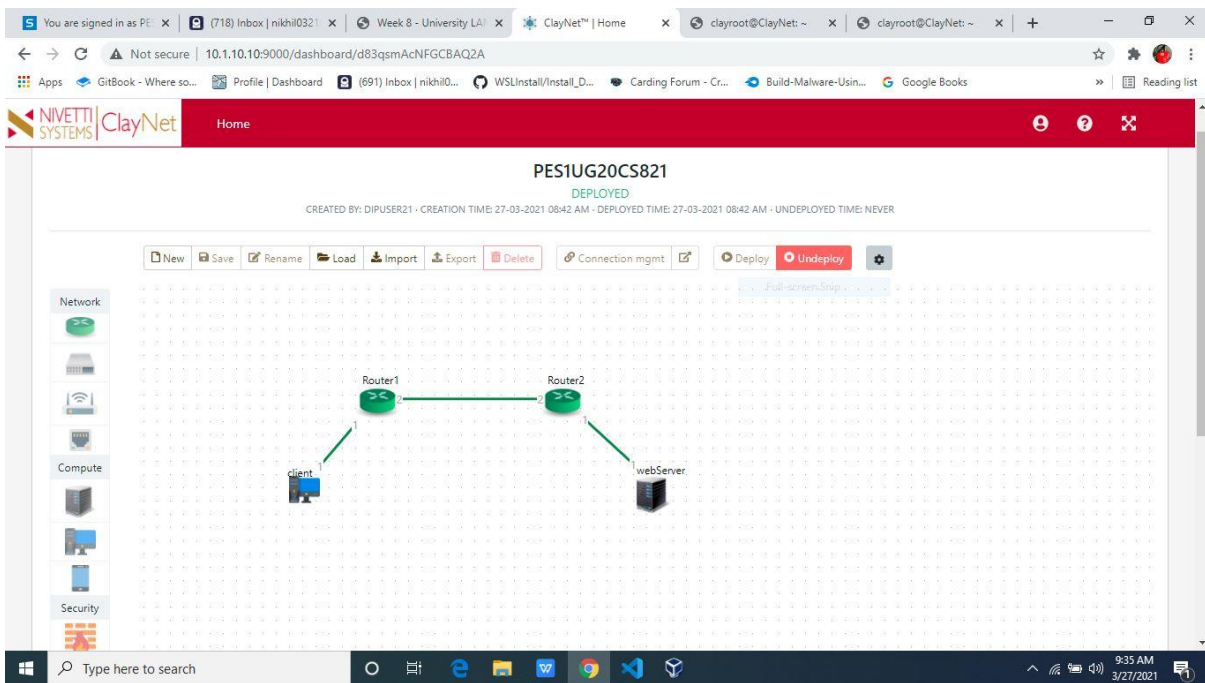


PES1UG20CS821

Nikhil T M

WEEK 8: UNDERSTAND THE BUILDING BLOCKS AND USAGE OF CLAYNET NETWORK VIRTUALIZATION PLATFORM WITH REFERENCE TO OSI LAYER.

- The topology saved and deployed.



ROUTING TABLE 1:

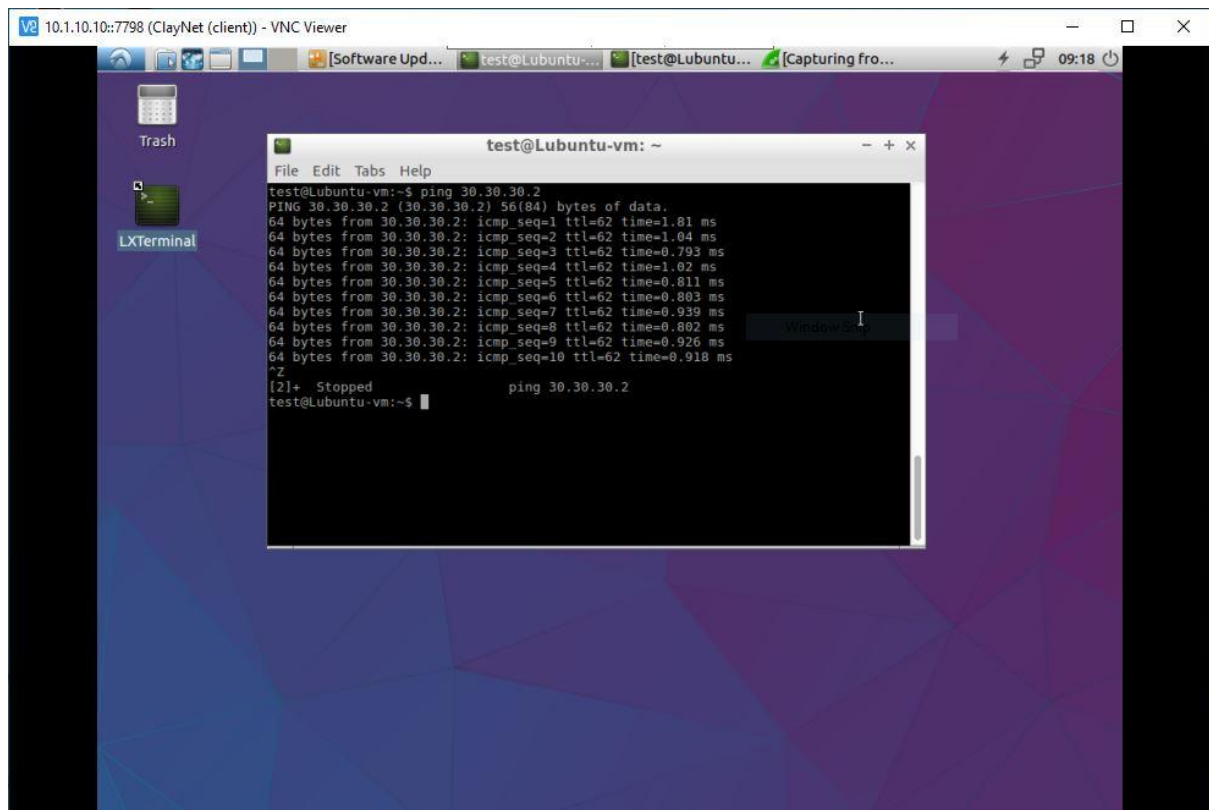
ROUTER	PORT	IP ADDRESS
Router1	1	10.10.10.1
Router1	2	20.20.20.1
Router2	1	30.30.30.1
Router2	2	20.20.20.1

ROUTING TABLE 2:

END SYSTEM	IP ADDRESS	GATEWAY
CLIENT	10.10.10.2	10.10.10.1
WEB SERVER	30.30.30.2	30.30.30.1

- OBSERVATIONS:

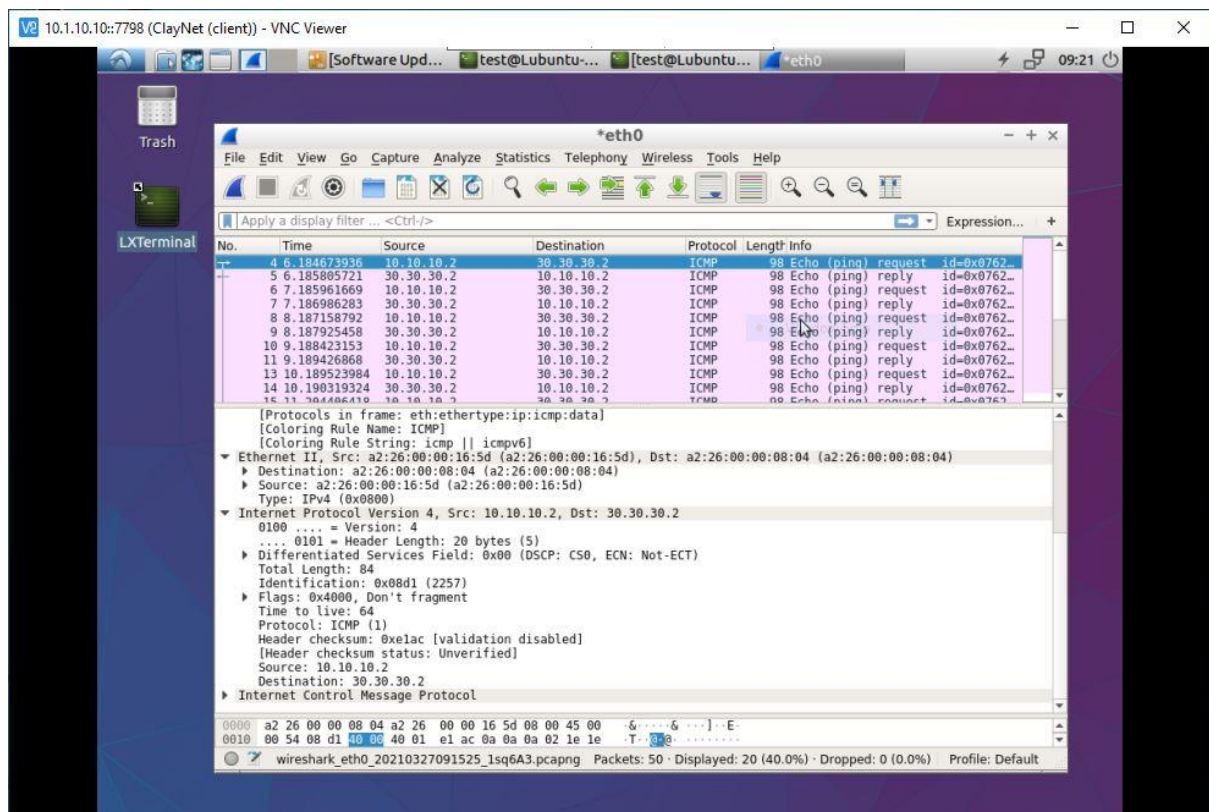
- Using ping command to check connection from client to server
- Since it takes 2 hops, therefore TTL value is decreased by 2 from default value 64 to 62.



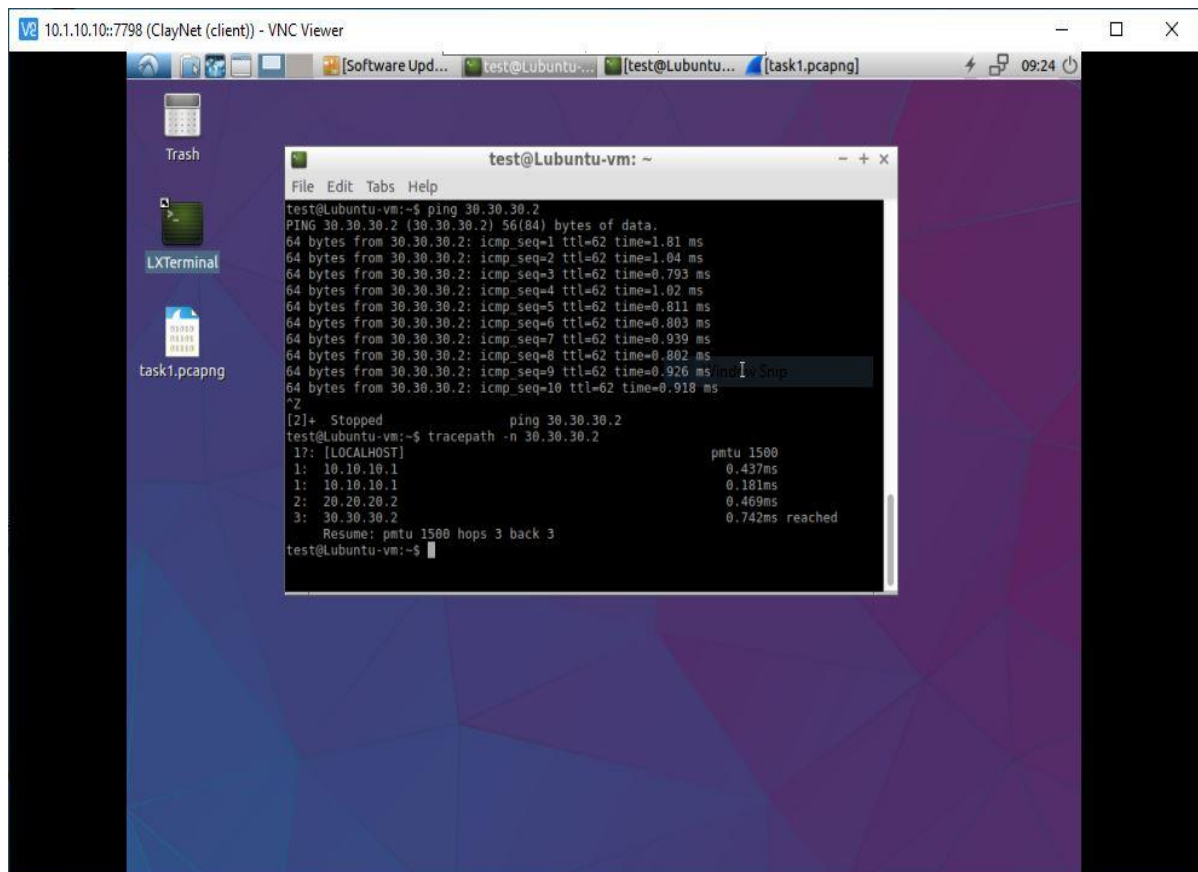
The screenshot shows a VNC Viewer window titled "10.1.10.10::7798 (ClayNet (client)) - VNC Viewer". Inside the viewer, there is a desktop environment with a purple background. A terminal window titled "test@Lubuntu-vm: ~" is open, displaying the output of a ping command. The output shows 10 successful ping requests to 30.30.30.2, each with a TTL of 62 and a time of approximately 0.8 ms. The terminal window also shows a "Window Manager" dialog box with a "Stop" button.

```
test@Lubuntu-vm:~$ ping 30.30.30.2
PING 30.30.30.2 (30.30.30.2) 56(84) bytes of data:
64 bytes from 30.30.30.2: icmp_seq=1 ttl=62 time=1.81 ms
64 bytes from 30.30.30.2: icmp_seq=2 ttl=62 time=1.04 ms
64 bytes from 30.30.30.2: icmp_seq=3 ttl=62 time=0.793 ms
64 bytes from 30.30.30.2: icmp_seq=4 ttl=62 time=1.02 ms
64 bytes from 30.30.30.2: icmp_seq=5 ttl=62 time=0.811 ms
64 bytes from 30.30.30.2: icmp_seq=6 ttl=62 time=0.803 ms
64 bytes from 30.30.30.2: icmp_seq=7 ttl=62 time=0.939 ms
64 bytes from 30.30.30.2: icmp_seq=8 ttl=62 time=0.802 ms
64 bytes from 30.30.30.2: icmp_seq=9 ttl=62 time=0.926 ms
64 bytes from 30.30.30.2: icmp_seq=10 ttl=62 time=0.918 ms
^C
[2]+  Stopped                  ping 30.30.30.2
test@Lubuntu-vm:~$
```

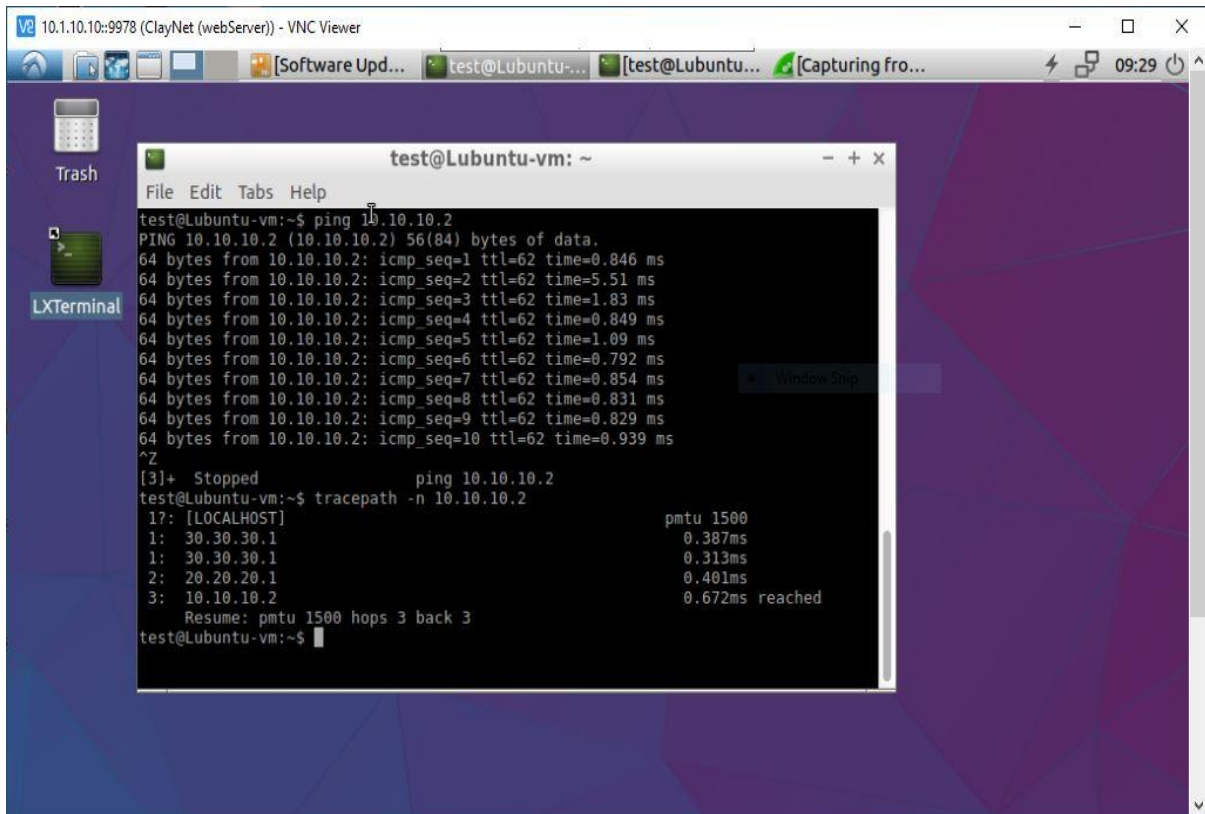
➤ The wireshark packet capture of ping



➤ Using tracepath command to get hops data



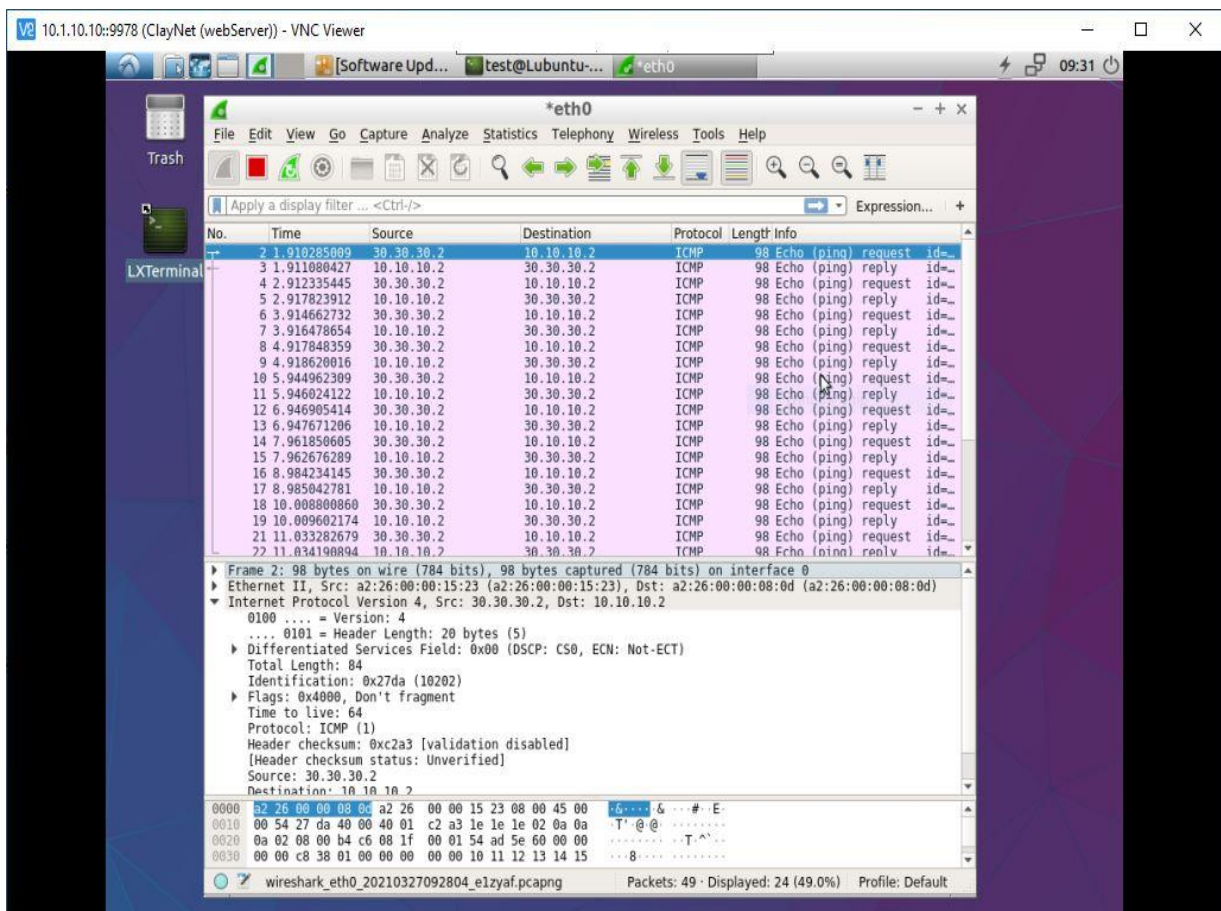
➤ Output of ping command at server side



The screenshot shows a VNC viewer window titled "10.1.10.10:9978 (ClayNet (webServer)) - VNC Viewer". Inside the viewer, there is a terminal window titled "test@Lubuntu-vm: ~". The terminal displays the output of a ping command to 10.10.10.2, showing 10 successful pings with varying times. Below the ping output, the user enters "ping 10.10.10.2" and "traceroute -n 10.10.10.2", showing the path from the local host to the destination.

```
test@Lubuntu-vm:~$ ping 10.10.10.2
PING 10.10.10.2 (10.10.10.2) 56(84) bytes of data:
64 bytes from 10.10.10.2: icmp_seq=1 ttl=62 time=0.846 ms
64 bytes from 10.10.10.2: icmp_seq=2 ttl=62 time=5.51 ms
64 bytes from 10.10.10.2: icmp_seq=3 ttl=62 time=1.83 ms
64 bytes from 10.10.10.2: icmp_seq=4 ttl=62 time=0.849 ms
64 bytes from 10.10.10.2: icmp_seq=5 ttl=62 time=1.09 ms
64 bytes from 10.10.10.2: icmp_seq=6 ttl=62 time=0.792 ms
64 bytes from 10.10.10.2: icmp_seq=7 ttl=62 time=0.854 ms
64 bytes from 10.10.10.2: icmp_seq=8 ttl=62 time=0.831 ms
64 bytes from 10.10.10.2: icmp_seq=9 ttl=62 time=0.829 ms
64 bytes from 10.10.10.2: icmp_seq=10 ttl=62 time=0.939 ms
^Z
[3]+  Stopped                  ping 10.10.10.2
test@Lubuntu-vm:~$ traceroute -n 10.10.10.2
 1:  [LOCALHOST]                                pmtu 1500
    0.307ms
 1:  30.30.30.1                                0.313ms
 2:  20.20.20.1                                0.401ms
 3:  10.10.10.2                                0.672ms reached
Resume: pmtu 1500 hops 3 back 3
test@Lubuntu-vm:~$
```

➤ Wireshark captures at server side



The screenshot shows the Wireshark network protocol analyzer. The main pane displays a list of captured packets on the eth0 interface, showing ICMP Echo (ping) requests and replies between 30.30.30.2 and 10.10.10.2. The packet list shows 24 packets, with the first 10 being requests and the next 14 being replies. The packet details pane shows the structure of an ICMP Echo request, including the header, identification, flags, and checksum. The packet bytes pane shows the raw data of the captured packet.

No.	Time	Source	Destination	Protocol	Length	Info
2	1.910285009	30.30.30.2	10.10.10.2	ICMP	98	Echo (ping) request id=...
3	1.911080427	10.10.10.2	30.30.30.2	ICMP	98	Echo (ping) reply id=...
4	2.912335445	30.30.30.2	10.10.10.2	ICMP	98	Echo (ping) request id=...
5	2.917823912	10.10.10.2	30.30.30.2	ICMP	98	Echo (ping) reply id=...
6	3.914662732	30.30.30.2	10.10.10.2	ICMP	98	Echo (ping) request id=...
7	3.916478654	10.10.10.2	30.30.30.2	ICMP	98	Echo (ping) reply id=...
8	4.917848359	30.30.30.2	10.10.10.2	ICMP	98	Echo (ping) request id=...
9	4.918620016	10.10.10.2	30.30.30.2	ICMP	98	Echo (ping) reply id=...
10	5.944962309	30.30.30.2	10.10.10.2	ICMP	98	Echo (ping) request id=...
11	5.946024122	10.10.10.2	30.30.30.2	ICMP	98	Echo (ping) reply id=...
12	6.946905414	30.30.30.2	10.10.10.2	ICMP	98	Echo (ping) request id=...
13	6.947671206	10.10.10.2	30.30.30.2	ICMP	98	Echo (ping) reply id=...
14	7.961850605	30.30.30.2	10.10.10.2	ICMP	98	Echo (ping) request id=...
15	7.962676289	10.10.10.2	30.30.30.2	ICMP	98	Echo (ping) reply id=...
16	8.984234145	30.30.30.2	10.10.10.2	ICMP	98	Echo (ping) request id=...
17	8.985042781	10.10.10.2	30.30.30.2	ICMP	98	Echo (ping) reply id=...
18	10.008800860	30.30.30.2	10.10.10.2	ICMP	98	Echo (ping) request id=...
19	10.009602174	10.10.10.2	30.30.30.2	ICMP	98	Echo (ping) reply id=...
21	11.033282679	30.30.30.2	10.10.10.2	ICMP	98	Echo (ping) request id=...
22	11.034190894	10.10.10.2	30.30.30.2	ICMP	98	Echo (ping) reply id=...