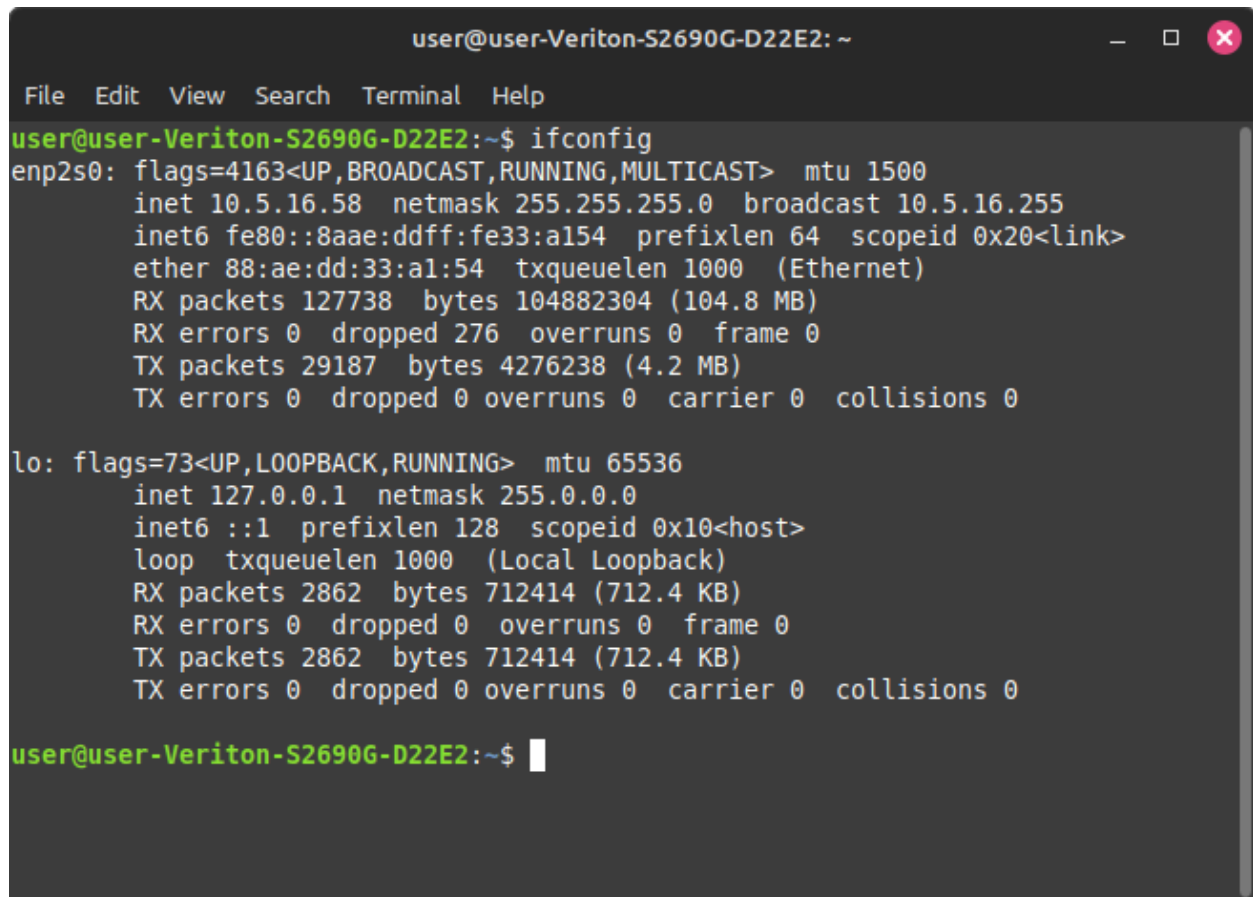


Networking Tools and Wireshark

Part 1: Networking Tools

1) Using **ifconfig** :

A terminal window titled 'user@user-Veriton-S2690G-D22E2: ~' with a menu bar (File, Edit, View, Search, Terminal, Help). The terminal shows the output of the 'ifconfig' command. The first interface, 'enp2s0', is an Ethernet card with IP 10.5.16.58, netmask 255.255.255.0, and broadcast 10.5.16.255. The second interface, 'lo', is the loopback interface with IP 127.0.0.1 and netmask 255.0.0.0. The prompt 'user@user-Veriton-S2690G-D22E2:~\$' is visible at the bottom.

```
user@user-Veriton-S2690G-D22E2:~$ ifconfig
enp2s0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
    inet 10.5.16.58  netmask 255.255.255.0  broadcast 10.5.16.255
    inet6 fe80::8aae:ddff:fe33:a154  prefixlen 64  scopeid 0x20<link>
    ether 88:ae:dd:33:a1:54  txqueuelen 1000  (Ethernet)
    RX packets 127738  bytes 104882304 (104.8 MB)
    RX errors 0  dropped 276  overruns 0  frame 0
    TX packets 29187  bytes 4276238 (4.2 MB)
    TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

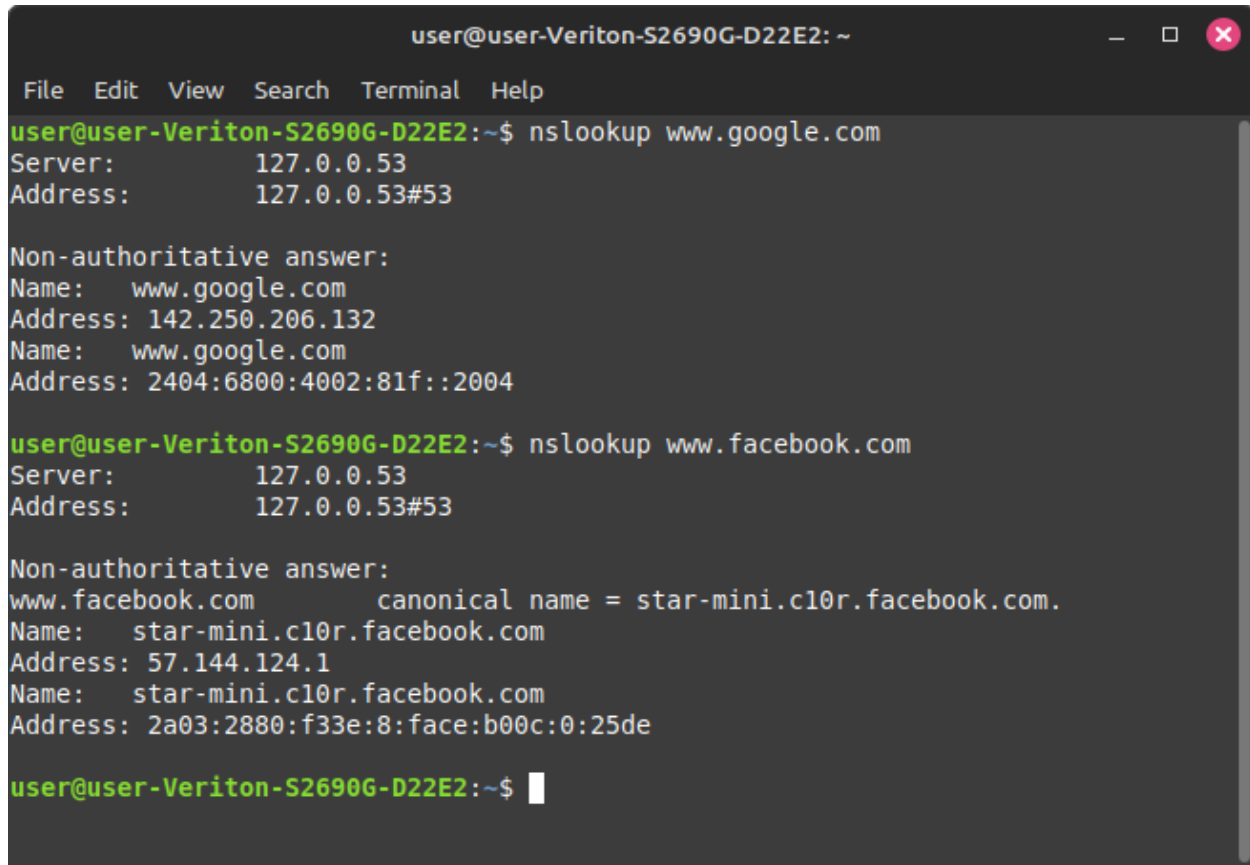
lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
    inet 127.0.0.1  netmask 255.0.0.0
    inet6 ::1  prefixlen 128  scopeid 0x10<host>
    loop txqueuelen 1000  (Local Loopback)
    RX packets 2862  bytes 712414 (712.4 KB)
    RX errors 0  dropped 0  overruns 0  frame 0
    TX packets 2862  bytes 712414 (712.4 KB)
    TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

user@user-Veriton-S2690G-D22E2:~$
```

IP address of my machine : **10.5.16.58**

subnet mask of my subnet : **255.255.255.0**

network ID of my subnet : **10.5.16.0**

2) Using **nslookup** :A screenshot of a terminal window titled 'user@user-Veriton-S2690G-D22E2: ~'. The terminal shows the execution of 'nslookup www.google.com' and 'nslookup www.facebook.com'. The output for google.com shows a non-authoritative answer with IP 142.250.206.132. The output for facebook.com shows a canonical name 'star-mini.c10r.facebook.com' and IP 57.144.124.1.

```
user@user-Veriton-S2690G-D22E2: ~  
File Edit View Search Terminal Help  
user@user-Veriton-S2690G-D22E2:~$ nslookup www.google.com  
Server:      127.0.0.53  
Address:     127.0.0.53#53  
  
Non-authoritative answer:  
Name:   www.google.com  
Address: 142.250.206.132  
Name:   www.google.com  
Address: 2404:6800:4002:81f::2004  
  
user@user-Veriton-S2690G-D22E2:~$ 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: 57.144.124.1  
Name:   star-mini.c10r.facebook.com  
Address: 2a03:2880:f33e:8:face:b00c:0:25de  
  
user@user-Veriton-S2690G-D22E2:~$
```

IP Address of :

- 1) www.google.com : 142.250.206.132
- 2) www.facebook.com : 57.144.124.1

IP address of www.google.com using DNS Server Address :

- 1) 172.16.1.164 : 216.58.203.26
- 2) 172.16.1.180 : 142.250.199.132
- 3) 172.16.1.165 : 142.250.192.100
- 4) 172.16.1.166 : 142.250.77.36

Reason For Change in IP Addresses is **Content Delivery Network (CDN)**: Major websites like Google and Facebook use CDNs to serve users from geographically close servers to improve speed and reliability.

```
user@user-Veriton-S2690G-D22E2: ~  
File Edit View Search Terminal Help  
user@user-Veriton-S2690G-D22E2:~$ nslookup www.google.com 172.16.1.164  
Server:          172.16.1.164  
Address:         172.16.1.164#53  
  
Non-authoritative answer:  
Name:   www.google.com  
Address: 216.58.203.36  
Name:   www.google.com  
Address: 2404:6800:4009:82c::2004  
  
user@user-Veriton-S2690G-D22E2:~$ nslookup www.google.com 172.16.1.180  
Server:          172.16.1.180  
Address:         172.16.1.180#53  
  
Non-authoritative answer:  
Name:   www.google.com  
Address: 142.250.199.132  
Name:   www.google.com  
Address: 2404:6800:4002:817::2004  
  
user@user-Veriton-S2690G-D22E2:~$ nslookup www.google.com 172.16.1.165  
Server:          172.16.1.165  
Address:         172.16.1.165#53  
  
Non-authoritative answer:  
Name:   www.google.com  
Address: 142.250.192.100  
Name:   www.google.com  
Address: 2404:6800:4009:82a::2004  
  
user@user-Veriton-S2690G-D22E2:~$ nslookup www.google.com 172.16.1.166  
Server:          172.16.1.166  
Address:         172.16.1.166#53  
  
Non-authoritative answer:  
Name:   www.google.com  
Address: 142.250.77.36  
Name:   www.google.com  
Address: 2404:6800:4009:81c::2004  
  
user@user-Veriton-S2690G-D22E2:~$
```

3) Using **Ping** : Pinging IP Address : 10.5.16.57

1) Packet size : 64 bytes (72 bytes Including Headers)

```
user@user-Veriton-S2690G-D22E2: ~  
File Edit View Search Terminal Help  
user@user-Veriton-S2690G-D22E2:~$ ping -s 64 -c 100 -W 100 10.5.16.57  
PING 10.5.16.57 (10.5.16.57) 64(92) bytes of data:  
72 bytes from 10.5.16.57: icmp_seq=1 ttl=64 time=0.261 ms  
72 bytes from 10.5.16.57: icmp_seq=2 ttl=64 time=0.492 ms  
72 bytes from 10.5.16.57: icmp_seq=3 ttl=64 time=0.371 ms  
72 bytes from 10.5.16.57: icmp_seq=4 ttl=64 time=0.490 ms  
72 bytes from 10.5.16.57: icmp_seq=5 ttl=64 time=0.405 ms  
72 bytes from 10.5.16.57: icmp_seq=6 ttl=64 time=0.332 ms  
72 bytes from 10.5.16.57: icmp_seq=7 ttl=64 time=0.493 ms  
72 bytes from 10.5.16.57: icmp_seq=8 ttl=64 time=0.340 ms  
72 bytes from 10.5.16.57: icmp_seq=9 ttl=64 time=0.374 ms  
72 bytes from 10.5.16.57: icmp_seq=10 ttl=64 time=0.483 ms  
72 bytes from 10.5.16.57: icmp_seq=11 ttl=64 time=0.304 ms  
72 bytes from 10.5.16.57: icmp_seq=12 ttl=64 time=0.280 ms  
72 bytes from 10.5.16.57: icmp_seq=13 ttl=64 time=0.475 ms  
72 bytes from 10.5.16.57: icmp_seq=14 ttl=64 time=0.375 ms  
72 bytes from 10.5.16.57: icmp_seq=15 ttl=64 time=0.263 ms  
72 bytes from 10.5.16.57: icmp_seq=16 ttl=64 time=0.353 ms  
72 bytes from 10.5.16.57: icmp_seq=17 ttl=64 time=0.344 ms  
72 bytes from 10.5.16.57: icmp_seq=18 ttl=64 time=0.340 ms  
72 bytes from 10.5.16.57: icmp_seq=19 ttl=64 time=0.305 ms  
72 bytes from 10.5.16.57: icmp_seq=20 ttl=64 time=0.361 ms  
72 bytes from 10.5.16.57: icmp_seq=21 ttl=64 time=0.268 ms  
72 bytes from 10.5.16.57: icmp_seq=22 ttl=64 time=0.239 ms  
72 bytes from 10.5.16.57: icmp_seq=23 ttl=64 time=0.321 ms  
72 bytes from 10.5.16.57: icmp_seq=24 ttl=64 time=0.316 ms  
72 bytes from 10.5.16.57: icmp_seq=25 ttl=64 time=0.340 ms  
72 bytes from 10.5.16.57: icmp_seq=26 ttl=64 time=0.478 ms  
72 bytes from 10.5.16.57: icmp_seq=27 ttl=64 time=0.383 ms  
72 bytes from 10.5.16.57: icmp_seq=28 ttl=64 time=0.490 ms  
72 bytes from 10.5.16.57: icmp_seq=29 ttl=64 time=0.371 ms  
72 bytes from 10.5.16.57: icmp_seq=30 ttl=64 time=0.255 ms  
72 bytes from 10.5.16.57: icmp_seq=31 ttl=64 time=0.324 ms  
72 bytes from 10.5.16.57: icmp_seq=32 ttl=64 time=0.494 ms  
72 bytes from 10.5.16.57: icmp_seq=33 ttl=64 time=0.358 ms  
72 bytes from 10.5.16.57: icmp_seq=34 ttl=64 time=0.302 ms  
72 bytes from 10.5.16.57: icmp_seq=35 ttl=64 time=0.492 ms  
72 bytes from 10.5.16.57: icmp_seq=36 ttl=64 time=0.310 ms  
72 bytes from 10.5.16.57: icmp_seq=37 ttl=64 time=0.302 ms  
72 bytes from 10.5.16.57: icmp_seq=38 ttl=64 time=0.361 ms  
72 bytes from 10.5.16.57: icmp_seq=39 ttl=64 time=0.354 ms  
72 bytes from 10.5.16.57: icmp_seq=40 ttl=64 time=0.350 ms  
72 bytes from 10.5.16.57: icmp_seq=41 ttl=64 time=0.330 ms  
72 bytes from 10.5.16.57: icmp_seq=42 ttl=64 time=0.354 ms  
72 bytes from 10.5.16.57: icmp_seq=43 ttl=64 time=0.512 ms  
72 bytes from 10.5.16.57: icmp_seq=44 ttl=64 time=0.301 ms  
72 bytes from 10.5.16.57: icmp_seq=45 ttl=64 time=0.499 ms
```

```
user@user-Veriton-S2690G-D22E2: ~  
File Edit View Search Terminal Help  
72 bytes from 10.5.16.57: icmp_seq=59 ttl=64 time=0.360 ms  
72 bytes from 10.5.16.57: icmp_seq=60 ttl=64 time=0.347 ms  
72 bytes from 10.5.16.57: icmp_seq=61 ttl=64 time=0.333 ms  
72 bytes from 10.5.16.57: icmp_seq=62 ttl=64 time=0.360 ms  
72 bytes from 10.5.16.57: icmp_seq=63 ttl=64 time=0.350 ms  
72 bytes from 10.5.16.57: icmp_seq=64 ttl=64 time=0.480 ms  
72 bytes from 10.5.16.57: icmp_seq=65 ttl=64 time=0.510 ms  
72 bytes from 10.5.16.57: icmp_seq=66 ttl=64 time=0.344 ms  
72 bytes from 10.5.16.57: icmp_seq=67 ttl=64 time=0.315 ms  
72 bytes from 10.5.16.57: icmp_seq=68 ttl=64 time=0.183 ms  
72 bytes from 10.5.16.57: icmp_seq=69 ttl=64 time=0.361 ms  
72 bytes from 10.5.16.57: icmp_seq=70 ttl=64 time=0.309 ms  
72 bytes from 10.5.16.57: icmp_seq=71 ttl=64 time=0.348 ms  
72 bytes from 10.5.16.57: icmp_seq=72 ttl=64 time=0.352 ms  
72 bytes from 10.5.16.57: icmp_seq=73 ttl=64 time=0.506 ms  
72 bytes from 10.5.16.57: icmp_seq=74 ttl=64 time=0.298 ms  
72 bytes from 10.5.16.57: icmp_seq=75 ttl=64 time=0.266 ms  
72 bytes from 10.5.16.57: icmp_seq=76 ttl=64 time=0.363 ms  
72 bytes from 10.5.16.57: icmp_seq=77 ttl=64 time=0.368 ms  
72 bytes from 10.5.16.57: icmp_seq=78 ttl=64 time=0.298 ms  
72 bytes from 10.5.16.57: icmp_seq=79 ttl=64 time=0.476 ms  
72 bytes from 10.5.16.57: icmp_seq=80 ttl=64 time=0.361 ms  
72 bytes from 10.5.16.57: icmp_seq=81 ttl=64 time=0.360 ms  
72 bytes from 10.5.16.57: icmp_seq=82 ttl=64 time=0.334 ms  
72 bytes from 10.5.16.57: icmp_seq=83 ttl=64 time=0.364 ms  
72 bytes from 10.5.16.57: icmp_seq=84 ttl=64 time=0.369 ms  
72 bytes from 10.5.16.57: icmp_seq=85 ttl=64 time=0.409 ms  
72 bytes from 10.5.16.57: icmp_seq=86 ttl=64 time=0.325 ms  
72 bytes from 10.5.16.57: icmp_seq=87 ttl=64 time=0.358 ms  
72 bytes from 10.5.16.57: icmp_seq=88 ttl=64 time=0.276 ms  
72 bytes from 10.5.16.57: icmp_seq=89 ttl=64 time=0.366 ms  
72 bytes from 10.5.16.57: icmp_seq=90 ttl=64 time=0.484 ms  
72 bytes from 10.5.16.57: icmp_seq=91 ttl=64 time=0.470 ms  
72 bytes from 10.5.16.57: icmp_seq=92 ttl=64 time=0.351 ms  
72 bytes from 10.5.16.57: icmp_seq=93 ttl=64 time=0.493 ms  
72 bytes from 10.5.16.57: icmp_seq=94 ttl=64 time=0.356 ms  
72 bytes from 10.5.16.57: icmp_seq=95 ttl=64 time=0.305 ms  
72 bytes from 10.5.16.57: icmp_seq=96 ttl=64 time=0.257 ms  
72 bytes from 10.5.16.57: icmp_seq=97 ttl=64 time=0.360 ms  
72 bytes from 10.5.16.57: icmp_seq=98 ttl=64 time=0.337 ms  
72 bytes from 10.5.16.57: icmp_seq=99 ttl=64 time=0.334 ms  
72 bytes from 10.5.16.57: icmp_seq=100 ttl=64 time=0.488 ms  
--- 10.5.16.57 ping statistics ---  
100 packets transmitted, 100 received, 0% packet loss, time 101359ms  
rtt min/avg/max/mdev = 0.183/0.368/0.512/0.077 ms  
user@user-Veriton-S2690G-D22E2:~$
```

Min : 0.183 ms

Avg : 0.368 ms

Max : 0.512 ms

StdDev : 0.077 ms

2) Packet size : 128 bytes (136 bytes Including Headers)

```
user@user-Veriton-S2690G-D22E2: ~  
File Edit View Search Terminal Help  
PING 10.5.16.57 (10.5.16.57): 5 ping -s 128 -c 100 -W 100 10.5.16.57  
136 bytes from 10.5.16.57: icmp seq=1 ttl=64 time=0.334 ms  
136 bytes from 10.5.16.57: icmp seq=2 ttl=64 time=0.358 ms  
136 bytes from 10.5.16.57: icmp seq=3 ttl=64 time=0.361 ms  
136 bytes from 10.5.16.57: icmp seq=4 ttl=64 time=0.493 ms  
136 bytes from 10.5.16.57: icmp seq=5 ttl=64 time=0.344 ms  
136 bytes from 10.5.16.57: icmp seq=6 ttl=64 time=0.496 ms  
136 bytes from 10.5.16.57: icmp seq=7 ttl=64 time=0.320 ms  
136 bytes from 10.5.16.57: icmp seq=8 ttl=64 time=0.369 ms  
136 bytes from 10.5.16.57: icmp seq=9 ttl=64 time=0.592 ms  
136 bytes from 10.5.16.57: icmp seq=10 ttl=64 time=0.486 ms  
136 bytes from 10.5.16.57: icmp seq=11 ttl=64 time=0.484 ms  
136 bytes from 10.5.16.57: icmp seq=12 ttl=64 time=0.355 ms  
136 bytes from 10.5.16.57: icmp seq=13 ttl=64 time=0.375 ms  
136 bytes from 10.5.16.57: icmp seq=14 ttl=64 time=0.360 ms  
136 bytes from 10.5.16.57: icmp seq=15 ttl=64 time=0.360 ms  
136 bytes from 10.5.16.57: icmp seq=16 ttl=64 time=0.346 ms  
136 bytes from 10.5.16.57: icmp seq=17 ttl=64 time=0.481 ms  
136 bytes from 10.5.16.57: icmp seq=18 ttl=64 time=0.402 ms  
136 bytes from 10.5.16.57: icmp seq=19 ttl=64 time=0.488 ms  
136 bytes from 10.5.16.57: icmp seq=20 ttl=64 time=0.355 ms  
136 bytes from 10.5.16.57: icmp seq=21 ttl=64 time=0.502 ms  
136 bytes from 10.5.16.57: icmp seq=22 ttl=64 time=0.491 ms  
136 bytes from 10.5.16.57: icmp seq=23 ttl=64 time=0.350 ms  
136 bytes from 10.5.16.57: icmp seq=24 ttl=64 time=0.272 ms  
136 bytes from 10.5.16.57: icmp seq=25 ttl=64 time=0.307 ms  
136 bytes from 10.5.16.57: icmp seq=26 ttl=64 time=0.371 ms  
136 bytes from 10.5.16.57: icmp seq=27 ttl=64 time=0.360 ms  
136 bytes from 10.5.16.57: icmp seq=28 ttl=64 time=0.319 ms  
136 bytes from 10.5.16.57: icmp seq=29 ttl=64 time=0.452 ms  
136 bytes from 10.5.16.57: icmp seq=30 ttl=64 time=0.382 ms  
136 bytes from 10.5.16.57: icmp seq=31 ttl=64 time=0.386 ms  
136 bytes from 10.5.16.57: icmp seq=32 ttl=64 time=0.305 ms  
136 bytes from 10.5.16.57: icmp seq=33 ttl=64 time=0.367 ms  
136 bytes from 10.5.16.57: icmp seq=34 ttl=64 time=0.376 ms  
136 bytes from 10.5.16.57: icmp seq=35 ttl=64 time=0.374 ms  
136 bytes from 10.5.16.57: icmp seq=36 ttl=64 time=0.269 ms  
136 bytes from 10.5.16.57: icmp seq=37 ttl=64 time=0.314 ms  
136 bytes from 10.5.16.57: icmp seq=38 ttl=64 time=0.463 ms  
136 bytes from 10.5.16.57: icmp seq=39 ttl=64 time=0.379 ms  
136 bytes from 10.5.16.57: icmp seq=40 ttl=64 time=0.366 ms  
136 bytes from 10.5.16.57: icmp seq=41 ttl=64 time=0.376 ms  
136 bytes from 10.5.16.57: icmp seq=42 ttl=64 time=0.319 ms  
136 bytes from 10.5.16.57: icmp seq=43 ttl=64 time=0.359 ms  
136 bytes from 10.5.16.57: icmp seq=44 ttl=64 time=0.397 ms  
136 bytes from 10.5.16.57: icmp seq=45 ttl=64 time=0.376 ms
```

```
user@user-Veriton-S2690G-D22E2: ~  
File Edit View Search Terminal Help  
136 bytes from 10.5.16.57: icmp seq=59 ttl=64 time=0.339 ms  
136 bytes from 10.5.16.57: icmp seq=60 ttl=64 time=0.365 ms  
136 bytes from 10.5.16.57: icmp seq=61 ttl=64 time=0.311 ms  
136 bytes from 10.5.16.57: icmp seq=62 ttl=64 time=0.457 ms  
136 bytes from 10.5.16.57: icmp seq=63 ttl=64 time=0.359 ms  
136 bytes from 10.5.16.57: icmp seq=64 ttl=64 time=0.355 ms  
136 bytes from 10.5.16.57: icmp seq=65 ttl=64 time=0.384 ms  
136 bytes from 10.5.16.57: icmp seq=66 ttl=64 time=0.285 ms  
136 bytes from 10.5.16.57: icmp seq=67 ttl=64 time=0.372 ms  
136 bytes from 10.5.16.57: icmp seq=68 ttl=64 time=0.373 ms  
136 bytes from 10.5.16.57: icmp seq=69 ttl=64 time=0.320 ms  
136 bytes from 10.5.16.57: icmp seq=70 ttl=64 time=0.389 ms  
136 bytes from 10.5.16.57: icmp seq=71 ttl=64 time=0.375 ms  
136 bytes from 10.5.16.57: icmp seq=72 ttl=64 time=0.382 ms  
136 bytes from 10.5.16.57: icmp seq=73 ttl=64 time=0.373 ms  
136 bytes from 10.5.16.57: icmp seq=74 ttl=64 time=0.376 ms  
136 bytes from 10.5.16.57: icmp seq=75 ttl=64 time=0.379 ms  
136 bytes from 10.5.16.57: icmp seq=76 ttl=64 time=0.437 ms  
136 bytes from 10.5.16.57: icmp seq=77 ttl=64 time=0.385 ms  
136 bytes from 10.5.16.57: icmp seq=78 ttl=64 time=0.438 ms  
136 bytes from 10.5.16.57: icmp seq=79 ttl=64 time=0.373 ms  
136 bytes from 10.5.16.57: icmp seq=80 ttl=64 time=0.379 ms  
136 bytes from 10.5.16.57: icmp seq=81 ttl=64 time=0.378 ms  
136 bytes from 10.5.16.57: icmp seq=82 ttl=64 time=0.373 ms  
136 bytes from 10.5.16.57: icmp seq=83 ttl=64 time=0.375 ms  
136 bytes from 10.5.16.57: icmp seq=84 ttl=64 time=0.369 ms  
136 bytes from 10.5.16.57: icmp seq=85 ttl=64 time=0.305 ms  
136 bytes from 10.5.16.57: icmp seq=86 ttl=64 time=0.376 ms  
136 bytes from 10.5.16.57: icmp seq=87 ttl=64 time=0.368 ms  
136 bytes from 10.5.16.57: icmp seq=88 ttl=64 time=0.315 ms  
136 bytes from 10.5.16.57: icmp seq=89 ttl=64 time=0.377 ms  
136 bytes from 10.5.16.57: icmp seq=90 ttl=64 time=0.363 ms  
136 bytes from 10.5.16.57: icmp seq=91 ttl=64 time=0.360 ms  
136 bytes from 10.5.16.57: icmp seq=92 ttl=64 time=0.287 ms  
136 bytes from 10.5.16.57: icmp seq=93 ttl=64 time=0.446 ms  
136 bytes from 10.5.16.57: icmp seq=94 ttl=64 time=0.374 ms  
136 bytes from 10.5.16.57: icmp seq=95 ttl=64 time=0.463 ms  
136 bytes from 10.5.16.57: icmp seq=96 ttl=64 time=0.452 ms  
136 bytes from 10.5.16.57: icmp seq=97 ttl=64 time=0.384 ms  
136 bytes from 10.5.16.57: icmp seq=98 ttl=64 time=0.361 ms  
136 bytes from 10.5.16.57: icmp seq=99 ttl=64 time=0.366 ms  
136 bytes from 10.5.16.57: icmp seq=100 ttl=64 time=0.362 ms  
--- 10.5.16.57 ping statistics ---  
100 packets transmitted, 100 received, 0% packet loss, time 101376ms  
rtt min/avg/max/mdev = 0.272/0.385/0.511/0.056 ms  
user@user-Veriton-S2690G-D22E2: ~
```

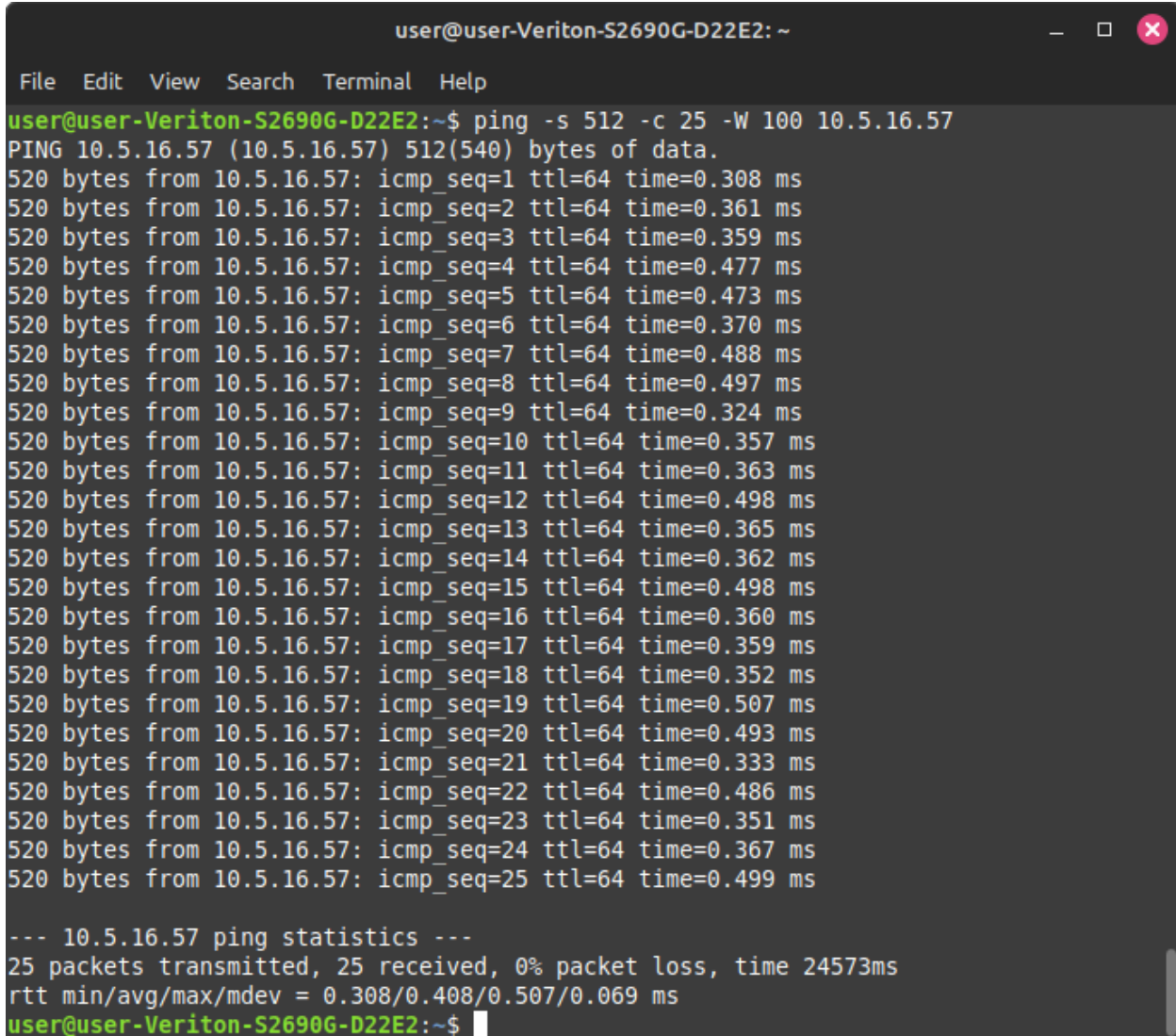
Min : 0.272 ms

Avg : 0.385 ms

Max : 0.511 ms

StdDev : 0.056 ms

2) Packet size : 512 bytes (520 bytes Including Headers)

A terminal window titled 'user@user-Veriton-S2690G-D22E2: ~' showing the output of a ping command. The command is 'ping -s 512 -c 25 -W 100 10.5.16.57'. The output shows 25 successful pings, each with a 520-byte packet size and a TTL of 64. The round-trip times (RTT) for each ping are listed, ranging from 0.308 ms to 0.507 ms. At the bottom, the ping statistics are summarized: 25 packets transmitted, 25 received, 0% packet loss, and a total time of 24573 ms. The RTT statistics are: min/avg/max/mdev = 0.308/0.408/0.507/0.069 ms.

```
user@user-Veriton-S2690G-D22E2: ~  
File Edit View Search Terminal Help  
user@user-Veriton-S2690G-D22E2:~$ ping -s 512 -c 25 -W 100 10.5.16.57  
PING 10.5.16.57 (10.5.16.57) 512(540) bytes of data.  
520 bytes from 10.5.16.57: icmp_seq=1 ttl=64 time=0.308 ms  
520 bytes from 10.5.16.57: icmp_seq=2 ttl=64 time=0.361 ms  
520 bytes from 10.5.16.57: icmp_seq=3 ttl=64 time=0.359 ms  
520 bytes from 10.5.16.57: icmp_seq=4 ttl=64 time=0.477 ms  
520 bytes from 10.5.16.57: icmp_seq=5 ttl=64 time=0.473 ms  
520 bytes from 10.5.16.57: icmp_seq=6 ttl=64 time=0.370 ms  
520 bytes from 10.5.16.57: icmp_seq=7 ttl=64 time=0.488 ms  
520 bytes from 10.5.16.57: icmp_seq=8 ttl=64 time=0.497 ms  
520 bytes from 10.5.16.57: icmp_seq=9 ttl=64 time=0.324 ms  
520 bytes from 10.5.16.57: icmp_seq=10 ttl=64 time=0.357 ms  
520 bytes from 10.5.16.57: icmp_seq=11 ttl=64 time=0.363 ms  
520 bytes from 10.5.16.57: icmp_seq=12 ttl=64 time=0.498 ms  
520 bytes from 10.5.16.57: icmp_seq=13 ttl=64 time=0.365 ms  
520 bytes from 10.5.16.57: icmp_seq=14 ttl=64 time=0.362 ms  
520 bytes from 10.5.16.57: icmp_seq=15 ttl=64 time=0.498 ms  
520 bytes from 10.5.16.57: icmp_seq=16 ttl=64 time=0.360 ms  
520 bytes from 10.5.16.57: icmp_seq=17 ttl=64 time=0.359 ms  
520 bytes from 10.5.16.57: icmp_seq=18 ttl=64 time=0.352 ms  
520 bytes from 10.5.16.57: icmp_seq=19 ttl=64 time=0.507 ms  
520 bytes from 10.5.16.57: icmp_seq=20 ttl=64 time=0.493 ms  
520 bytes from 10.5.16.57: icmp_seq=21 ttl=64 time=0.333 ms  
520 bytes from 10.5.16.57: icmp_seq=22 ttl=64 time=0.486 ms  
520 bytes from 10.5.16.57: icmp_seq=23 ttl=64 time=0.351 ms  
520 bytes from 10.5.16.57: icmp_seq=24 ttl=64 time=0.367 ms  
520 bytes from 10.5.16.57: icmp_seq=25 ttl=64 time=0.499 ms  
  
--- 10.5.16.57 ping statistics ---  
25 packets transmitted, 25 received, 0% packet loss, time 24573ms  
rtt min/avg/max/mdev = 0.308/0.408/0.507/0.069 ms  
user@user-Veriton-S2690G-D22E2:~$
```

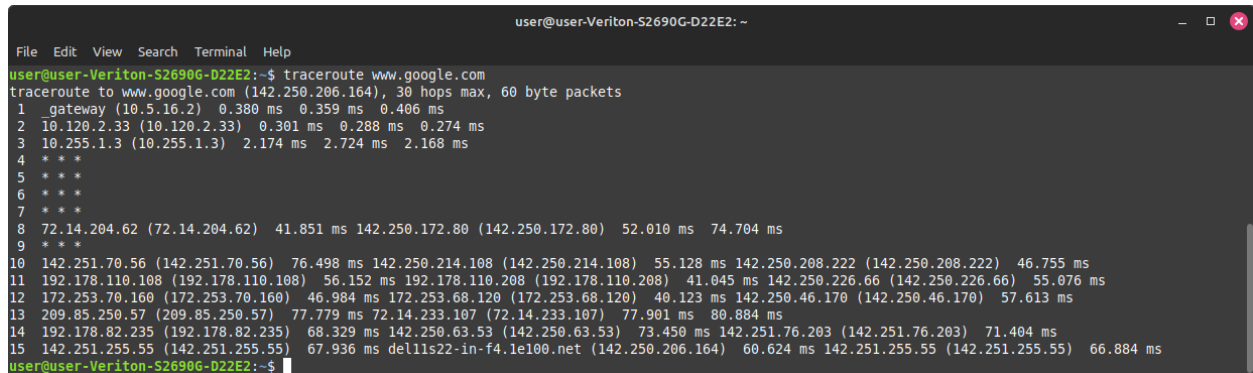
Min : 0.308 ms

Avg : 0.408 ms

Max : 0.507 ms

StdDev : 0.069 ms

4) Run traceroute for www.google.com :



```
user@user-Veriton-S2690G-D22E2: ~  
File Edit View Search Terminal Help  
user@user-Veriton-S2690G-D22E2:~$ traceroute www.google.com  
traceroute to www.google.com (142.250.206.164), 30 hops max, 60 byte packets  
1  gateway (10.5.16.2)  0.380 ms  0.359 ms  0.406 ms  
2  10.120.2.33 (10.120.2.33)  0.301 ms  0.288 ms  0.274 ms  
3  10.255.1.3 (10.255.1.3)  2.174 ms  2.724 ms  2.168 ms  
4  ***  
5  ***  
6  ***  
7  ***  
8  72.14.204.62 (72.14.204.62)  41.851 ms  142.250.172.80 (142.250.172.80)  52.010 ms  74.704 ms  
9  ***  
10  142.251.70.56 (142.251.70.56)  76.498 ms  142.250.214.108 (142.250.214.108)  55.128 ms  142.250.208.222 (142.250.208.222)  46.755 ms  
11  192.178.110.108 (192.178.110.108)  56.152 ms  192.178.110.208 (192.178.110.208)  41.045 ms  142.250.226.66 (142.250.226.66)  55.076 ms  
12  172.253.70.160 (172.253.70.160)  46.984 ms  172.253.68.120 (172.253.68.120)  40.123 ms  142.250.46.170 (142.250.46.170)  57.613 ms  
13  209.85.250.57 (209.85.250.57)  77.779 ms  72.14.233.107 (72.14.233.107)  77.901 ms  80.884 ms  
14  192.178.82.235 (192.178.82.235)  68.329 ms  142.250.63.53 (142.250.63.53)  73.450 ms  142.251.76.203 (142.251.76.203)  71.404 ms  
15  142.251.255.55 (142.251.255.55)  67.936 ms  dell1s22-in-f4.1e100.net (142.250.206.164)  60.624 ms  142.251.255.55 (142.251.255.55)  66.884 ms  
user@user-Veriton-S2690G-D22E2:~$
```

The “***” in the **traceroute** output indicates that the probe packets sent to a specific hop **did not receive a response** within the timeout period.

The number of hosts (or hops) visible in the traceroute output is **15**, as the final destination is reached at hop 15. Each hop represents a host or router that processed the packet.

Part 2: Packet Analysis

```
prabhas-golla@prabhas-golla-HP-Pavilion-Laptop-15-eg2xxx: ~/Desktop
prabhas-golla@prabhas-golla-HP-Pavilion-Lapt... x prabhas-golla@prabhas-golla-HP-Pavilion-Lapt... x
prabhas-golla@prabhas-golla-HP-Pavilion-Laptop-15-eg2xxx:~/Desktop$ 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 1551 bytes 199514 (199.5 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 1551 bytes 199514 (199.5 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

wlp1s0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.145.37.75 netmask 255.255.128.0 broadcast 10.145.127.255
    inet6 fe80::5bd6:35d6:8911:1cfa prefixlen 64 scopeid 0x20<link>
    ether b4:8c:9d:28:1d:f1 txqueuelen 1000 (Ethernet)
    RX packets 82278 bytes 105902694 (105.9 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 42810 bytes 5921818 (5.9 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

prabhas-golla@prabhas-golla-HP-Pavilion-Laptop-15-eg2xxx:~/Desktop$
```

My IP Address For This Part : 10.145.37.75

1) Analysis of DNS Packets: Structure and its Traffic :

a) DNS is using **UDP**

dns && dns.qry.name == "www.iitkgp.ac.in"

No.	Time	Source	Destination	Protocol	Length	Info
185	17.311448923	10.145.37.75	172.16.1.166	DNS	87	Standard query 0x5e6f HTTPS www.iitkgp.ac.in OPT
186	17.315796624	172.16.1.166	10.145.37.75	DNS	143	Standard query response 0x5e6f HTTPS www.iitkgp.ac.in SOA localdns.iitkgp.ac.in OPT
187	17.317158754	10.145.37.75	172.16.1.166	DNS	87	Standard query 0x0386 A www.iitkgp.ac.in OPT
188	17.317321928	10.145.37.75	172.16.1.166	DNS	87	Standard query 0xde12 AAAA www.iitkgp.ac.in OPT
189	17.321743763	172.16.1.166	10.145.37.75	DNS	103	Standard query response 0x0386 A www.iitkgp.ac.in A 172.16.3.10 OPT
190	17.321743918	172.16.1.166	10.145.37.75	DNS	143	Standard query response 0xde12 AAAA www.iitkgp.ac.in SOA localdns.iitkgp.ac.in OPT
244	20.082575487	10.145.37.75	172.16.1.166	DNS	87	Standard query 0x5ab3 HTTPS www.iitkgp.ac.in OPT
248	20.083358299	10.145.37.75	172.16.1.166	DNS	87	Standard query 0x7417 AAAA www.iitkgp.ac.in OPT
259	20.086600759	172.16.1.166	10.145.37.75	DNS	143	Standard query response 0x5ab3 HTTPS www.iitkgp.ac.in SOA localdns.iitkgp.ac.in OPT
262	20.086601027	172.16.1.166	10.145.37.75	DNS	143	Standard query response 0x7417 AAAA www.iitkgp.ac.in SOA localdns.iitkgp.ac.in OPT

Frame 189: 103 bytes on wire (824 bits), 103 bytes captured (824 bits) on interface 0
 Ethernet II, Src: Cisco 4c:7a:9f:70:61:7b, Dst: AzureWaveTec 28:1d:f1:7b:4c:7a:9f:70:61:7b
 Internet Protocol Version 4, Src: 172.16.1.166, Dst: 10.145.37.75
 User Datagram Protocol, Src Port: 53, Dst Port: 53994
 Domain Name System (response)
 Transaction ID: 0x0386
 Flags: 0x8580 Standard query response, No error
 Questions: 1
 Answer RRs: 1
 Authority RRs: 0
 Additional RRs: 1
 Queries
 Answers
 www.iitkgp.ac.in: type A, class IN, addr 172.16.3.10
 Name: www.iitkgp.ac.in
 Type: A (1) (Host Address)
 Class: IN (0x0001)
 Time to live: 86400 (1 day)
 Data length: 4
 Address: 172.16.3.10
 Additional records
 <Root>: type OPT
 Name: <Root>
 Type: OPT (41)

b) Source and Destination :

Source : 10.145.37.75 (Local Server)

Destination : 172.16.1.166 (<https://www.iitkgp.ac.in>)

c) How many DNS queries are sent from your browser (host machine) to DNS

Server(s) during the name-to-IP resolution : **3 Queries**

d) The DNS server at **172 .16.1.166** replies with the resolved IP address for <https://www.iitkgp.ac.in> .

e) Only **one DNS server (172 .16.1.166)** is involved in this case.

Yes, this DNS server responds to the queries.

f) list the resource:

1. Query Record

- **Name:** <https://www.iitkgp.ac.in>
- **Type:** A (Address record, used for mapping a domain name to an IP address)
- **Class:** IN (Internet)
- **TTL:** Not applicable for queries
- **Data Length:** Not applicable for queries

2. Answer Record

- **Name:** <https://www.iitkgp.ac.in>
- **Type:** A (Address record)
- **Class:** IN (Internet)
- **TTL:** 86400 seconds (1 day, indicating how long the record can be cached)
- **Data Length:** 4 bytes
- **Resolved IP Address:** 172.16.3.10

2) Web Traffic (HTTP):

No.	Time	Source	Destination	Protocol	Length	Info
44	8.829491	10.145.37.75	172.217.174.238	HTTP	467	GET /time/1/current?cup2key=8:URM06gdGj_FcVx2_s48QBH0Ma5B5r7HYX7ffPkLVyA8&cup2hreq=...
159	8.819676	172.217.174.238	10.145.37.75	HTTP/1.1	86	HTTP/1.1 200 OK , JSON (application/json)
755	11.180205	10.145.37.75	69.43.111.82	HTTP	513	GET /-grovesd/ HTTP/1.1
832	11.419874	69.43.111.82	10.145.37.75	HTTP	947	HTTP/1.1 200 OK (text/html)
842	11.476579	10.145.37.75	69.43.111.82	HTTP	421	GET /-grovesd/css/base.css HTTP/1.1
888	11.717172	69.43.111.82	10.145.37.75	HTTP	1136	HTTP/1.1 200 OK (text/css)
937	11.778351	10.145.37.75	142.250.66.10	HTTP	410	GET /ajax/libs/webfont/1/webfont.js HTTP/1.1
951	11.828238	142.250.66.10	10.145.37.75	HTTP	917	HTTP/1.1 200 OK (text/javascript)
1012	11.959906	10.145.37.75	69.43.111.82	HTTP	486	GET /-grovesd/images/big-bear.png HTTP/1.1
1205	12.432714	69.43.111.82	10.145.37.75	HTTP	1697	HTTP/1.1 200 OK (PNG)
1208	12.440691	10.145.37.75	69.43.111.82	HTTP	457	GET /favicon.ico HTTP/1.1
1253	12.678887	69.43.111.82	10.145.37.75	HTTP	462	HTTP/1.1 404 Not Found (text/html)

<pre> Frame 44: 467 bytes on wire (3736 bits), 467 bytes captured (3736 bits) Ethernet II, Src: AzureWaveTec_28:1d:f1 (b4:8c:9d:28:1d:f1), Dst: IETF-VRRP-VRII Internet Protocol Version 4, Src: 10.145.37.75, Dst: 172.217.174.238 Transmission Control Protocol, Src Port: 51422, Dst Port: 80, Seq: 1, Len: 467 Hypertext Transfer Protocol </pre>	<pre> 0000 00 00 5e 00 01 01 b4 8c 9d 28 1d f1 08 00 45 00 ..^.....(---E- 0010 01 c5 d6 84 40 00 40 06 d7 0a 0a 91 25 4b ac d9 @_@:....%K.. 0020 ae ee c8 de 00 50 9c e0 ea 15 24 c5 62 61 80 18 P...:\$ba... 0030 01 f6 ad b8 00 00 01 01 08 0a 56 f9 91 f6 15 54 V.....T 0040 e6 bd 47 45 54 20 2f 74 69 6d 65 2f 31 2f 63 75 ..GET /t ime/1/cu 0050 72 72 65 6e 74 3f 63 75 70 32 6b 65 79 3d 38 3a rrent?cu p2key=8: 0060 55 52 4d 4f 36 67 64 47 6a 5f 46 63 56 78 32 5f URM06gdGj_FcVx2_ 0070 73 34 38 51 42 48 30 4d 61 35 42 35 72 37 48 59 s48QBH0M a5B5r7HY 0080 58 37 66 66 50 6b 6c 56 79 41 38 26 63 75 70 32 X7ffPkLV yA8&cup2 0090 68 72 65 71 3d 65 33 62 30 63 34 34 32 39 38 66 hreq=e3b 0c44298f 00a0 63 31 63 31 34 39 61 66 62 66 34 63 38 39 39 36 c1c149af bf4c8996 00b0 66 62 39 32 34 32 37 61 65 34 31 65 34 36 34 39 fb92427a e41e4649 00c0 62 39 33 34 63 61 34 39 35 39 39 31 62 37 38 35 b934ca49 5991b785 00d0 32 62 38 35 35 20 48 54 54 50 2f 31 2e 31 0d 0a 2b855 HT P/1.1... 00e0 48 6f 73 74 3a 20 63 6c 69 65 6e 74 73 32 2e 67 Host: cl ients2.g 00f0 6f 6f 67 6c 65 2e 63 6f 6d 0d 0a 43 6f 6e 6e 65 oogle.co m Conne 0100 63 74 69 6f 6e 3a 20 6b 65 65 70 2d 61 6c 69 76 ction: k eep-aliv 0110 65 0d 0a 50 72 61 67 6d 61 3a 20 6e 6f 2d 63 61 e Pragm a: no-ca 0120 63 68 65 0d 0a 43 61 63 68 65 2d 43 6f 6e 74 72 che Cac he-Contr 0130 6f 6c 3a 20 6e 6f 2d 63 61 63 68 65 0d 0a 55 73 ol: no-c ache-Us 0140 65 72 2d 41 67 65 6e 74 3a 20 4d 6f 7a 69 6c 6c er-Agent : Mozill 0150 61 2f 35 2e 30 20 28 58 31 31 3b 20 4c 69 6e 75 a/5.0 (X 11; Linu 0160 78 29 78 38 36 5f 36 34 29 20 41 70 70 6c 65 57 x x86.64) Applew 0170 65 62 4b 69 74 2f 35 33 37 2e 33 36 20 28 4b 48 ebKit/53 7.36 (KH </pre>
---	--

c)How many HTTP packets are exchanged between client and server to load an entire web page : **10 Packets**

3) ICMP Traffic (Ping/Traceroute):

```

prabhas-golla@prabhas-golla-HP-Pavilion-Laptop-15-eg2xxx: ~/Desktop
prabhas-golla@prabhas-golla-HP-Pavilion-Lapt... x prabhas-golla@prabhas-golla-HP-Pavilion-Lapt... x
prabhas-golla@prabhas-golla-HP-Pavilion-Laptop-15-eg2xxx:~/Desktop$ ping -c 5 10.5.16.57
PING 10.5.16.57 (10.5.16.57) 56(84) bytes of data.
64 bytes from 10.5.16.57: icmp_seq=1 ttl=61 time=25.1 ms
64 bytes from 10.5.16.57: icmp_seq=2 ttl=61 time=21.2 ms
64 bytes from 10.5.16.57: icmp_seq=3 ttl=61 time=25.8 ms
64 bytes from 10.5.16.57: icmp_seq=4 ttl=61 time=23.2 ms
64 bytes from 10.5.16.57: icmp_seq=5 ttl=61 time=23.6 ms

--- 10.5.16.57 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4007ms
rtt min/avg/max/mdev = 21.174/23.783/25.822/1.608 ms
prabhas-golla@prabhas-golla-HP-Pavilion-Laptop-15-eg2xxx:~/Desktop$

```

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000000	10.145.37.75	10.5.16.57	ICMP	98	Echo (ping) request id=0x1a7c, seq=1/256, ttl=64 (reply in 2)
2	0.025050908	10.5.16.57	10.145.37.75	ICMP	98	Echo (ping) reply id=0x1a7c, seq=1/256, ttl=61 (request in 1)
3	1.001575155	10.145.37.75	10.5.16.57	ICMP	98	Echo (ping) request id=0x1a7c, seq=2/512, ttl=64 (reply in 4)
4	1.022790216	10.5.16.57	10.145.37.75	ICMP	98	Echo (ping) reply id=0x1a7c, seq=2/512, ttl=61 (request in 3)
5	2.003169730	10.145.37.75	10.5.16.57	ICMP	98	Echo (ping) request id=0x1a7c, seq=3/768, ttl=64 (reply in 6)
6	2.028951024	10.5.16.57	10.145.37.75	ICMP	98	Echo (ping) reply id=0x1a7c, seq=3/768, ttl=61 (request in 5)
7	3.005328125	10.145.37.75	10.5.16.57	ICMP	98	Echo (ping) request id=0x1a7c, seq=4/1024, ttl=64 (reply in 8)
8	3.028522891	10.5.16.57	10.145.37.75	ICMP	98	Echo (ping) reply id=0x1a7c, seq=4/1024, ttl=61 (request in 7)
9	4.007001185	10.145.37.75	10.5.16.57	ICMP	98	Echo (ping) request id=0x1a7c, seq=5/1280, ttl=64 (reply in 10)
10	4.030572104	10.5.16.57	10.145.37.75	ICMP	98	Echo (ping) reply id=0x1a7c, seq=5/1280, ttl=61 (request in 9)

Frame 1: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface Ethernet II, Src: AzureWaveTec_28:1d:f1 (b4:8c:9d:28:1d:f1), Dst: IETF-VRRP-VRII Internet Protocol Version 4, Src: 10.145.37.75, Dst: 10.5.16.57 Internet Control Message Protocol	0000 00 00 5c 00 01 01 b4 8c 9d 28 1d f1 08 00 45 00 0010 00 54 c3 f3 40 00 40 01 2c 9c 0a 91 25 4b 0a 05 0020 10 39 08 00 b8 1d 1a 7c 00 01 e2 a2 86 67 00 00 0030 00 00 f0 87 0d 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
---	--

Reachable:

If Source : 10.145.37.75 then Destination : 10.5.16.57

Else if Source : 10.5.16.57 then Destination : 10.145.37.75

```
prabhas-golla@prabhas-golla-HP-Pavilion-Laptop-15-eg2xxx: ~/Desktop
prabhas-golla@prabhas-golla-HP-Pavilion-Lapt... x prabhas-golla@prabhas-golla-HP-Pavilion-Lapt... x
prabhas-golla@prabhas-golla-HP-Pavilion-Laptop-15-eg2xxx:~/Desktop$ ping -c 5 192.168.31.3
PING 192.168.31.3 (192.168.31.3) 56(84) bytes of data.

--- 192.168.31.3 ping statistics ---
5 packets transmitted, 0 received, 100% packet loss, time 4100ms

prabhas-golla@prabhas-golla-HP-Pavilion-Laptop-15-eg2xxx:~/Desktop$
```

icmp						
No.	Time	Source	Destination	Protocol	Length	Info
5	7.543582174	10.145.37.75	192.168.31.3	ICMP	98	Echo (ping) request id=0x1bc1, seq=1/256, ttl=64 (no response found!)
6	8.571187825	10.145.37.75	192.168.31.3	ICMP	98	Echo (ping) request id=0x1bc1, seq=2/512, ttl=64 (no response found!)
7	9.595177942	10.145.37.75	192.168.31.3	ICMP	98	Echo (ping) request id=0x1bc1, seq=3/768, ttl=64 (no response found!)
8	10.619158477	10.145.37.75	192.168.31.3	ICMP	98	Echo (ping) request id=0x1bc1, seq=4/1024, ttl=64 (no response found!)
9	11.643158816	10.145.37.75	192.168.31.3	ICMP	98	Echo (ping) request id=0x1bc1, seq=5/1280, ttl=64 (no response found!)

Frame 9: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface	0000	00 00 5e 00 01 01 b4 8c 9d 28 1d f1 08 00 45 00	..^..... (....E..
Ethernet II, Src: AzureWaveTec_28:1d:f1 (b4:8c:9d:28:1d:f1), Dst: IETF-VRRP-VRII	0010	00 54 ed 98 40 00 40 01 3d 89 0a 91 25 4b c0 a8	..T..@.. =...%K..
Internet Protocol Version 4, Src: 10.145.37.75, Dst: 192.168.31.3	0020	1f 03 08 00 5a 8b 1b c1 00 05 34 a4 86 67 00 00Z....4...g..
Internet Control Message Protocol	0030	00 00 fb cf 0c 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&'()*+,-./012345
	0050	26 27 28 29 2a 2b 2c 2d 2e 2f 30 31 32 33 34 35	67
	0060	36 37	

Unreachable:

Source : 10.145.37.75 & Destination : 192.168.31.3

Traceroute:

```
prabhas-golla@prabhas-golla-HP-Pavilion-Laptop-15-eg2xxx: ~/Desktop
prabhas-golla@prabhas-golla-HP-Pavilion-Lapt... x prabhas-golla@prabhas-golla-HP-Pavilion-Lapt... x
prabhas-golla@prabhas-golla-HP-Pavilion-Laptop-15-eg2xxx:~/Desktop$ traceroute 10.5.16.57
traceroute to 10.5.16.57 (10.5.16.57), 30 hops max, 60 byte packets
 1 10.145.0.3 (10.145.0.3) 24.416 ms 24.350 ms 24.330 ms
 2 10.120.0.25 (10.120.0.25) 226.429 ms 226.412 ms 226.389 ms
 3 10.120.2.34 (10.120.2.34) 24.335 ms 24.316 ms 24.299 ms
 4 10.5.16.57 (10.5.16.57) 24.197 ms 24.179 ms 24.160 ms
prabhas-golla@prabhas-golla-HP-Pavilion-Laptop-15-eg2xxx:~/Desktop$
```

No.	Time	Source	Destination	Protocol	Length	Info
17	0.024399968	10.145.0.3	10.145.37.75	ICMP	70	Time-to-live exceeded (Time to live exceeded in transit)
18	0.024400097	10.145.0.3	10.145.37.75	ICMP	70	Time-to-live exceeded (Time to live exceeded in transit)
19	0.024400081	10.145.0.3	10.145.37.75	ICMP	70	Time-to-live exceeded (Time to live exceeded in transit)
20	0.024400081	10.5.16.57	10.145.37.75	ICMP	102	Destination unreachable (Port unreachable)
21	0.024400099	10.5.16.57	10.145.37.75	ICMP	102	Destination unreachable (Port unreachable)
22	0.024401099	10.5.16.57	10.145.37.75	ICMP	102	Destination unreachable (Port unreachable)
23	0.024401198	10.5.16.57	10.145.37.75	ICMP	102	Destination unreachable (Port unreachable)
24	0.024401299	10.5.16.57	10.145.37.75	ICMP	102	Destination unreachable (Port unreachable)
25	0.024404607	10.5.16.57	10.145.37.75	ICMP	102	Destination unreachable (Port unreachable)
26	0.024484736	10.120.2.34	10.145.37.75	ICMP	70	Time-to-live exceeded (Time to live exceeded in transit)
27	0.024484835	10.120.2.34	10.145.37.75	ICMP	70	Time-to-live exceeded (Time to live exceeded in transit)
28	0.024484937	10.120.2.34	10.145.37.75	ICMP	70	Time-to-live exceeded (Time to live exceeded in transit)
31	0.226518823	10.120.0.25	10.145.37.75	ICMP	70	Time-to-live exceeded (Time to live exceeded in transit)
32	0.226519464	10.120.0.25	10.145.37.75	ICMP	70	Time-to-live exceeded (Time to live exceeded in transit)
33	0.226519539	10.120.0.25	10.145.37.75	ICMP	70	Time-to-live exceeded (Time to live exceeded in transit)

Frame 17: 70 bytes on wire (560 bits), 70 bytes captured (560 bits) on interface	0000	b4 8c 9d 28 1d f1 70 61	7b 4c 7a 9f 08 00 45 c0	... (..pa {Lz...E-
Ethernet II, Src: Cisco_4c:7a:9f (70:61:7b:4c:7a:9f), Dst: AzureWaveTec_28:1d:f1	0010	00 38 40 7b 00 00 fe 01	41 1a 0a 91 00 03 0a 91	.8@{.... A.....
Internet Protocol Version 4, Src: 10.145.0.3, Dst: 10.145.37.75	0020	25 4b 0b 00 34 58 00 00	00 00 45 00 00 3c 77 6d	%K...4X... ..E...<wm
Internet Control Message Protocol	0030	00 00 01 11 f8 2a 0a 91	25 4b 0a 05 10 39 c1 c7*... %K...9...
	0040	82 9a 00 28 7c 1d		...{.

Reachable:

Source : 10.5.16.57

Destination : 10.145.37.75

```
prabhas-golla@prabhas-golla-HP-Pavilion-Laptop-15-eg2xxx: ~/Desktop
prabhas-golla@prabhas-golla-HP-Pavilion-Lapt... x prabhas-golla@prabhas-golla-HP-Pavilion-Lapt... x
prabhas-golla@prabhas-golla-HP-Pavilion-Laptop-15-eg2xxx:~/Desktop$ traceroute 192.168.31.3
traceroute to 192.168.31.3 (192.168.31.3), 30 hops max, 60 byte packets
 1  10.145.0.3 (10.145.0.3)  26.258 ms  26.200 ms  26.180 ms
 2  10.120.0.25 (10.120.0.25)  26.163 ms  26.142 ms  26.122 ms
 3  * * *
 4  * * *
 5  * * *
 6  * * *
 7  * * *
 8  * * *
 9  * * *
10  * * *
11  * * *
12  * * *
13  * * *
14  * * *
15  * * *
16  * * *
17  * * *
18  * * *
19  * * *
20  * * *
21  * * *
```

icmp							A1	
No.	Time	Source	Destination	Protocol	Length	Info		
45	64.392112885	10.145.0.3	10.145.37.75	ICMP	70	Time-to-live exceeded (Time to live exceeded in transit)		
46	64.392113572	10.145.0.3	10.145.37.75	ICMP	70	Time-to-live exceeded (Time to live exceeded in transit)		
47	64.392113640	10.145.0.3	10.145.37.75	ICMP	70	Time-to-live exceeded (Time to live exceeded in transit)		
48	64.392113768	10.120.0.25	10.145.37.75	ICMP	70	Time-to-live exceeded (Time to live exceeded in transit)		
49	64.392113774	10.120.0.25	10.145.37.75	ICMP	70	Time-to-live exceeded (Time to live exceeded in transit)		
50	64.392113839	10.120.0.25	10.145.37.75	ICMP	70	Time-to-live exceeded (Time to live exceeded in transit)		
81	73.633721374	10.255.1.3	10.145.37.75	ICMP	102	Time-to-live exceeded (Time to live exceeded in transit)		
82	73.633722023	10.255.1.3	10.145.37.75	ICMP	102	Time-to-live exceeded (Time to live exceeded in transit)		
83	73.633722106	10.255.1.3	10.145.37.75	ICMP	102	Time-to-live exceeded (Time to live exceeded in transit)		
Frame 45: 70 bytes on wire (560 bits), 70 bytes captured (560 bits) on interface							0000	b4 8c 9d 28 1d f1 70 61 7b 4c 7a 9f 08 00 45 c0 ... (..pa {Lz...E-
Ethernet II, Src: Cisco_4c:7a:9f (70:61:7b:4c:7a:9f), Dst: AzureWaveTec_28:1d:f1							0010	00 38 5d 0d 00 00 fe 01 24 88 0a 91 00 03 0a 91 .8]..... \$.....
Internet Protocol Version 4, Src: 10.145.0.3, Dst: 10.145.37.75							0020	25 4b 0b 00 f9 c5 00 00 00 00 45 00 00 3c 92 bb %K..... :E-<..
Internet Control Message Protocol							0030	00 00 01 11 17 6f 0a 91 25 4b c0 a8 1f 03 ae c4o... %K.....
							0040	82 9a 00 28 c9 b2 ... (..

Unreachable:

Source : 10.145.0.3,10.120.0.25 & 10.125.1.3

Destination : 10.145.37.75