

01 - Enrutamento Estático

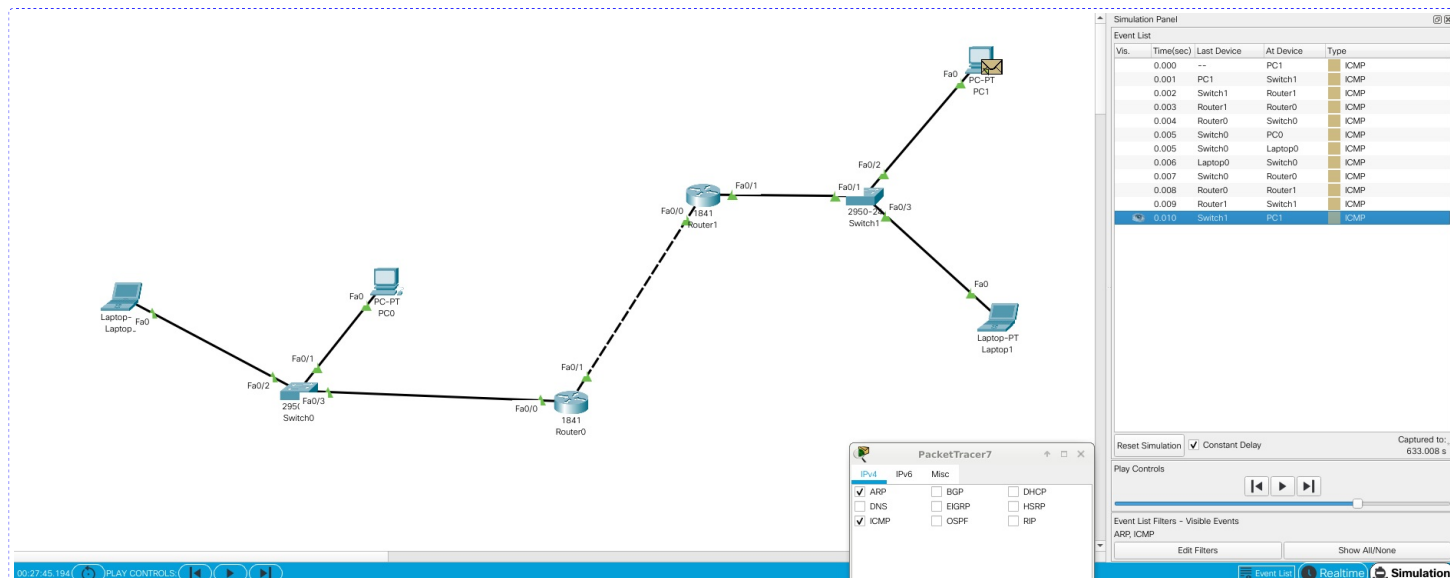


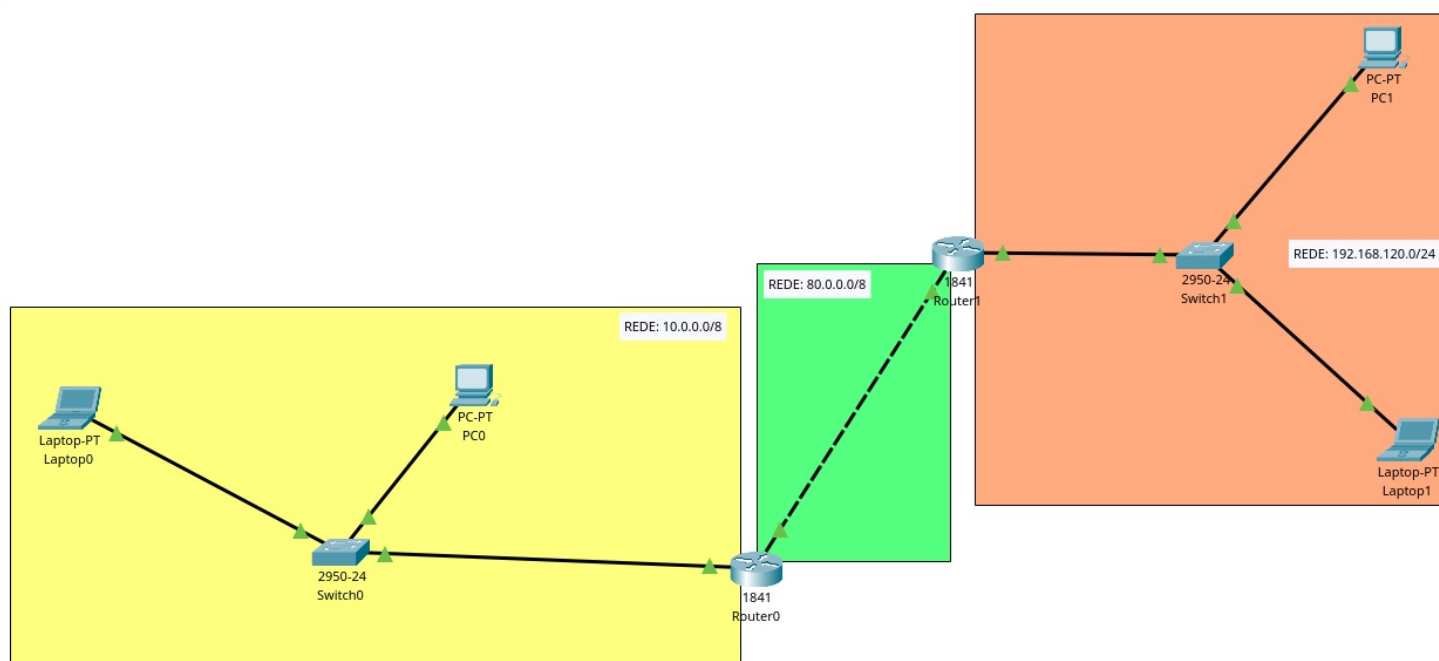
Fig.1 - Enrutamento Estático

NOTAS:

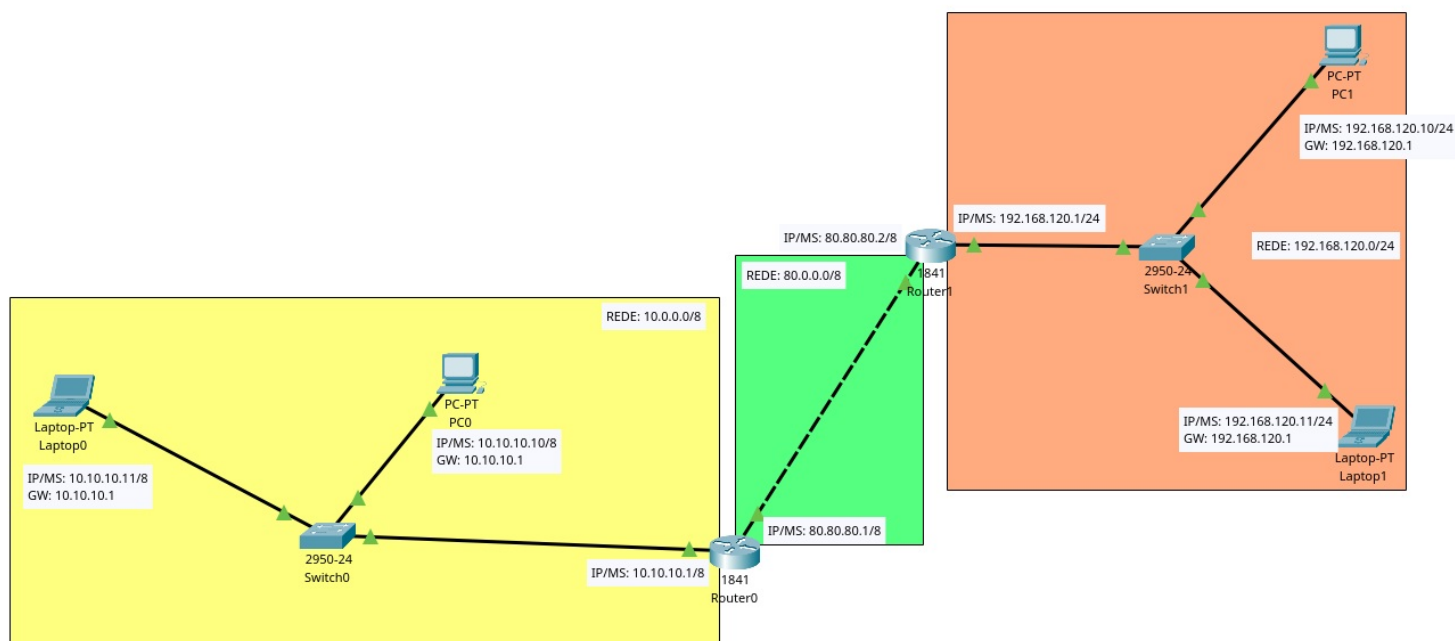
- (1) Arquivo a descargar e abrir en Cisco Packet Tracer: [Enrutamento-Estatico-1-BRS.pkt](#)
- (2) O diagrama representa 2 oficinas dunha empresa.
- (3) IP=IPv4, MS=Máscara de Subrede, GW=Gateway, DR=Dirección de Rede.

Cisco Packet Tracer

1. Carga o diagrama da Fig.1 no Cisco Packet Tracer, é dicir, abre o arquivo descargado (ver NOTAS) no Cisco Packet Tracer.
2. Identifica mediante rectángulos de cores os segmentos de redes existentes no diagrama.



3. Representa no diagrama a topoloxía lóxica (IP/MS/GW/DR).



4. A continuación, por cada apartado realiza mediante comandos un ping de 10 paquetes ICMP indicando que é o que acontece (Razoa a resposta):

- Do PC1 á IP 127.0.0.1 → ping -n 10 127.0.0.1 → Existe conectividade debido a que a dirección 127.0.0.1 pertence ao rango de direccións de loopback, que se empregan para probar e verificar a pila de rede do propio dispositivo local. A dirección 127.0.0.1, especificamente, sempre apunta á máquina local na que se executa o comando.

```
PC1
Physical Config Desktop Programming Attributes
Command Prompt
C:\>ping /?
Cisco Packet Tracer PC Ping

Usage: ping [-n count | -v TOS | -t ] target

C:\>ping -n 10 127.0.0.1

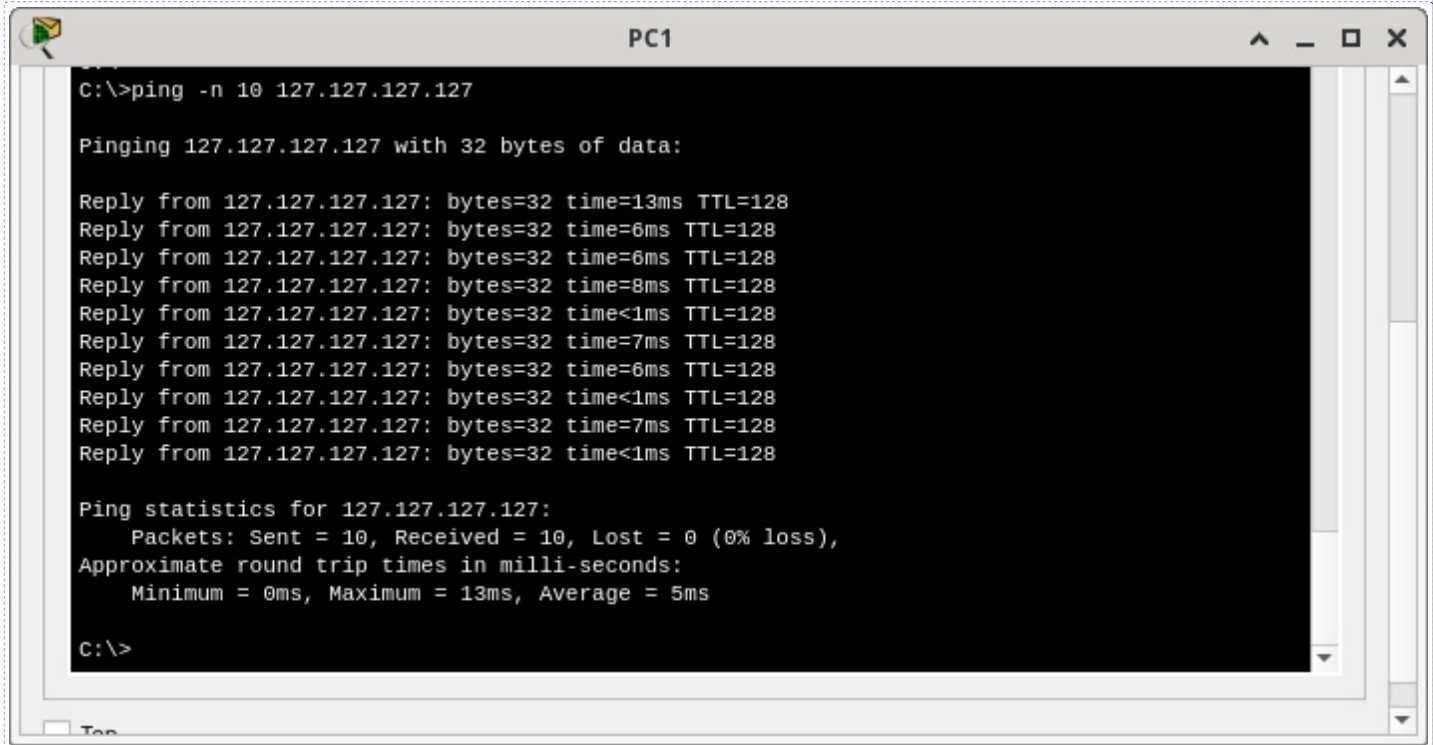
Pinging 127.0.0.1 with 32 bytes of data:

Reply from 127.0.0.1: bytes=32 time=14ms TTL=128
Reply from 127.0.0.1: bytes=32 time=6ms TTL=128
Reply from 127.0.0.1: bytes=32 time=7ms TTL=128
Reply from 127.0.0.1: bytes=32 time=6ms TTL=128
Reply from 127.0.0.1: bytes=32 time=6ms TTL=128
Reply from 127.0.0.1: bytes=32 time<1ms TTL=128
Reply from 127.0.0.1: bytes=32 time=6ms TTL=128
Reply from 127.0.0.1: bytes=32 time=7ms TTL=128
Reply from 127.0.0.1: bytes=32 time=6ms TTL=128
Reply from 127.0.0.1: bytes=32 time=6ms TTL=128

Ping statistics for 127.0.0.1:
    Packets: Sent = 10, Received = 10, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 14ms, Average = 6ms

C:\>
```

- b. Do PC1 á IP 127.127.127.127 → ping -n 10 127.127.127.127 → Existe conectividade xa que todos os enderezos do intervalo 127.0.0.0/8 (de 127.0.0.1 a 127.255.255.254) están reservados para a funcionalidade de loopback. Isto significa que, como ocorre con 127.0.0.1, os paquetes enviados a 127.127.127.127 non abandonarán o dispositivo e procesaranse localmente.



```
C:\>ping -n 10 127.127.127.127

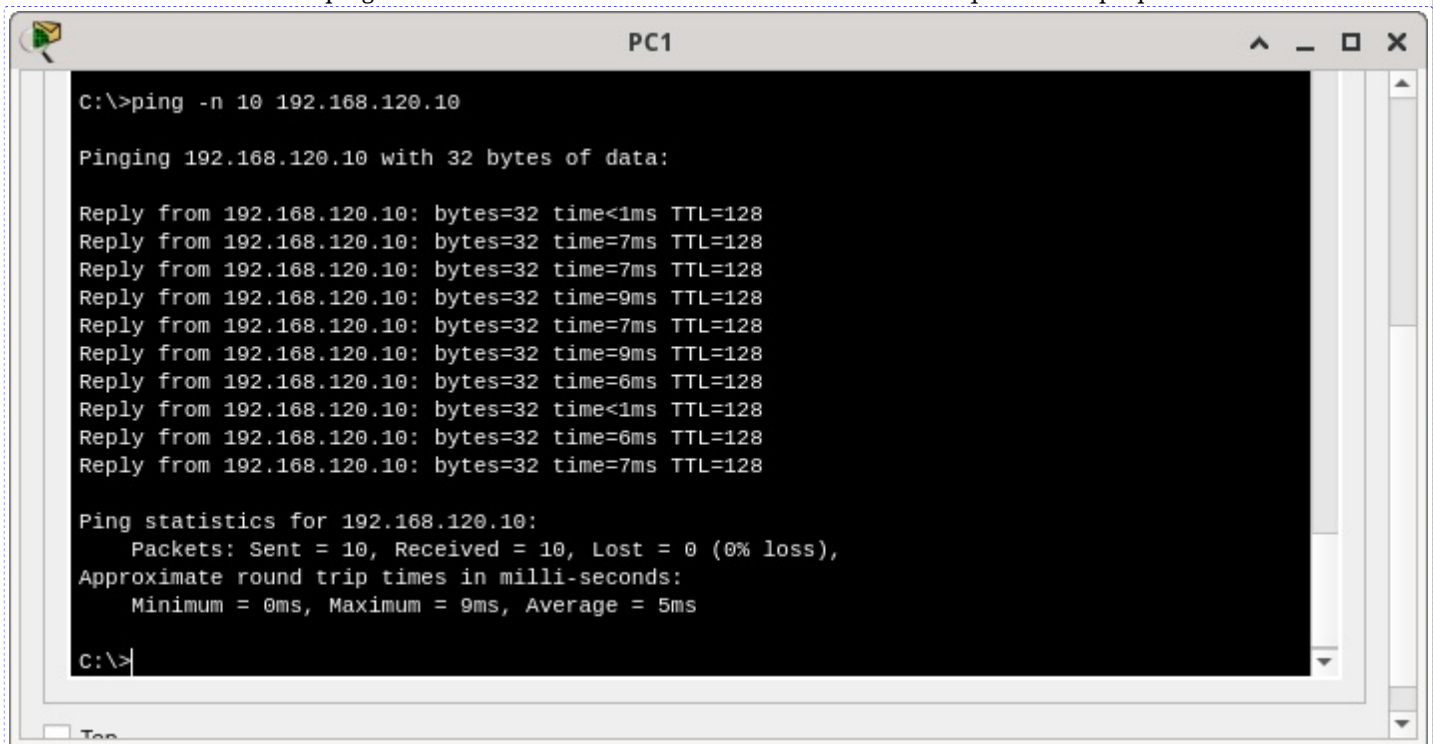
Pinging 127.127.127.127 with 32 bytes of data:

Reply from 127.127.127.127: bytes=32 time=13ms TTL=128
Reply from 127.127.127.127: bytes=32 time=6ms TTL=128
Reply from 127.127.127.127: bytes=32 time=6ms TTL=128
Reply from 127.127.127.127: bytes=32 time=8ms TTL=128
Reply from 127.127.127.127: bytes=32 time<1ms TTL=128
Reply from 127.127.127.127: bytes=32 time=7ms TTL=128
Reply from 127.127.127.127: bytes=32 time=6ms TTL=128
Reply from 127.127.127.127: bytes=32 time<1ms TTL=128
Reply from 127.127.127.127: bytes=32 time=7ms TTL=128
Reply from 127.127.127.127: bytes=32 time<1ms TTL=128

Ping statistics for 127.127.127.127:
    Packets: Sent = 10, Received = 10, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 13ms, Average = 5ms

C:\>
```

- c. Do PC1 á IP 192.168.120.10 → ping -n 10 192.168.120.10 → Existe conectividade debido a que esta é a propia dirección IP de PC1.



```
C:\>ping -n 10 192.168.120.10

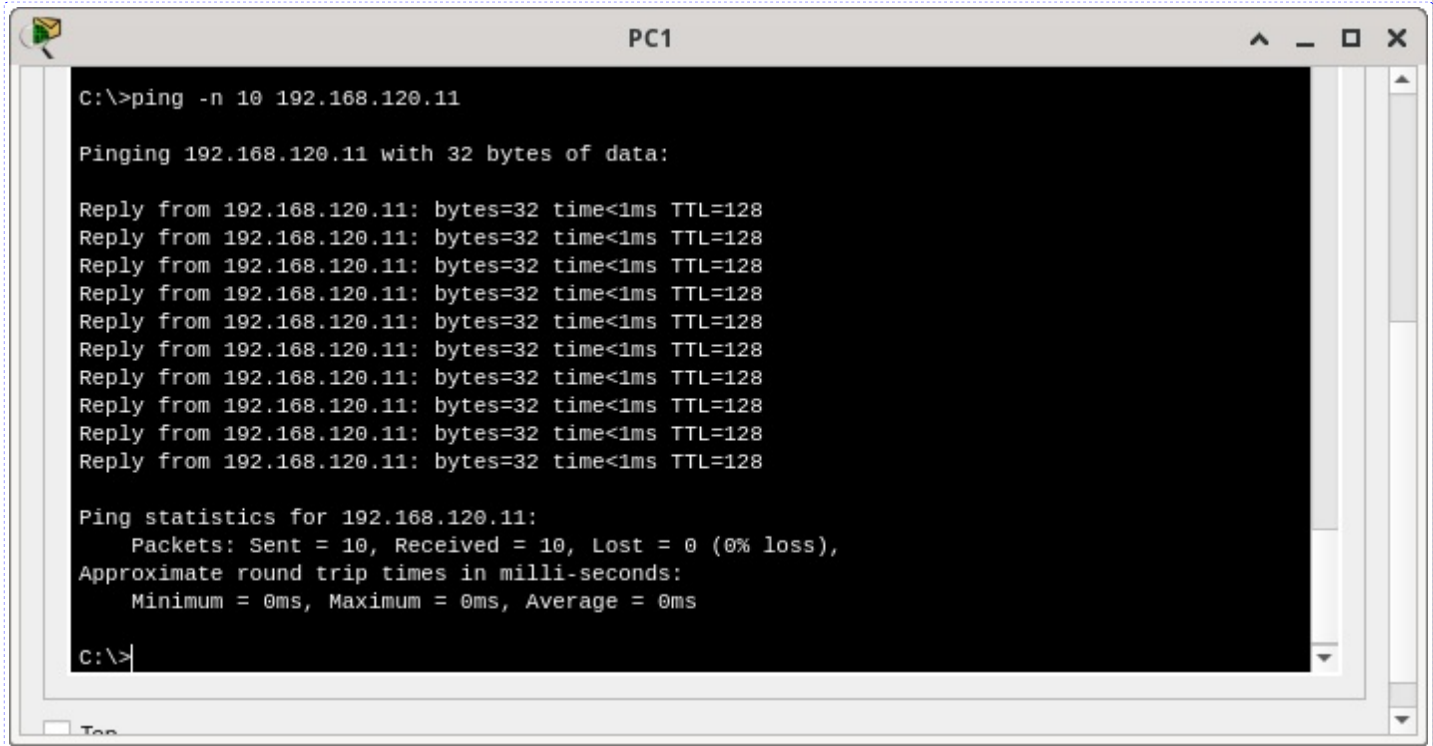
Pinging 192.168.120.10 with 32 bytes of data:

Reply from 192.168.120.10: bytes=32 time<1ms TTL=128
Reply from 192.168.120.10: bytes=32 time=7ms TTL=128
Reply from 192.168.120.10: bytes=32 time=7ms TTL=128
Reply from 192.168.120.10: bytes=32 time=9ms TTL=128
Reply from 192.168.120.10: bytes=32 time=7ms TTL=128
Reply from 192.168.120.10: bytes=32 time=9ms TTL=128
Reply from 192.168.120.10: bytes=32 time=6ms TTL=128
Reply from 192.168.120.10: bytes=32 time<1ms TTL=128
Reply from 192.168.120.10: bytes=32 time=6ms TTL=128
Reply from 192.168.120.10: bytes=32 time=7ms TTL=128

Ping statistics for 192.168.120.10:
    Packets: Sent = 10, Received = 10, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 9ms, Average = 5ms

C:\>
```

- d. Do PC1 á IP 192.168.120.11 → ping -n 10 192.168.120.11 → Existe conectividade debido a que os 2 equipos pertencen á mesma rede e o cableado e a electrónica de rede así o permite.



```
C:\>ping -n 10 192.168.120.11

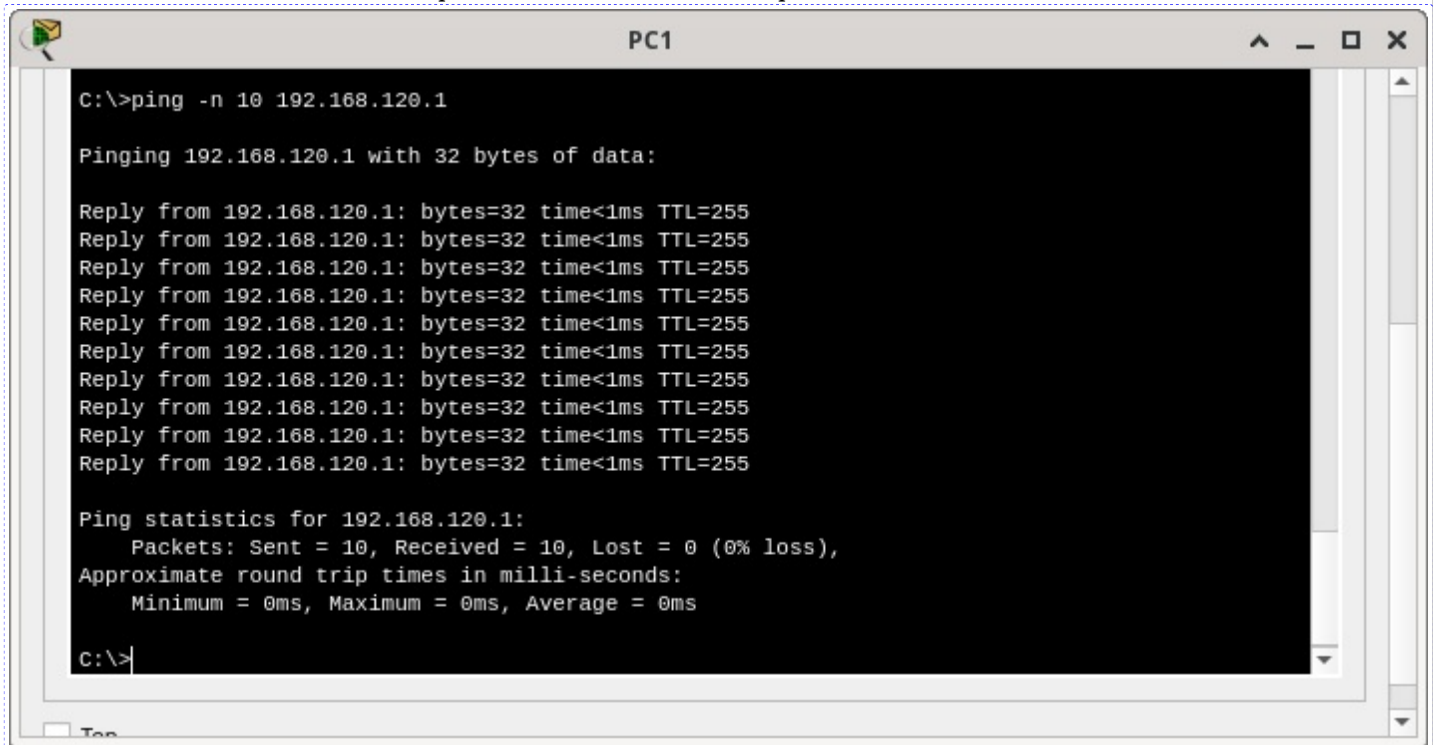
Pinging 192.168.120.11 with 32 bytes of data:

Reply from 192.168.120.11: bytes=32 time<1ms TTL=128
Reply from 192.168.120.11: bytes=32 time<1ms TTL=128
Reply from 192.168.120.11: bytes=32 time<1ms TTL=128
Reply from 192.168.120.11: bytes=32 time<1ms TTL=128
Reply from 192.168.120.11: bytes=32 time<1ms TTL=128
Reply from 192.168.120.11: bytes=32 time<1ms TTL=128
Reply from 192.168.120.11: bytes=32 time<1ms TTL=128
Reply from 192.168.120.11: bytes=32 time<1ms TTL=128
Reply from 192.168.120.11: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.120.11:
    Packets: Sent = 10, Received = 10, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

- e. Do PC1 á IP 192.168.120.1 → ping -n 10 192.168.120.1 → Existe conectividade debido a que os 2 equipos pertencen á mesma rede e o cableado e a electrónica de rede así o permite. A IP 192.168.120.1 é a porta de enlace de PC1.



```
C:\>ping -n 10 192.168.120.1

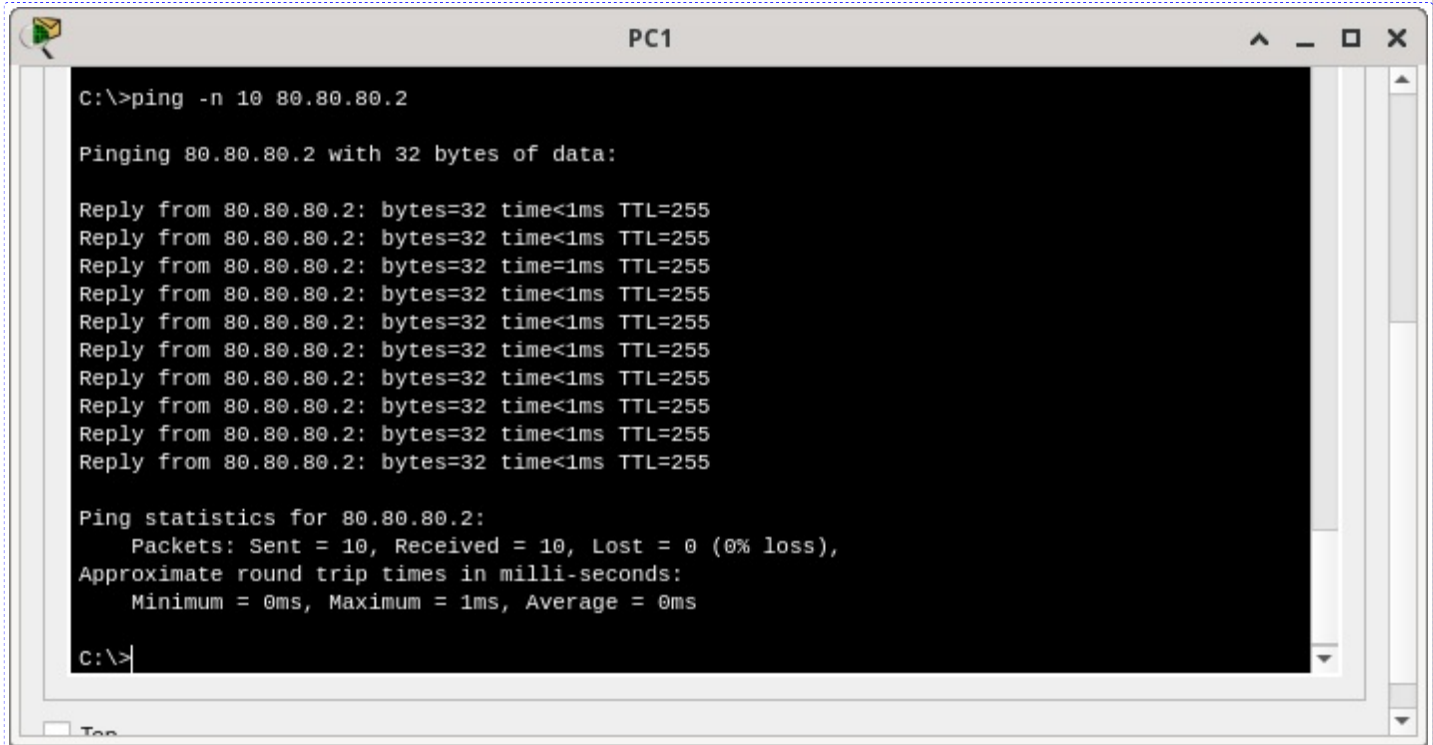
Pinging 192.168.120.1 with 32 bytes of data:

Reply from 192.168.120.1: bytes=32 time<1ms TTL=255
Reply from 192.168.120.1: bytes=32 time<1ms TTL=255
Reply from 192.168.120.1: bytes=32 time<1ms TTL=255
Reply from 192.168.120.1: bytes=32 time<1ms TTL=255
Reply from 192.168.120.1: bytes=32 time<1ms TTL=255
Reply from 192.168.120.1: bytes=32 time<1ms TTL=255
Reply from 192.168.120.1: bytes=32 time<1ms TTL=255
Reply from 192.168.120.1: bytes=32 time<1ms TTL=255
Reply from 192.168.120.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.120.1:
    Packets: Sent = 10, Received = 10, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

- f. Do PC1 á IP 80.80.80.2 → ping -n 10 80.80.80.2 → Existe conectividade porque o PC1 ten configurado correctamente o gateway predeterminado (192.168.120.1), que corresponde á interface FastEthernet 0/1 do router. Cando o PC1 envía un ping a 80.80.80.2, o tráfico é dirixido ao gateway, que reenvía os paquetes a través da súa interface FastEthernet 0/0 coa IP 80.80.80.2. Este router actúa como un intermediario entre as dúas redes, permitindo a comunicación ao estar configurado correctamente coas súas interfaces en ambas redes (a 192.168.120.0/24 e a 80.0.0.0/8).



```
C:\>ping -n 10 80.80.80.2

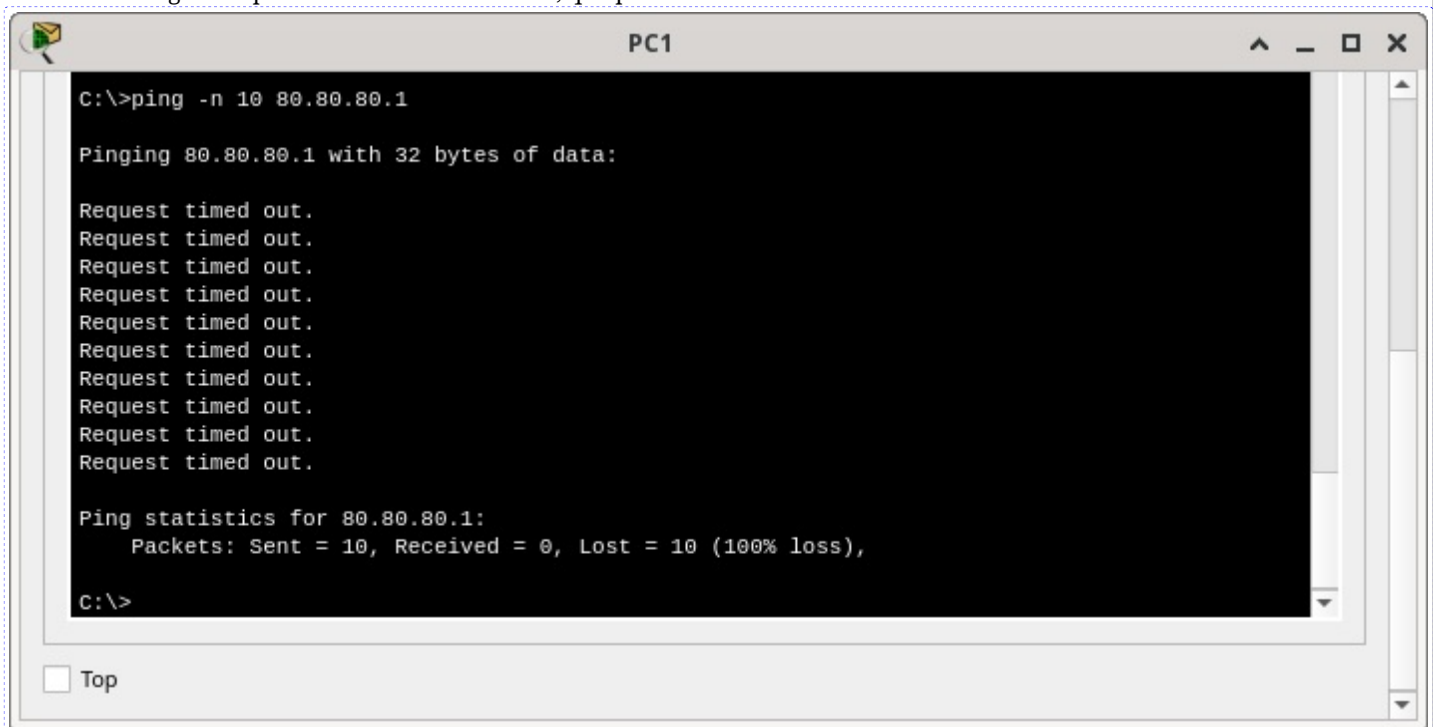
Pinging 80.80.80.2 with 32 bytes of data:

Reply from 80.80.80.2: bytes=32 time<1ms TTL=255
Reply from 80.80.80.2: bytes=32 time<1ms TTL=255
Reply from 80.80.80.2: bytes=32 time<1ms TTL=255
Reply from 80.80.80.2: bytes=32 time<1ms TTL=255
Reply from 80.80.80.2: bytes=32 time<1ms TTL=255
Reply from 80.80.80.2: bytes=32 time<1ms TTL=255
Reply from 80.80.80.2: bytes=32 time<1ms TTL=255
Reply from 80.80.80.2: bytes=32 time<1ms TTL=255
Reply from 80.80.80.2: bytes=32 time<1ms TTL=255
Reply from 80.80.80.2: bytes=32 time<1ms TTL=255

Ping statistics for 80.80.80.2:
    Packets: Sent = 10, Received = 10, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```

- g. Do PC1 á IP 80.80.80.1 → ping -n 10 80.80.80.1 → Non existe conectividade porque o Router1 non ten unha ruta estática ou dinámica configurada para alcanzar esa dirección, que pertence ao Router0.



```
C:\>ping -n 10 80.80.80.1

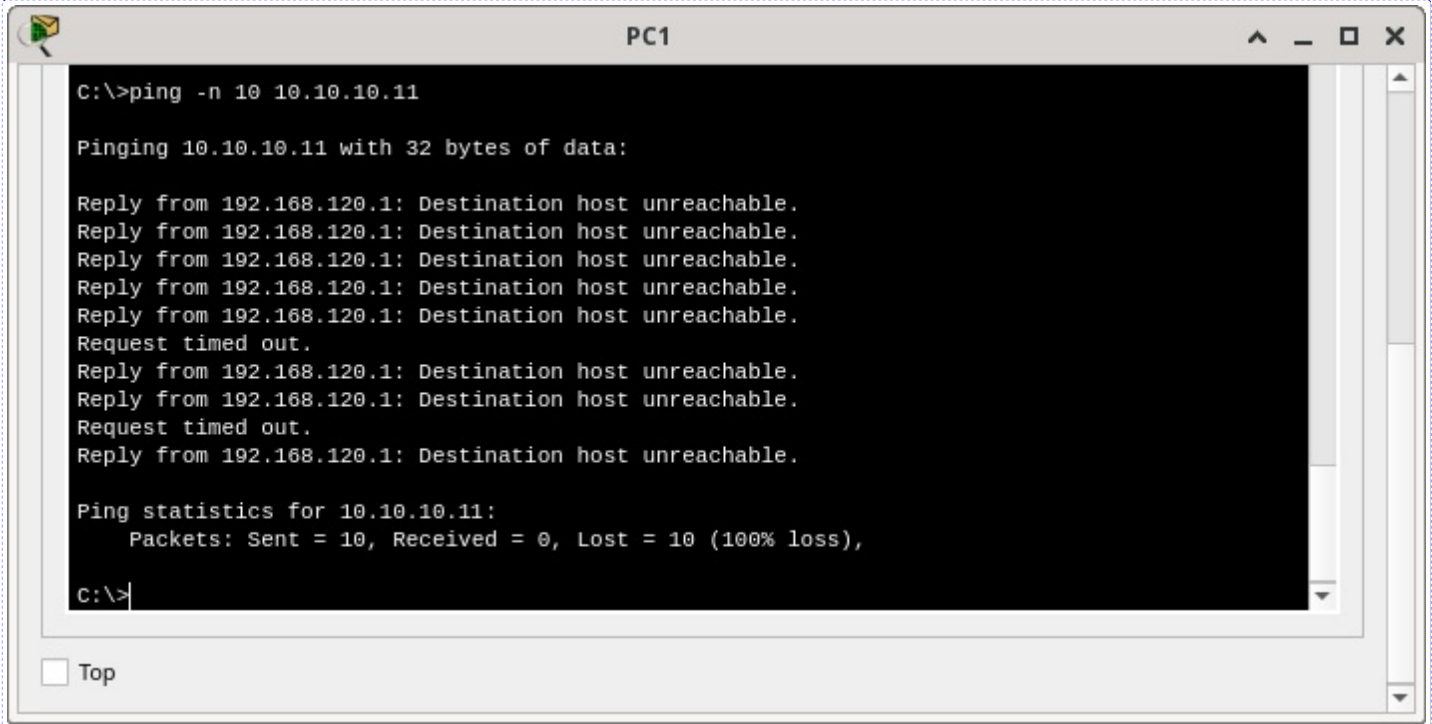
Pinging 80.80.80.1 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 80.80.80.1:
    Packets: Sent = 10, Received = 0, Lost = 10 (100% loss),

C:\>
```

- h. Do PC1 á IP 10.10.10.11 → ping -n 10 10.10.10.11 → Non existe conectividade xa que os paquetes ICMP non son quen de chegar ao Router0, polo que xa non son capaz de chegar ao Laptop0.



The screenshot shows a Windows Command Prompt window titled "PC1". The user has entered the command "C:\>ping -n 10 10.10.10.11". The output shows ten failed replies from 192.168.120.1, each stating "Destination host unreachable." and "Request timed out." The ping statistics at the bottom show "Packets: Sent = 10, Received = 0, Lost = 10 (100% loss)".

```
C:\>ping -n 10 10.10.10.11

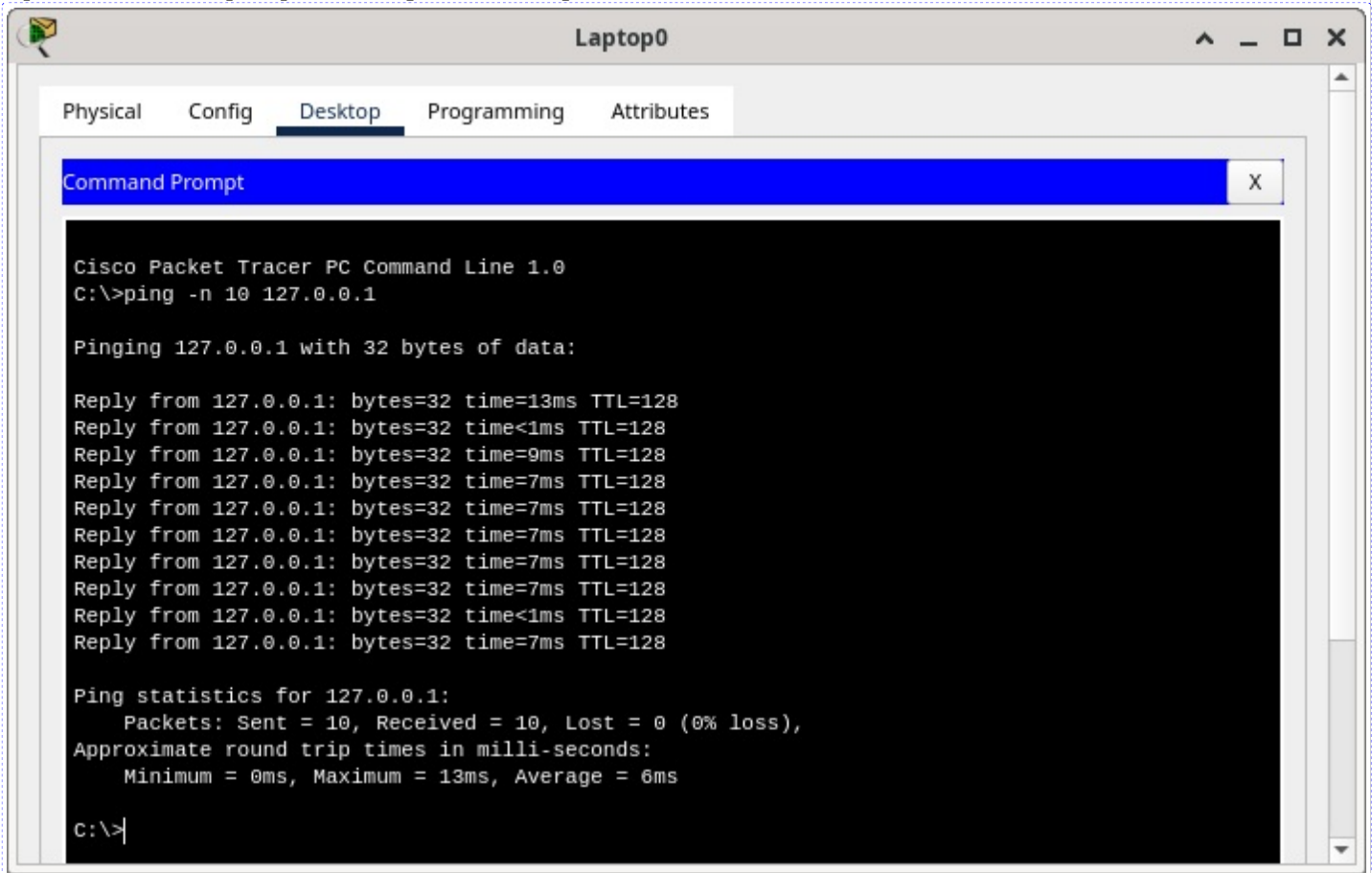
Pinging 10.10.10.11 with 32 bytes of data:

Reply from 192.168.120.1: Destination host unreachable.
Reply from 192.168.120.1: Destination host unreachable.
Reply from 192.168.120.1: Destination host unreachable.
Reply from 192.168.120.1: Destination host unreachable.
Reply from 192.168.120.1: Destination host unreachable.
Request timed out.
Reply from 192.168.120.1: Destination host unreachable.
Reply from 192.168.120.1: Destination host unreachable.
Request timed out.
Reply from 192.168.120.1: Destination host unreachable.

Ping statistics for 10.10.10.11:
    Packets: Sent = 10, Received = 0, Lost = 10 (100% loss),
C:\>
```

5. A continuación, por cada apartado realiza mediante comandos un ping de 10 paquetes ICMP indicando que é o que acontece (Razoa a resposta):

- a. Do Laptop0 á IP 127.0.0.1 → ping -n 10 127.0.0.1 → Existe conectividade debido a que a dirección 127.0.0.1 pertence ao rango de direccións de loopback, que se empregan para probar e verificar a pila de rede do propio dispositivo local. A dirección 127.0.0.1, especificamente, sempre apunta á máquina local na que se executa o comando.



The screenshot shows a Cisco Packet Tracer PC Command Line window titled "Laptop0". The user has entered the command "C:\>ping -n 10 127.0.0.1". The output shows ten successful replies from 127.0.0.1, each with details like "bytes=32", "time=13ms", and "TTL=128". The ping statistics at the bottom show "Packets: Sent = 10, Received = 10, Lost = 0 (0% loss)" and "Approximate round trip times in milli-seconds: Minimum = 0ms, Maximum = 13ms, Average = 6ms".

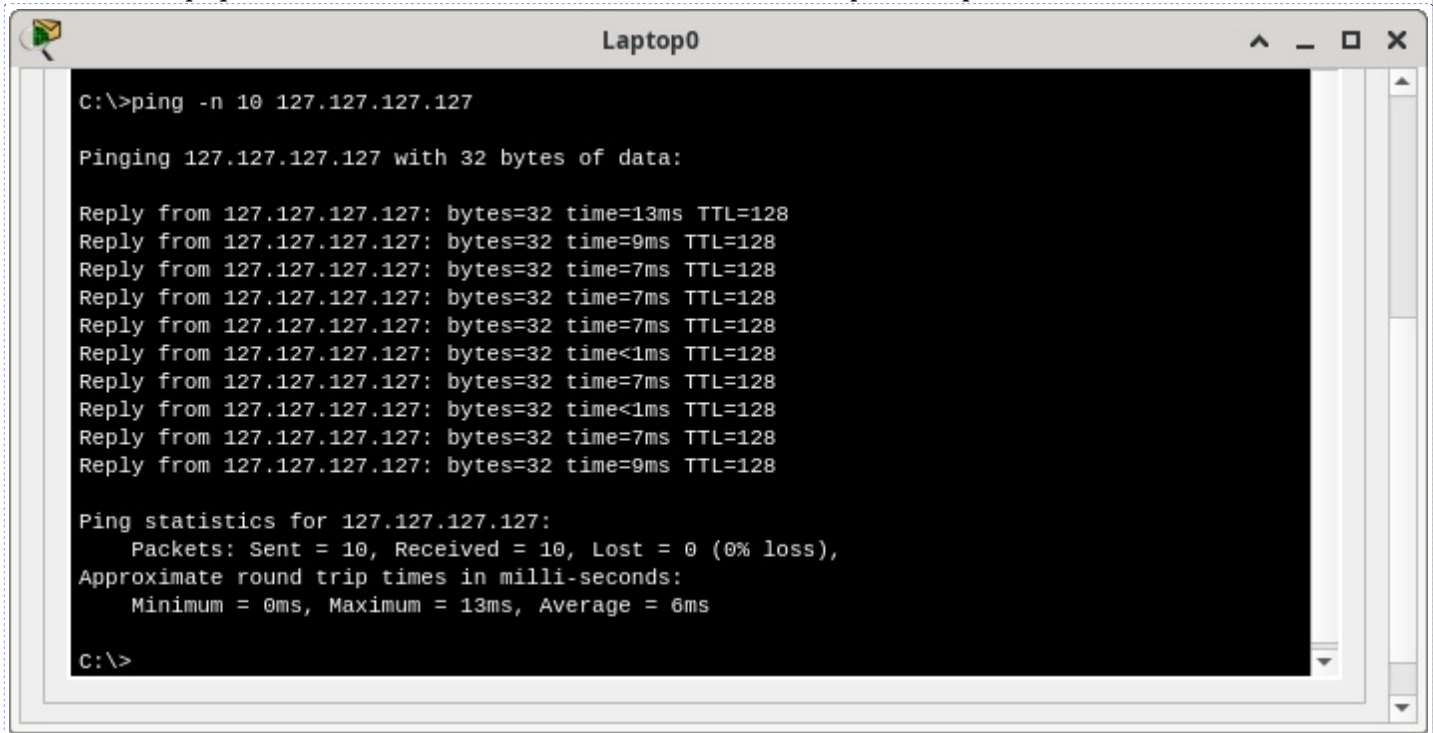
```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping -n 10 127.0.0.1

Pinging 127.0.0.1 with 32 bytes of data:

Reply from 127.0.0.1: bytes=32 time=13ms TTL=128
Reply from 127.0.0.1: bytes=32 time<1ms TTL=128
Reply from 127.0.0.1: bytes=32 time=9ms TTL=128
Reply from 127.0.0.1: bytes=32 time=7ms TTL=128
Reply from 127.0.0.1: bytes=32 time=7ms TTL=128
Reply from 127.0.0.1: bytes=32 time=7ms TTL=128
Reply from 127.0.0.1: bytes=32 time=7ms TTL=128
Reply from 127.0.0.1: bytes=32 time=7ms TTL=128
Reply from 127.0.0.1: bytes=32 time<1ms TTL=128
Reply from 127.0.0.1: bytes=32 time=7ms TTL=128

Ping statistics for 127.0.0.1:
    Packets: Sent = 10, Received = 10, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 13ms, Average = 6ms
C:\>
```


- b. Do Laptop0 á IP 127.127.127.127 → ping -n 10 127.127.127.127 → Existe conectividade xa que todos os enderezos do intervalo 127.0.0.0/8 (de 127.0.0.1 a 127.255.255.254) están reservados para a funcionalidade de loopback. Isto significa que, como ocorre con 127.0.0.1, os paquetes enviados a 127.127.127.127 non abandonarán o dispositivo e procesaranse localmente.



```
C:\>ping -n 10 127.127.127.127

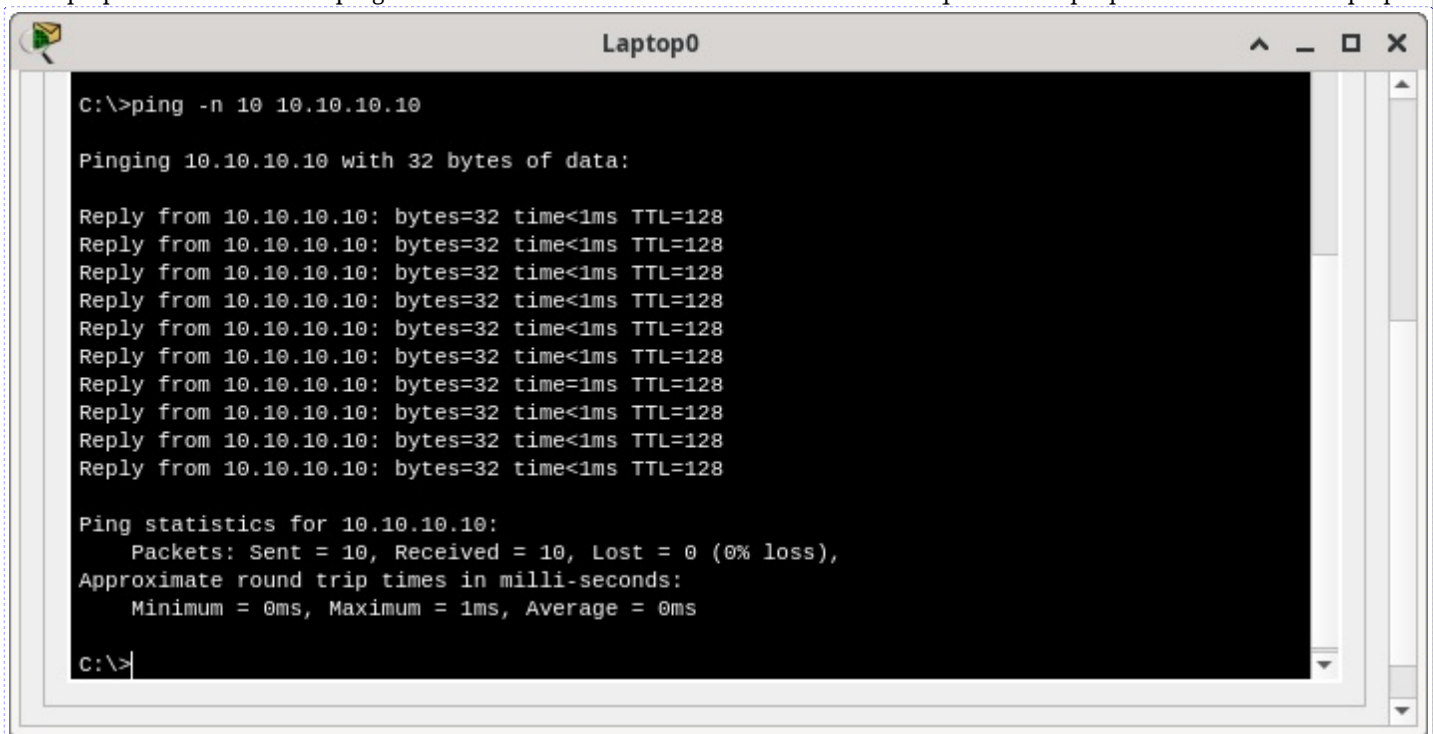
Pinging 127.127.127.127 with 32 bytes of data:

Reply from 127.127.127.127: bytes=32 time=13ms TTL=128
Reply from 127.127.127.127: bytes=32 time=9ms TTL=128
Reply from 127.127.127.127: bytes=32 time=7ms TTL=128
Reply from 127.127.127.127: bytes=32 time=7ms TTL=128
Reply from 127.127.127.127: bytes=32 time=7ms TTL=128
Reply from 127.127.127.127: bytes=32 time<1ms TTL=128
Reply from 127.127.127.127: bytes=32 time=7ms TTL=128
Reply from 127.127.127.127: bytes=32 time<1ms TTL=128
Reply from 127.127.127.127: bytes=32 time=7ms TTL=128
Reply from 127.127.127.127: bytes=32 time=9ms TTL=128

Ping statistics for 127.127.127.127:
    Packets: Sent = 10, Received = 10, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 13ms, Average = 6ms

C:\>
```

- c. Do Laptop0 á IP 10.10.10.10 → ping -n 10 10.10.10.10 → Existe conectividade debido a que esta é a propia dirección IP de Laptop0.



```
C:\>ping -n 10 10.10.10.10

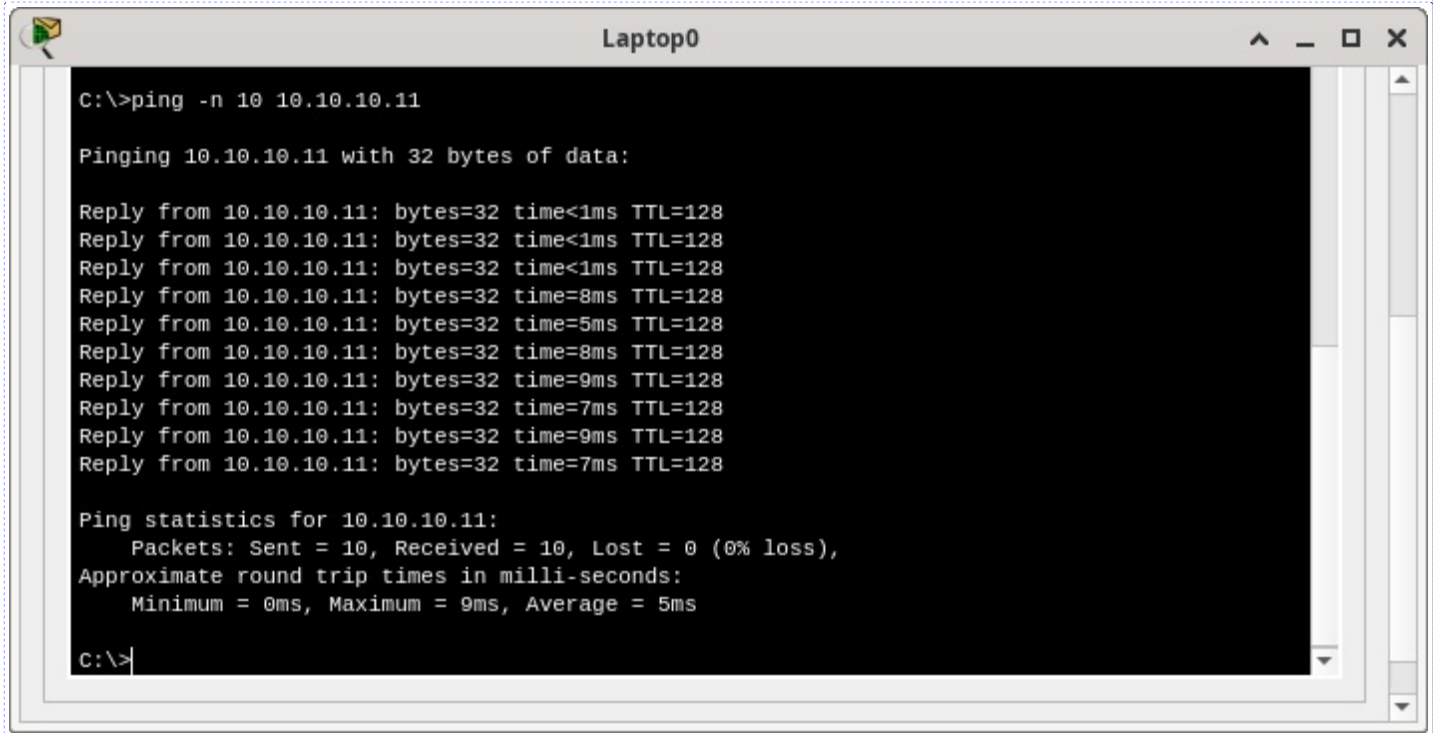
Pinging 10.10.10.10 with 32 bytes of data:

Reply from 10.10.10.10: bytes=32 time<1ms TTL=128
Reply from 10.10.10.10: bytes=32 time<1ms TTL=128
Reply from 10.10.10.10: bytes=32 time<1ms TTL=128
Reply from 10.10.10.10: bytes=32 time<1ms TTL=128
Reply from 10.10.10.10: bytes=32 time<1ms TTL=128
Reply from 10.10.10.10: bytes=32 time<1ms TTL=128
Reply from 10.10.10.10: bytes=32 time=1ms TTL=128
Reply from 10.10.10.10: bytes=32 time<1ms TTL=128
Reply from 10.10.10.10: bytes=32 time<1ms TTL=128
Reply from 10.10.10.10: bytes=32 time<1ms TTL=128

Ping statistics for 10.10.10.10:
    Packets: Sent = 10, Received = 10, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```

- d. Do Laptop0 á IP 10.10.10.11 → ping -n 10 10.10.10.11 → Existe conectividade debido a que os 2 equipos pertencen á mesma rede e o cableado e a electrónica de rede así o permite.



```
C:\>ping -n 10 10.10.10.11

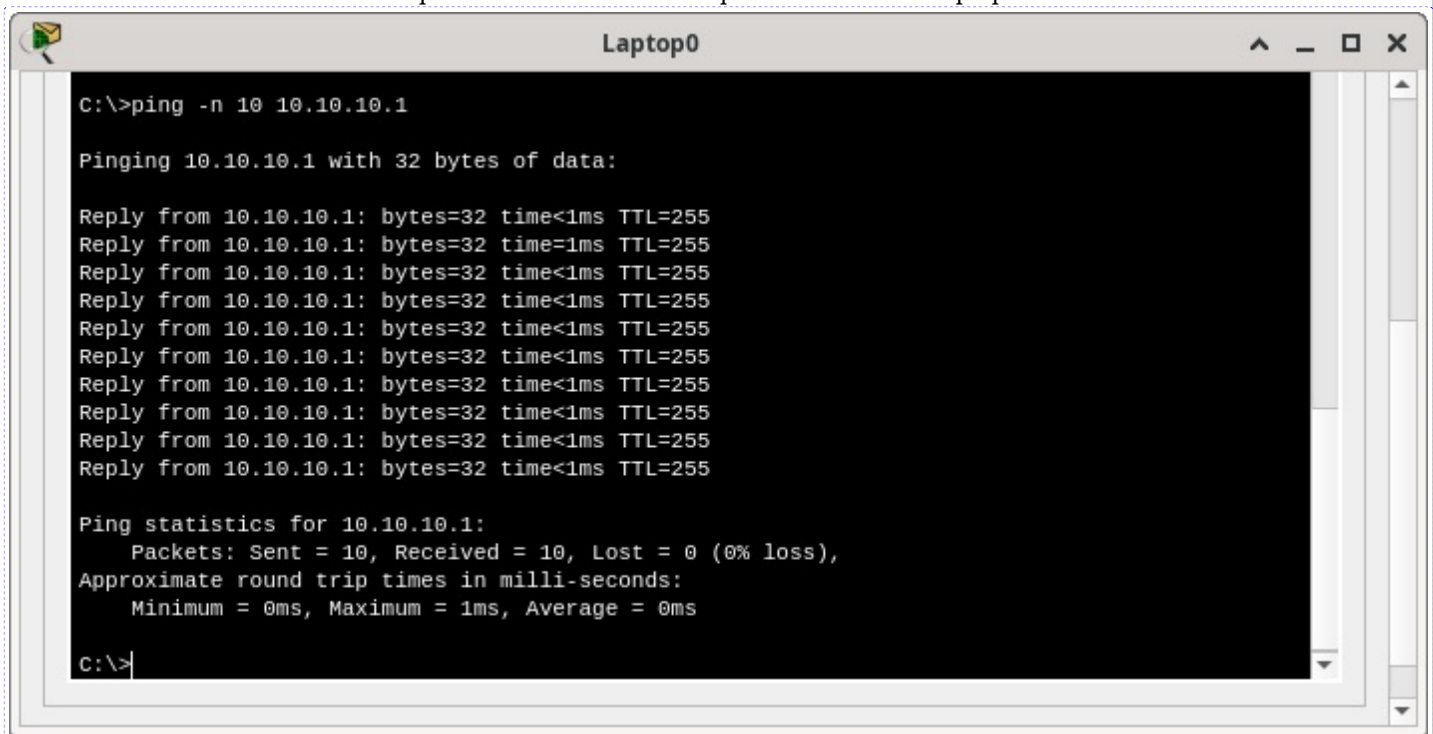
Pinging 10.10.10.11 with 32 bytes of data:

Reply from 10.10.10.11: bytes=32 time<1ms TTL=128
Reply from 10.10.10.11: bytes=32 time<1ms TTL=128
Reply from 10.10.10.11: bytes=32 time<1ms TTL=128
Reply from 10.10.10.11: bytes=32 time=8ms TTL=128
Reply from 10.10.10.11: bytes=32 time=5ms TTL=128
Reply from 10.10.10.11: bytes=32 time=8ms TTL=128
Reply from 10.10.10.11: bytes=32 time=9ms TTL=128
Reply from 10.10.10.11: bytes=32 time=7ms TTL=128
Reply from 10.10.10.11: bytes=32 time=9ms TTL=128
Reply from 10.10.10.11: bytes=32 time=7ms TTL=128

Ping statistics for 10.10.10.11:
    Packets: Sent = 10, Received = 10, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 9ms, Average = 5ms

C:\>
```

- e. Do Laptop0 á IP 10.10.10.1 → ping -n 10 10.10.10.1 → Existe conectividade debido a que os 2 equipos pertencen á mesma rede e o cableado e a electrónica de rede así o permite. A IP 10.10.10.1 é a porta de enlace de Laptop0.



```
C:\>ping -n 10 10.10.10.1

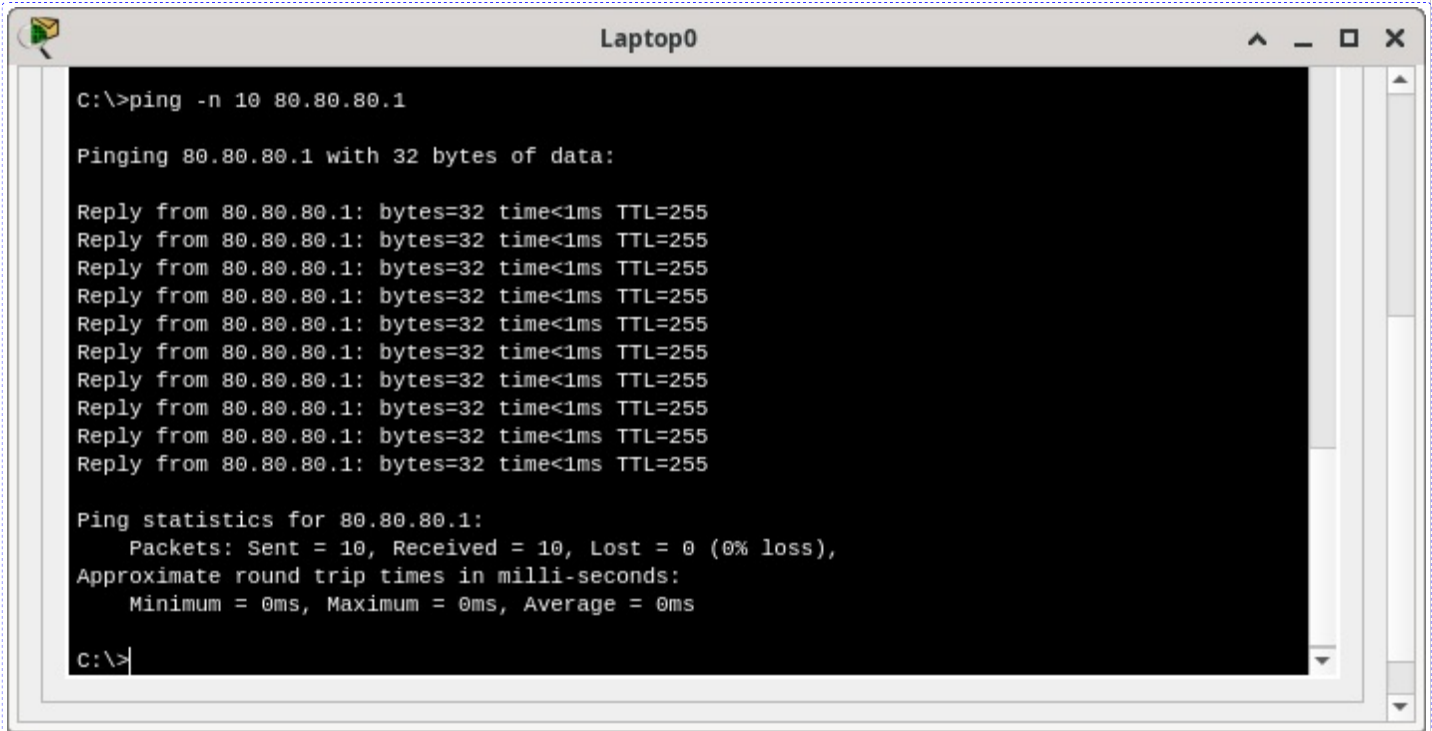
Pinging 10.10.10.1 with 32 bytes of data:

Reply from 10.10.10.1: bytes=32 time<1ms TTL=255
Reply from 10.10.10.1: bytes=32 time=1ms TTL=255
Reply from 10.10.10.1: bytes=32 time<1ms TTL=255
Reply from 10.10.10.1: bytes=32 time<1ms TTL=255
Reply from 10.10.10.1: bytes=32 time<1ms TTL=255
Reply from 10.10.10.1: bytes=32 time<1ms TTL=255
Reply from 10.10.10.1: bytes=32 time<1ms TTL=255
Reply from 10.10.10.1: bytes=32 time<1ms TTL=255
Reply from 10.10.10.1: bytes=32 time<1ms TTL=255
Reply from 10.10.10.1: bytes=32 time<1ms TTL=255

Ping statistics for 10.10.10.1:
    Packets: Sent = 10, Received = 10, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```


- f. Do Laptop0 á IP 80.80.80.1 → ping -n 10 80.80.80.1 → Existe conectividade porque o PC1 ten configurado correctamente o gateway predeterminado (10.10.10.1), que corresponde á interface FastEthernet 0/0 do router. Cando o Laptop0 envía un ping a 80.80.80.1, o tráfico é dirixido ao gateway, que reenvía os paquetes a través da súa interface FastEthernet 0/1 coa IP 80.80.80.1. Este router actúa como un intermediario entre as dúas redes, permitindo a comunicación ao estar configurado correctamente coas súas interfaces en ambas redes (a 10.0.0.0/24 e a 80.0.0.0/8).



```
C:\>ping -n 10 80.80.80.1

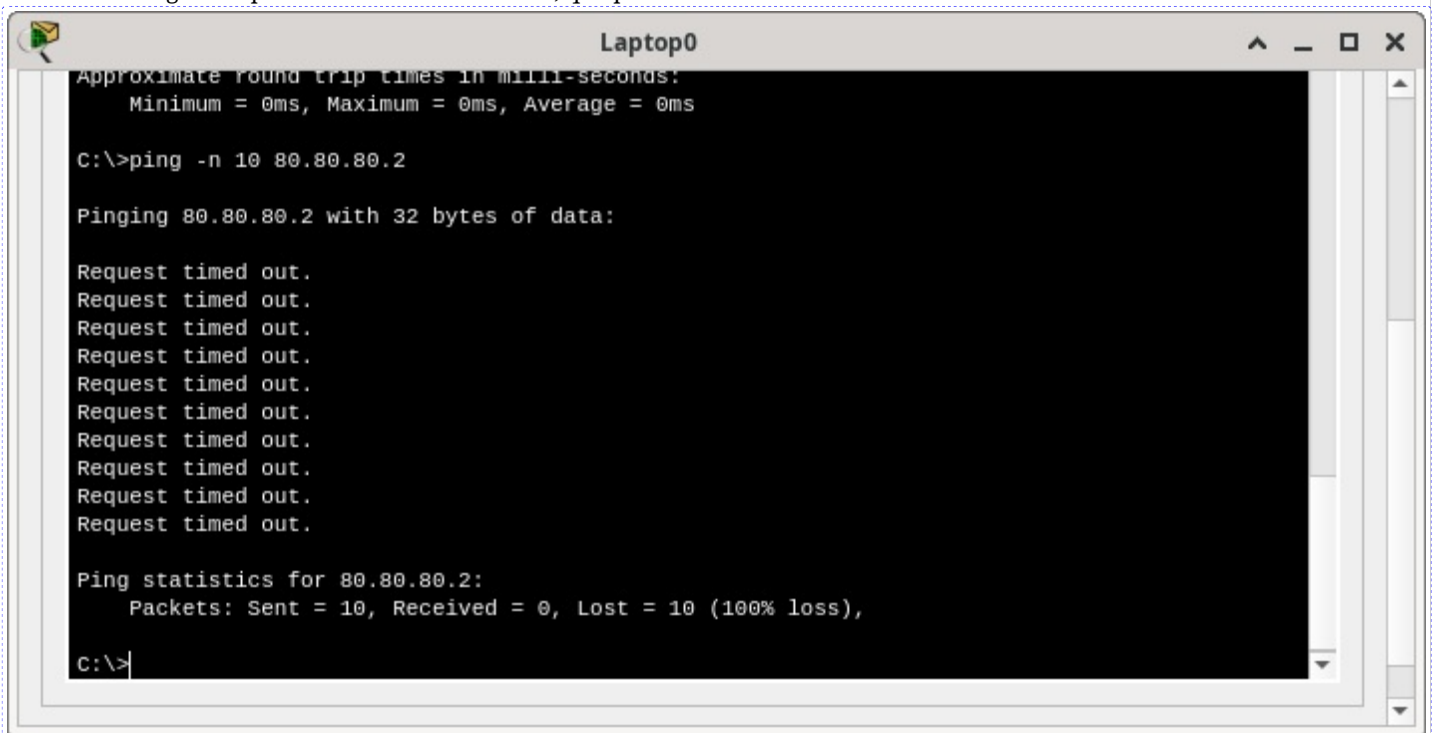
Pinging 80.80.80.1 with 32 bytes of data:

Reply from 80.80.80.1: bytes=32 time<1ms TTL=255
Reply from 80.80.80.1: bytes=32 time<1ms TTL=255
Reply from 80.80.80.1: bytes=32 time<1ms TTL=255
Reply from 80.80.80.1: bytes=32 time<1ms TTL=255
Reply from 80.80.80.1: bytes=32 time<1ms TTL=255
Reply from 80.80.80.1: bytes=32 time<1ms TTL=255
Reply from 80.80.80.1: bytes=32 time<1ms TTL=255
Reply from 80.80.80.1: bytes=32 time<1ms TTL=255
Reply from 80.80.80.1: bytes=32 time<1ms TTL=255
Reply from 80.80.80.1: bytes=32 time<1ms TTL=255

Ping statistics for 80.80.80.1:
    Packets: Sent = 10, Received = 10, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

- g. Do Laptop0 á IP 80.80.80.2 → ping -n 10 80.80.80.2 → Non existe conectividade porque o Router0 non ten unha ruta estática ou dinámica configurada para alcanzar esa dirección, que pertence ao Router1.



```
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping -n 10 80.80.80.2

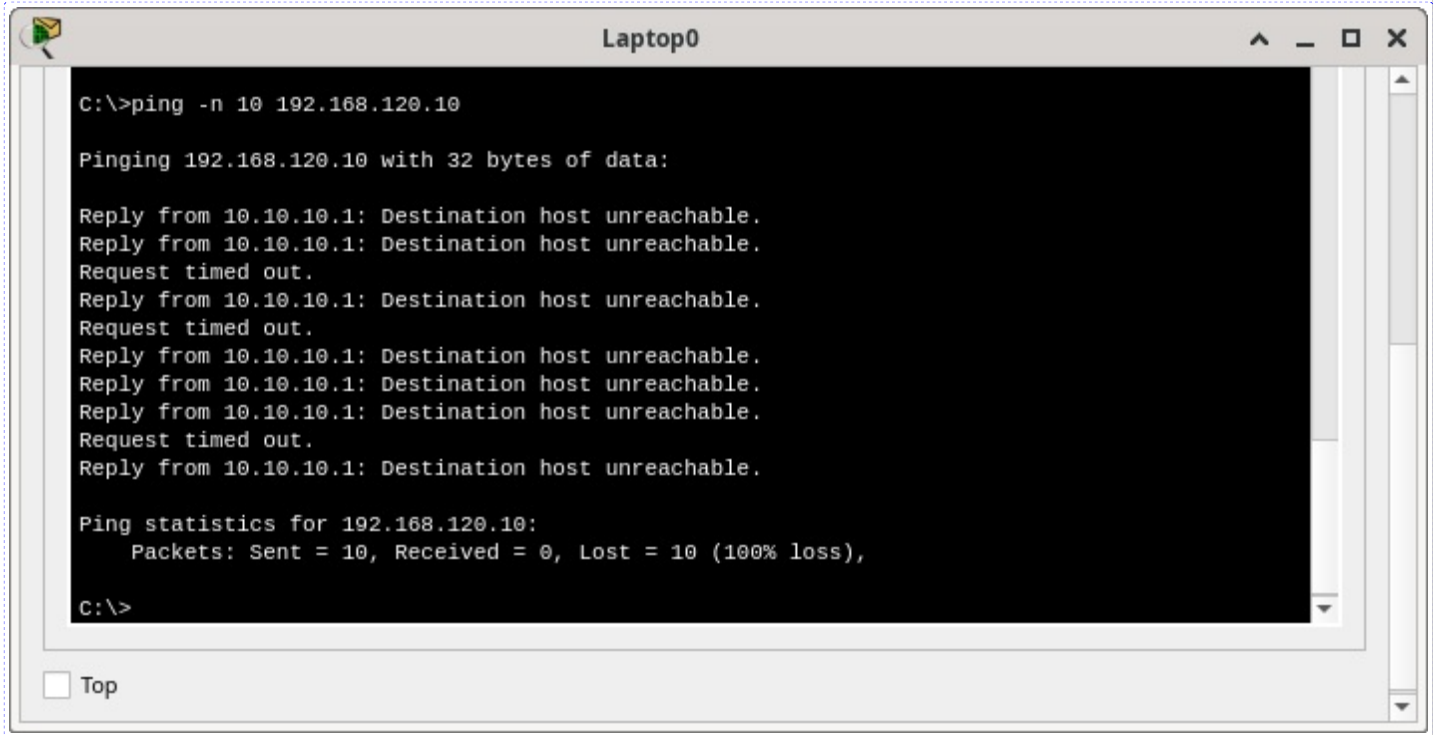
Pinging 80.80.80.2 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 80.80.80.2:
    Packets: Sent = 10, Received = 0, Lost = 10 (100% loss),

C:\>
```

- h. Do Laptop0 á IP 192.168.120.10 → ping -n 10 192.168.120.10 → Non existe conectividade xa que os paquetes ICMP non son quen de chegar ao Router1, polo que xa non son capaz de chegar ao PC1.



```
C:\>ping -n 10 192.168.120.10

Pinging 192.168.120.10 with 32 bytes of data:

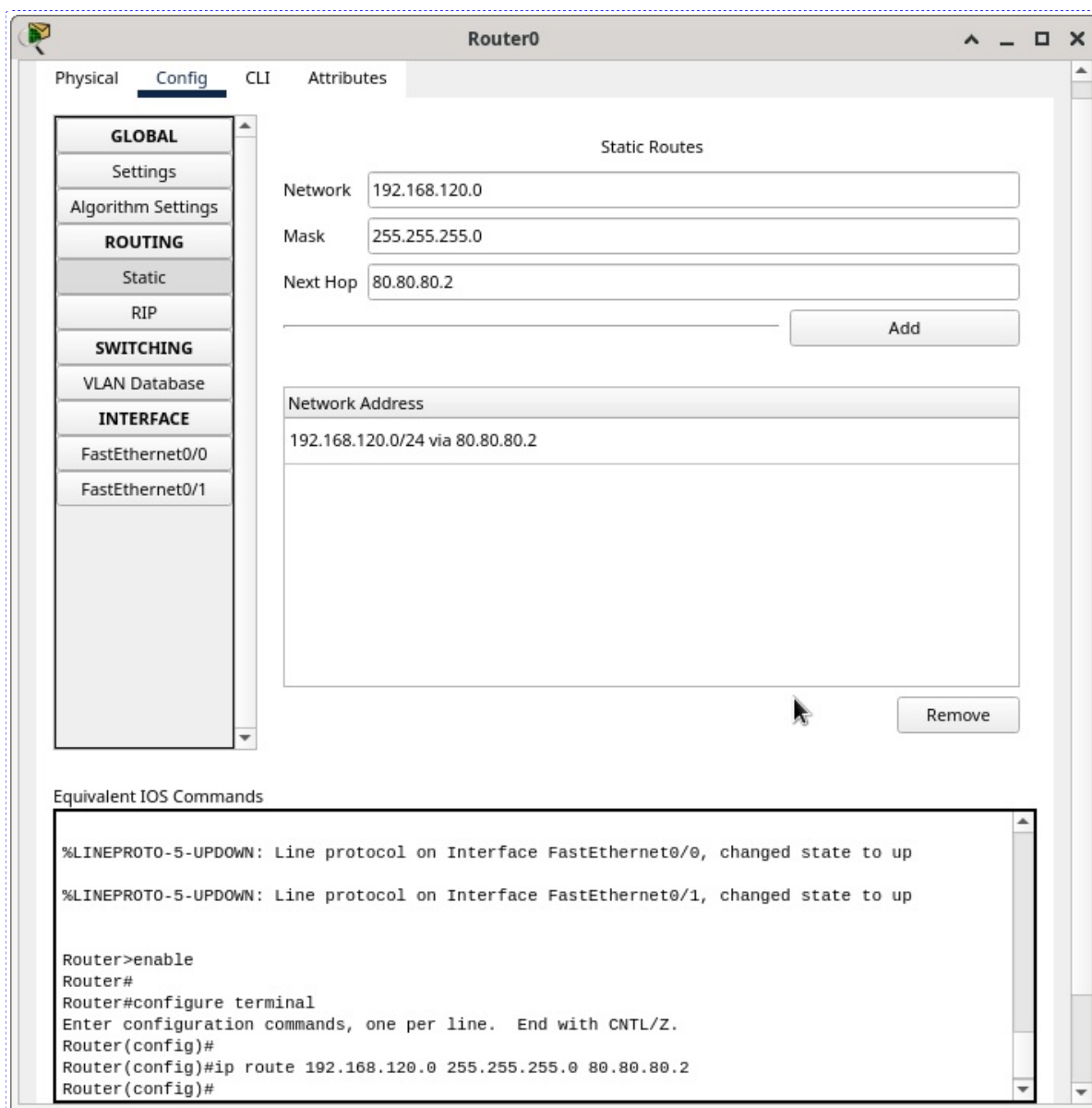
Reply from 10.10.10.1: Destination host unreachable.
Reply from 10.10.10.1: Destination host unreachable.
Request timed out.
Reply from 10.10.10.1: Destination host unreachable.
Request timed out.
Reply from 10.10.10.1: Destination host unreachable.
Reply from 10.10.10.1: Destination host unreachable.
Reply from 10.10.10.1: Destination host unreachable.
Request timed out.
Reply from 10.10.10.1: Destination host unreachable.

Ping statistics for 192.168.120.10:
    Packets: Sent = 10, Received = 0, Lost = 10 (100% loss),

C:\>
```

☐ Top

6. Realiza a configuración de enrutamento estático nos router (Router0 e Router1) capturando imaxes coa configuración de cada host router para que a conectividade entre PC1 e Laptop0 sexa posible.



The screenshot shows the configuration window for Router0. The 'Config' tab is active, and the 'Static Routes' section is selected. The configuration fields are as follows:

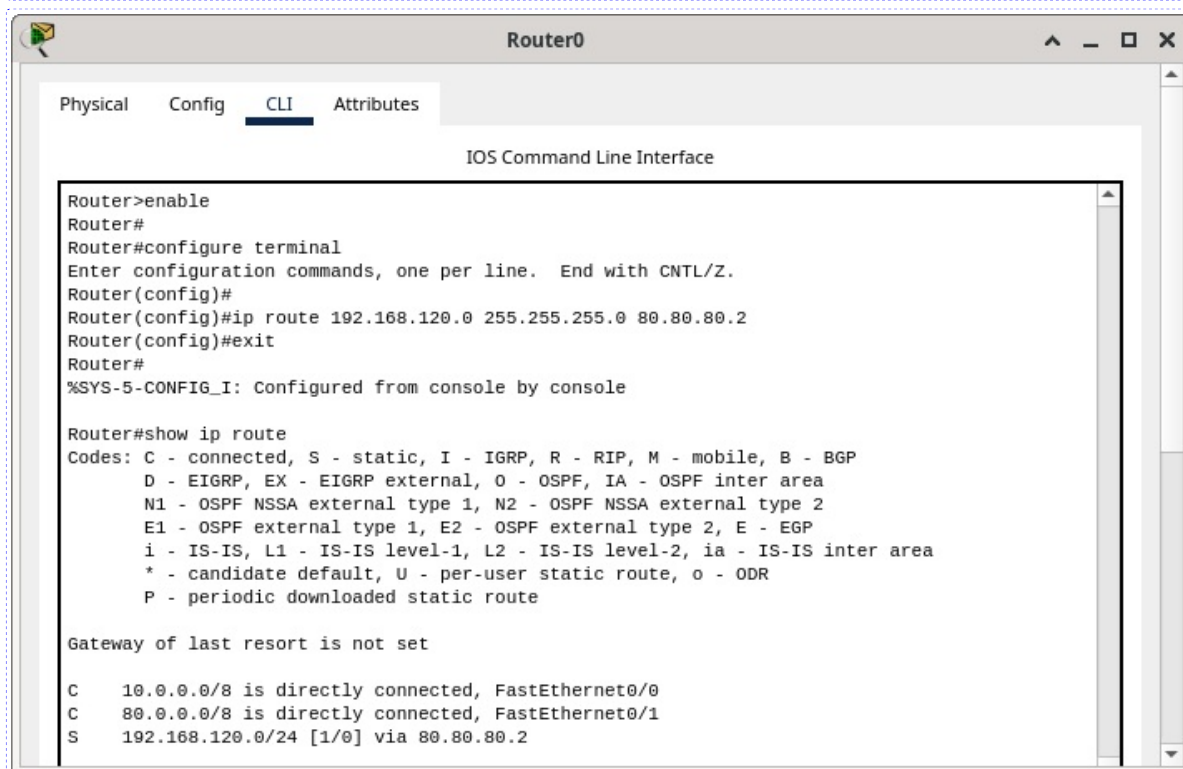
Field	Value
Network	192.168.120.0
Mask	255.255.255.0
Next Hop	80.80.80.2

An 'Add' button is located below the input fields. Below the configuration area, a table lists the configured static routes:

Network Address
192.168.120.0/24 via 80.80.80.2

A 'Remove' button is located at the bottom right of the table. Below the configuration area, the 'Equivalent IOS Commands' section displays the following commands:

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#
Router(config)#ip route 192.168.120.0 255.255.255.0 80.80.80.2
Router(config)#
```



The screenshot shows the CLI interface of Router0. The 'CLI' tab is active. The 'IOS Command Line Interface' section displays the following commands and output:

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#
Router(config)#ip route 192.168.120.0 255.255.255.0 80.80.80.2
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

C    10.0.0.0/8 is directly connected, FastEthernet0/0
C    80.0.0.0/8 is directly connected, FastEthernet0/1
S    192.168.120.0/24 [1/0] via 80.80.80.2
```

Router1

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Static Routes

Network 10.0.0.0

Mask 255.0.0.0

Next Hop 80.80.80.1

Add

Network Address

10.0.0.0/8 via 80.80.80.1

Remove

Equivalent IOS Commands

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#
Router(config)#ip route 10.0.0.0 255.0.0.0 80.80.80.1
Router(config)#
```

Router1

Physical Config CLI Attributes

IOS Command Line Interface

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#
Router(config)#ip route 10.0.0.0 255.0.0.0 80.80.80.1
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

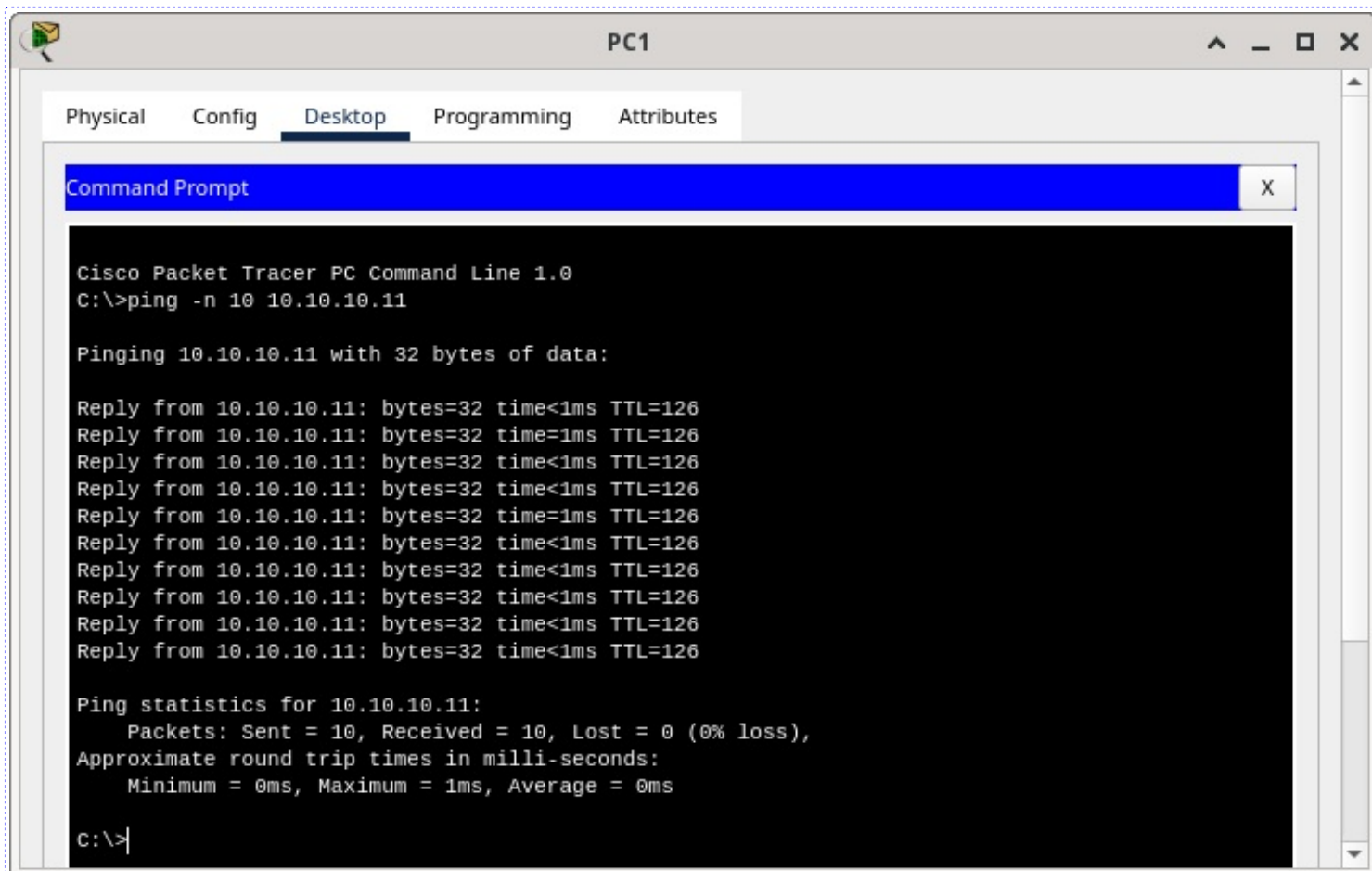
Router#sho ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

S    10.0.0.0/8 [1/0] via 80.80.80.1
C    80.0.0.0/8 is directly connected, FastEthernet0/0
C   192.168.120.0/24 is directly connected, FastEthernet0/1

Router#
```

7. Realiza de novo os apartados 4) e 5). Comproba que agora a conectividade é posible dende PC1 a Laptop0 e dende Laptop0 a PC1. Captura as imaxes correspondentes.



The screenshot shows a Cisco Packet Tracer window titled "PC1". The "Desktop" tab is selected, displaying a "Command Prompt" window. The command prompt shows the execution of a ping command from PC1 to 10.10.10.11. The output indicates successful connectivity with 0% loss.

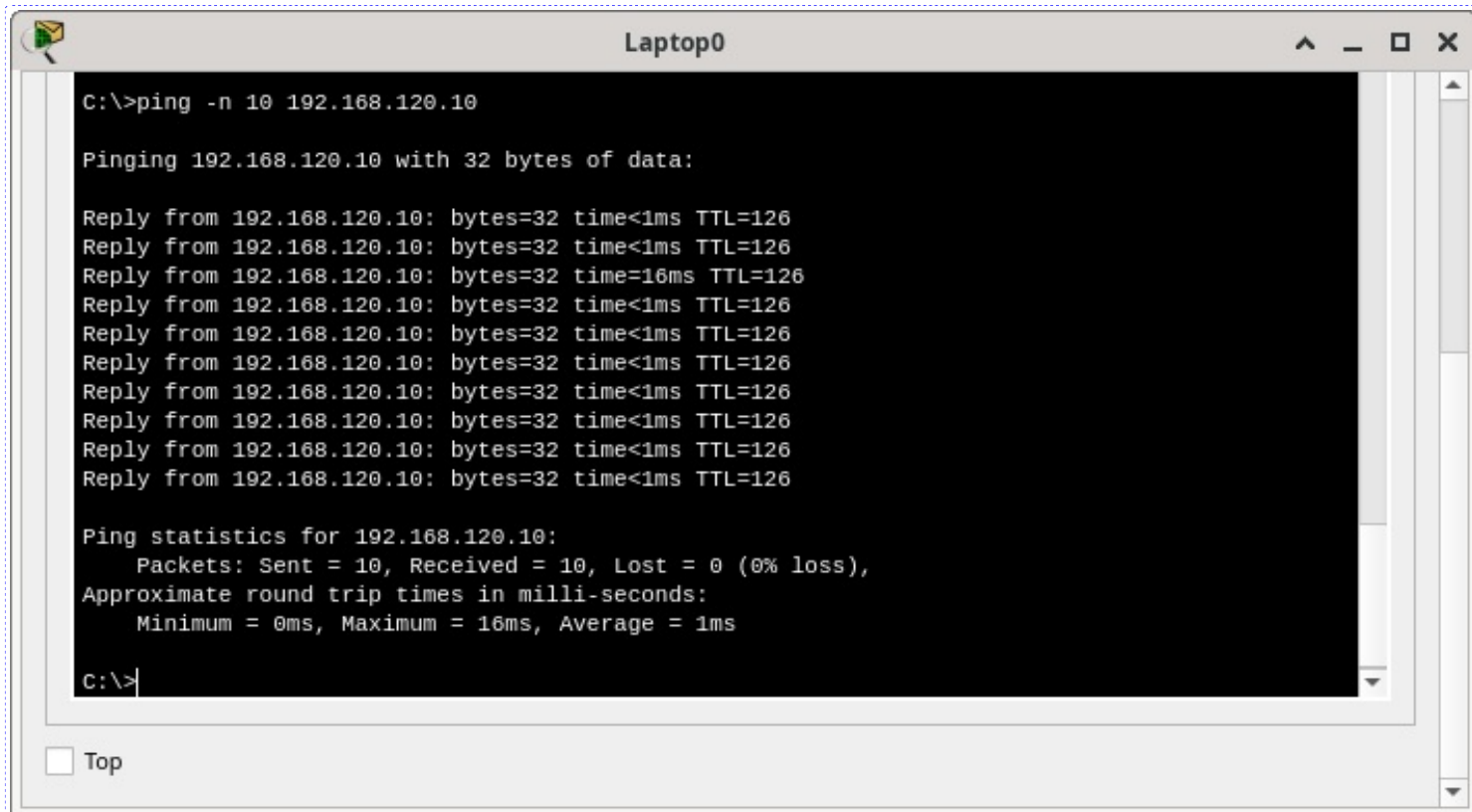
```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping -n 10 10.10.10.11

Pinging 10.10.10.11 with 32 bytes of data:

Reply from 10.10.10.11: bytes=32 time<1ms TTL=126
Reply from 10.10.10.11: bytes=32 time=1ms TTL=126
Reply from 10.10.10.11: bytes=32 time<1ms TTL=126
Reply from 10.10.10.11: bytes=32 time<1ms TTL=126
Reply from 10.10.10.11: bytes=32 time=1ms TTL=126
Reply from 10.10.10.11: bytes=32 time<1ms TTL=126
Reply from 10.10.10.11: bytes=32 time<1ms TTL=126
Reply from 10.10.10.11: bytes=32 time<1ms TTL=126
Reply from 10.10.10.11: bytes=32 time<1ms TTL=126
Reply from 10.10.10.11: bytes=32 time<1ms TTL=126

Ping statistics for 10.10.10.11:
    Packets: Sent = 10, Received = 10, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```



The screenshot shows a Cisco Packet Tracer window titled "Laptop0". The command prompt shows the execution of a ping command from Laptop0 to 192.168.120.10. The output indicates successful connectivity with 0% loss.

```
C:\>ping -n 10 192.168.120.10

Pinging 192.168.120.10 with 32 bytes of data:

Reply from 192.168.120.10: bytes=32 time<1ms TTL=126
Reply from 192.168.120.10: bytes=32 time<1ms TTL=126
Reply from 192.168.120.10: bytes=32 time=16ms TTL=126
Reply from 192.168.120.10: bytes=32 time<1ms TTL=126
Reply from 192.168.120.10: bytes=32 time<1ms TTL=126
Reply from 192.168.120.10: bytes=32 time<1ms TTL=126
Reply from 192.168.120.10: bytes=32 time<1ms TTL=126
Reply from 192.168.120.10: bytes=32 time<1ms TTL=126
Reply from 192.168.120.10: bytes=32 time<1ms TTL=126
Reply from 192.168.120.10: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.120.10:
    Packets: Sent = 10, Received = 10, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 16ms, Average = 1ms

C:\>
```