



# COMPUTER NETWORKS LAB

## COURSE CODE:UE19CS255

NAME:PRIYA MOHATA

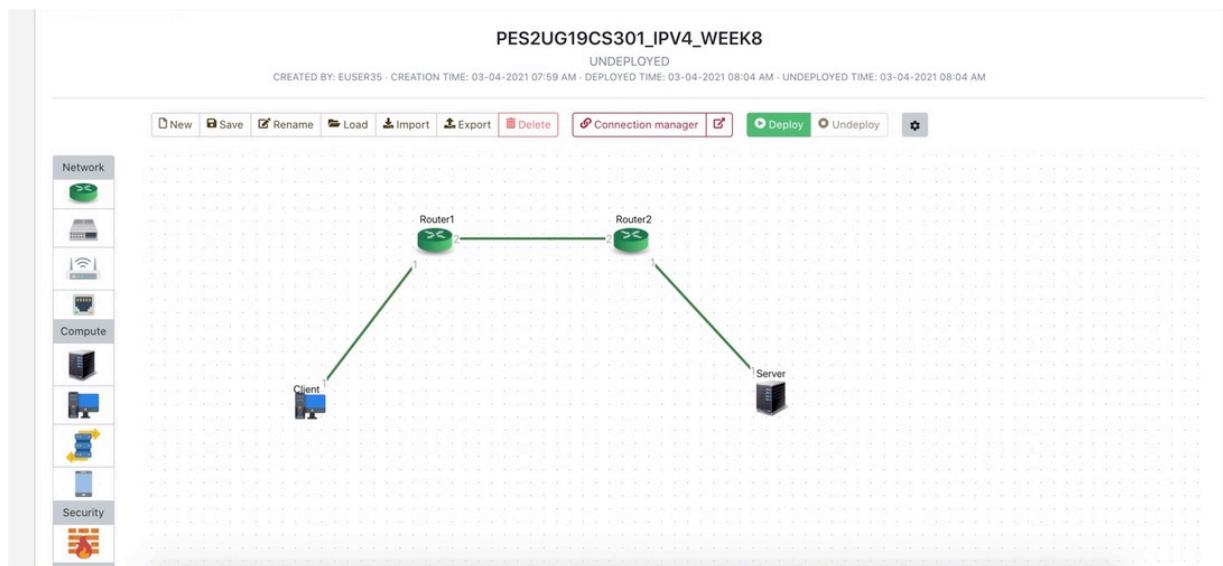
SRN:PES2UG19CS301

SECTION:E

DATE:03/04/2021

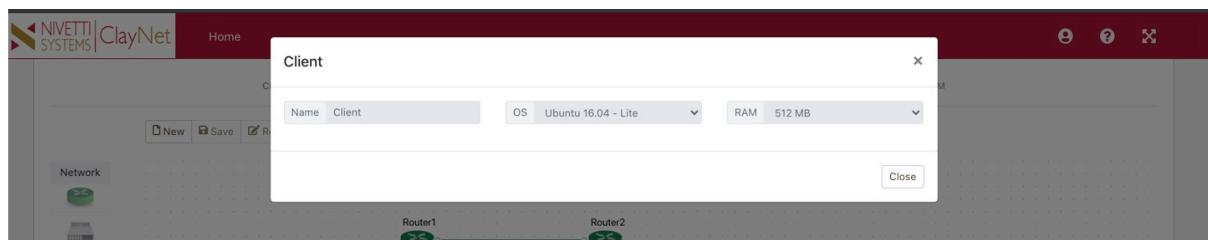
**EXPERIMENT :** Understand the building blocks and usage of ClayNet Network Virtualization platform with reference to OSI Layer.

**TOPOLOGY :**

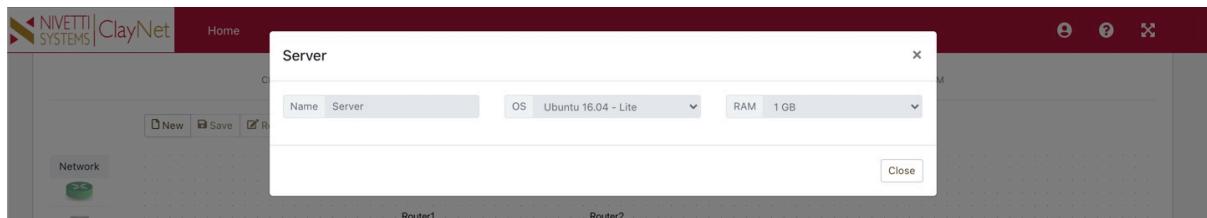


**STEPS :**

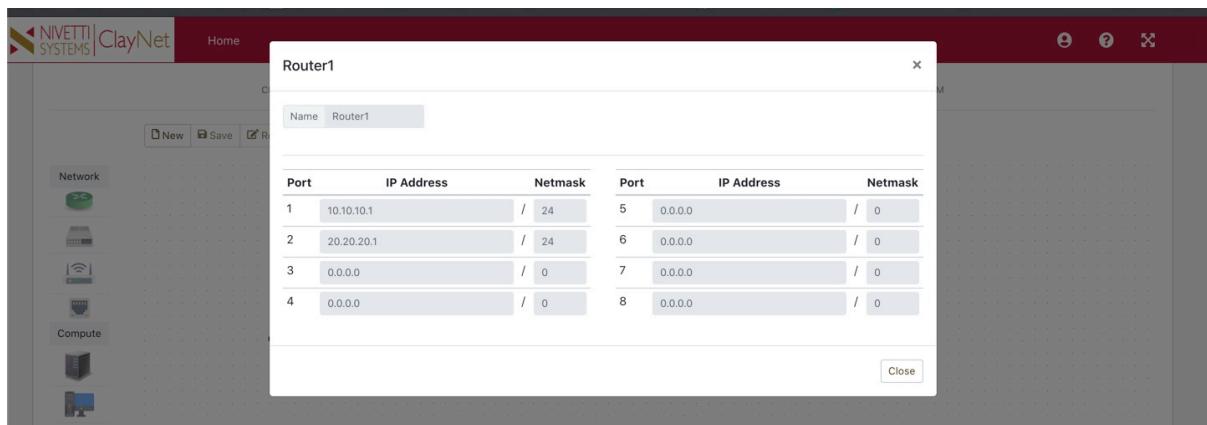
**CONFIGURE THE CLIENT**



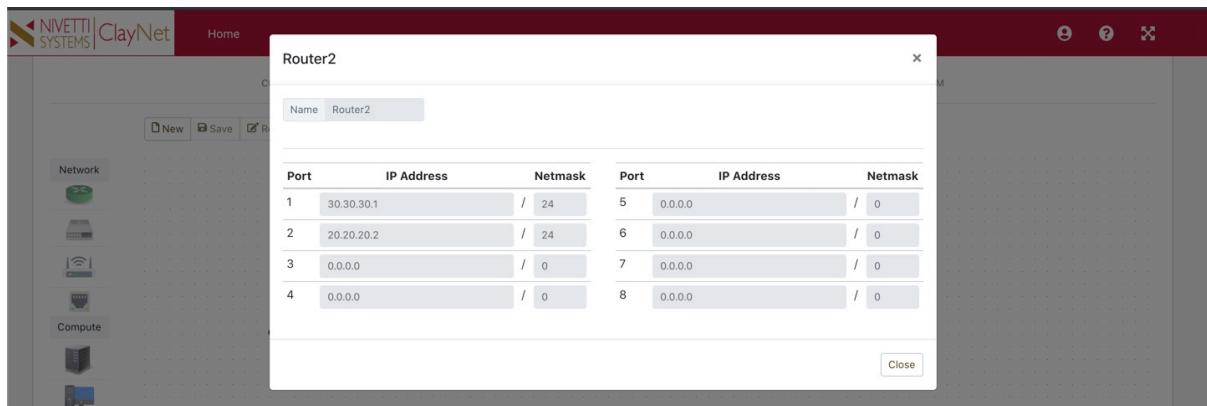
**CONFIGURE THE SERVER**



## CONFIGURE ROUTER 1



## CONFIGURE ROUTER 2



NOW DEPLOY THE TOPOLOGY AND THEN OPEN REMOTE DESKTOP IN THE CLIENT MACHINE

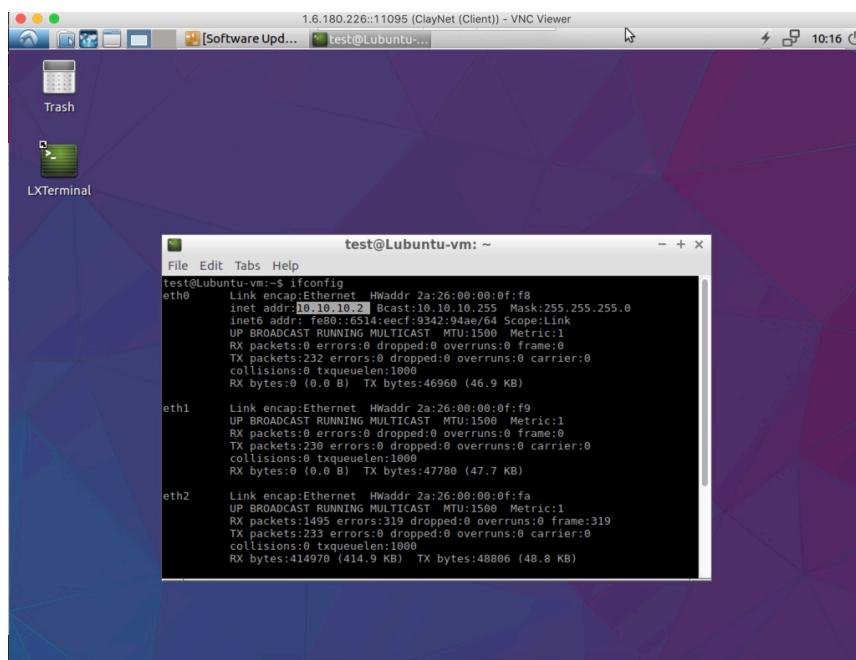
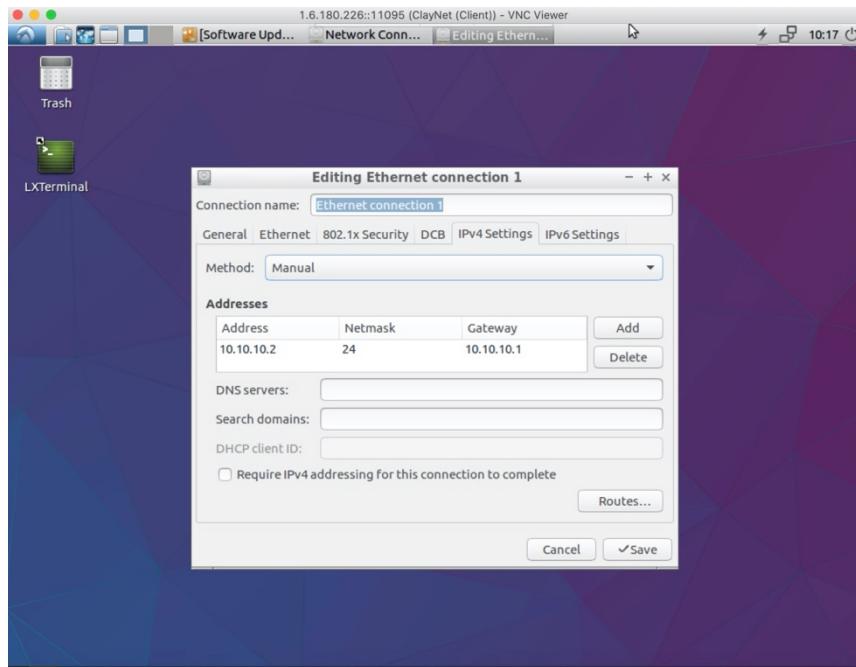
**STEP 1: EDIT CONNECTIONS AND REMOVE THE EXISTING CONNECTION**

**STEP 2: ADD THE CONNECTION ‘ETHERNET CONNECTION 1’ WITH THE FOLLOWING DETAILS**

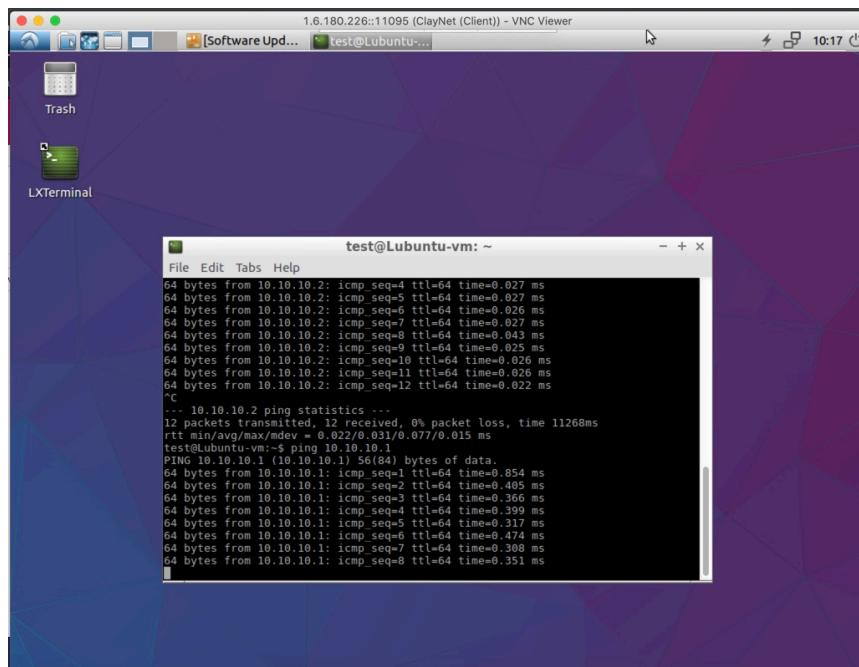
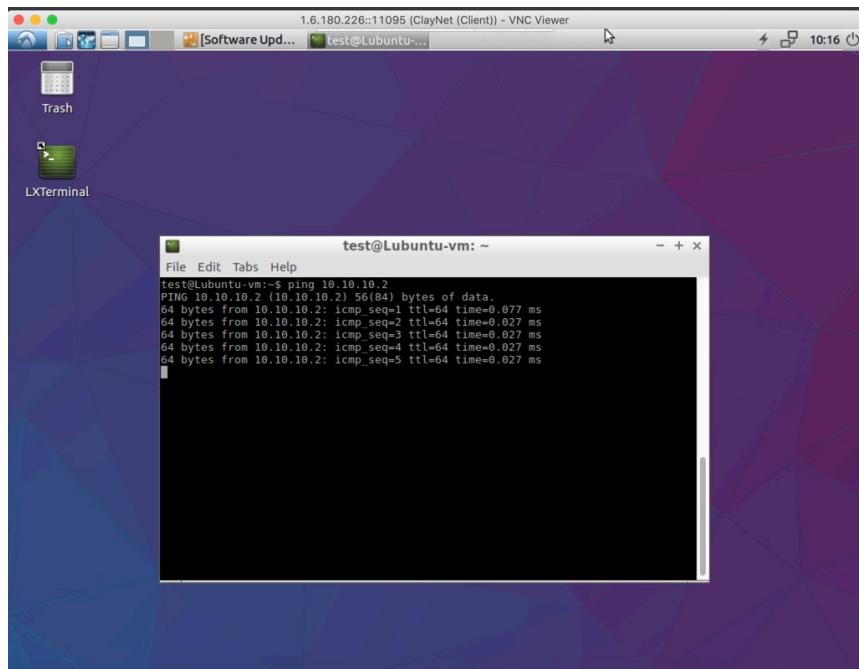
**IP : 10.10.10.2**

**NETMASK : 24**

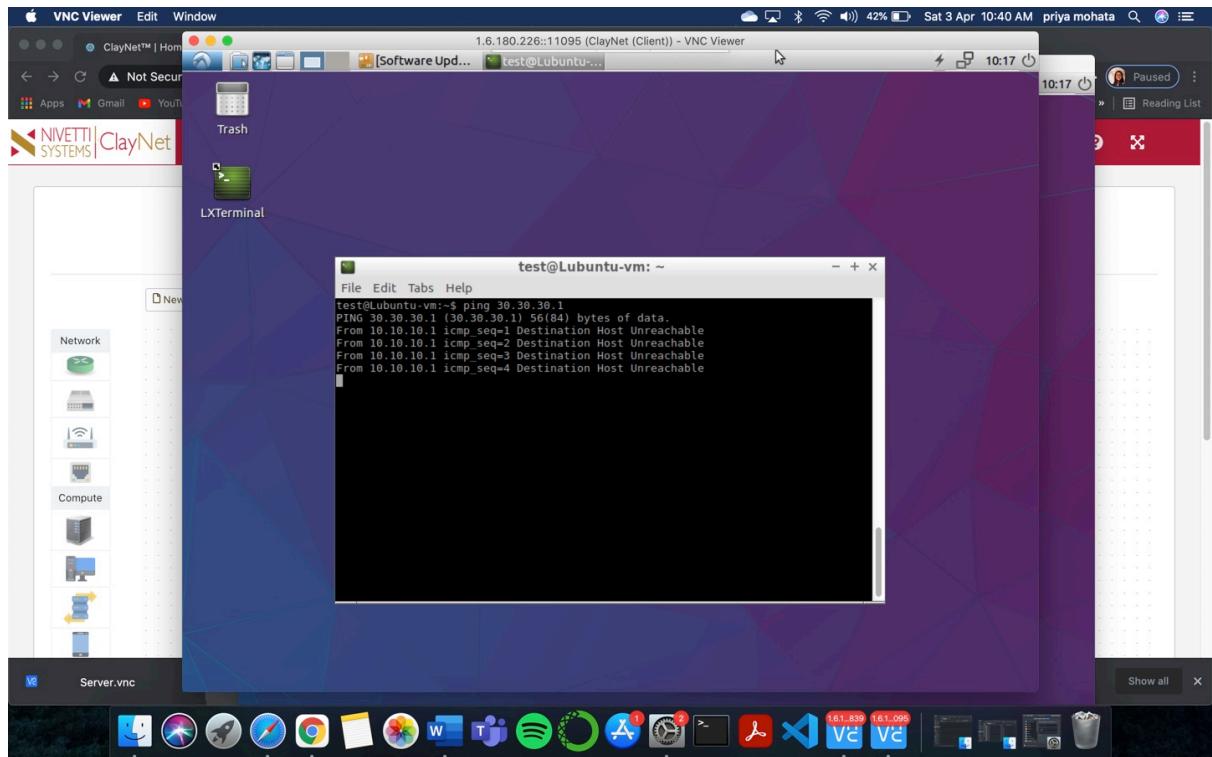
**GATEWAY : 10.10.10.1**



### STEP 3: PING TO CHECK IF THE IP WAS ADDED



#### STEP 4: PING THE SERVER



## WE FOLLOW THE SAME STEPS FOR THE SERVER

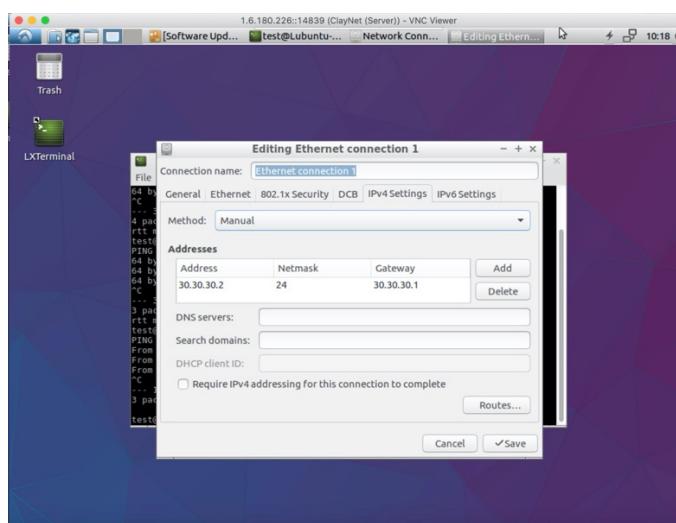
**STEP 1: EDIT THE CONNECTIONS AND REMOVE THE EXISTING CONNECTIONS**

**STEP 2: ADD THE ‘ETHERNET CONNECTION’ WITH THE FOLLOWING DETAILS**

**IP :30.30.30.2**

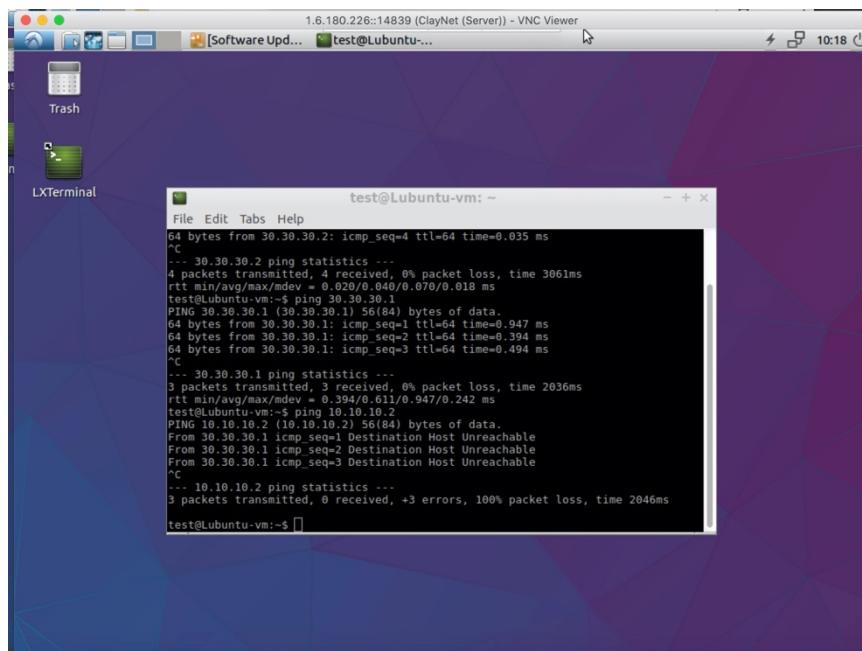
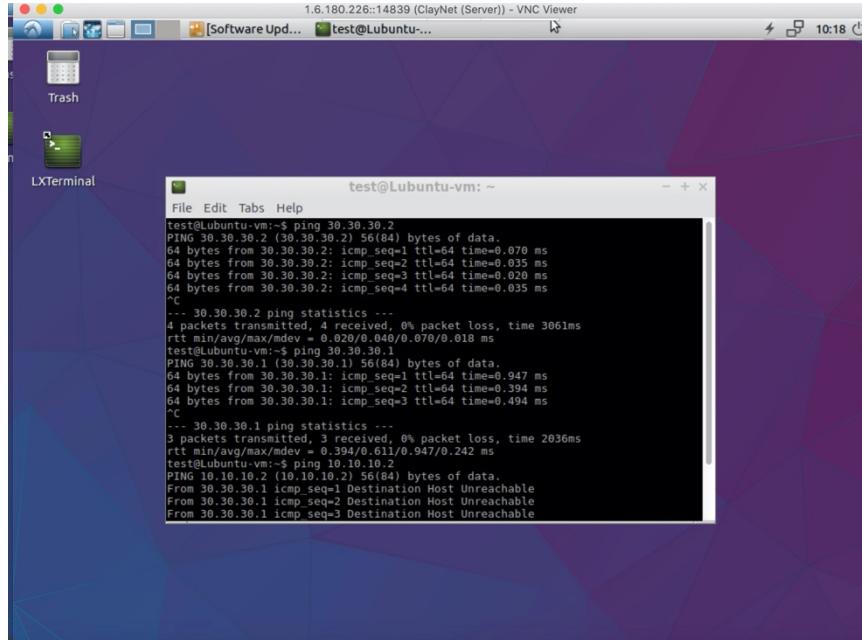
**NETMASK:24**

**GATEWAY:30.30.30.1**



### STEP 3: PING TO CHECK IF THE IP WAS ADDED

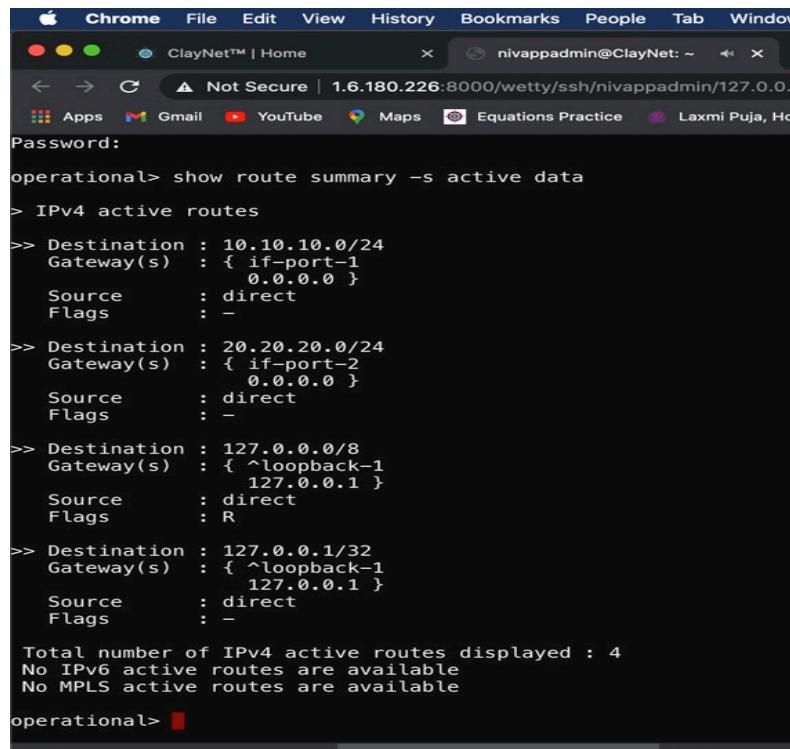
### STEP 4: PING THE CLIENT



## ADDING ROUTING TABLE ENTRIES :

### ROUTER 1

COMMAND USED : SHOW ROUTE SUMMARY -S ACTIVE DATA



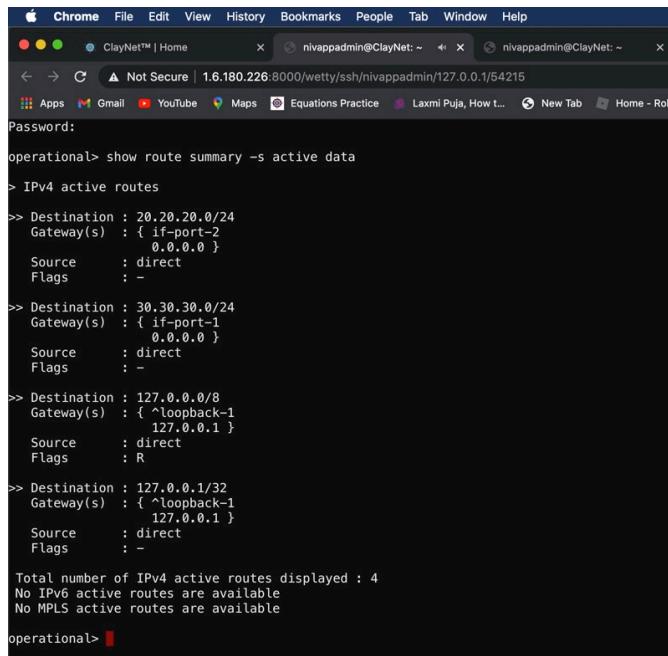
```
Chrome File Edit View History Bookmarks People Tab Window
ClayNet™ | Home ▲ Not Secure | 1.6.180.226:8000/wetty/ssh/nivappadmin@ClayNet: ~
Apps Gmail YouTube Maps Equations Practice Laxmi Puja, Ho
Password:
operational> show route summary -s active data
> IPv4 active routes
>> Destination : 10.10.10.0/24
Gateway(s) : { if-port-1
               0.0.0.0 }
Source      : direct
Flags       : -
>> Destination : 20.20.20.0/24
Gateway(s) : { if-port-2
               0.0.0.0 }
Source      : direct
Flags       : -
>> Destination : 127.0.0.0/8
Gateway(s) : { ^loopback-1
                 127.0.0.1 }
Source      : direct
Flags       : R
>> Destination : 127.0.0.1/32
Gateway(s) : { ^loopback-1
                 127.0.0.1 }
Source      : direct
Flags       : -
Total number of IPv4 active routes displayed : 4
No IPv6 active routes are available
No MPLS active routes are available
operational>
```

```
Chrome File Edit View History Bookmarks People Tab Window
ClayNet™ | Home nivappadmin@ClayNet: ~
Not Secure | 1.6.180.226:8000/wetty/ssh/nivappadmin/127.0.0.1
Apps Gmail YouTube Maps Equations Practice Laxmi Puja, H
Flags : -
>> Destination : 20.20.20.0/24
Gateway(s) : { if-port-2
               0.0.0.0 }
Source : direct
Flags : -
>> Destination : 127.0.0.0/8
Gateway(s) : { ^loopback-1
               127.0.0.1 }
Source : direct
Flags : R
>> Destination : 127.0.0.1/32
Gateway(s) : { ^loopback-1
               127.0.0.1 }
Source : direct
Flags : -
Total number of IPv4 active routes displayed : 4
No IPv6 active routes are available
No MPLS active routes are available
operational> configure
Entering configuration mode with exclusive access.
configure> create parameter-group ip-route n30
Info: Parameter group instance created.
configure> set enable yes
configure> set router data
configure> set destination 30.30.30.0/24
configure> set next-hop gateway 20.20.20.2
configure> save
Info: Parameter group ip-route "n30" saved
configure>
```

```
Chrome File Edit View History Bookmarks People Tab Window
ClayNet™ | Home nivappadmin@ClayNet: ~
Not Secure | 1.6.180.226:8000/wetty/ssh/nivappadmin/127.0.0.1
Apps Gmail YouTube Maps Equations Practice Laxmi Puja, H
>> Destination : 20.20.20.0/24
operational> show route summary -s active data
> IPv4 active routes
>> Destination : 10.10.10.0/24
Gateway(s) : { if-port-1
               0.0.0.0 }
Source : direct
Flags : -
>> Destination : 20.20.20.0/24
Gateway(s) : { if-port-2
               0.0.0.0 }
Source : direct
Flags : -
>> Destination : 30.30.30.0/24
Gateway(s) : { if-port-2
               20.20.20.2 }
Source : static
Flags : -
Total number of IPv4 active routes displayed : 5
No IPv6 active routes are available
No MPLS active routes are available
operational>
>> Destination : 127.0.0.1/32
Gateway(s) : { ^loopback-1
               127.0.0.1 }
Source : direct
Flags : -
```

## ROUTER 2

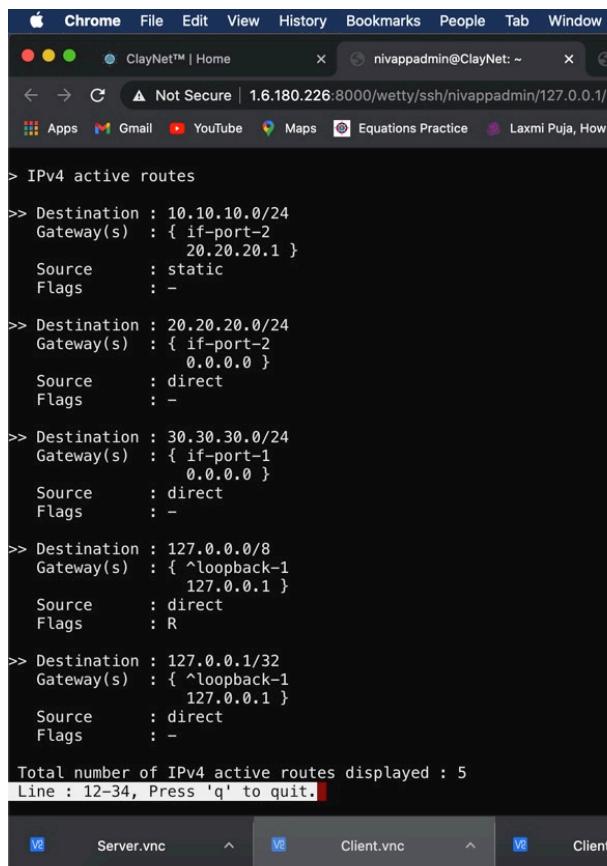
### COMMAND USED : SHOW ROUTE SUMMARY -S ACTIVE DATA



```
Apple Chrome File Edit View History Bookmarks People Tab Window Help
ClayNet™ | Home nivappadmin@ClayNet: ~
Not Secure | 1.180.226.8000/wetty/ssh/nivappadmin@127.0.0.1/54215
Apps Gmail YouTube Maps Equations Practice Laxmi Puja, How to... New Tab Home - Rob
Password:
operational> show route summary -s active data
> IPV4 active routes
>> Destination : 20.20.20.0/24
  Gateway(s) : { if-port-2
                 0.0.0.0 }
    Source    : direct
    Flags     : -
>> Destination : 30.30.30.0/24
  Gateway(s) : { if-port-1
                 0.0.0.0 }
    Source    : direct
    Flags     : -
>> Destination : 127.0.0.0/8
  Gateway(s) : { ^loopback-1
                 127.0.0.1 }
    Source    : direct
    Flags     : R
>> Destination : 127.0.0.1/32
  Gateway(s) : { ^loopback-1
                 127.0.0.1 }
    Source    : direct
    Flags     : -
Total number of IPv4 active routes displayed : 4
No IPv6 active routes are available
No MPLS active routes are available
operational>
```



```
Apple Chrome File Edit View History Bookmarks People Tab Window
ClayNet™ | Home nivappadmin@ClayNet: ~
Not Secure | 1.180.226.8000/wetty/ssh/nivappadmin@127.0.0.1/5
Apps Gmail YouTube Maps Equations Practice Laxmi Puja, How to...
>> Destination : 30.30.30.0/24
  Gateway(s) : { if-port-1
                 0.0.0.0 }
    Source    : direct
    Flags     : -
>> Destination : 127.0.0.0/8
  Gateway(s) : { ^loopback-1
                 127.0.0.1 }
    Source    : direct
    Flags     : R
>> Destination : 127.0.0.1/32
  Gateway(s) : { ^loopback-1
                 127.0.0.1 }
    Source    : direct
    Flags     : -
Total number of IPv4 active routes displayed : 4
No IPv6 active routes are available
No MPLS active routes are available
operational> configure
Entering configuration mode with exclusive access.
configure> create parameter-group ip-route n10
Info: Parameter group instance created.
configure> set enable yes
configure> set router data
configure> set destination 10.10.10.0/24
configure> set next-hop gateway 20.20.20.1
configure> save
Info: Parameter group ip-route "n10" saved
configure> exit
operational>
```

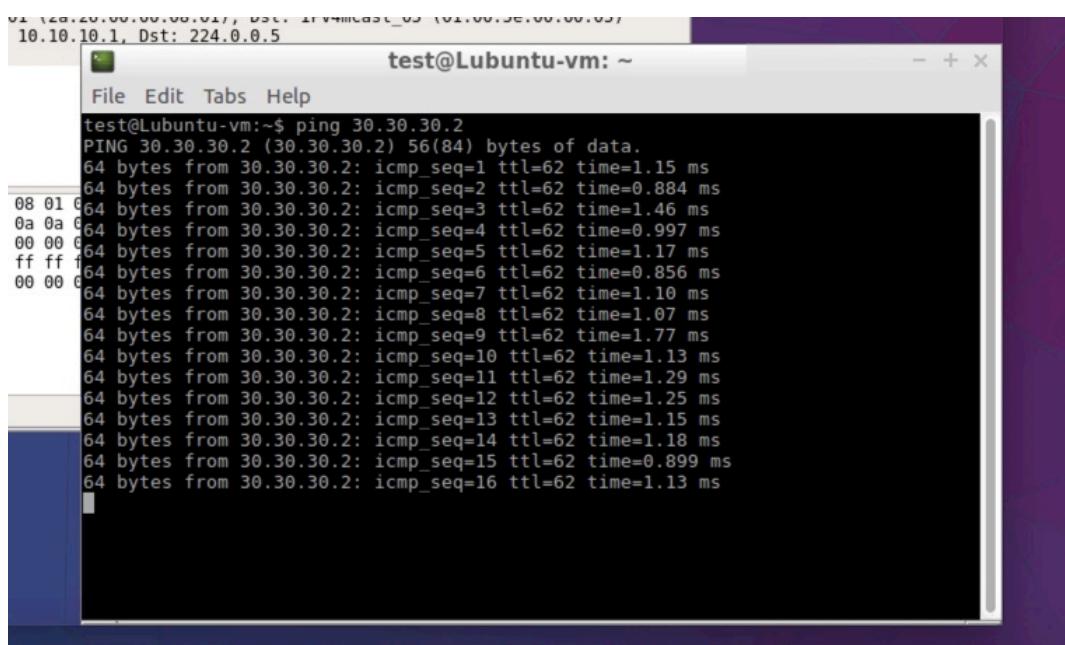


A screenshot of a VNC session showing a terminal window. The terminal displays the output of the 'route' command, listing five IPv4 active routes. The routes are as follows:

- > IPv4 active routes
- >> Destination : 10.10.10.0/24  
Gateway(s) : { if-port-2  
              20.20.20.1 }  
Source      : static  
Flags      : -
- >> Destination : 20.20.20.0/24  
Gateway(s) : { if-port-2  
              0.0.0.0 }  
Source      : direct  
Flags      : -
- >> Destination : 30.30.30.0/24  
Gateway(s) : { if-port-1  
              0.0.0.0 }  
Source      : direct  
Flags      : -
- >> Destination : 127.0.0.0/8  
Gateway(s) : { ^loopback-1  
              127.0.0.1 }  
Source      : direct  
Flags      : R
- >> Destination : 127.0.0.1/32  
Gateway(s) : { ^loopback-1  
              127.0.0.1 }  
Source      : direct  
Flags      : -

Total number of IPv4 active routes displayed : 5  
Line : 12-34, Press 'q' to quit.

## PINGING SERVER FROM CLIENT



A screenshot of a terminal window titled 'test@Lubuntu-vm: ~'. The user has run the 'ping' command to an IP address of 30.30.30.2. The terminal shows the following output:

```
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=1.15 ms
64 bytes from 30.30.30.2: icmp_seq=2 ttl=62 time=0.884 ms
08 01 64 bytes from 30.30.30.2: icmp_seq=3 ttl=62 time=1.46 ms
0a 0a 64 bytes from 30.30.30.2: icmp_seq=4 ttl=62 time=0.997 ms
00 00 64 bytes from 30.30.30.2: icmp_seq=5 ttl=62 time=1.17 ms
ff ff 64 bytes from 30.30.30.2: icmp_seq=6 ttl=62 time=0.856 ms
00 00 64 bytes from 30.30.30.2: icmp_seq=7 ttl=62 time=1.10 ms
64 bytes from 30.30.30.2: icmp_seq=8 ttl=62 time=1.07 ms
64 bytes from 30.30.30.2: icmp_seq=9 ttl=62 time=1.77 ms
64 bytes from 30.30.30.2: icmp_seq=10 ttl=62 time=1.13 ms
64 bytes from 30.30.30.2: icmp_seq=11 ttl=62 time=1.29 ms
64 bytes from 30.30.30.2: icmp_seq=12 ttl=62 time=1.25 ms
64 bytes from 30.30.30.2: icmp_seq=13 ttl=62 time=1.15 ms
64 bytes from 30.30.30.2: icmp_seq=14 ttl=62 time=1.18 ms
64 bytes from 30.30.30.2: icmp_seq=15 ttl=62 time=0.899 ms
64 bytes from 30.30.30.2: icmp_seq=16 ttl=62 time=1.13 ms
```

## WIRESHARK Screenshot

