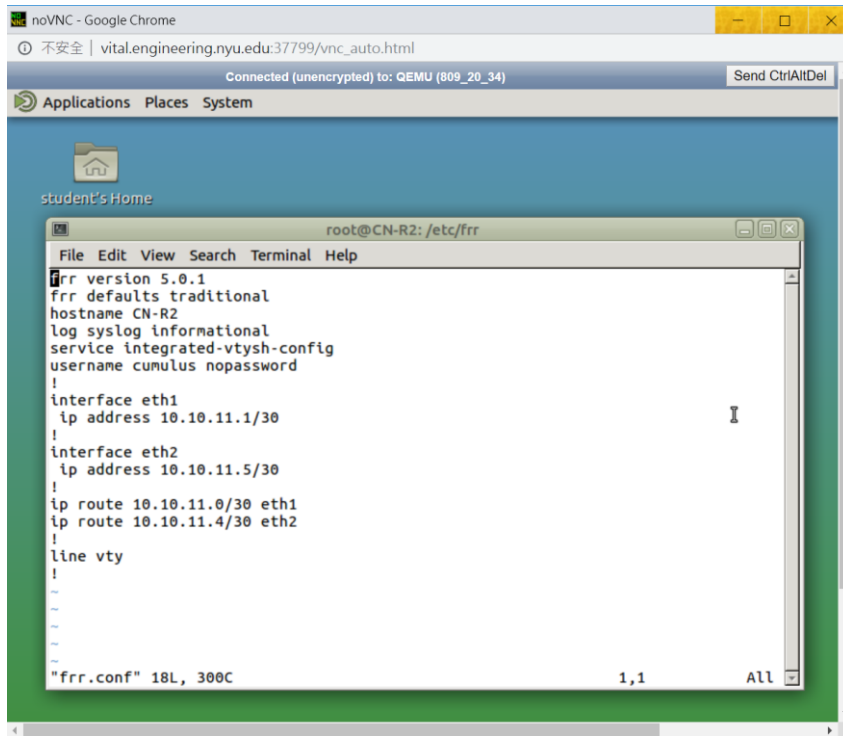


1. Your IP subnet tables:

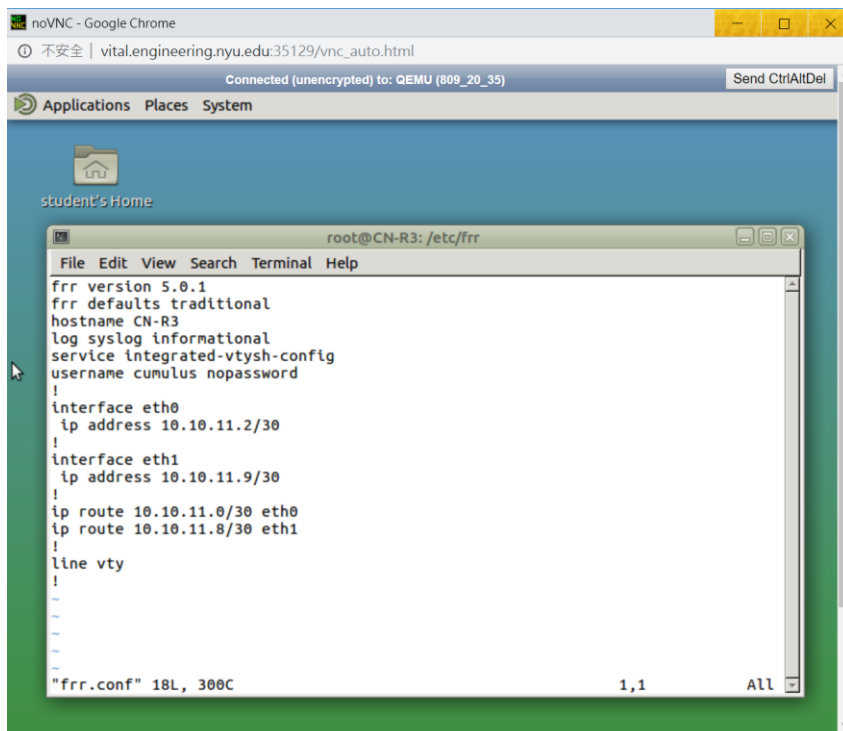
| VM Subnet | IP Subnet | Network | Range | Broadcast |
|--------------------|-----------|-------------|-------------------------|-------------|
| R2(eth1), R3(eth0) | /30 | 10.10.11.0 | 10.10.11.1-10.10.11.2 | 10.10.11.3 |
| R2(eth2), R4(eth1) | /30 | 10.10.11.4 | 10.10.11.5-10.10.11.6 | 10.10.11.7 |
| R3(eth1), R4(eth0) | /30 | 10.10.11.8 | 10.10.11.9-10.10.11.10 | 10.10.11.11 |
| R4(eth2) | /30 | 10.10.11.12 | 10.10.11.13-10.10.11.14 | 10.10.11.15 |

2. Copies of the conf files under /etc/frr/frr.conf for each of R2, R3 and R4:



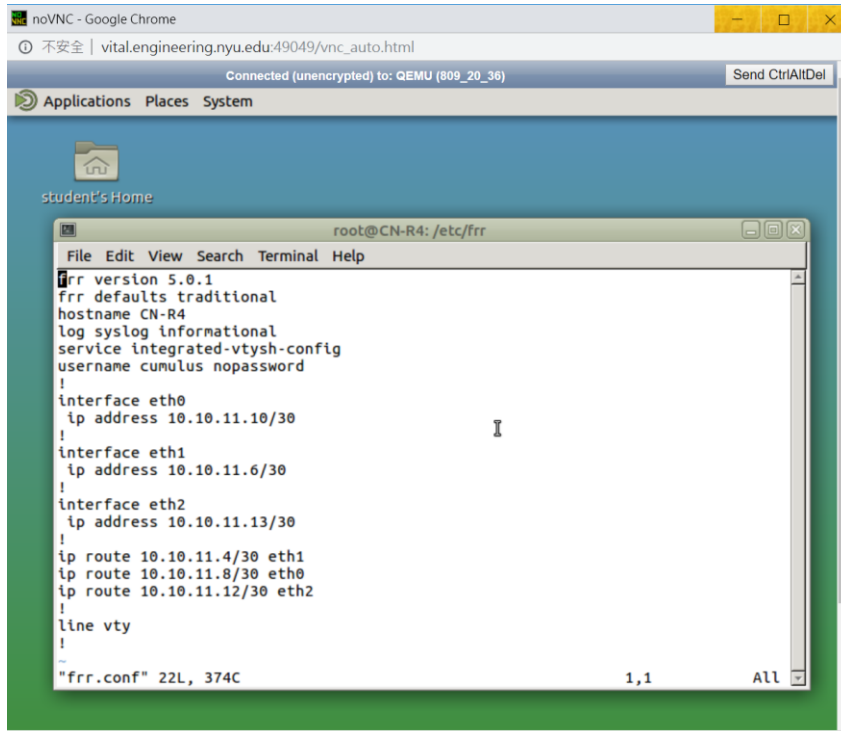
```

frr version 5.0.1
frr defaults traditional
hostname CN-R2
log syslog informational
service integrated-vtysh-config
username cumulus nopassword
!
interface eth1
 ip address 10.10.11.1/30
!
interface eth2
 ip address 10.10.11.5/30
!
ip route 10.10.11.0/30 eth1
ip route 10.10.11.4/30 eth2
!
line vty
!
"
frr.conf" 18L, 300C
  
```

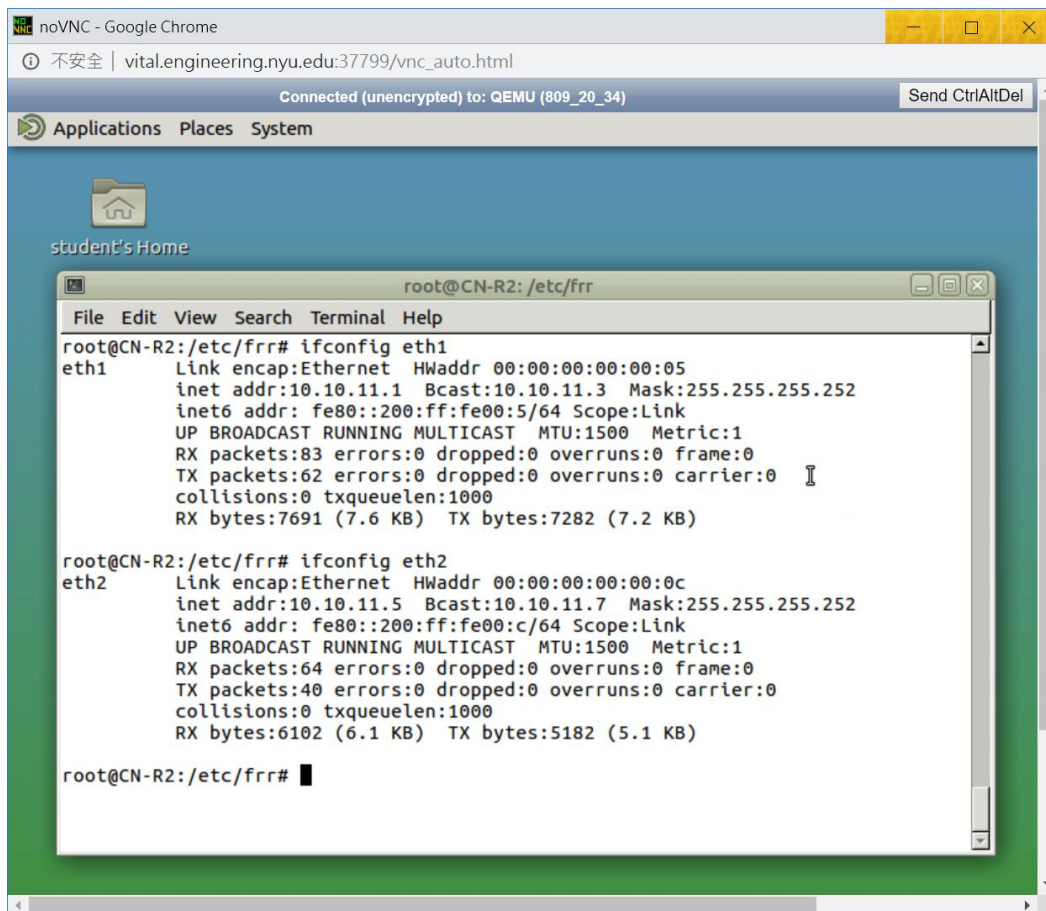


```

frr version 5.0.1
frr defaults traditional
hostname CN-R3
log syslog informational
service integrated-vtysh-config
username cumulus nopassword
!
interface eth0
 ip address 10.10.11.2/30
!
interface eth1
 ip address 10.10.11.9/30
!
ip route 10.10.11.0/30 eth0
ip route 10.10.11.8/30 eth1
!
line vty
!
"
frr.conf" 18L, 300C
  
```



3. The Ethernet addresses of R2, R3 and R4:



noVNC - Google Chrome

不安全 | vital.engineering.nyu.edu:35129/vnc_auto.html

Connected (unencrypted) to: QEMU (809_20_35) Send CtrlAltDel

Applications Places System

student's Home

```
root@CN-R3:/etc/frr# ifconfig eth0
eth0      Link encap:Ethernet  HWaddr 00:00:00:00:00:06
          inet addr:10.10.11.2  Bcast:10.10.11.3  Mask:255.255.255.252
          inet6 addr: fe80::200:ff:fe00:6/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:84 errors:0 dropped:0 overruns:0 frame:0
          TX packets:61 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:7742 (7.7 KB)  TX bytes:7217 (7.2 KB)

root@CN-R3:/etc/frr# ifconfig eth1
eth1      Link encap:Ethernet  HWaddr 00:00:00:00:00:07
          inet addr:10.10.11.9  Bcast:10.10.11.11  Mask:255.255.255.252
          inet6 addr: fe80::200:ff:fe00:7/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:60 errors:0 dropped:0 overruns:0 frame:0
          TX packets:37 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:5788 (5.7 KB)  TX bytes:4905 (4.9 KB)

root@CN-R3:/etc/frr#
```

noVNC - Google Chrome

不安全 | vital.engineering.nyu.edu:49049/vnc_auto.html

Connected (unencrypted) to: QEMU (809_20_36) Send CtrlAltDel

Applications Places System

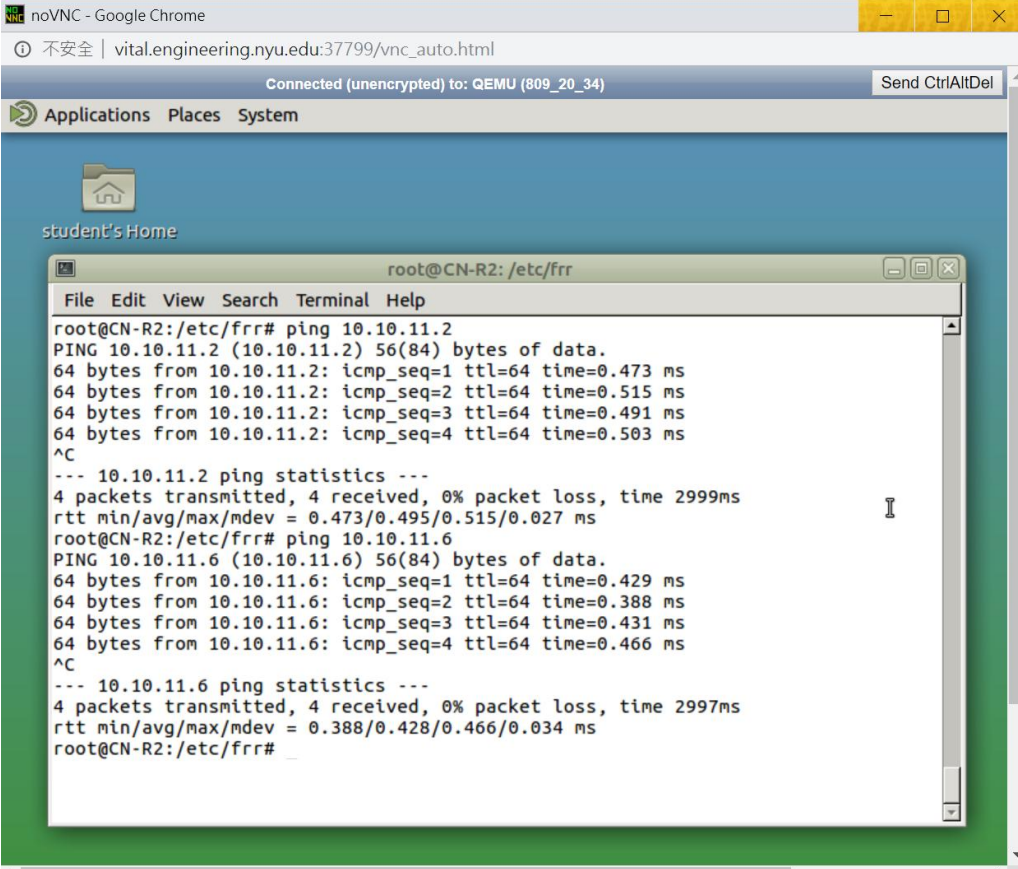
```
root@CN-R4:/etc/frr# ifconfig eth1
eth1      Link encap:Ethernet  HWaddr 00:00:00:00:00:09
          inet addr:10.10.11.6  Bcast:10.10.11.7  Mask:255.255.255.252
          inet6 addr: fe80::200:ff:fe00:9/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:26 errors:0 dropped:0 overruns:0 frame:0
          TX packets:40 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:1748 (1.7 KB)  TX bytes:5182 (5.1 KB)

root@CN-R4:/etc/frr# ifconfig eth0
eth0      Link encap:Ethernet  HWaddr 00:00:00:00:00:08
          inet addr:10.10.11.10  Bcast:10.10.11.11  Mask:255.255.255.252
          inet6 addr: fe80::200:ff:fe00:8/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:25 errors:0 dropped:0 overruns:0 frame:0
          TX packets:38 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:1636 (1.6 KB)  TX bytes:4992 (4.9 KB)

root@CN-R4:/etc/frr# ifconfig eth2
eth2      Link encap:Ethernet  HWaddr 00:00:00:00:00:0a
          inet addr:10.10.11.13  Bcast:10.10.11.15  Mask:255.255.255.252
          inet6 addr: fe80::200:ff:fe00:a/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:22 errors:0 dropped:0 overruns:0 frame:0
          TX packets:28 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:1368 (1.3 KB)  TX bytes:4157 (4.1 KB)

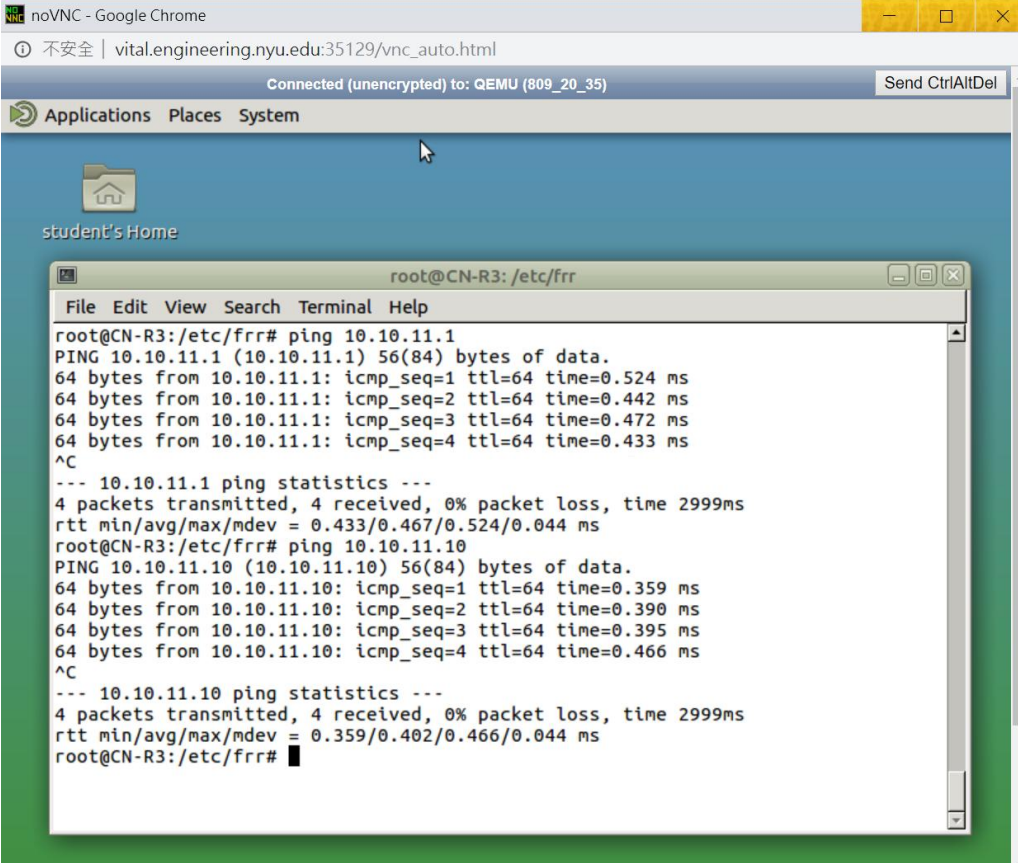
root@CN-R4:/etc/frr#
```

4. Show that pinging works between R2, R3 and R4:



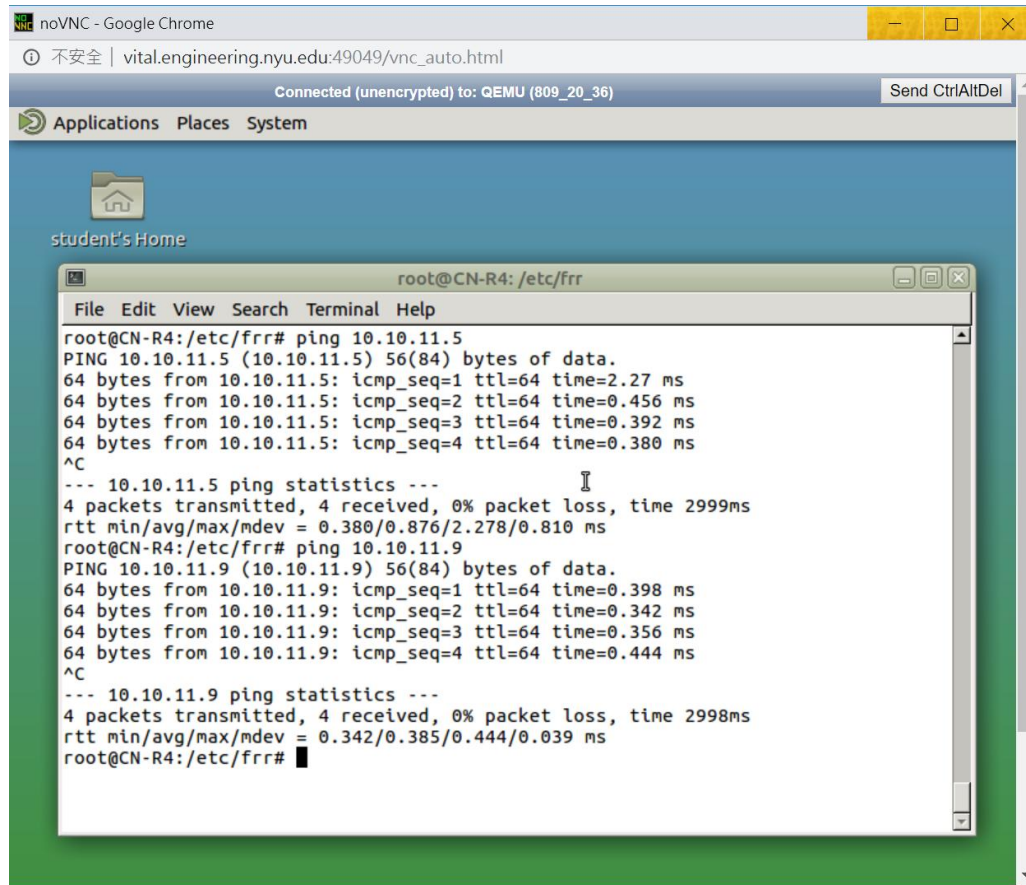
The screenshot shows a noVNC browser window with the address bar displaying 'vital.engineering.nyu.edu:37799/vnc_auto.html'. The interface includes a top bar with 'Applications', 'Places', and 'System' menus. The main desktop area shows a 'student's Home' icon and a terminal window titled 'root@CN-R2: /etc/frr'. The terminal output shows the following commands and results:

```
root@CN-R2:/etc/frr# ping 10.10.11.2
PING 10.10.11.2 (10.10.11.2) 56(84) bytes of data.
64 bytes from 10.10.11.2: icmp_seq=1 ttl=64 time=0.473 ms
64 bytes from 10.10.11.2: icmp_seq=2 ttl=64 time=0.515 ms
64 bytes from 10.10.11.2: icmp_seq=3 ttl=64 time=0.491 ms
64 bytes from 10.10.11.2: icmp_seq=4 ttl=64 time=0.503 ms
^C
--- 10.10.11.2 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 2999ms
rtt min/avg/max/mdev = 0.473/0.495/0.515/0.027 ms
root@CN-R2:/etc/frr# ping 10.10.11.6
PING 10.10.11.6 (10.10.11.6) 56(84) bytes of data.
64 bytes from 10.10.11.6: icmp_seq=1 ttl=64 time=0.429 ms
64 bytes from 10.10.11.6: icmp_seq=2 ttl=64 time=0.388 ms
64 bytes from 10.10.11.6: icmp_seq=3 ttl=64 time=0.431 ms
64 bytes from 10.10.11.6: icmp_seq=4 ttl=64 time=0.466 ms
^C
--- 10.10.11.6 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 2997ms
rtt min/avg/max/mdev = 0.388/0.428/0.466/0.034 ms
root@CN-R2:/etc/frr#
```



The screenshot shows a noVNC browser window with the address bar displaying 'vital.engineering.nyu.edu:35129/vnc_auto.html'. The interface includes a top bar with 'Applications', 'Places', and 'System' menus. The main desktop area shows a 'student's Home' icon and a terminal window titled 'root@CN-R3: /etc/frr'. The terminal output shows the following commands and results:

```
root@CN-R3:/etc/frr# ping 10.10.11.1
PING 10.10.11.1 (10.10.11.1) 56(84) bytes of data.
64 bytes from 10.10.11.1: icmp_seq=1 ttl=64 time=0.524 ms
64 bytes from 10.10.11.1: icmp_seq=2 ttl=64 time=0.442 ms
64 bytes from 10.10.11.1: icmp_seq=3 ttl=64 time=0.472 ms
64 bytes from 10.10.11.1: icmp_seq=4 ttl=64 time=0.433 ms
^C
--- 10.10.11.1 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 2999ms
rtt min/avg/max/mdev = 0.433/0.467/0.524/0.044 ms
root@CN-R3:/etc/frr# ping 10.10.11.10
PING 10.10.11.10 (10.10.11.10) 56(84) bytes of data.
64 bytes from 10.10.11.10: icmp_seq=1 ttl=64 time=0.359 ms
64 bytes from 10.10.11.10: icmp_seq=2 ttl=64 time=0.390 ms
64 bytes from 10.10.11.10: icmp_seq=3 ttl=64 time=0.395 ms
64 bytes from 10.10.11.10: icmp_seq=4 ttl=64 time=0.466 ms
^C
--- 10.10.11.10 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 2999ms
rtt min/avg/max/mdev = 0.359/0.402/0.466/0.044 ms
root@CN-R3:/etc/frr#
```

5. Copies of the arp tables on R2m R3 and R4:

