Laboratorio 3: Implementación de Redes TCP IPv4

GitHub Laboratorio. PKT=

https://github.com/LeoR22/Universidad/tree/main/Redes_datos/Lab_3

Diseño de red

Topología propuesta:

- PC0 y PC2 conectados a Switch0
- Switch0 conectado a Router1
- Router1 conectado a Router2 y Router3
- Router2 conectado a Server0
- Red dividida en 4 subredes

Cálculo de subredes

Segmento base: 40.29.0.0/16

Subred 1: 1500 hosts

- Requiere al menos 1502 direcciones
- Se usa /21 → 2046 hosts
- Subred: 40.29.0.0/21

Subredes 2, 3 y 4: 2 hosts cada una

- Requiere al menos 4 direcciones
- Se usa /29 → 6 hosts

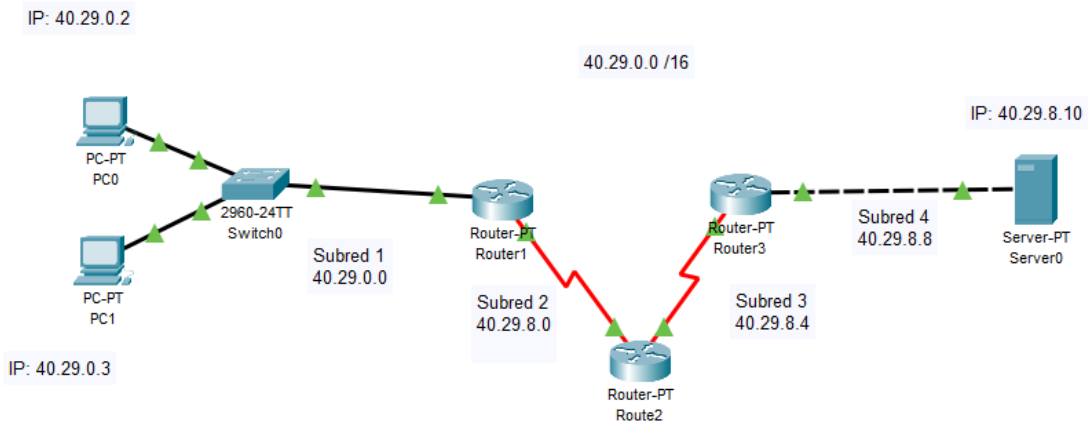
Asignación:

Subred	Dirección de red	Máscara	Rango de IPs útiles
Subred 1	40.29.0.0/21	255.255.248.0	40.29.0.1 – 40.29.7.254
Subred 2	40.29.8.0/29	255.255.255.248	40.29.8.1 – 40.29.8.6
Subred 3	40.29.8.8/29	255.255.255.248	40.29.8.9 – 40.29.8.14
Subred 4	40.29.8.16/29	255.255.255.248	40.29.8.17 – 40.29.8.22

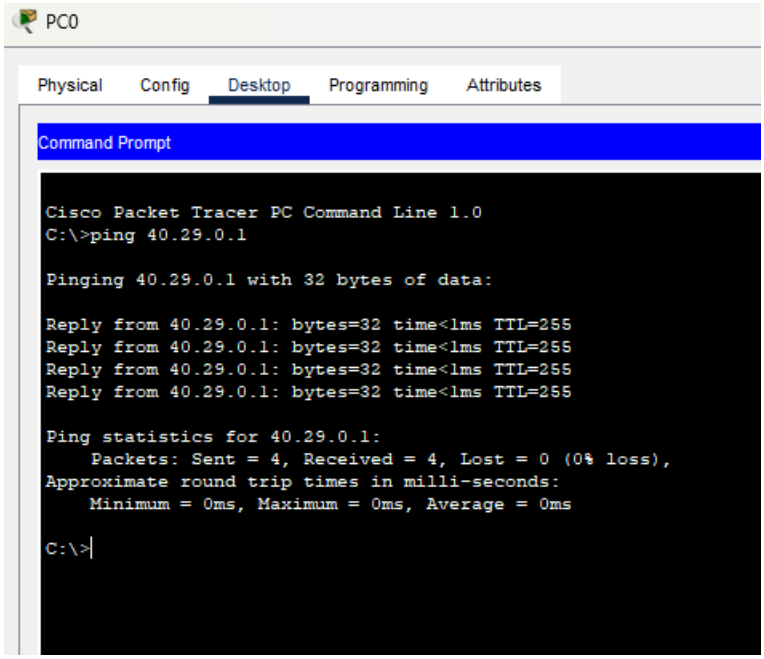
Asignación de direccions IP

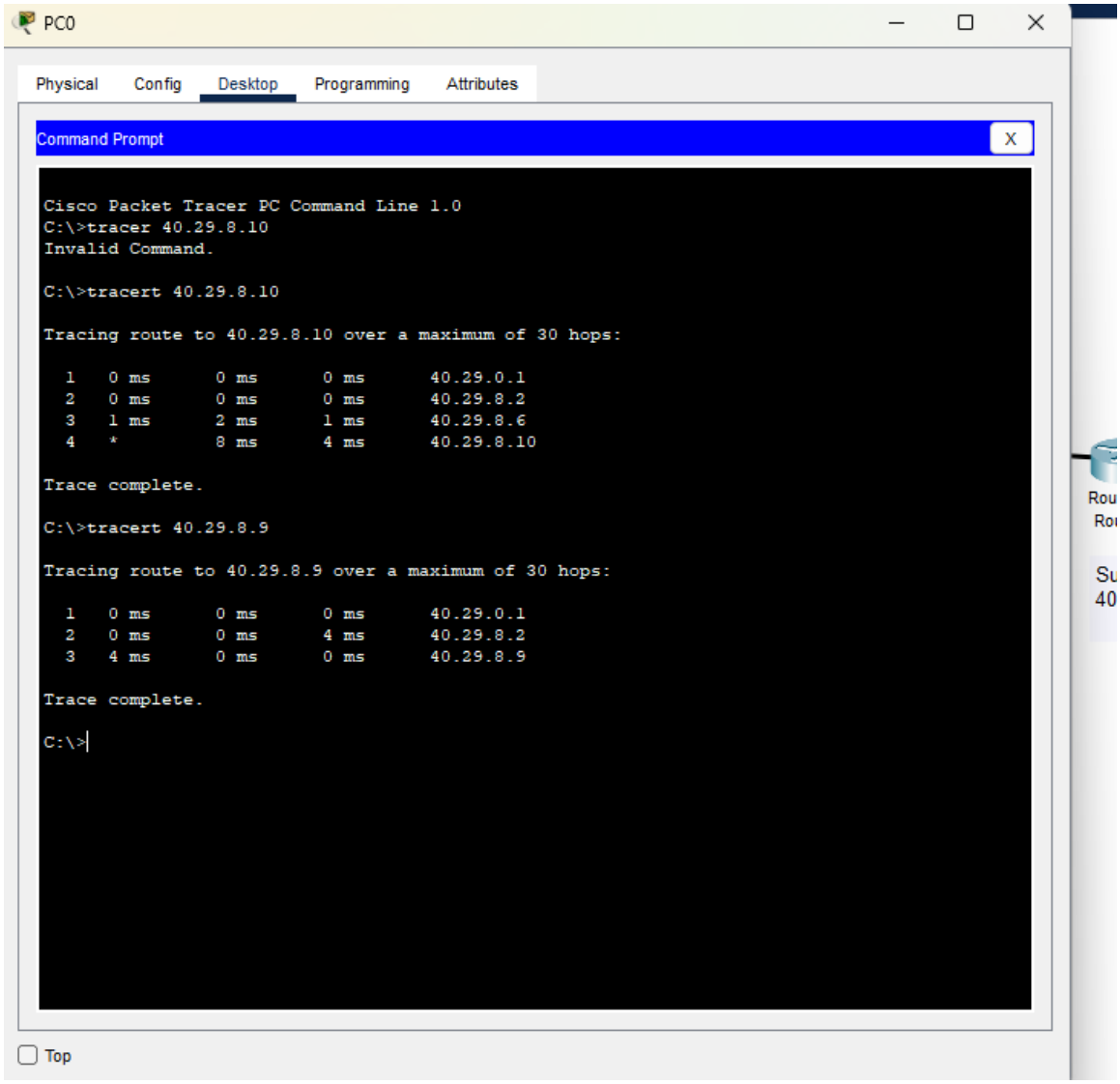
Dispositivo	IP asignada	Máscara	Gateway
PC0	40.29.0.10	255.255.248.0	40.29.0.1
PC2	40.29.0.20	255.255.248.0	40.29.0.1
Server0	40.29.8.18	255.255.255.248	40.29.8.17
Router1 G0/0	40.29.0.1	255.255.248.0	—
Router1 S0/0/0	40.29.8.1	255.255.255.248	—
Router1 S0/0/1	40.29.8.9	255.255.255.248	—
Router3 S0/0/0	40.29.8.2	255.255.255.248	—
Router3 S0/0/1	40.29.8.17	255.255.255.248	—
Router2 S0/0/0	40.29.8.10	255.255.255.248	—

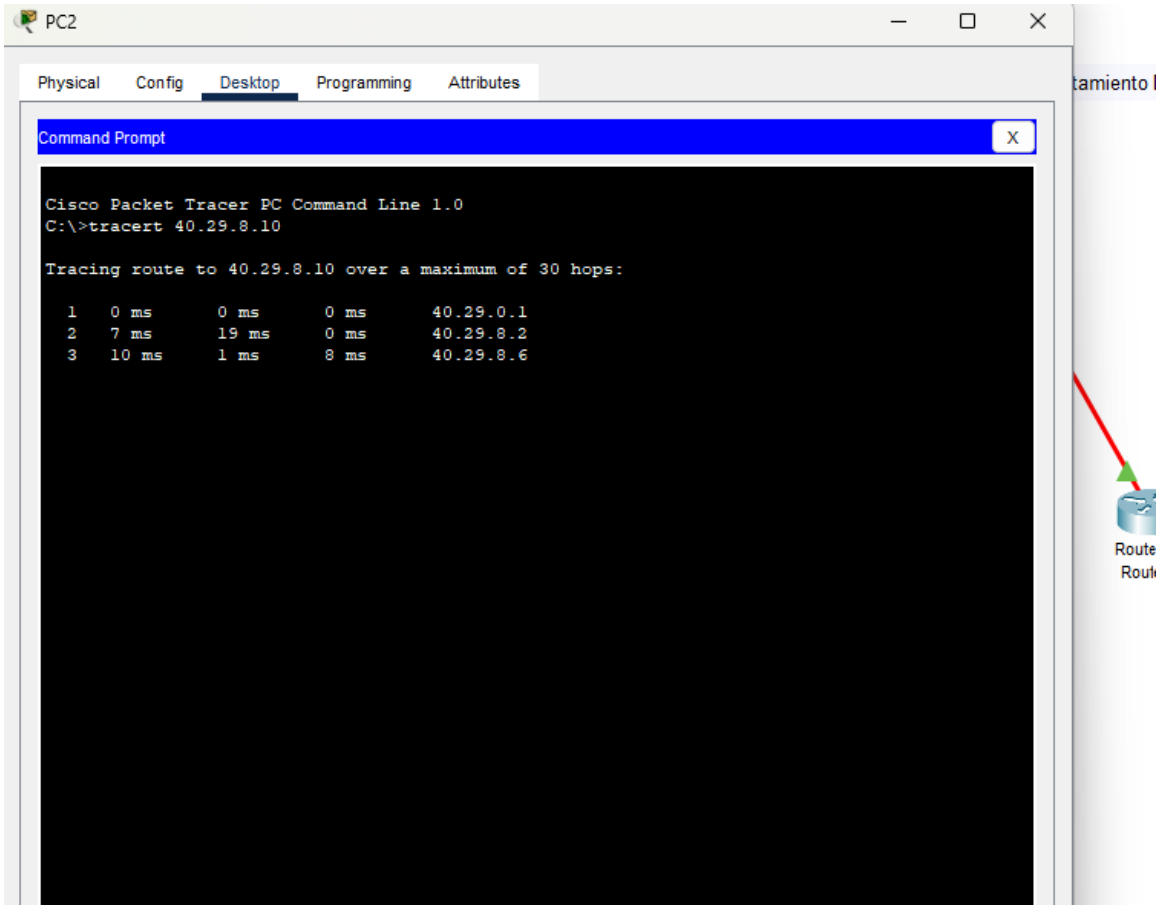
Resultados

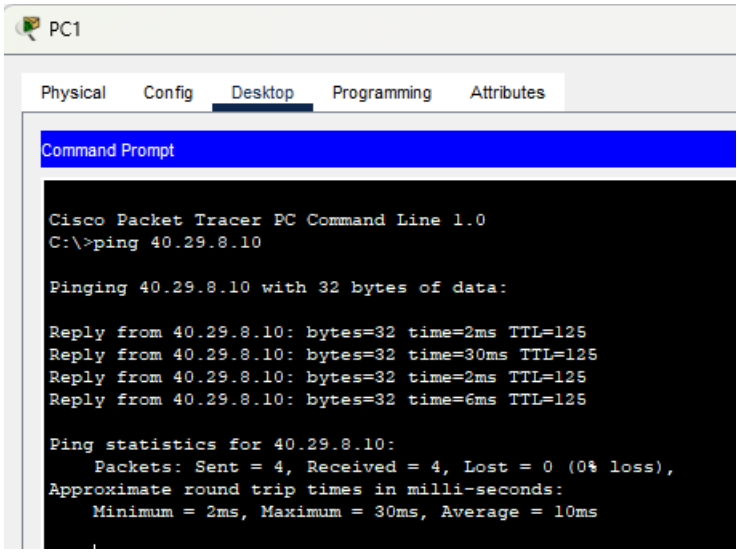


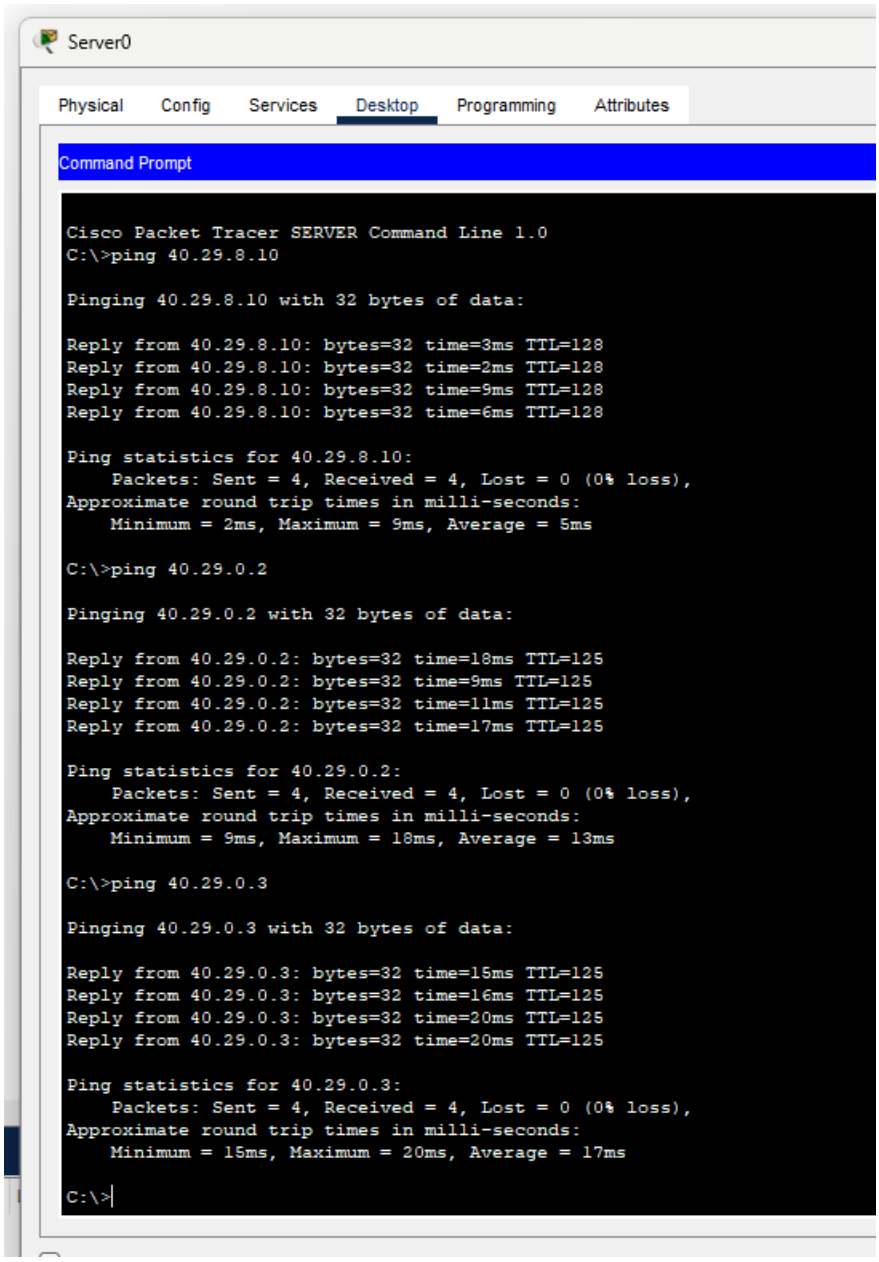
PC0 – Router local




PC0
Physical
Config
Desktop
Programming
Attributes
Command Prompt
X
Cisco Packet Tracer PC Command Line 1.0
C:\>tracer 40.29.8.10
Invalid Command.
C:\>tracert 40.29.8.10
Tracing route to 40.29.8.10 over a maximum of 30 hops:
1 0 ms 0 ms 0 ms 40.29.0.1
2 0 ms 0 ms 0 ms 40.29.8.2
3 1 ms 2 ms 1 ms 40.29.8.6
4 * 8 ms 4 ms 40.29.8.10
Trace complete.
C:\>tracert 40.29.8.9
Tracing route to 40.29.8.9 over a maximum of 30 hops:
1 0 ms 0 ms 0 ms 40.29.0.1
2 0 ms 0 ms 4 ms 40.29.8.2
3 4 ms 0 ms 0 ms 40.29.8.9
Trace complete.
C:\>
Top


PC2
Physical
Config
Desktop
Programming
Attributes
Command Prompt
X
Cisco Packet Tracer PC Command Line 1.0
C:\>tracert 40.29.8.10
Tracing route to 40.29.8.10 over a maximum of 30 hops:
1 0 ms 0 ms 0 ms 40.29.0.1
2 7 ms 19 ms 0 ms 40.29.8.2
3 10 ms 1 ms 8 ms 40.29.8.6
tamiento
Route
Route


PC1
Physical
Config
Desktop
Programming
Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 40.29.8.10
Pinging 40.29.8.10 with 32 bytes of data:
Reply from 40.29.8.10: bytes=32 time=2ms TTL=125
Reply from 40.29.8.10: bytes=32 time=30ms TTL=125
Reply from 40.29.8.10: bytes=32 time=2ms TTL=125
Reply from 40.29.8.10: bytes=32 time=6ms TTL=125
Ping statistics for 40.29.8.10:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 2ms, Maximum = 30ms, Average = 10ms


Server0
Physical
Config
Services
Desktop
Programming
Attributes
Command Prompt
Cisco Packet Tracer SERVER Command Line 1.0
C:\>ping 40.29.8.10
Pinging 40.29.8.10 with 32 bytes of data:
Reply from 40.29.8.10: bytes=32 time=3ms TTL=128
Reply from 40.29.8.10: bytes=32 time=2ms TTL=128
Reply from 40.29.8.10: bytes=32 time=9ms TTL=128
Reply from 40.29.8.10: bytes=32 time=6ms TTL=128
Ping statistics for 40.29.8.10:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 2ms, Maximum = 9ms, Average = 5ms
C:\>ping 40.29.0.2
Pinging 40.29.0.2 with 32 bytes of data:
Reply from 40.29.0.2: bytes=32 time=18ms TTL=125
Reply from 40.29.0.2: bytes=32 time=9ms TTL=125
Reply from 40.29.0.2: bytes=32 time=11ms TTL=125
Reply from 40.29.0.2: bytes=32 time=17ms TTL=125
Ping statistics for 40.29.0.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 9ms, Maximum = 18ms, Average = 13ms
C:\>ping 40.29.0.3
Pinging 40.29.0.3 with 32 bytes of data:
Reply from 40.29.0.3: bytes=32 time=15ms TTL=125
Reply from 40.29.0.3: bytes=32 time=16ms TTL=125
Reply from 40.29.0.3: bytes=32 time=20ms TTL=125
Reply from 40.29.0.3: bytes=32 time=20ms TTL=125
Ping statistics for 40.29.0.3:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 15ms, Maximum = 20ms, Average = 17ms
C:\>