

Linux

Ubuntu Server

Configuração de 3 IP's na mesma placa de rede no Ubuntu (14, 16 e 18) Server

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1.1- Instalação das duas (2) placas de rede no Virtualbox



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2.1- Configuração de 3 IP's na mesma placa de rede no Ubuntu 14

Configuração de 3 IP's na mesma placa de rede no Ubuntu 14

2.1- Configuração de 3 IP's na mesma placa de rede no Ubuntu 14

```
root@asoa:/home/asoa# nano /etc/network/interfaces_
```


2.1- Configuração de 3 IP's na mesma placa de rede no Ubuntu 14

```
# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).

# The loopback network interface
auto lo
iface lo inet loopback

# The primary network interface
auto eth0
iface eth0 inet dhcp

auto eth1
iface eth1 inet static
    address 192.168.13.1
    netmask 255.255.255.0

auto eth1:0
iface eth1:0 inet static
    address 10.10.10.1
    netmask 255.255.255.0

auto eth1:1
iface eth1:1 inet static
    address 172.16.1.1
    netmask 255.255.255.0
```

2.1- Configuração de 3 IP's na mesma placa de rede no Ubuntu 14

```
root@asoa:/home/asoa# ifconfig
eth0      Link encap:Ethernet  HWaddr 08:00:27:3e:a8:0b
          inet addr:10.0.2.15 Bcast:10.0.2.255  Mask:255.255.255.0
          inet6 addr: fe80::a00:27ff:fe3e:a80b/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:78 errors:0 dropped:0 overruns:0 frame:0
          TX packets:91 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:9232 (9.2 KB)  TX bytes:8294 (8.2 KB)

eth1      Link encap:Ethernet  HWaddr 08:00:27:3b:f5:9f
          inet addr:192.168.13.1 Bcast:192.168.13.255  Mask:255.255.255.0
          inet6 addr: fe80::a00:27ff:fe3b:f59f/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:8 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:648 (648.0 B)

eth1:0    Link encap:Ethernet  HWaddr 08:00:27:3b:f5:9f
          inet addr:10.10.10.1 Bcast:10.10.10.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1

eth1:1    Link encap:Ethernet  HWaddr 08:00:27:3b:f5:9f
          inet addr:172.16.1.1 Bcast:172.16.1.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
```

2.2- Configuração de 3 IP's na mesma placa de rede no Ubuntu 16

Configuração de 3 IP's na mesma placa de rede no Ubuntu 16

2.2- Configuração de 3 IP's na mesma placa de rede no Ubuntu 16

```
root@ubuntu:/home/ubuntu# nano /etc/network/interfaces
```

2.2- Configuração de 3 IP's na mesma placa de rede no Ubuntu 16

```
# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).

source /etc/network/interfaces.d/*

# The loopback network interface
auto lo
iface lo inet loopback

auto enp0s3
iface enp0s3 inet dhcp

auto enp0s8
iface enp0s8 inet static
    address 192.168.13.1
    netmask 255.255.255.0

auto enp0s8:0
iface enp0s8:0 inet static
    address 10.10.10.1
    netmask 255.255.255.0

auto enp0s8:1
iface enp0s8:1 inet static
    address 172.16.1.1
    netmask 255.255.255.0
```

2.2- Configuração de 3 IP's na mesma placa de rede no Ubuntu 16

```
root@ubuntu:/home/ubuntu# ifconfig
enp0s3  Link encap:Ethernet  HWaddr 08:00:27:07:da:25
        inet addr:10.0.2.15 Bcast:10.0.2.255 Mask:255.255.255.0
        inet6 addr: fe80::a00:27ff:fe07:da25/64 Scope:Link
        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
        RX packets:1 errors:0 dropped:0 overruns:0 frame:0
        TX packets:9 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1000
        RX bytes:590 (590.0 B)  TX bytes:990 (990.0 B)

enp0s8  Link encap:Ethernet  HWaddr 08:00:27:36:ed:74
        inet addr:192.168.13.1 Bcast:192.168.13.255 Mask:255.255.255.0
        inet6 addr: fe80::a00:27ff:fe36:ed74/64 Scope:Link
        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
        RX packets:0 errors:0 dropped:0 overruns:0 frame:0
        TX packets:8 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1000
        RX bytes:0 (0.0 B)  TX bytes:648 (648.0 B)

enp0s8:0 Link encap:Ethernet  HWaddr 08:00:27:36:ed:74
        inet addr:10.10.10.1 Bcast:10.10.10.255 Mask:255.255.255.0
        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1

enp0s8:1 Link encap:Ethernet  HWaddr 08:00:27:36:ed:74
        inet addr:172.16.1.1 Bcast:172.16.1.255 Mask:255.255.255.0
        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
```

2.3- Configuração de 3 IP's na mesma placa de rede no Ubuntu 18

Configuração de 3 IP's na mesma placa de rede no Ubuntu 18

2.3- Configuração de 3 IP's na mesma placa de rede no Ubuntu 18

```
root@asoa:/home/asoa# nano /etc/netplan/50-cloud-init.yaml
```


2.3- Configuração de 3 IP's na mesma placa de rede no Ubuntu 18

```
# This file is generated from information provided by
# the datasource.  Changes to it will not persist across an instance.
# To disable cloud-init's network configuration capabilities, write a file
# /etc/cloud/cloud.cfg.d/99-disable-network-config.cfg with the following:
# network: {config: disabled}
network:
  ethernets:
    enp0s3:
      addresses: []
      dhcp4: true
      optional: true
    enp0s8:
      addresses: [ 192.168.13.1/24, 172.16.1.1/24, 10.10.10.1/24 ]
      dhcp4: false
      optional: false
  version: 2
```

2.3- Configuração de 3 IP's na mesma placa de rede no Ubuntu 18

```
root@asoa:/home/asoa# ip addr show
```

2.3- Configuração de 3 IP's na mesma placa de rede no Ubuntu 18

```
root@asoa:/home/asoa# ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_code
0    link/ether 08:00:27:72:5d:b2 brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic enp0s3
        valid_lft 86210sec preferred_lft 86210sec
    inet6 fe80::a00:27ff:fe72:5db2/64 scope link
        valid_lft forever preferred_lft forever
3: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_code
0    link/ether 08:00:27:3a:66:35 brd ff:ff:ff:ff:ff:ff
    inet 192.168.13.1/24 brd 192.168.13.255 scope global enp0s8
        valid_lft forever preferred_lft forever
    inet 172.16.1.1/24 brd 172.16.1.255 scope global enp0s8
        valid_lft forever preferred_lft forever
    inet 10.10.10.1/24 brd 10.10.10.255 scope global enp0s8
        valid_lft forever preferred_lft forever
    inet6 fe80::a00:27ff:fe3a:6635/64 scope link
```

3.1-Tabela de rotas no Ubuntu 14 Server

```
root@asoa:/home/asoa# netstat -r
Kernel IP routing table
Destination      Gateway          Genmask          Flags      MSS Window  irtt  Iface
default          10.0.2.2        0.0.0.0          UG         0 0        0 eth0
10.0.2.0         *               255.255.255.0    U          0 0        0 eth0
10.10.10.0       *               255.255.255.0    U          0 0        0 eth1
172.16.1.0       *               255.255.255.0    U          0 0        0 eth1
192.168.13.0     *               255.255.255.0    U          0 0        0 eth1
root@asoa:/home/asoa#
```

3.2-Tabela de rotas no Ubuntu 16 Server

```
root@ubuntu:/home/ubuntu# netstat -r
Kernel IP routing table
Destination      Gateway          Genmask         Flags        MSS Window  irtt  Iface
default          10.0.2.2        0.0.0.0         UG           0 0          0 enp0s3
10.0.2.0         *               255.255.255.0   U            0 0          0 enp0s3
10.10.10.0        *               255.255.255.0   U            0 0          0 enp0s8
172.16.1.0        *               255.255.255.0   U            0 0          0 enp0s8
192.168.13.0     *               255.255.255.0   U            0 0          0 enp0s8
root@ubuntu:/home/ubuntu#
```

3.3-Tabela de rotas no Ubuntu 18 Server

```
root@asoa:/home/asoa# netstat -r
Kernel IP routing table
Destination      Gateway          Genmask          Flags      MSS  Window  irtt  Iface
default          _gateway        0.0.0.0          UG         0 0      0     enp0s3
10.0.2.0         0.0.0.0         255.255.255.0    U          0 0      0     enp0s3
_gateway        0.0.0.0         255.255.255.255  UH         0 0      0     enp0s3
10.10.10.0       0.0.0.0         255.255.255.0    U          0 0      0     enp0s8
172.16.1.0       0.0.0.0         255.255.255.0    U          0 0      0     enp0s8
192.168.13.0     0.0.0.0         255.255.255.0    U          0 0      0     enp0s8
root@asoa:/home/asoa# _
```

4.1- Testes de Conectividade - Ubuntu 14

Testes de Conectividade - Ubuntu 14 Server

4.1 - Testes de Conectividade - Rede interna 1 no Ubuntu 14

```
C:\WINDOWS\system32\cmd.exe - ping 192.168.13.1 -t
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=4ms TTL=64
Reply from 192.168.13.1: bytes=32 time=2ms TTL=64
Reply from 192.168.13.1: bytes=32 time=3ms TTL=64
Reply from 192.168.13.1: bytes=32 time=2ms TTL=64
Reply from 192.168.13.1: bytes=32 time=3ms TTL=64
Reply from 192.168.13.1: bytes=32 time=2ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=3ms TTL=64
Reply from 192.168.13.1: bytes=32 time<1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time<1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=2ms TTL=64
Reply from 192.168.13.1: bytes=32 time=2ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time<1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=3ms TTL=64
Reply from 192.168.13.1: bytes=32 time=2ms TTL=64
Reply from 192.168.13.1: bytes=32 time=5ms TTL=64
Reply from 192.168.13.1: bytes=32 time=2ms TTL=64
Reply from 192.168.13.1: bytes=32 time=4ms TTL=64
Reply from 192.168.13.1: bytes=32 time=4ms TTL=64
```

```
64 bytes from 192.168.13.2: icmp_s
64 bytes from 192.168.13.2: icmp_s
64 bytes from 192.168.13.2: icmp_s
64 bytes from 192.168.13.2: icmp_s
64 bytes from 192.168.13.2: icmp_s
64 bytes from 192.168.13.2: icmp_s
64 bytes from 192.168.13.2: icmp_s
64 bytes from 192.168.13.2: icmp_s
64 bytes from 192.168.13.2: icmp_s
64 bytes from 192.168.13.2: icmp_s
64 bytes from 192.168.13.2: icmp_s
64 bytes from 192.168.13.2: icmp_s
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64 bytes from 192.168.13.2: icmp_s
64 bytes from 192.168.13.2: icmp_s
64 bytes from 192.168.13.2: icmp_s
64 bytes from 192.168.13.2: icmp_s
64 bytes from 192.168.13.2: icmp_s
64 bytes from 192.168.13.2: icmp_s
64 bytes from 192.168.13.2: icmp_s
64 bytes from 192.168.13.2: icmp_s
```


4.1- Testes de Conectividade - Rede 1 para 2 no Ubuntu 14

```
C:\WINDOWS\system32\cmd.exe - ping 10.10.10.1 -t
```

```

Reply from 10.10.10.1: bytes=32 time=4ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=3ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=2ms TTL=64
Reply from 10.10.10.1: bytes=32 time=2ms TTL=64
Reply from 10.10.10.1: bytes=32 time=2ms TTL=64
Reply from 10.10.10.1: bytes=32 time=2ms TTL=64
Reply from 10.10.10.1: bytes=32 time=3ms TTL=64
Reply from 10.10.10.1: bytes=32 time=2ms TTL=64
Reply from 10.10.10.1: bytes=32 time=3ms TTL=64
Reply from 10.10.10.1: bytes=32 time=3ms TTL=64
Reply from 10.10.10.1: bytes=32 time=3ms TTL=64
Reply from 10.10.10.1: bytes=32 time=5ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=4ms TTL=64
Reply from 10.10.10.1: bytes=32 time=2ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=2ms TTL=64
Reply from 10.10.10.1: bytes=32 time=3ms TTL=64
Reply from 10.10.10.1: bytes=32 time=2ms TTL=64
Reply from 10.10.10.1: bytes=32 time=3ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64

```

Explorer

```
root@asoa:/home/asoa# ifconfig
```

```
eth0      Link encap:Ethernet  HWaddr 08:00:27:3e:a8:0b
          inet addr:10.0.2.15  Bcast:10.0.2.255  Mask:255.255.255.0
          inet6 addr: fe80::a00:27ff:fe3e:a80b/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:100 errors:0 dropped:0 overruns:0 frame
          TX packets:113 errors:0 dropped:0 overruns:0 carrier
          collisions:0 txqueuelen:1000
          RX bytes:12595 (12.5 KB)  TX bytes:10184 (10.1 KB)
```

eth1

```
Link encap:Ethernet HWaddr 08:00:27:3b:f5:9f
inet addr:192.168.13.1 Bcast:192.168.13.255 Mask
inet6 addr: fe80::a00:27ff:fe3b:f59f/64 Scope:Link
UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
RX packets:336 errors:0 dropped:0 overruns:0 frame
TX packets:277 errors:0 dropped:0 overruns:0 carri
collisions:0 txqueuelen:1000
RX bytes:29276 (29.2 KB) TX bytes:23355 (23.3 KB)
```

eth1:0

```
Link encap:Ethernet HWaddr 08:00:27:3b:f5:9f
inet addr:10.10.10.1 Bcast:10.10.10.255 Mask:255
UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
```

eth1:1

```
Link encap:Ethernet HWaddr 08:00:27:3b:f5:9f
inet addr:172.16.1.1 Bcast:172.16.1.255 Mask:255
UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
```

4.1 - Testes de Conectividade - Rede 1 para 3 no Ubuntu 14

```
C:\WINDOWS\system32\cmd.exe - ping 172.16.1.1 -t
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time<1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time<1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time<1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=2ms TTL=64
Reply from 172.16.1.1: bytes=32 time=3ms TTL=64
Reply from 172.16.1.1: bytes=32 time=2ms TTL=64
Reply from 172.16.1.1: bytes=32 time=3ms TTL=64
Reply from 172.16.1.1: bytes=32 time=3ms TTL=64
Reply from 172.16.1.1: bytes=32 time=3ms TTL=64
Reply from 172.16.1.1: bytes=32 time=9ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=3ms TTL=64
Reply from 172.16.1.1: bytes=32 time=5ms TTL=64
Reply from 172.16.1.1: bytes=32 time=8ms TTL=64
Reply from 172.16.1.1: bytes=32 time=2ms TTL=64
Reply from 172.16.1.1: bytes=32 time=2ms TTL=64
Reply from 172.16.1.1: bytes=32 time=3ms TTL=64
Reply from 172.16.1.1: bytes=32 time=3ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
```

```
root@asoa:/home/asoa# ifconfig
eth0      Link encap:Ethernet  HWaddr 08:00:27:3e:a8:0b
          inet addr:10.0.2.15  Bcast:10.0.2.255  Mask:255.255.255.0
          inet6 addr: fe80::a00:27ff:fe3e:a80b/64  Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:100 errors:0 dropped:0 overruns:0 frame
          TX packets:113 errors:0 dropped:0 overruns:0 carri
          collisions:0 txqueuelen:1000
          RX bytes:12595 (12.5 KB)  TX bytes:10184 (10.1 KB)

eth1      Link encap:Ethernet  HWaddr 08:00:27:3b:f5:9f
          inet addr:192.168.13.1  Bcast:192.168.13.255  Mask:255.255.255.0
          inet6 addr: fe80::a00:27ff:fe3b:f59f/64  Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:336 errors:0 dropped:0 overruns:0 frame
          TX packets:277 errors:0 dropped:0 overruns:0 carri
          collisions:0 txqueuelen:1000
          RX bytes:29276 (29.2 KB)  TX bytes:23355 (23.3 KB)

eth1:0    Link encap:Ethernet  HWaddr 08:00:27:3b:f5:9f
          inet addr:10.10.10.1  Bcast:10.10.10.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1

eth1:1    Link encap:Ethernet  HWaddr 08:00:27:3b:f5:9f
          inet addr:172.16.1.1  Bcast:172.16.1.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
```

4.1- Testes de Conectividade - Rede 1 para Internet no Ubuntu 14

```
C:\WINDOWS\system32\cmd.exe - ping 8.8.8.8 -t
Replay from 8.8.8.8: bytes=32 time=95ms TTL=125
Replay from 8.8.8.8: bytes=32 time=80ms TTL=125
Replay from 8.8.8.8: bytes=32 time=125ms TTL=125
Replay from 8.8.8.8: bytes=32 time=125ms TTL=125
Replay from 8.8.8.8: bytes=32 time=116ms TTL=125
Replay from 8.8.8.8: bytes=32 time=89ms TTL=125
Replay from 8.8.8.8: bytes=32 time=75ms TTL=125
Replay from 8.8.8.8: bytes=32 time=91ms TTL=125
Replay from 8.8.8.8: bytes=32 time=52ms TTL=125
Replay from 8.8.8.8: bytes=32 time=95ms TTL=125
Replay from 8.8.8.8: bytes=32 time=80ms TTL=125
Replay from 8.8.8.8: bytes=32 time=122ms TTL=125
Replay from 8.8.8.8: bytes=32 time=59ms TTL=125
Replay from 8.8.8.8: bytes=32 time=87ms TTL=125
Replay from 8.8.8.8: bytes=32 time=53ms TTL=125
Replay from 8.8.8.8: bytes=32 time=66ms TTL=125
Replay from 8.8.8.8: bytes=32 time=56ms TTL=125
Replay from 8.8.8.8: bytes=32 time=146ms TTL=125
Replay from 8.8.8.8: bytes=32 time=70ms TTL=125
Replay from 8.8.8.8: bytes=32 time=69ms TTL=125
Replay from 8.8.8.8: bytes=32 time=61ms TTL=125
Replay from 8.8.8.8: bytes=32 time=75ms TTL=125
Replay from 8.8.8.8: bytes=32 time=73ms TTL=125
Replay from 8.8.8.8: bytes=32 time=64ms TTL=125
```

```
root@asoa:/home/asoa# ifconfig
eth0      Link encap:Ethernet  HWaddr 08:00:27:3e:a8:0b
          inet addr:10.0.2.15  Bcast:10.0.2.255  Mask:255.255.255.0
          inet6 addr: fe80::a00:27ff:fe3e:a80b/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:114 errors:0 dropped:0 overruns:0 frame
          TX packets:129 errors:0 dropped:0 overruns:0 carri
          collisions:0 txqueuelen:1000
          RX bytes:13617 (13.6 KB)  TX bytes:11354 (11.3 KB)

eth1      Link encap:Ethernet  HWaddr 08:00:27:3b:f5:9f
          inet addr:192.168.13.1  Bcast:192.168.13.255  Mask:255.255.255.0
          inet6 addr: fe80::a00:27ff:fe3b:f59f/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:516 errors:0 dropped:0 overruns:0 frame
          TX packets:455 errors:0 dropped:0 overruns:0 carri
          collisions:0 txqueuelen:1000
          RX bytes:42568 (42.5 KB)  TX bytes:36499 (36.4 KB)

eth1:0    Link encap:Ethernet  HWaddr 08:00:27:3b:f5:9f
          inet addr:10.10.10.1  Bcast:10.10.10.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1

eth1:1    Link encap:Ethernet  HWaddr 08:00:27:3b:f5:9f
          inet addr:172.16.1.1  Bcast:172.16.1.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
```

4.1 - Testes de Conectividade - Rede interna 2 no Ubuntu 14

```
C:\WINDOWS\system32\cmd.exe - ping 10.10.10.1 -t
Reply from 10.10.10.1: bytes=32 time=7ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=4ms TTL=64
Reply from 10.10.10.1: bytes=32 time=3ms TTL=64
Reply from 10.10.10.1: bytes=32 time=3ms TTL=64
Reply from 10.10.10.1: bytes=32 time=7ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=4ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=2ms TTL=64
Reply from 10.10.10.1: bytes=32 time=4ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=2ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=3ms TTL=64
Reply from 10.10.10.1: bytes=32 time=5ms TTL=64
Reply from 10.10.10.1: bytes=32 time=3ms TTL=64
Reply from 10.10.10.1: bytes=32 time=5ms TTL=64
Reply from 10.10.10.1: bytes=32 time=5ms TTL=64
```

```
64 bytes from 10.10.10.2: icmp_seq=12
64 bytes from 10.10.10.2: icmp_seq=13
64 bytes from 10.10.10.2: icmp_seq=14
64 bytes from 10.10.10.2: icmp_seq=15
64 bytes from 10.10.10.2: icmp_seq=16
64 bytes from 10.10.10.2: icmp_seq=17
64 bytes from 10.10.10.2: icmp_seq=18
64 bytes from 10.10.10.2: icmp_seq=19
64 bytes from 10.10.10.2: icmp_seq=20
64 bytes from 10.10.10.2: icmp_seq=21
64 bytes from 10.10.10.2: icmp_seq=22
64 bytes from 10.10.10.2: icmp_seq=23
64 bytes from 10.10.10.2: icmp_seq=24
64 bytes from 10.10.10.2: icmp_seq=25
64 bytes from 10.10.10.2: icmp_seq=26
64 bytes from 10.10.10.2: icmp_seq=27
64 bytes from 10.10.10.2: icmp_seq=28
64 bytes from 10.10.10.2: icmp_seq=29
64 bytes from 10.10.10.2: icmp_seq=30
64 bytes from 10.10.10.2: icmp_seq=31
64 bytes from 10.10.10.2: icmp_seq=32
```

4.1 - Testes de Conectividade - Rede 2 para 1 no Ubuntu 14

```
C:\WINDOWS\system32\cmd.exe - ping 192.168.13.1 -t
```

```
Reply from 192.168.13.1: bytes=32 time=3ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time<1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=5ms TTL=64
Reply from 192.168.13.1: bytes=32 time=2ms TTL=64
Reply from 192.168.13.1: bytes=32 time<1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=2ms TTL=64
Reply from 192.168.13.1: bytes=32 time=2ms TTL=64
Reply from 192.168.13.1: bytes=32 time=9ms TTL=64
Reply from 192.168.13.1: bytes=32 time<1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=8ms TTL=64
Reply from 192.168.13.1: bytes=32 time=3ms TTL=64
Reply from 192.168.13.1: bytes=32 time=2ms TTL=64
Reply from 192.168.13.1: bytes=32 time=4ms TTL=64
Reply from 192.168.13.1: bytes=32 time=2ms TTL=64
Reply from 192.168.13.1: bytes=32 time=2ms TTL=64
Reply from 192.168.13.1: bytes=32 time=3ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=2ms TTL=64
Reply from 192.168.13.1: bytes=32 time=2ms TTL=64
Reply from 192.168.13.1: bytes=32 time=4ms TTL=64
Reply from 192.168.13.1: bytes=32 time=3ms TTL=64
Reply from 192.168.13.1: bytes=32 time=2ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
```

Explorer

```
root@asoa:/home/asoa# ifconfig
```

```
eth0      Link encap:Ethernet  HWaddr 
          inet addr:10.0.2.15  Bcast:
          inet6 addr: fe80::a00:27ff:
          UP BROADCAST RUNNING MULTIC
          RX packets:165 errors:0 dro
          TX packets:180 errors:0 dro
          collisions:0 txqueuelen:100
          RX bytes:18916 (18.9 KB) T
```

```
eth1      Link encap:Ethernet  HWaddr 
          inet addr:192.168.13.1 Bca
          inet6 addr: fe80::a00:27ff:
          UP BROADCAST RUNNING MULTIC
          RX packets:781 errors:0 dro
          TX packets:686 errors:0 dro
          collisions:0 txqueuelen:100
          RX bytes:63914 (63.9 KB) T
```

```
eth1:0    Link encap:Ethernet  HWaddr 
          inet addr:10.10.10.1 Bcast
          UP BROADCAST RUNNING MULTIC
```

```
eth1:1    Link encap:Ethernet  HWaddr 
          inet addr:172.16.1.1 Bcast
          UP BROADCAST RUNNING MULTIC
```

4.1 - Testes de Conectividade - Rede 2 para 3 no Ubuntu 14

C:\WINDOWS\system32\cmd.exe - ping 172.16.1.1 -t

```
Reply from 172.16.1.1: bytes=32 time<1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=3ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time<1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=2ms TTL=64
Reply from 172.16.1.1: bytes=32 time=2ms TTL=64
Reply from 172.16.1.1: bytes=32 time=3ms TTL=64
Reply from 172.16.1.1: bytes=32 time=4ms TTL=64
Reply from 172.16.1.1: bytes=32 time=5ms TTL=64
Reply from 172.16.1.1: bytes=32 time=3ms TTL=64
Reply from 172.16.1.1: bytes=32 time=2ms TTL=64
Reply from 172.16.1.1: bytes=32 time=2ms TTL=64
Reply from 172.16.1.1: bytes=32 time=4ms TTL=64
Reply from 172.16.1.1: bytes=32 time=2ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=2ms TTL=64
Reply from 172.16.1.1: bytes=32 time=2ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time<1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=2ms TTL=64
Reply from 172.16.1.1: bytes=32 time=9ms TTL=64
Reply from 172.16.1.1: bytes=32 time=3ms TTL=64
Reply from 172.16.1.1: bytes=32 time<1ms TTL=64
```

Explorer

root@asoa:/home/asoa# ifconfig

```
eth0      Link encap:Ethernet  HWaddr 
          inet addr:10.0.2.15  Bcast:
          inet6 addr: fe80::a00:27ff:
          UP BROADCAST RUNNING MULTIC
          RX packets:165 errors:0 dro
          TX packets:180 errors:0 dro
          collisions:0 txqueuelen:100
          RX bytes:18916 (18.9 KB) T
```

```
eth1      Link encap:Ethernet  HWaddr 
          inet addr:192.168.13.1 Bca
          inet6 addr: fe80::a00:27ff:
          UP BROADCAST RUNNING MULTIC
          RX packets:781 errors:0 dro
          TX packets:686 errors:0 dro
          collisions:0 txqueuelen:100
          RX bytes:63914 (63.9 KB) T
```

```
eth1:0    Link encap:Ethernet  HWaddr 
          inet addr:10.10.10.1 Bcast
          UP BROADCAST RUNNING MULTIC
```

```
eth1:1    Link encap:Ethernet  HWaddr 
          inet addr:172.16.1.1 Bcast
          UP BROADCAST RUNNING MULTIC
```

4.2- Testes de Conectividade - Ubuntu 16

Testes de Conectividade - Ubuntu 16 Server

4.2- Testes de Conectividade - Rede interna 1 no Ubuntu 16

```
C:\WINDOWS\system32\cmd.exe - ping 192.168.13.1 -t
```

```

Reply from 192.168.13.1: bytes=32 time=7ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time<1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=2ms TTL=64
Reply from 192.168.13.1: bytes=32 time=9ms TTL=64
Reply from 192.168.13.1: bytes=32 time=3ms TTL=64
Reply from 192.168.13.1: bytes=32 time=2ms TTL=64
Reply from 192.168.13.1: bytes=32 time=2ms TTL=64
Reply from 192.168.13.1: bytes=32 time=3ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time<1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=2ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=6ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=4ms TTL=64

```

Arquivo	Máquina	Visualizar	Entrada	D
64 bytes from 192.168.13.2:		icmp_seq=0		
64 bytes from 192.168.13.2:		icmp_seq=1		
64 bytes from 192.168.13.2:		icmp_seq=2		
64 bytes from 192.168.13.2:		icmp_seq=3		
64 bytes from 192.168.13.2:		icmp_seq=4		
64 bytes from 192.168.13.2:		icmp_seq=5		
64 bytes from 192.168.13.2:		icmp_seq=6		
64 bytes from 192.168.13.2:		icmp_seq=7		
64 bytes from 192.168.13.2:		icmp_seq=8		
64 bytes from 192.168.13.2:		icmp_seq=9		
64 bytes from 192.168.13.2:		icmp_seq=10		
64 bytes from 192.168.13.2:		icmp_seq=11		
64 bytes from 192.168.13.2:		icmp_seq=12		
64 bytes from 192.168.13.2:		icmp_seq=13		
64 bytes from 192.168.13.2:		icmp_seq=14		
64 bytes from 192.168.13.2:		icmp_seq=15		
64 bytes from 192.168.13.2:		icmp_seq=16		
64 bytes from 192.168.13.2:		icmp_seq=17		
64 bytes from 192.168.13.2:		icmp_seq=18		
64 bytes from 192.168.13.2:		icmp_seq=19		

4.2- Testes de Conectividade - Rede 1 para 2 no Ubuntu 16

```
C:\WINDOWS\system32\cmd.exe - ping 10.10.10.1 -t
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=3ms TTL=64
Reply from 10.10.10.1: bytes=32 time=2ms TTL=64
Reply from 10.10.10.1: bytes=32 time=3ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=5ms TTL=64
Reply from 10.10.10.1: bytes=32 time=5ms TTL=64
Reply from 10.10.10.1: bytes=32 time=4ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=5ms TTL=64
Reply from 10.10.10.1: bytes=32 time=2ms TTL=64
Reply from 10.10.10.1: bytes=32 time=2ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=4ms TTL=64
Reply from 10.10.10.1: bytes=32 time=2ms TTL=64
```

Explorer

```
root@ubuntu:/home/ubuntu# ifconfig
enp0s3  Link encap:Ethernet HWaddr 08:00:27:07:da:25
        inet addr:10.0.2.15 Bcast:10.0.2.255 Mask:255.255.255
        inet6 addr: fe80::a00:27ff:fe07:da25/64 Scope:Link
        UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
        RX packets:8 errors:0 dropped:0 overruns:0 frame:0
        TX packets:18 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1000
        RX bytes:1296 (1.2 KB) TX bytes:1676 (1.6 KB)

enp0s8  Link encap:Ethernet HWaddr 08:00:27:36:ed:74
        inet addr:192.168.13.1 Bcast:192.168.13.255 Mask:255.255.255
        inet6 addr: fe80::a00:27ff:fe36:ed74/64 Scope:Link
        UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
        RX packets:162 errors:0 dropped:0 overruns:0 frame:0
        TX packets:170 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1000
        RX bytes:13184 (13.1 KB) TX bytes:13832 (13.8 KB)

enp0s8:0 Link encap:Ethernet HWaddr 08:00:27:36:ed:74
        inet addr:10.10.10.1 Bcast:10.10.10.255 Mask:255.255.255
        UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1

enp0s8:1 Link encap:Ethernet HWaddr 08:00:27:36:ed:74
        inet addr:172.16.1.1 Bcast:172.16.1.255 Mask:255.255.255
        UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
```

4.2- Testes de Conectividade - Rede 1 para 3 no Ubuntu 16

```
C:\WINDOWS\system32\cmd.exe - ping 172.16.1.1 -t
Reply from 172.16.1.1: bytes=32 time=3ms TTL=64
Reply from 172.16.1.1: bytes=32 time=2ms TTL=64
Reply from 172.16.1.1: bytes=32 time=3ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=2ms TTL=64
Reply from 172.16.1.1: bytes=32 time=3ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=4ms TTL=64
Reply from 172.16.1.1: bytes=32 time=4ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=2ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=2ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=7ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=2ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=2ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
```

Explorer

```
root@ubuntu:/home/ubuntu# ifconfig
enp0s3  Link encap:Ethernet  HWaddr 08:00:27:07:da:25
        inet addr:10.0.2.15  Bcast:10.0.2.255  Mask:255.255.255.0
        inet6 addr: fe80::a00:27ff:fe07:da25/64 Scope:Link
        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
        RX packets:8 errors:0 dropped:0 overruns:0 frame:0
        TX packets:18 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1000
        RX bytes:1296 (1.2 KB)  TX bytes:1676 (1.6 KB)

enp0s8  Link encap:Ethernet  HWaddr 08:00:27:36:ed:74
        inet addr:192.168.13.1  Bcast:192.168.13.255  Mask:255.255.255.0
        inet6 addr: fe80::a00:27ff:fe36:ed74/64 Scope:Link
        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
        RX packets:162 errors:0 dropped:0 overruns:0 frame:0
        TX packets:170 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:1000
        RX bytes:13184 (13.1 KB)  TX bytes:13832 (13.8 KB)

enp0s8:0 Link encap:Ethernet  HWaddr 08:00:27:36:ed:74
        inet addr:10.10.10.1  Bcast:10.10.10.255  Mask:255.255.255.0
        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1

enp0s8:1 Link encap:Ethernet  HWaddr 08:00:27:36:ed:74
        inet addr:172.16.1.1  Bcast:172.16.1.255  Mask:255.255.255.0
        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
```

4.2- Testes de Conectividade - Rede interna 2 no Ubuntu 16

```
C:\WINDOWS\system32\cmd.exe - ping 10.10.10.1 -t
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=4ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=9ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=3ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
64 bytes from 10.10.10.2: icmp_seq=6 ttl=128 time=5.21 ms
64 bytes from 10.10.10.2: icmp_seq=7 ttl=128 time=0.908 ms
64 bytes from 10.10.10.2: icmp_seq=8 ttl=128 time=0.420 ms
64 bytes from 10.10.10.2: icmp_seq=9 ttl=128 time=0.826 ms
64 bytes from 10.10.10.2: icmp_seq=10 ttl=128 time=0.821 ms
64 bytes from 10.10.10.2: icmp_seq=11 ttl=128 time=0.866 ms
64 bytes from 10.10.10.2: icmp_seq=12 ttl=128 time=0.859 ms
64 bytes from 10.10.10.2: icmp_seq=13 ttl=128 time=0.645 ms
64 bytes from 10.10.10.2: icmp_seq=14 ttl=128 time=0.494 ms
64 bytes from 10.10.10.2: icmp_seq=15 ttl=128 time=3.04 ms
64 bytes from 10.10.10.2: icmp_seq=16 ttl=128 time=0.823 ms
64 bytes from 10.10.10.2: icmp_seq=17 ttl=128 time=0.905 ms
64 bytes from 10.10.10.2: icmp_seq=18 ttl=128 time=0.802 ms
64 bytes from 10.10.10.2: icmp_seq=19 ttl=128 time=0.383 ms
64 bytes from 10.10.10.2: icmp_seq=20 ttl=128 time=0.871 ms
64 bytes from 10.10.10.2: icmp_seq=21 ttl=128 time=0.842 ms
64 bytes from 10.10.10.2: icmp_seq=22 ttl=128 time=0.777 ms
64 bytes from 10.10.10.2: icmp_seq=23 ttl=128 time=0.478 ms
64 bytes from 10.10.10.2: icmp_seq=24 ttl=128 time=0.896 ms
64 bytes from 10.10.10.2: icmp_seq=25 ttl=128 time=0.407 ms
64 bytes from 10.10.10.2: icmp_seq=26 ttl=128 time=0.850 ms
```

4.2- Testes de Conectividade - Rede 2 para 1 no Ubuntu 16

```
C:\WINDOWS\system32\cmd.exe - ping 192.168.13.1 -t
Reply from 192.168.13.1: bytes=32 time=2ms TTL=64
Reply from 192.168.13.1: bytes=32 time=2ms TTL=64
Reply from 192.168.13.1: bytes=32 time=6ms TTL=64
Reply from 192.168.13.1: bytes=32 time=3ms TTL=64
Reply from 192.168.13.1: bytes=32 time=2ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=4ms TTL=64
Reply from 192.168.13.1: bytes=32 time=2ms TTL=64
Reply from 192.168.13.1: bytes=32 time=3ms TTL=64
Reply from 192.168.13.1: bytes=32 time<1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time<1ms TTL=64
Reply from 192.168.13.1: bytes=32 time<1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=2ms TTL=64
Reply from 192.168.13.1: bytes=32 time=4ms TTL=64
Reply from 192.168.13.1: bytes=32 time=4ms TTL=64
Reply from 192.168.13.1: bytes=32 time=3ms TTL=64
Reply from 192.168.13.1: bytes=32 time=2ms TTL=64
Reply from 192.168.13.1: bytes=32 time=4ms TTL=64
Reply from 192.168.13.1: bytes=32 time=2ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time<1ms TTL=64
```

Explorer

```
root@ubuntu:/home/ubuntu# ifconfig
enp0s3 Link encap:Ethernet HWaddr 08:00:27:07:da:25
       inet addr:10.0.2.15 Bcast:10.0.2.255 Mask:255.255.255
       inet6 addr: fe80::a00:27ff:fe07:da25/64 Scope:Link
       UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
       RX packets:16 errors:0 dropped:0 overruns:0 frame
       TX packets:29 errors:0 dropped:0 overruns:0 carrier
       collisions:0 txqueuelen:1000
       RX bytes:2833 (2.8 KB) TX bytes:2508 (2.5 KB)

enp0s8 Link encap:Ethernet HWaddr 08:00:27:36:ed:74
       inet addr:192.168.13.1 Bcast:192.168.13.255 Mask:255.255.255
       inet6 addr: fe80::a00:27ff:fe36:ed74/64 Scope:Link
       UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
       RX packets:455 errors:0 dropped:0 overruns:0 frame
       TX packets:445 errors:0 dropped:0 overruns:0 carrier
       collisions:0 txqueuelen:1000
       RX bytes:36230 (36.2 KB) TX bytes:36247 (36.2 KB)

enp0s8:0 Link encap:Ethernet HWaddr 08:00:27:36:ed:74
        inet addr:10.10.10.1 Bcast:10.10.10.255 Mask:255.255.255
        UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1

enp0s8:1 Link encap:Ethernet HWaddr 08:00:27:36:ed:74
        inet addr:172.16.1.1 Bcast:172.16.1.255 Mask:255.255.255
        UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
```

4.2- Testes de Conectividade - Rede interna 3 no Ubuntu 16

```
C:\WINDOWS\system32\cmd.exe - ping 172.16.1.1 -t
```

```

Reply from 172.16.1.1: bytes=32 time=3ms TTL=64
Reply from 172.16.1.1: bytes=32 time=3ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=3ms TTL=64
Reply from 172.16.1.1: bytes=32 time=4ms TTL=64
Reply from 172.16.1.1: bytes=32 time=2ms TTL=64
Reply from 172.16.1.1: bytes=32 time=3ms TTL=64
Reply from 172.16.1.1: bytes=32 time=2ms TTL=64
Reply from 172.16.1.1: bytes=32 time=3ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=3ms TTL=64
Reply from 172.16.1.1: bytes=32 time=4ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=3ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=2ms TTL=64
Reply from 172.16.1.1: bytes=32 time=2ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64

```

```

64 bytes from 172.16.1.2: icmp_seq=6 ttl=128 time=0.852 ms
64 bytes from 172.16.1.2: icmp_seq=7 ttl=128 time=0.813 ms
64 bytes from 172.16.1.2: icmp_seq=8 ttl=128 time=0.810 ms
64 bytes from 172.16.1.2: icmp_seq=9 ttl=128 time=0.829 ms
64 bytes from 172.16.1.2: icmp_seq=10 ttl=128 time=2.61 ms
64 bytes from 172.16.1.2: icmp_seq=11 ttl=128 time=0.897 ms
64 bytes from 172.16.1.2: icmp_seq=12 ttl=128 time=0.863 ms
64 bytes from 172.16.1.2: icmp_seq=13 ttl=128 time=0.899 ms
64 bytes from 172.16.1.2: icmp_seq=14 ttl=128 time=0.843 ms
64 bytes from 172.16.1.2: icmp_seq=15 ttl=128 time=0.825 ms
64 bytes from 172.16.1.2: icmp_seq=16 ttl=128 time=3.34 ms
64 bytes from 172.16.1.2: icmp_seq=17 ttl=128 time=0.767 ms
64 bytes from 172.16.1.2: icmp_seq=18 ttl=128 time=0.475 ms
64 bytes from 172.16.1.2: icmp_seq=19 ttl=128 time=0.926 ms
64 bytes from 172.16.1.2: icmp_seq=20 ttl=128 time=0.938 ms
64 bytes from 172.16.1.2: icmp_seq=21 ttl=128 time=0.471 ms
64 bytes from 172.16.1.2: icmp_seq=22 ttl=128 time=1.79 ms
64 bytes from 172.16.1.2: icmp_seq=23 ttl=128 time=0.822 ms
64 bytes from 172.16.1.2: icmp_seq=24 ttl=128 time=0.916 ms
64 bytes from 172.16.1.2: icmp_seq=25 ttl=128 time=0.852 ms

```

4.3- Testes de Conectividade - Ubuntu 18

Testes de Conectividade - Ubuntu 18 Server

4.3- Testes de Conectividade - Rede interna 1 no Ubuntu 18

```
C:\WINDOWS\system32\cmd.exe - ping 192.168.13.1 -t
```

```
Reply from 192.168.13.1: bytes=32 time<1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=4ms TTL=64
Reply from 192.168.13.1: bytes=32 time<1ms TTL=64
Reply from 192.168.13.1: bytes=32 time<1ms TTL=64
Reply from 192.168.13.1: bytes=32 time<1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=4ms TTL=64
Reply from 192.168.13.1: bytes=32 time=3ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time<1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=2ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=4ms TTL=64
Reply from 192.168.13.1: bytes=32 time=3ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=4ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time=4ms TTL=64
Reply from 192.168.13.1: bytes=32 time=1ms TTL=64
Reply from 192.168.13.1: bytes=32 time<1ms TTL=64
Reply from 192.168.13.1: bytes=32 time<1ms TTL=64
Reply from 192.168.13.1: bytes=32 time<1ms TTL=64
```

```
64 bytes from 192.168.13.2: icmp_seq=11 ttl=128
64 bytes from 192.168.13.2: icmp_seq=12 ttl=128
64 bytes from 192.168.13.2: icmp_seq=13 ttl=128
64 bytes from 192.168.13.2: icmp_seq=14 ttl=128
64 bytes from 192.168.13.2: icmp_seq=15 ttl=128
64 bytes from 192.168.13.2: icmp_seq=16 ttl=128
64 bytes from 192.168.13.2: icmp_seq=17 ttl=128
64 bytes from 192.168.13.2: icmp_seq=18 ttl=128
64 bytes from 192.168.13.2: icmp_seq=19 ttl=128
64 bytes from 192.168.13.2: icmp_seq=20 ttl=128
64 bytes from 192.168.13.2: icmp_seq=21 ttl=128
64 bytes from 192.168.13.2: icmp_seq=22 ttl=128
64 bytes from 192.168.13.2: icmp_seq=23 ttl=128
64 bytes from 192.168.13.2: icmp_seq=24 ttl=128
64 bytes from 192.168.13.2: icmp_seq=25 ttl=128
64 bytes from 192.168.13.2: icmp_seq=26 ttl=128
64 bytes from 192.168.13.2: icmp_seq=27 ttl=128
64 bytes from 192.168.13.2: icmp_seq=28 ttl=128
64 bytes from 192.168.13.2: icmp_seq=29 ttl=128
64 bytes from 192.168.13.2: icmp_seq=30 ttl=128
```

4.3- Testes de Conectividade - Rede 1 para 2 no Ubuntu 18

```
C:\WINDOWS\system32\cmd.exe - ping 172.16.1.1 -t
Replay from 172.16.1.1: bytes=32 time=1ms TTL=64
Replay from 172.16.1.1: bytes=32 time=4ms TTL=64
Replay from 172.16.1.1: bytes=32 time=1ms TTL=64
Replay from 172.16.1.1: bytes=32 time<1ms TTL=64
Replay from 172.16.1.1: bytes=32 time=2ms TTL=64
Replay from 172.16.1.1: bytes=32 time=1ms TTL=64
Replay from 172.16.1.1: bytes=32 time=3ms TTL=64
Replay from 172.16.1.1: bytes=32 time=1ms TTL=64
Replay from 172.16.1.1: bytes=32 time<1ms TTL=64
Replay from 172.16.1.1: bytes=32 time<1ms TTL=64
Replay from 172.16.1.1: bytes=32 time=2ms TTL=64
Replay from 172.16.1.1: bytes=32 time=1ms TTL=64
Replay from 172.16.1.1: bytes=32 time=2ms TTL=64
Replay from 172.16.1.1: bytes=32 time=5ms TTL=64
Replay from 172.16.1.1: bytes=32 time<1ms TTL=64
Replay from 172.16.1.1: bytes=32 time=1ms TTL=64
Replay from 172.16.1.1: bytes=32 time=1ms TTL=64
Replay from 172.16.1.1: bytes=32 time<1ms TTL=64
Replay from 172.16.1.1: bytes=32 time=2ms TTL=64
Replay from 172.16.1.1: bytes=32 time=1ms TTL=64
```

Explorer

```
root@asoa:/home/asoa# ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc no
    link/loopback 00:00:00:00:00:00 brd 00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu
    0
    link/ether 08:00:27:72:5d:b2 brd ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope globa
        valid_lft 86082sec preferred_lft 86082sec
    inet6 fe80::a00:27ff:fe72:5db2/64 scope link
        valid_lft forever preferred_lft forever
3: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu
    0
    link/ether 08:00:27:3a:66:35 brd ff:ff:ff:ff
    inet 192.168.13.1/24 brd 192.168.13.255 scop
        valid_lft forever preferred_lft forever
    inet 172.16.1.1/24 brd 172.16.1.255 scope gl
        valid_lft forever preferred_lft forever
    inet 10.10.10.1/24 brd 10.10.10.255 scope gl
        valid_lft forever preferred_lft forever
    inet6 fe80::a00:27ff:fe3a:6635/64 scope link
        valid_lft forever preferred_lft forever
```


4.3- Testes de Conectividade - Rede 1 para 3 no Ubuntu 18

```
C:\WINDOWS\system32\cmd.exe - ping 10.10.10.1 -t
```

```
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=5ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=3ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=2ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=1ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time<1ms TTL=64
Reply from 10.10.10.1: bytes=32 time=2ms TTL=64
```

Explorer

```
root@asoa:/home/asoa# ip addr show
```

```
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc no
    link/loopback 00:00:00:00:00:00 brd 00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu
0    link/ether 08:00:27:72:5d:b2 brd ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope globa
        valid_lft 86082sec preferred_lft 86082sec
    inet6 fe80::a00:27ff:fe72:5db2/64 scope link
        valid_lft forever preferred_lft forever
3: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu
0    link/ether 08:00:27:3a:66:35 brd ff:ff:ff:ff
    inet 192.168.13.1/24 brd 192.168.13.255 scope
        valid_lft forever preferred_lft forever
    inet 172.16.1.1/24 brd 172.16.1.255 scope glo
        valid_lft forever preferred_lft forever
    inet 10.10.10.1/24 brd 10.10.10.255 scope glo
        valid_lft forever preferred_lft forever
    inet6 fe80::a00:27ff:fe3a:6635/64 scope link
        valid_lft forever preferred_lft forever
```

4.3- Testes de Conectividade - Rede interna 2 no Ubuntu 18

```
C:\WINDOWS\system32\cmd.exe - ping 172.16.1.1 -t
Reply from 172.16.1.1: bytes=32 time=3ms TTL=64
Reply from 172.16.1.1: bytes=32 time=5ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time<1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=3ms TTL=64
Reply from 172.16.1.1: bytes=32 time<1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=3ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=2ms TTL=64
Reply from 172.16.1.1: bytes=32 time=3ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time<1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=3ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=3ms TTL=64
Reply from 172.16.1.1: bytes=32 time=3ms TTL=64
Reply from 172.16.1.1: bytes=32 time<1ms TTL=64
Reply from 172.16.1.1: bytes=32 time=2ms TTL=64
Reply from 172.16.1.1: bytes=32 time=4ms TTL=64
Reply from 172.16.1.1: bytes=32 time=1ms TTL=64
```

```
64 bytes from 172.16.1.2: icmp_seq=48 ttl=128 ti
64 bytes from 172.16.1.2: icmp_seq=49 ttl=128 ti
64 bytes from 172.16.1.2: icmp_seq=50 ttl=128 ti
64 bytes from 172.16.1.2: icmp_seq=51 ttl=128 ti
64 bytes from 172.16.1.2: icmp_seq=52 ttl=128 ti
64 bytes from 172.16.1.2: icmp_seq=53 ttl=128 ti
64 bytes from 172.16.1.2: icmp_seq=54 ttl=128 ti
64 bytes from 172.16.1.2: icmp_seq=55 ttl=128 ti
64 bytes from 172.16.1.2: icmp_seq=56 ttl=128 ti
64 bytes from 172.16.1.2: icmp_seq=57 ttl=128 ti
64 bytes from 172.16.1.2: icmp_seq=58 ttl=128 ti
64 bytes from 172.16.1.2: icmp_seq=59 ttl=128 ti
64 bytes from 172.16.1.2: icmp_seq=60 ttl=128 ti
64 bytes from 172.16.1.2: icmp_seq=61 ttl=128 ti
64 bytes from 172.16.1.2: icmp_seq=62 ttl=128 ti
64 bytes from 172.16.1.2: icmp_seq=63 ttl=128 ti
64 bytes from 172.16.1.2: icmp_seq=64 ttl=128 ti
64 bytes from 172.16.1.2: icmp_seq=65 ttl=128 ti
64 bytes from 172.16.1.2: icmp_seq=66 ttl=128 ti
64 bytes from 172.16.1.2: icmp_seq=67 ttl=128 ti
```

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