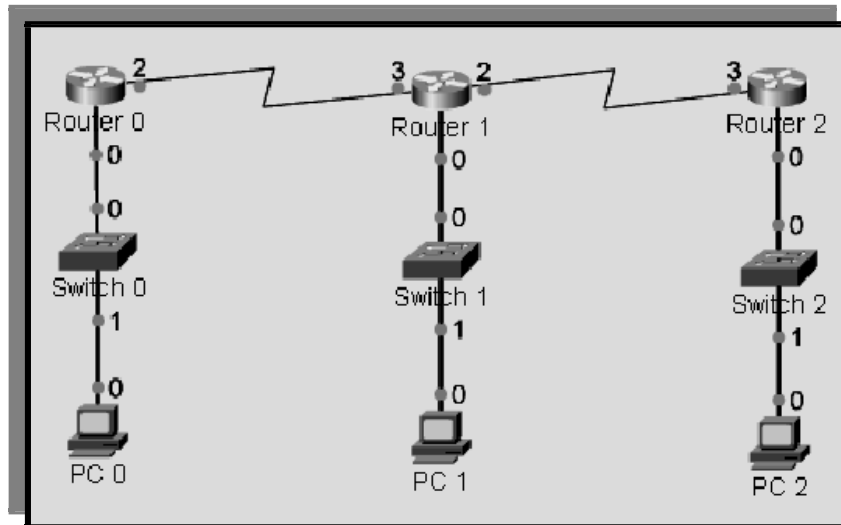


# TP VLMS

Arme una red como la que se indica en la figura. con el simulador Packet Tracer o Boson.



## OBJETIVO :

Crear la topología indicada en la figura.

- Diseñe un esquema de direccionamiento IP usando clase C y VLSM
- Aplique el esquema de direccionamiento a los ruteadores y a las estaciones de trabajo en la simulación
- Compruebe la conectividad mediante Ping

## Preparación

Suponga que Ud es el responsable de diseñar una red que interconecte 3 sitios separados geográficamente, como se indica en la figura.

Ud. dispone de una red **tipo C** de la cual debe hacer el mejor uso del espacio (VLSM), minimizando el desperdicio de las direcciones. Para lograrlo deberá desarrollar un esquema de direccionamiento de longitud variable el cual aplicará a los ruteadores y a las estaciones de trabajo del simulador.

En los ruteadores utilice RIP para encontrar las rutas automáticamente.

Complete la tabla con el esquema de direccionamiento propuesto ( las subredes ).

AREA	Numero de direcciones IP	Dirección	Mascara
<b>RED ASIGNADA</b>	256 ( 254 útiles )	192.168.1.0/24	255.255.255.0
<i>Router 0 LAN</i>	<i>55 host</i>	192.168.1.0/26 255.255.255.192 192.168.1.64/27 255.255.255.224 192.168.1.96/28 255.255.255.240 192.168.1.112/30 255.255.255.252 192.168.1.116/30 255.255.255.252	
<i>Router 1 LAN</i>	<i>26 host</i>		
<i>Router 2 LAN</i>	<i>12 host</i>		
<i>Router 0-1 WAN</i>	<i>2 host</i>		
<i>Router 1-2 WAN</i>	<i>2 host</i>		

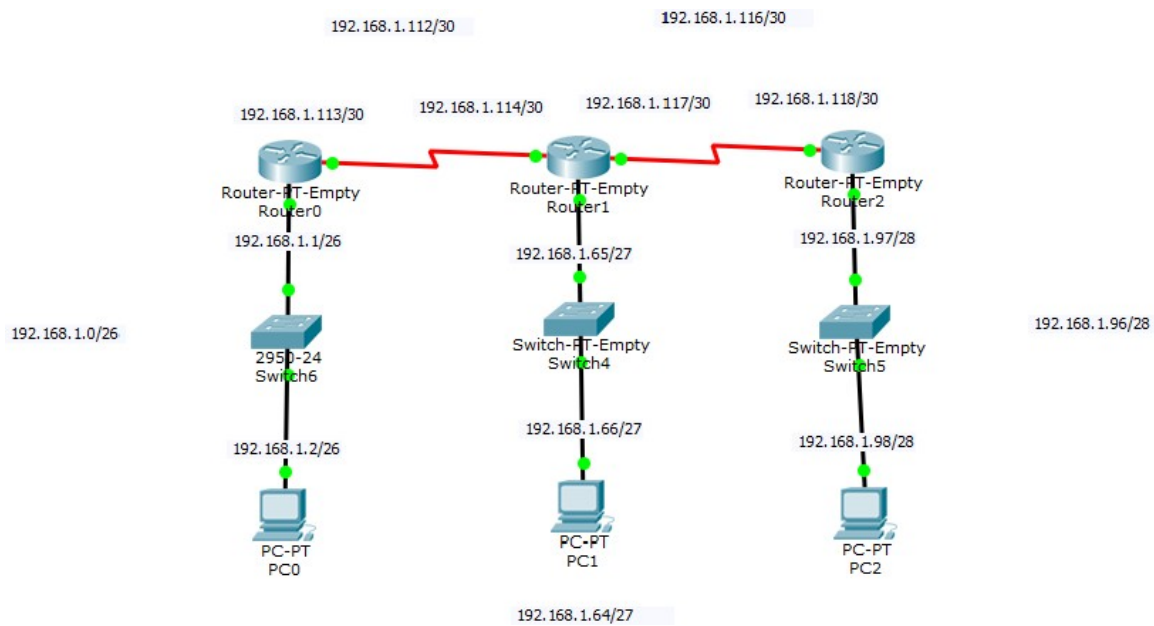
Indique las direcciones de las interfaces.

Device	Interface	IP Address	Subnet mask
Router 0	Ethernet port 0	192.168.1.1	255.255.255.192
	Serial port 2	192.168.1.113	255.255.255.255
Router 1	Ethernet port 0	192.168.1.65	255.255.255.224
	Serial port 2	192.168.1.114	255.255.255.252
	Serial port 3	192.168.1.117	255.255.255.252
Router 2	Ethernet port 0	192.168.1.97	255.255.255.240
	Serial port 3	192.188.1.18	255.255.55.252

Device	Interface	IP Address	Subnet mask	Gateway IP Address
PC 0	Ethernet port 0	192.168.1.2	255.255.255.192	192.168.1.1
PC 1	Ethernet port 0	192.168.1.66	255.255.255.224	192.168.1.65
PC 2	Ethernet port 0	192.168.1.98	255.255.255.240	192.168.1.97

El TP concluye con la comprobación de conectividad entre todas las PCs

Configuración General de la Red en la Sesión de Packet Trace



Tablas de ruteos de los routers con los pings correspondientes a cada red (propia y externas)

Router 0

```

192.168.1.0/24 is variably subnetted, 3 subnets, 2 masks
C    192.168.1.0/26 is directly connected, FastEthernet2/0
C    192.168.1.112/30 is directly connected, Serial0/0
R    192.168.1.116/30 [120/1] via 192.168.1.114, 00:02:35, Serial0/0
Router#pin 192.168.1.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.2, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 0/2/11 ms

Router#ping 192.168.1.66

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.66, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 1/1/2 ms

Router#ping 192.168.1.98

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.98, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 7/10/14 ms

```

## Router 1

```
192.168.1.0/24 is variably subnetted, 5 subnets, 4 masks
R    192.168.1.0/26 [120/1] via 192.168.1.113, 00:00:22, Serial0/0
C    192.168.1.64/27 is directly connected, Ethernet2/0
R    192.168.1.96/28 [120/1] via 192.168.1.118, 00:00:00, Serial1/0
C    192.168.1.112/30 is directly connected, Serial0/0
C    192.168.1.116/30 is directly connected, Serial1/0
Router#ping 192.168.1.2
```

```
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.2, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/10/29 ms
```

```
Router#ping 192.168.1.98
```

```
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.98, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/8/14 ms
```

```
Router#ping 192.168.1.66
```

```
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.66, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 0/3/9 ms
```

## Router 2

```
192.168.1.0/24 is variably subnetted, 5 subnets, 4 masks
R    192.168.1.0/26 [120/2] via 192.168.1.117, 00:00:02, Serial0/0
R    192.168.1.64/27 [120/1] via 192.168.1.117, 00:00:02, Serial0/0
C    192.168.1.96/28 is directly connected, Ethernet1/0
R    192.168.1.112/30 [120/1] via 192.168.1.117, 00:00:02, Serial0/0
C    192.168.1.116/30 is directly connected, Serial0/0
Router#ping 192.168.1.2
```

```
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.2, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/8/13 ms
```

```
Router#ping 192.168.1.66
```

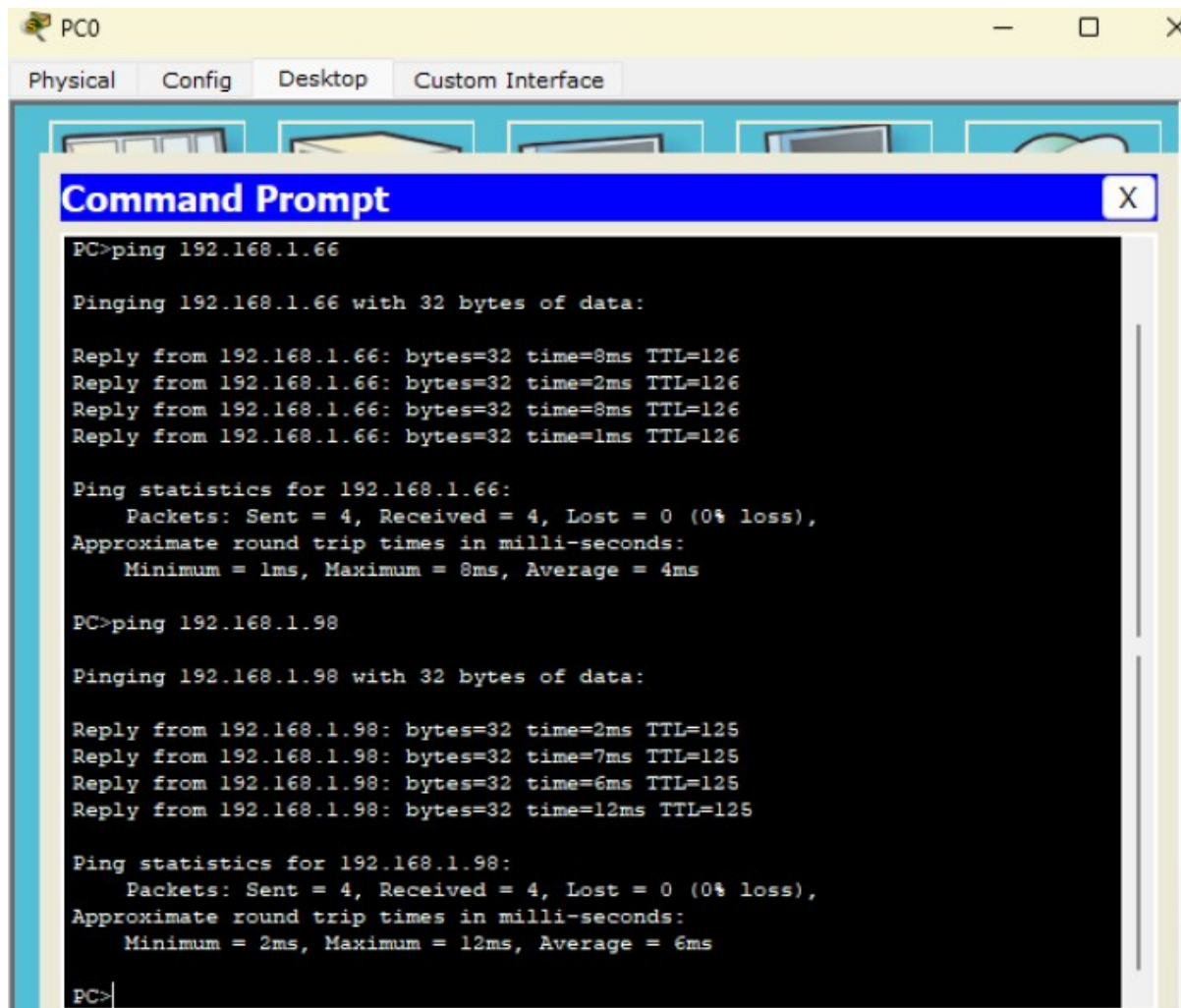
```
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.66, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/4/10 ms
```

```
Router#ping 192.168.1.98
```

```
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.98, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/4/12 ms
```

Pings desde Cada PC (Host) hacia los otros hosts de las otras subredes

PC 0



The image shows a window titled "PC0" with tabs for "Physical", "Config", "Desktop", and "Custom Interface". The "Desktop" tab is active, showing a desktop environment. A "Command Prompt" window is open, displaying the results of two ping commands. The first command is "ping 192.168.1.66", which shows four successful replies with varying round trip times (1ms to 8ms) and a TTL of 126. The second command is "ping 192.168.1.98", which also shows four successful replies with round trip times ranging from 2ms to 12ms and a TTL of 125. Both pings show 0% packet loss.

```
PC0
Physical Config Desktop Custom Interface

Command Prompt

PC>ping 192.168.1.66

Pinging 192.168.1.66 with 32 bytes of data:

Reply from 192.168.1.66: bytes=32 time=8ms TTL=126
Reply from 192.168.1.66: bytes=32 time=2ms TTL=126
Reply from 192.168.1.66: bytes=32 time=8ms TTL=126
Reply from 192.168.1.66: bytes=32 time=1ms TTL=126

Ping statistics for 192.168.1.66:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 8ms, Average = 4ms

PC>ping 192.168.1.98

Pinging 192.168.1.98 with 32 bytes of data:

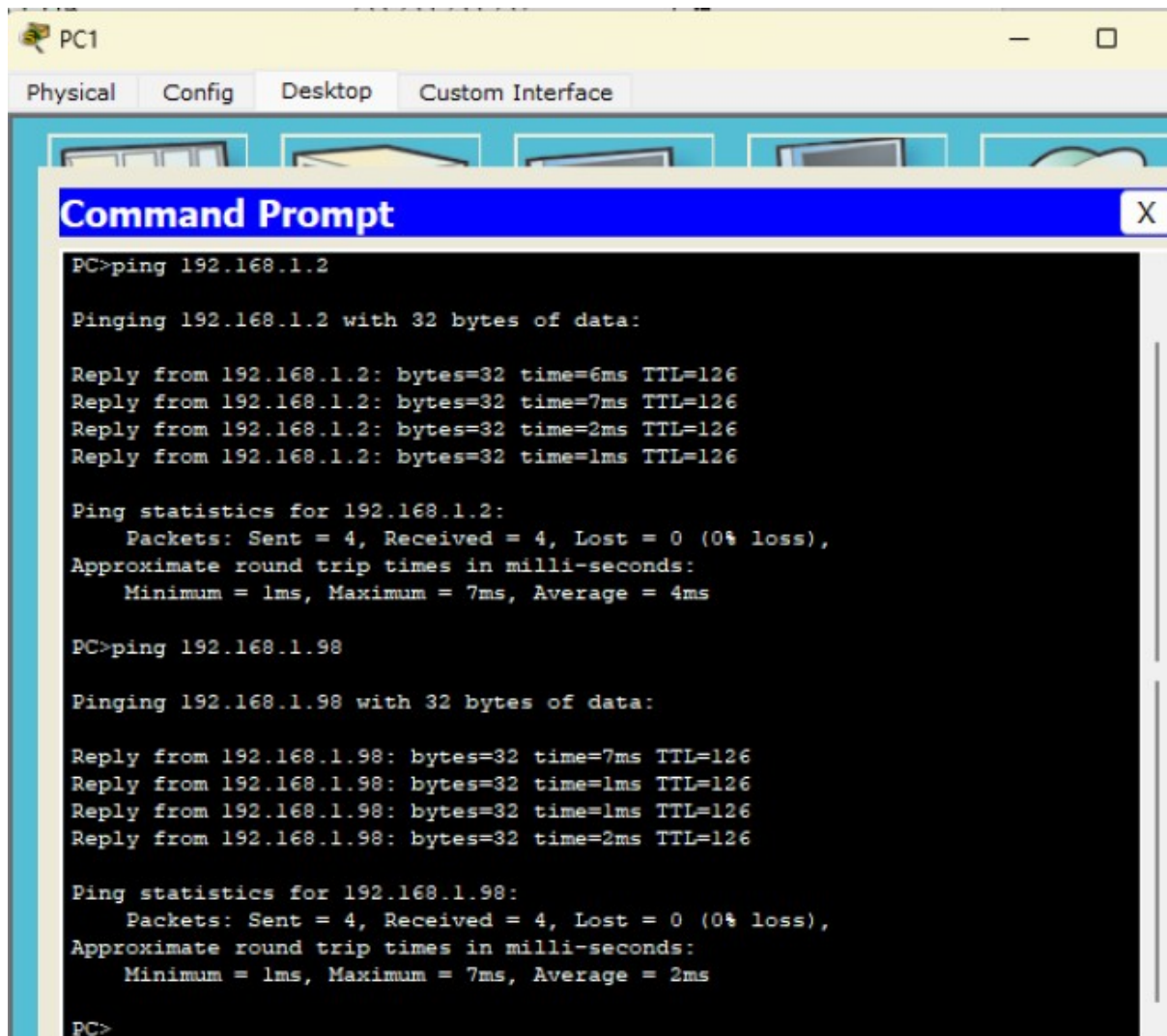
Reply from 192.168.1.98: bytes=32 time=2ms TTL=125
Reply from 192.168.1.98: bytes=32 time=7ms TTL=125
Reply from 192.168.1.98: bytes=32 time=6ms TTL=125
Reply from 192.168.1.98: bytes=32 time=12ms TTL=125

Ping statistics for 192.168.1.98:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 12ms, Average = 6ms

PC>
```



PC 1



```
PC1
Physical Config Desktop Custom Interface

Command Prompt X

PC>ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:

Reply from 192.168.1.2: bytes=32 time=6ms TTL=126
Reply from 192.168.1.2: bytes=32 time=7ms TTL=126
Reply from 192.168.1.2: bytes=32 time=2ms TTL=126
Reply from 192.168.1.2: bytes=32 time=1ms TTL=126

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 7ms, Average = 4ms

PC>ping 192.168.1.98

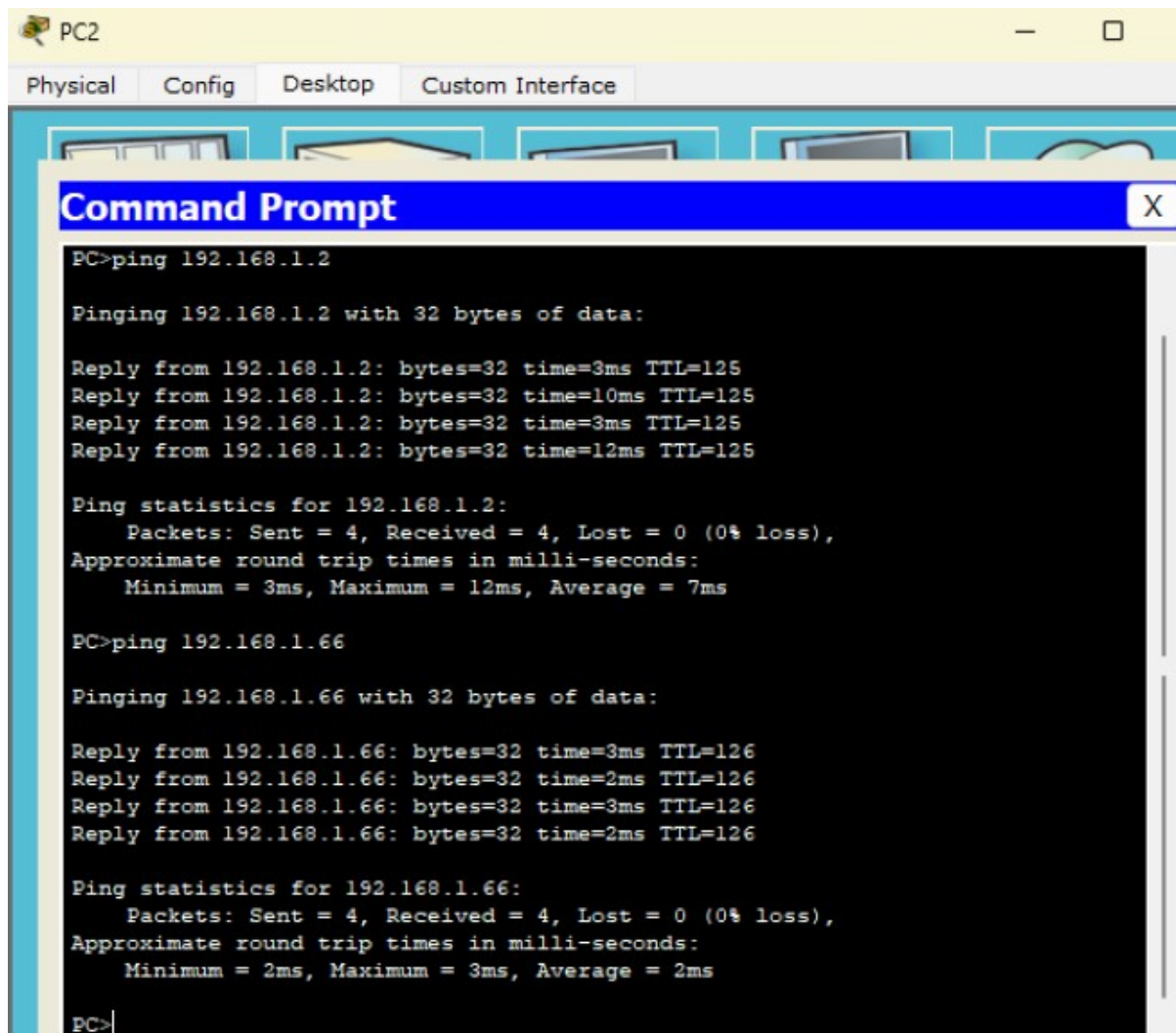
Pinging 192.168.1.98 with 32 bytes of data:

Reply from 192.168.1.98: bytes=32 time=7ms TTL=126
Reply from 192.168.1.98: bytes=32 time=1ms TTL=126
Reply from 192.168.1.98: bytes=32 time=1ms TTL=126
Reply from 192.168.1.98: bytes=32 time=2ms TTL=126

Ping statistics for 192.168.1.98:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 7ms, Average = 2ms

PC>
```

PC 2



The image shows a screenshot of a virtual PC environment labeled 'PC2'. The window has a yellow title bar and a menu bar with 'Physical', 'Config', 'Desktop', and 'Custom Interface' tabs. Below the menu bar is a desktop area with several icons. A 'Command Prompt' window is open, displaying the results of two ping commands. The first command is 'ping 192.168.1.2', which shows four successful replies with varying round-trip times (3ms, 10ms, 3ms, 12ms) and a TTL of 125. The statistics for this ping show 4 packets sent, 4 received, 0% loss, and an average round-trip time of 7ms. The second command is 'ping 192.168.1.66', which also shows four successful replies with round-trip times of 3ms, 2ms, 3ms, and 2ms, and a TTL of 126. The statistics for this ping show 4 packets sent, 4 received, 0% loss, and an average round-trip time of 2ms. The Command Prompt window has a blue title bar and a close button in the top right corner.

```
PC2
Physical Config Desktop Custom Interface

Command Prompt
PC>ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:

Reply from 192.168.1.2: bytes=32 time=3ms TTL=125
Reply from 192.168.1.2: bytes=32 time=10ms TTL=125
Reply from 192.168.1.2: bytes=32 time=3ms TTL=125
Reply from 192.168.1.2: bytes=32 time=12ms TTL=125

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 3ms, Maximum = 12ms, Average = 7ms

PC>ping 192.168.1.66

Pinging 192.168.1.66 with 32 bytes of data:

Reply from 192.168.1.66: bytes=32 time=3ms TTL=126
Reply from 192.168.1.66: bytes=32 time=2ms TTL=126
Reply from 192.168.1.66: bytes=32 time=3ms TTL=126
Reply from 192.168.1.66: bytes=32 time=2ms TTL=126

Ping statistics for 192.168.1.66:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 3ms, Average = 2ms

PC>
```