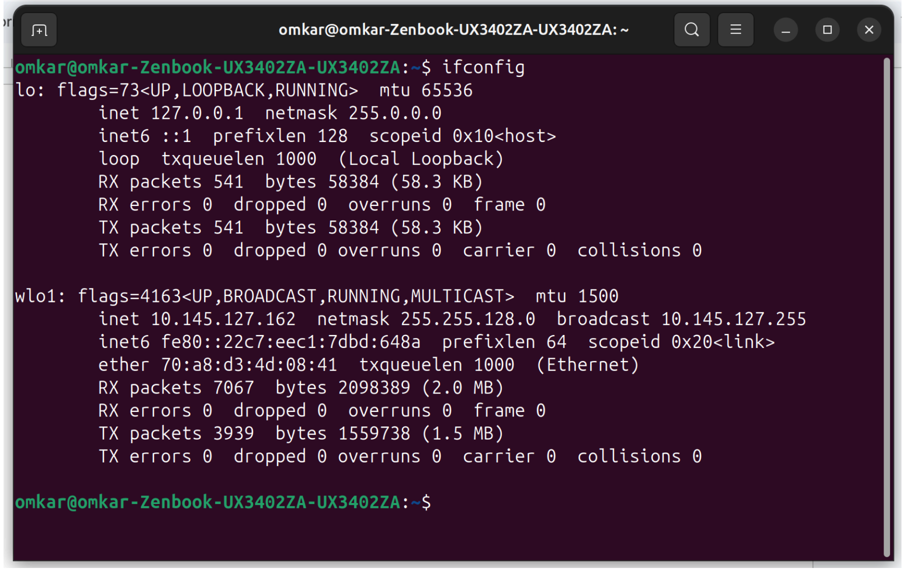
Networks Lab 1
Part1 : Networking Tools

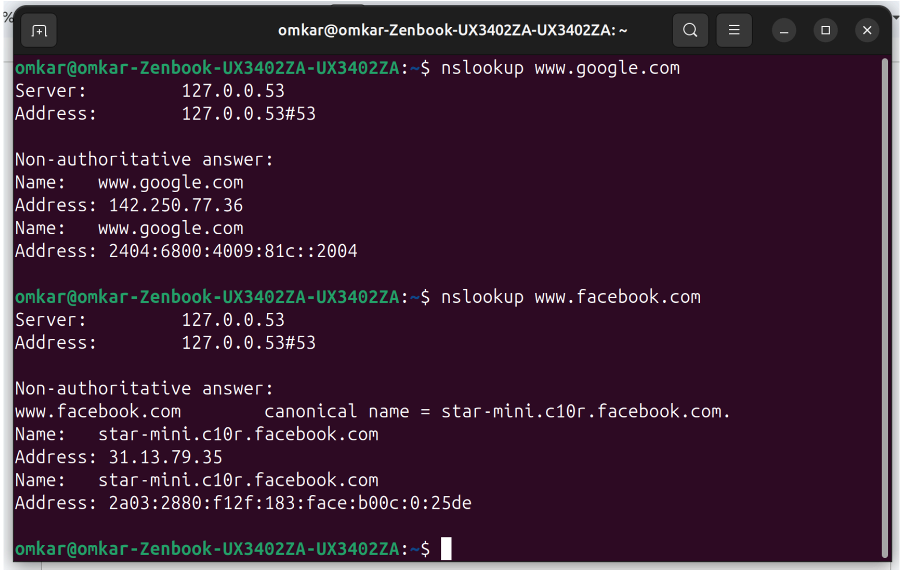
Question. 1
IP Address : 10.145.127.162
Subnet Mask : 255.255.128.0
Network ID : 10.145.0.0



```
omkar@omkar-Zenbook-UX3402ZA-UX3402ZA:~$ ifconfig
lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 541  bytes 58384 (58.3 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 541  bytes 58384 (58.3 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

wlo1: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 10.145.127.162  netmask 255.255.128.0  broadcast 10.145.127.255
        inet6 fe80::22c7:eec1:7dbd:648a  prefixlen 64  scopeid 0x20<link>
        ether 70:a8:d3:4d:08:41  txqueuelen 1000  (Ethernet)
        RX packets 7067  bytes 2098389 (2.0 MB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 3939  bytes 1559738 (1.5 MB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

omkar@omkar-Zenbook-UX3402ZA-UX3402ZA:~$
```

All of these can be found out using the *ifconfig* command. The Network ID can be found by doing the bitwise AND operation of the IP Address and the Subnet Mask.

Question. 2
www.google.com
IPv4: 142.250.77.36
IPv6: 2404:6800:4009:81c::2004



```
omkar@omkar-Zenbook-UX3402ZA-UX3402ZA:~$ nslookup www.google.com
Server:         127.0.0.53
Address:        127.0.0.53#53

Non-authoritative answer:
Name:   www.google.com
Address: 142.250.77.36
Name:   www.google.com
Address: 2404:6800:4009:81c::2004

omkar@omkar-Zenbook-UX3402ZA-UX3402ZA:~$ nslookup www.facebook.com
Server:         127.0.0.53
Address:        127.0.0.53#53

Non-authoritative answer:
www.facebook.com        canonical name = star-mini.c10r.facebook.com.
Name:   star-mini.c10r.facebook.com
Address: 31.13.79.35
Name:   star-mini.c10r.facebook.com
Address: 2a03:2880:f12f:183:face:b00c:0:25de

omkar@omkar-Zenbook-UX3402ZA-UX3402ZA:~$
```

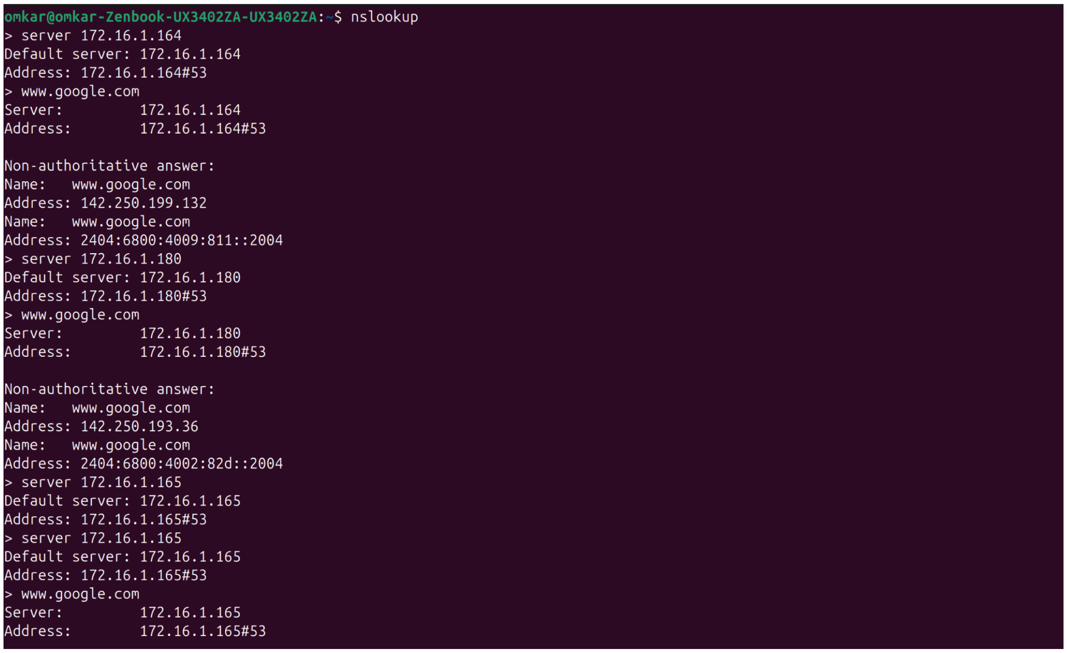
www.facebook.com
IPv4: 31.13.79.35
IPv6: 2a03:2880:f12f:183:face:b00c:0:25de

After changing the DNS server address, IP address of www.google.com:
DNS Server: 172.16.1.164
IPv4: 142.250.199.132
IPv6: 2404:6800:4009:811::2004

DNS Server: 172.16.1.180
IPv4: 142.250.193.36
IPv6: 2404:6800:4002:82d::2004

DNS Server: 172.16.1.165
IPv4: 142.250.192.100
IPv6: 2404:6800:4009:82a::2004

DNS Server: 172.16.1.166
IPv4: 142.250.77.36
IPv6: 2404:6800:4009:81c::2004



```
omkar@omkar-Zenbook-UX3402ZA-UX3402ZA:~$ nslookup
> server 172.16.1.164
Default server: 172.16.1.164
Address: 172.16.1.164#53
> www.google.com
Server:         172.16.1.164
Address:        172.16.1.164#53

Non-authoritative answer:
Name:   www.google.com
Address: 142.250.199.132
Name:   www.google.com
Address: 2404:6800:4009:811::2004
> server 172.16.1.180
Default server: 172.16.1.180
Address: 172.16.1.180#53
> www.google.com
Server:         172.16.1.180
Address:        172.16.1.180#53

Non-authoritative answer:
Name:   www.google.com
Address: 142.250.193.36
Name:   www.google.com
Address: 2404:6800:4002:82d::2004
> server 172.16.1.165
Default server: 172.16.1.165
Address: 172.16.1.165#53
> server 172.16.1.165
Default server: 172.16.1.165
Address: 172.16.1.165#53
> www.google.com
Server:         172.16.1.165
Address:        172.16.1.165#53
```

The reason for different domain IP, can be understood as follows:

1. Services like google.com distribute traffic across multiple servers worldwide, a DNS query may return the IP of the nearest DNS resolver, optimising the latency.
2. Services like google.com use DNS-based load balancing to distribute traffic efficiently across their infrastructure

Many more reasons are possible, but these two were in scope of current knowledge.

Question. 3

I pinged one of my friends laptop with timeout of 100, following were the observed statistics.

For 64 bytes packet:

min/avg/max/mdev = 14.228/59.625/96.718/29.510 ms

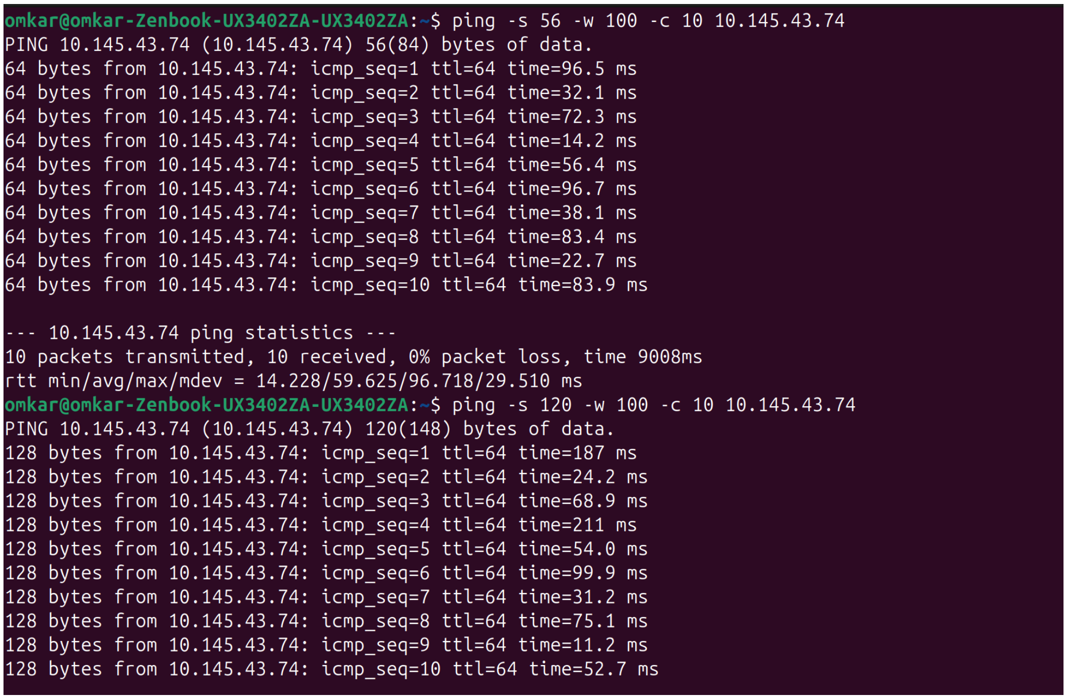
For 128 bytes packet:

min/avg/max/mdev = 11.180/81.581/211.292/63.967 ms

For 512 bytes packet:

min/avg/max/mdev = 10.294/64.778/116.606/32.059 ms

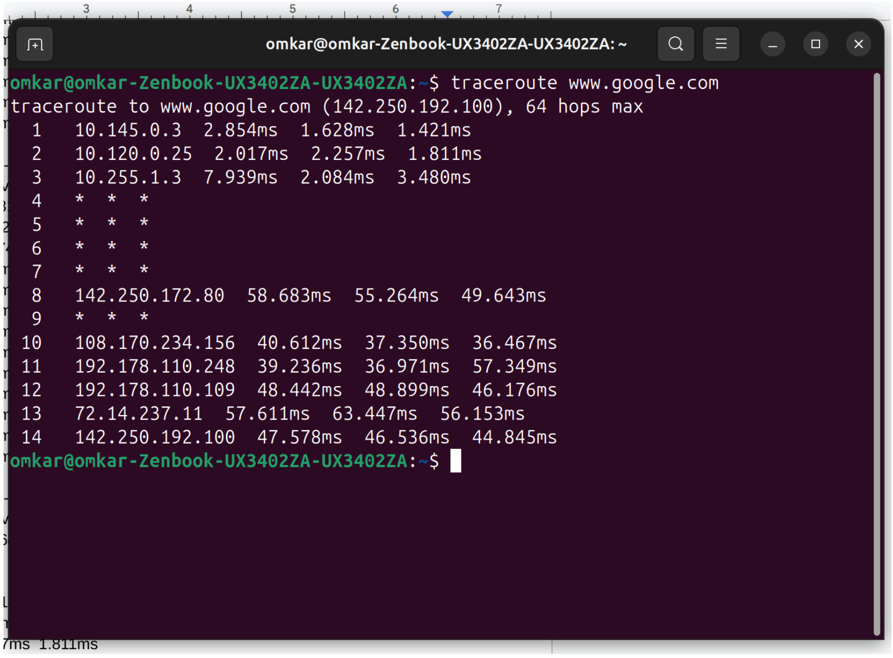
Note that a waiting time restriction of 100ms was applied, and the statistics are for 10 packets.



```
omkar@omkar-Zenbook-UX3402ZA-UX3402ZA:~$ ping -s 56 -w 100 -c 10 10.145.43.74
PING 10.145.43.74 (10.145.43.74) 56(84) bytes of data.
64 bytes from 10.145.43.74: icmp_seq=1 ttl=64 time=96.5 ms
64 bytes from 10.145.43.74: icmp_seq=2 ttl=64 time=32.1 ms
64 bytes from 10.145.43.74: icmp_seq=3 ttl=64 time=72.3 ms
64 bytes from 10.145.43.74: icmp_seq=4 ttl=64 time=14.2 ms
64 bytes from 10.145.43.74: icmp_seq=5 ttl=64 time=56.4 ms
64 bytes from 10.145.43.74: icmp_seq=6 ttl=64 time=96.7 ms
64 bytes from 10.145.43.74: icmp_seq=7 ttl=64 time=38.1 ms
64 bytes from 10.145.43.74: icmp_seq=8 ttl=64 time=83.4 ms
64 bytes from 10.145.43.74: icmp_seq=9 ttl=64 time=22.7 ms
64 bytes from 10.145.43.74: icmp_seq=10 ttl=64 time=83.9 ms

--- 10.145.43.74 ping statistics ---
10 packets transmitted, 10 received, 0% packet loss, time 9008ms
rtt min/avg/max/mdev = 14.228/59.625/96.718/29.510 ms
omkar@omkar-Zenbook-UX3402ZA-UX3402ZA:~$ ping -s 120 -w 100 -c 10 10.145.43.74
PING 10.145.43.74 (10.145.43.74) 120(148) bytes of data.
128 bytes from 10.145.43.74: icmp_seq=1 ttl=64 time=187 ms
128 bytes from 10.145.43.74: icmp_seq=2 ttl=64 time=24.2 ms
128 bytes from 10.145.43.74: icmp_seq=3 ttl=64 time=68.9 ms
128 bytes from 10.145.43.74: icmp_seq=4 ttl=64 time=211 ms
128 bytes from 10.145.43.74: icmp_seq=5 ttl=64 time=54.0 ms
128 bytes from 10.145.43.74: icmp_seq=6 ttl=64 time=99.9 ms
128 bytes from 10.145.43.74: icmp_seq=7 ttl=64 time=31.2 ms
128 bytes from 10.145.43.74: icmp_seq=8 ttl=64 time=75.1 ms
128 bytes from 10.145.43.74: icmp_seq=9 ttl=64 time=11.2 ms
128 bytes from 10.145.43.74: icmp_seq=10 ttl=64 time=52.7 ms
```

Question. 4

Following is the output when *traceroute* was called for www.google.com:



```
omkar@omkar-Zenbook-UX3402ZA-UX3402ZA:~$ traceroute www.google.com
traceroute to www.google.com (142.250.192.100), 64 hops max
  1   10.145.0.3  2.854ms  1.628ms  1.421ms
  2   10.120.0.25  2.017ms  2.257ms  1.811ms
  3   10.255.1.3  7.939ms  2.084ms  3.480ms
  4   *  *  *
  5   *  *  *
  6   *  *  *
  7   *  *  *
  8   142.250.172.80  58.683ms  55.264ms  49.643ms
  9   *  *  *
 10   108.170.234.156  40.612ms  37.350ms  36.467ms
 11   192.178.110.248  39.236ms  36.971ms  57.349ms
 12   192.178.110.109  48.442ms  48.899ms  46.176ms
 13   72.14.237.11  57.611ms  63.447ms  56.153ms
 14   142.250.192.100  47.578ms  46.536ms  44.845ms
omkar@omkar-Zenbook-UX3402ZA-UX3402ZA:~$
```

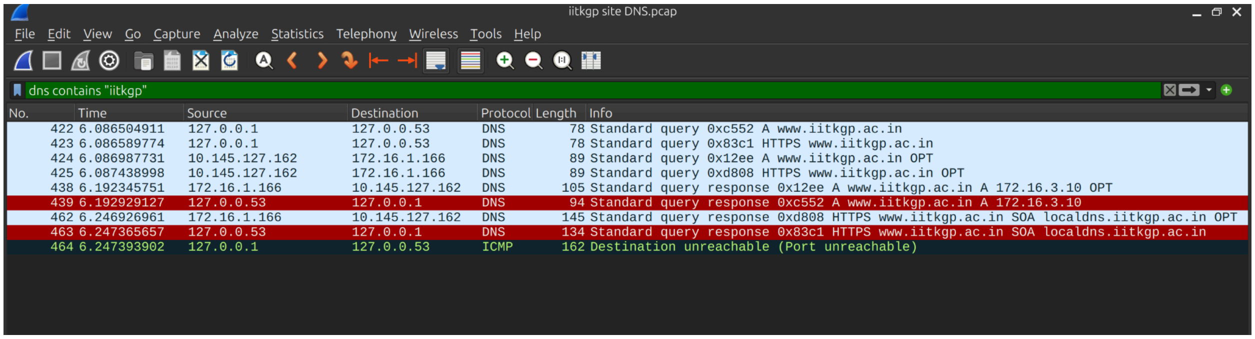
There are a total of 14 hosts involved (including the destination) in the path from the source to the destination. We do see “* * *” at some places because some routers or devices do not respond to ICMP packets due to some security policies or configurations; in such cases they indicate either firewalls, blocked responses, or devices configured not to respond to traceroute requests.

PART2 : Packet Analysis

1. **Analysis of DNS Packets: Structure and its Traffic**

a. The DNS is using the UDP in the observed packets. (This was concluded after applying the UDP filter along with the DNS filter)

b. Source of DNS query: 127.0.0.1 (local host) and 10.145.127.162 (my Laptop)
Destination of DNS query: 127.0.0.53 and 172.16.1.166



dns contains "iitkgp"

```
No.    Time         Source           Destination      Protocol Length Info
   422 6.086504911  127.0.0.1        127.0.0.53       DNS        78 Standard query 0xc552 A www.iitkgp.ac.in
   423 6.086589774  127.0.0.1        127.0.0.53       DNS        78 Standard query 0x83c1 HTTPS www.iitkgp.ac.in
   424 6.086987731  10.145.127.162   172.16.1.166     DNS        89 Standard query 0x12ee A www.iitkgp.ac.in OPT
   425 6.087438998  10.145.127.162   172.16.1.166     DNS        89 Standard query 0xd808 HTTPS www.iitkgp.ac.in OPT
   438 6.192345751  172.16.1.166     10.145.127.162   DNS       105 Standard query response 0x12ee A www.iitkgp.ac.in A 172.16.3.10 OPT
   439 6.192929127  127.0.0.53       127.0.0.1        DNS        94 Standard query response 0xc552 A www.iitkgp.ac.in A 172.16.3.10
   462 6.246926961  172.16.1.166     10.145.127.162   DNS       145 Standard query response 0xd808 HTTPS www.iitkgp.ac.in SOA localdns.iitkgp.ac.in OPT
   463 6.247365657  127.0.0.53       127.0.0.1        DNS       134 Standard query response 0x83c1 HTTPS www.iitkgp.ac.in SOA localdns.iitkgp.ac.in
   464 6.247393902  127.0.0.1        127.0.0.53       ICMP      162 Destination unreachable (Port unreachable)
```

c. During the name-to-IP resolution a total of 5 DNS queries were sent from the host machine to the DNS Server(s). (line number 422, 423, 424, 425, 438)

d. The DNS server with the IP address 127.0.0.53 replies with the actual IP address 172.16.3.10 for www.iitkgp.ac.in.

e. There were 2 DNS servers involved. Both of the addresses have their responses to the Standard query.

f. Resource Records Involved are:
For the first response:

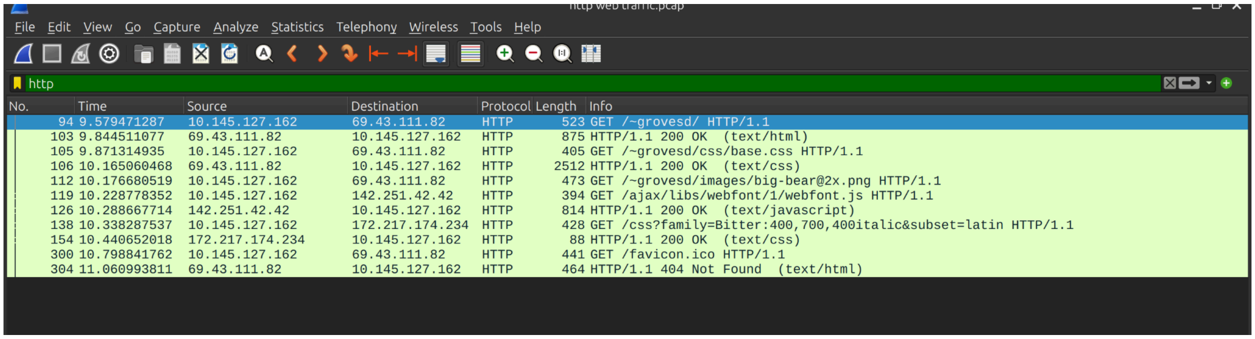
Name: www.iitkgp.ac.in
Type: A
Class: IN
TTL: 86400
Data Length: 4
Resolved IP Address: 172.16.3.10

For the second response:

Name: iitkgp.ac.in
Type: SOA
Class: IN
TTL: 86400
Data Length: 44

Resolved IP Address: -

2. Web Traffic (HTTP)

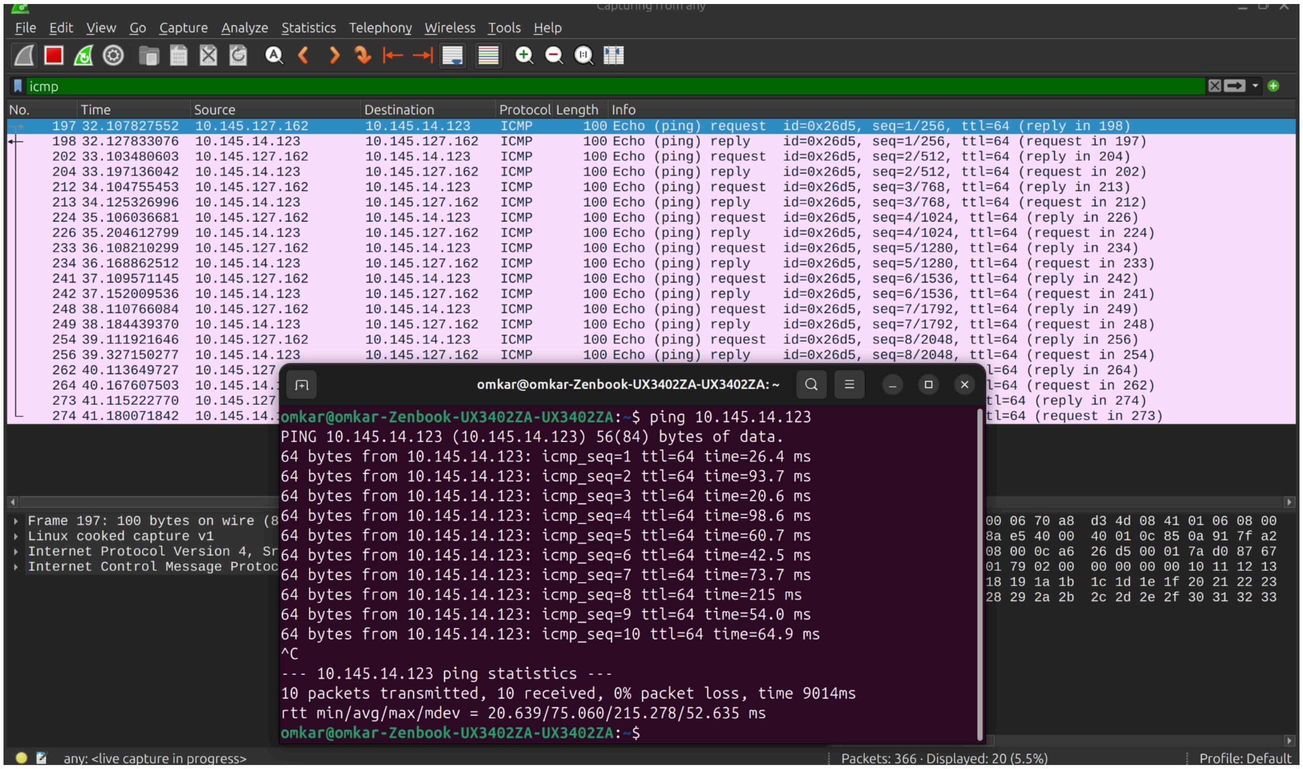

http web traffic.pcap
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
http

```
No.   Time         Source           Destination      Protocol Length Info
   94 9.579471287  10.145.127.162   69.43.111.82     HTTP      523 GET /~grovesd/ HTTP/1.1
  103 9.844511077  69.43.111.82     10.145.127.162   HTTP      875 HTTP/1.1 200 OK  (text/html)
  105 9.871314935  10.145.127.162   69.43.111.82     HTTP      405 GET /~grovesd/css/base.css HTTP/1.1
  106 10.165060468 69.43.111.82     10.145.127.162   HTTP     2512 HTTP/1.1 200 OK  (text/css)
  112 10.176680519 10.145.127.162   69.43.111.82     HTTP      473 GET /~grovesd/images/big-bear@2x.png HTTP/1.1
  119 10.228778352 10.145.127.162   142.251.42.42    HTTP      394 GET /ajax/libs/webfont/1/webfont.js HTTP/1.1
  126 10.288667714 142.251.42.42    10.145.127.162   HTTP      814 HTTP/1.1 200 OK  (text/javascript)
  138 10.338287537 10.145.127.162   172.217.174.234  HTTP      428 GET /css?family=Bitter:400,700,400italic&subset=latin HTTP/1.1
  154 10.440652018 172.217.174.234  10.145.127.162   HTTP       88 HTTP/1.1 200 OK  (text/css)
  300 10.798841762 10.145.127.162   69.43.111.82     HTTP      441 GET /favicon.ico HTTP/1.1
  304 11.060993811 69.43.111.82     10.145.127.162   HTTP      464 HTTP/1.1 404 Not Found  (text/html)
```

a. Done in WireShark
b. Done in WireShark
c. 11 HTTP packets were exchanged between the client and the server to load the web page.

3. ICMP Traffic (Ping/Traceroute)

a. Done in WireShark
b. Done in WireShark

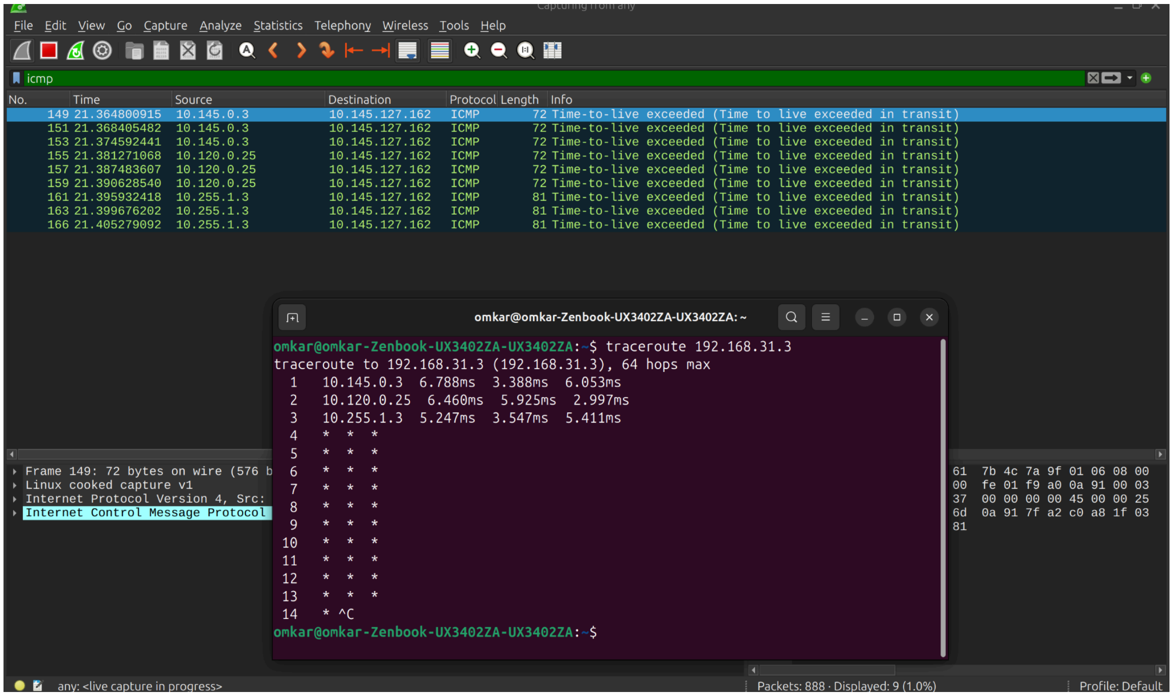

Capturing from any
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
icmp
omkar@omkar-Zenbook-UX3402ZA-UX3402ZA: ~

```
No.   Time         Source           Destination      Protocol Length Info
  197 32.107827552 10.145.127.162   10.145.14.123    ICMP      100 Echo (ping) request  id=0x26d5, seq=1/256, ttl=64 (reply in 198)
  198 32.127833076 10.145.14.123    10.145.127.162   ICMP      100 Echo (ping) reply    id=0x26d5, seq=1/256, ttl=64 (request in 197)
  202 33.103480603 10.145.127.162   10.145.14.123    ICMP      100 Echo (ping) request  id=0x26d5, seq=2/512, ttl=64 (reply in 204)
  204 33.197136042 10.145.14.123    10.145.127.162   ICMP      100 Echo (ping) reply    id=0x26d5, seq=2/512, ttl=64 (request in 202)
  212 34.104755453 10.145.127.162   10.145.14.123    ICMP      100 Echo (ping) request  id=0x26d5, seq=3/768, ttl=64 (reply in 213)
  213 34.125326996 10.145.14.123    10.145.127.162   ICMP      100 Echo (ping) reply    id=0x26d5, seq=3/768, ttl=64 (request in 212)
  224 35.106036681 10.145.127.162   10.145.14.123    ICMP      100 Echo (ping) request  id=0x26d5, seq=4/1024, ttl=64 (reply in 226)
  226 35.204612799 10.145.14.123    10.145.127.162   ICMP      100 Echo (ping) reply    id=0x26d5, seq=4/1024, ttl=64 (request in 224)
  233 36.108210299 10.145.127.162   10.145.14.123    ICMP      100 Echo (ping) request  id=0x26d5, seq=5/1280, ttl=64 (reply in 234)
  234 36.168862512 10.145.14.123    10.145.127.162   ICMP      100 Echo (ping) reply    id=0x26d5, seq=5/1280, ttl=64 (request in 233)
  241 37.109571145 10.145.127.162   10.145.14.123    ICMP      100 Echo (ping) request  id=0x26d5, seq=6/1536, ttl=64 (reply in 242)
  242 37.152009536 10.145.14.123    10.145.127.162   ICMP      100 Echo (ping) reply    id=0x26d5, seq=6/1536, ttl=64 (request in 241)
  248 38.110766084 10.145.127.162   10.145.14.123    ICMP      100 Echo (ping) request  id=0x26d5, seq=7/1792, ttl=64 (reply in 249)
  249 38.184439370 10.145.14.123    10.145.127.162   ICMP      100 Echo (ping) reply    id=0x26d5, seq=7/1792, ttl=64 (request in 248)
  254 39.111921646 10.145.127.162   10.145.14.123    ICMP      100 Echo (ping) request  id=0x26d5, seq=8/2048, ttl=64 (reply in 256)
  256 39.327150277 10.145.14.123    10.145.127.162   ICMP      100 Echo (ping) reply    id=0x26d5, seq=8/2048, ttl=64 (request in 254)
  262 40.113649727 10.145.127                                                                        l=64 (reply in 264)
  264 40.167607503 10.145.14.                                                                        l=64 (request in 262)
  273 41.115222770 10.145.127                                                                       tl=64 (reply in 274)
  274 41.180071842 10.145.14.                                                                       tl=64 (request in 273)

› Frame 197: 100 bytes on wire (8
› Linux cooked capture v1
› Internet Protocol Version 4, Sr
› Internet Control Message Protoc

00 06 70 a8  d3 4d 08 41 01 06 08 00
8a e5 40 00  40 01 0c 85 0a 91 7f a2
08 00 0c a6  26 d5 00 01 7a d0 87 67
01 79 02 00  00 00 00 00 10 11 12 13
18 19 1a 1b  1c 1d 1e 1f 20 21 22 23
28 29 2a 2b  2c 2d 2e 2f 30 31 32 33
```

```
omkar@omkar-Zenbook-UX3402ZA-UX3402ZA:~$ ping 10.145.14.123
PING 10.145.14.123 (10.145.14.123) 56(84) bytes of data.
64 bytes from 10.145.14.123: icmp_seq=1 ttl=64 time=26.4 ms
64 bytes from 10.145.14.123: icmp_seq=2 ttl=64 time=93.7 ms
64 bytes from 10.145.14.123: icmp_seq=3 ttl=64 time=20.6 ms
64 bytes from 10.145.14.123: icmp_seq=4 ttl=64 time=98.6 ms
64 bytes from 10.145.14.123: icmp_seq=5 ttl=64 time=60.7 ms
64 bytes from 10.145.14.123: icmp_seq=6 ttl=64 time=42.5 ms
64 bytes from 10.145.14.123: icmp_seq=7 ttl=64 time=73.7 ms
64 bytes from 10.145.14.123: icmp_seq=8 ttl=64 time=215 ms
64 bytes from 10.145.14.123: icmp_seq=9 ttl=64 time=54.0 ms
64 bytes from 10.145.14.123: icmp_seq=10 ttl=64 time=64.9 ms
^C
--- 10.145.14.123 ping statistics ---
10 packets transmitted, 10 received, 0% packet loss, time 9014ms
rtt min/avg/max/mdev = 20.639/75.060/215.278/52.635 ms
omkar@omkar-Zenbook-UX3402ZA-UX3402ZA:~$
```

any: <live capture in progress>   Packets: 366 · Displayed: 20 (5.5%)   Profile: Default

c. When a traceroute is called for a reachable server, it outputs the identified path that the data tales across the network. On the other side when it is called on an unreachable server, there maybe 2-3 possible hops in the path but at last the inaccessibilty of the server is denoted by continuous output of “* * *”, in the terminal.



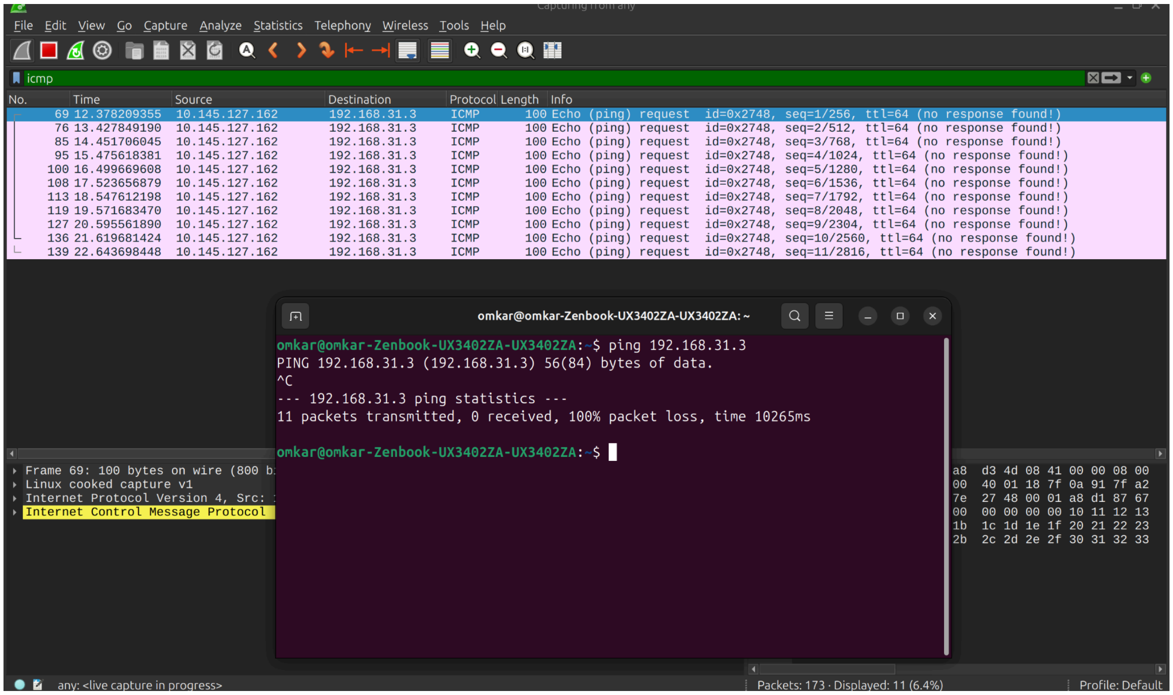
No.	Time	Source	Destination	Protocol	Length	Info
149	21.364800915	10.145.0.3	10.145.127.162	ICMP	72	Time-to-live exceeded (Time to live exceeded in transit)
151	21.368405482	10.145.0.3	10.145.127.162	ICMP	72	Time-to-live exceeded (Time to live exceeded in transit)
153	21.374592441	10.145.0.3	10.145.127.162	ICMP	72	Time-to-live exceeded (Time to live exceeded in transit)
155	21.381271068	10.120.0.25	10.145.127.162	ICMP	72	Time-to-live exceeded (Time to live exceeded in transit)
157	21.387483607	10.120.0.25	10.145.127.162	ICMP	72	Time-to-live exceeded (Time to live exceeded in transit)
159	21.390628540	10.120.0.25	10.145.127.162	ICMP	72	Time-to-live exceeded (Time to live exceeded in transit)
161	21.395932418	10.255.1.3	10.145.127.162	ICMP	81	Time-to-live exceeded (Time to live exceeded in transit)
163	21.399676202	10.255.1.3	10.145.127.162	ICMP	81	Time-to-live exceeded (Time to live exceeded in transit)
166	21.405279092	10.255.1.3	10.145.127.162	ICMP	81	Time-to-live exceeded (Time to live exceeded in transit)

```
Frame 149: 72 bytes on wire (576 b
Linux cooked capture v1
Internet Protocol Version 4, Src:
Internet Control Message Protocol
```

```
61  7b 4c 7a 9f 01 06 08 00
00  fe 01 f9 a0 0a 91 00 03
37  00 00 00 00 45 00 00 25
6d  0a 91 7f a2 c0 a8 1f 03
81
```

omkar@omkar-Zenbook-UX3402ZA-UX3402ZA: ~

```
omkar@omkar-Zenbook-UX3402ZA-UX3402ZA:~$ traceroute 192.168.31.3
traceroute to 192.168.31.3 (192.168.31.3), 64 hops max
  1   10.145.0.3  6.788ms  3.388ms  6.053ms
  2   10.120.0.25  6.460ms  5.925ms  2.997ms
  3   10.255.1.3  5.247ms  3.547ms  5.411ms
  4   *  *  *
  5   *  *  *
  6   *  *  *
  7   *  *  *
  8   *  *  *
  9   *  *  *
 10   *  *  *
 11   *  *  *
 12   *  *  *
 13   *  *  *
 14   * ^C
omkar@omkar-Zenbook-UX3402ZA-UX3402ZA:~$
```



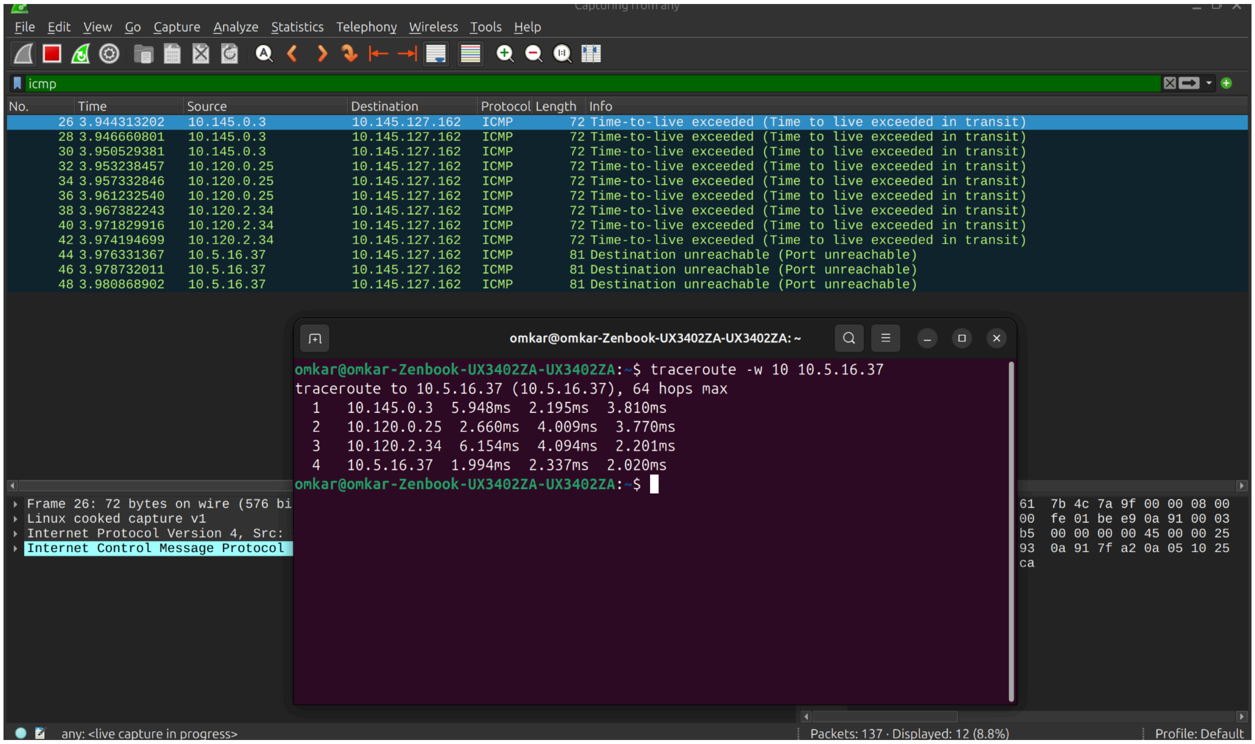
No.	Time	Source	Destination	Protocol	Length	Info
69	12.378209355	10.145.127.162	192.168.31.3	ICMP	100	Echo (ping) request id=0x2748, seq=1/256, ttl=64 (no response found!)
76	13.427849190	10.145.127.162	192.168.31.3	ICMP	100	Echo (ping) request id=0x2748, seq=2/512, ttl=64 (no response found!)
85	14.451706045	10.145.127.162	192.168.31.3	ICMP	100	Echo (ping) request id=0x2748, seq=3/768, ttl=64 (no response found!)
95	15.475618381	10.145.127.162	192.168.31.3	ICMP	100	Echo (ping) request id=0x2748, seq=4/1024, ttl=64 (no response found!)
100	16.499669608	10.145.127.162	192.168.31.3	ICMP	100	Echo (ping) request id=0x2748, seq=5/1280, ttl=64 (no response found!)
108	17.523656879	10.145.127.162	192.168.31.3	ICMP	100	Echo (ping) request id=0x2748, seq=6/1536, ttl=64 (no response found!)
113	18.547612198	10.145.127.162	192.168.31.3	ICMP	100	Echo (ping) request id=0x2748, seq=7/1792, ttl=64 (no response found!)
119	19.571683470	10.145.127.162	192.168.31.3	ICMP	100	Echo (ping) request id=0x2748, seq=8/2048, ttl=64 (no response found!)
127	20.595561890	10.145.127.162	192.168.31.3	ICMP	100	Echo (ping) request id=0x2748, seq=9/2304, ttl=64 (no response found!)
136	21.619681424	10.145.127.162	192.168.31.3	ICMP	100	Echo (ping) request id=0x2748, seq=10/2560, ttl=64 (no response found!)
139	22.643698448	10.145.127.162	192.168.31.3	ICMP	100	Echo (ping) request id=0x2748, seq=11/2816, ttl=64 (no response found!)

```
Frame 69: 100 bytes on wire (800 b
Linux cooked capture v1
Internet Protocol Version 4, Src:
Internet Control Message Protocol
```

```
a8  d3 4d 08 41 00 00 08 00
00  40 01 18 7f 0a 91 7f a2
7e  27 48 00 01 a8 d1 87 67
00  00 00 00 00 10 11 12 13
1b  1c 1d 1e 1f 20 21 22 23
2b  2c 2d 2e 2f 30 31 32 33
```

omkar@omkar-Zenbook-UX3402ZA-UX3402ZA: ~

```
omkar@omkar-Zenbook-UX3402ZA-UX3402ZA:~$ ping 192.168.31.3
PING 192.168.31.3 (192.168.31.3) 56(84) bytes of data.
^C
--- 192.168.31.3 ping statistics ---
11 packets transmitted, 0 received, 100% packet loss, time 10265ms

omkar@omkar-Zenbook-UX3402ZA-UX3402ZA:~$
```



Capturing from any
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help

icmp

```
No.    Time         Source        Destination     Protocol Length Info
    26 3.944313202  10.145.0.3    10.145.127.162  ICMP       72 Time-to-live exceeded (Time to live exceeded in transit)
    28 3.946660801  10.145.0.3    10.145.127.162  ICMP       72 Time-to-live exceeded (Time to live exceeded in transit)
    30 3.950529381  10.145.0.3    10.145.127.162  ICMP       72 Time-to-live exceeded (Time to live exceeded in transit)
    32 3.953238457  10.120.0.25   10.145.127.162  ICMP       72 Time-to-live exceeded (Time to live exceeded in transit)
    34 3.957332846  10.120.0.25   10.145.127.162  ICMP       72 Time-to-live exceeded (Time to live exceeded in transit)
    36 3.961232540  10.120.0.25   10.145.127.162  ICMP       72 Time-to-live exceeded (Time to live exceeded in transit)
    38 3.967382243  10.120.2.34   10.145.127.162  ICMP       72 Time-to-live exceeded (Time to live exceeded in transit)
    40 3.971829916  10.120.2.34   10.145.127.162  ICMP       72 Time-to-live exceeded (Time to live exceeded in transit)
    42 3.974194699  10.120.2.34   10.145.127.162  ICMP       72 Time-to-live exceeded (Time to live exceeded in transit)
    44 3.976331367  10.5.16.37    10.145.127.162  ICMP       81 Destination unreachable (Port unreachable)
    46 3.978732011  10.5.16.37    10.145.127.162  ICMP       81 Destination unreachable (Port unreachable)
    48 3.980868902  10.5.16.37    10.145.127.162  ICMP       81 Destination unreachable (Port unreachable)
```

omkar@omkar-Zenbook-UX3402ZA-UX3402ZA: ~

```
omkar@omkar-Zenbook-UX3402ZA-UX3402ZA:~$ traceroute -w 10 10.5.16.37
traceroute to 10.5.16.37 (10.5.16.37), 64 hops max
  1   10.145.0.3  5.948ms  2.195ms  3.810ms
  2   10.120.0.25  2.660ms  4.009ms  3.770ms
  3   10.120.2.34  6.154ms  4.094ms  2.201ms
  4   10.5.16.37  1.994ms  2.337ms  2.020ms
omkar@omkar-Zenbook-UX3402ZA-UX3402ZA:~$ 
```

```
▸ Frame 26: 72 bytes on wire (576 bi
▸ Linux cooked capture v1
▸ Internet Protocol Version 4, Src:
▸ Internet Control Message Protocol
```

```
61  7b 4c 7a 9f 00 00 08 00
00  fe 01 be e9 0a 91 00 03
b5  00 00 00 00 45 00 00 25
93  0a 91 7f a2 0a 05 10 25
ca
```

any: <live capture in progress>

Packets: 137 · Displayed: 12 (8.8%)

Profile: Default