Laboratorio 2: Configuración de red IPv6

GitHub Laboratorio. PKT=

https://github.com/LeoR22/Universidad/tree/main/Redes_datos/Lab_2

1) Decisión de subredes y cálculos

En IPv6 es práctica común usar subredes /64 para LANs y para enlaces punto a punto.

Un /56 contiene 256 subredes /64 (porque 64-56 = 8 bits -> 2^8 = 256. Por simplicidad y siguiendo el enunciado, crearemos tres /64 contiguos dentro del /56:

Subredes elegidas **(todas /64):**
 - LAN1 (hosts): 34b1:345:234:a900::/64
 - LAN2 (hosts): 34b1:345:234:a901::/64
 - Enlace Router–Router: 34b1:345:234:a902::/64

Para cada /64 tomaremos:
 - Primera utilizable: ::1 (la usaremos para la interfaz del router)
 - Segunda utilizable: ::2 (PC A)
 - Última utilizable: ::ffff:ffff:ffff:ffff

2) Direcciones asignadas

LAN1 (/64):
 - Red: 34b1:345:234:a900::/64
 - Router (gateway): 34b1:345:234:a900::1/64
 - PC1 (segunda utilizable): 34b1:345:234:a900::2/64
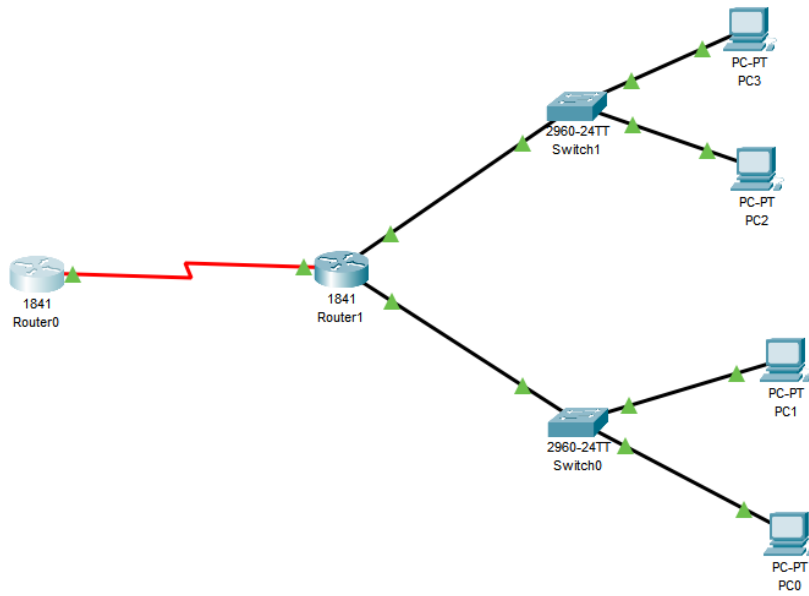 - PC2 (última utilizable): 34b1:345:234:a900:ffff:ffff:ffff:ffff/64

LAN2 (/64):
 - Red: 34b1:345:234:a901::/64
 - Router (gateway): 34b1:345:234:a901::1/64
 - PC1: 34b1:345:234:a901::2/64
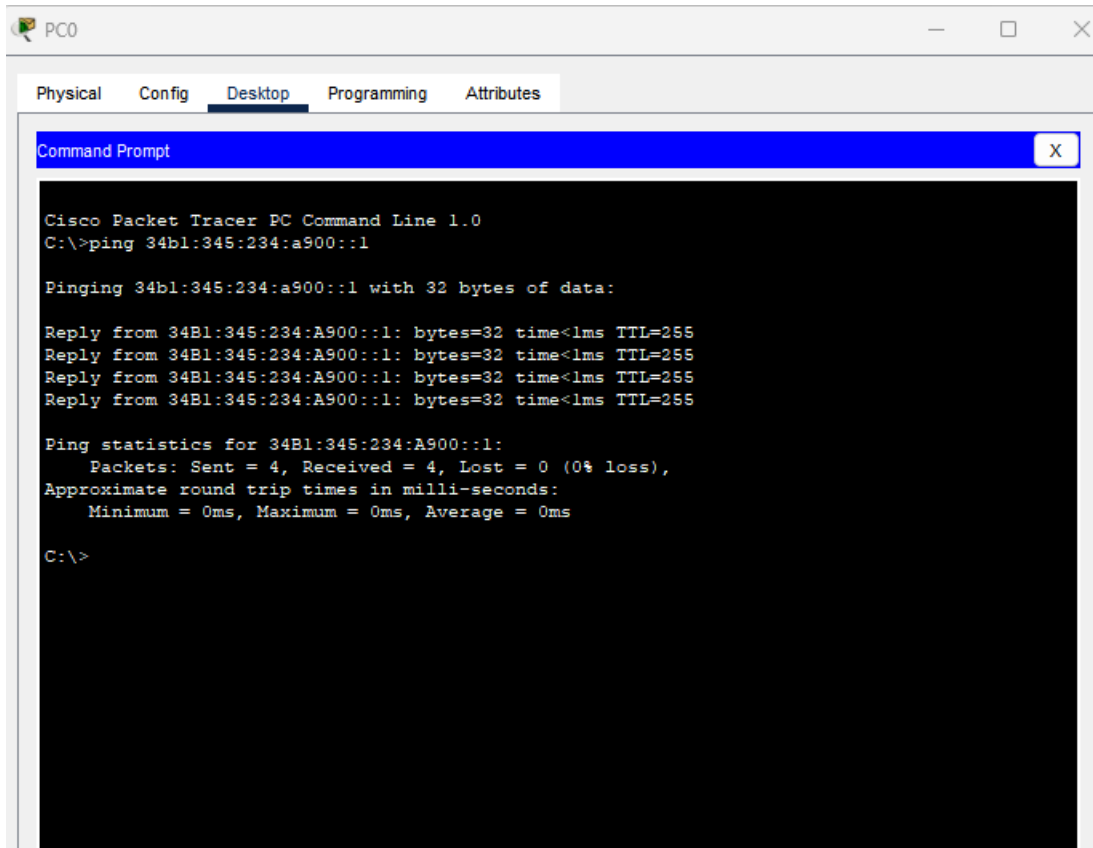 - PC2: 34b1:345:234:a901:ffff:ffff:ffff:ffff/64

Enlace Serial (/64):
 - Red: 34b1:345:234:a902::/64
 - R1 Serial: 34b1:345:234:a902::1/64 (primera utilizable)
 - R2 Serial: 34b1:345:234:a902:ffff:ffff:ffff:ffff/64 (última utilizable)

2) Resultados

PC0 – PC1

```
PC0                                                  —   □   X

Physical    Config    Desktop    Programming    Attributes

Command Prompt                                                    X

Cisco Packet Tracer PC Command Line 1.0
C:\>ping 34b1:345:234:a900::1

Pinging 34b1:345:234:a900::1 with 32 bytes of data:

Reply from 34B1:345:234:A900::1: bytes=32 time<1ms TTL=255
Reply from 34B1:345:234:A900::1: bytes=32 time<1ms TTL=255
Reply from 34B1:345:234:A900::1: bytes=32 time<1ms TTL=255
Reply from 34B1:345:234:A900::1: bytes=32 time<1ms TTL=255

Ping statistics for 34B1:345:234:A900::1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

PC 0 – PC2


```
C:\>ping 34b1:345:234:a901::2

Pinging 34b1:345:234:a901::2 with 32 bytes of data:

Reply from 34B1:345:234:A901::2: bytes=32 time<1ms TTL=127
Reply from 34B1:345:234:A901::2: bytes=32 time<1ms TTL=127
Reply from 34B1:345:234:A901::2: bytes=32 time<1ms TTL=127
Reply from 34B1:345:234:A901::2: bytes=32 time=14ms TTL=127

Ping statistics for 34B1:345:234:A901::2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 14ms, Average = 3ms
```
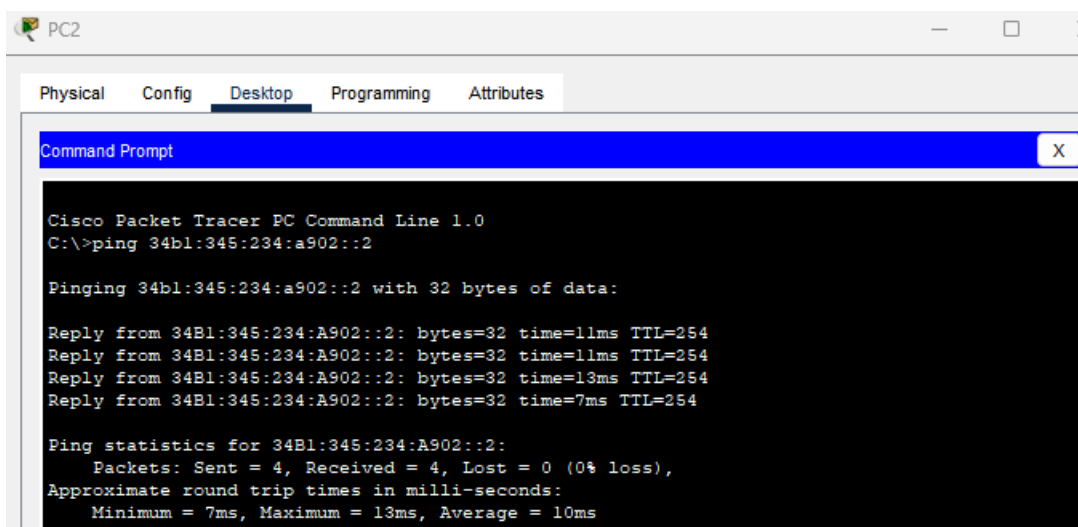
PC 0- Router 0

```
C:\>ping 34b1:345:234:a902::2

Pinging 34b1:345:234:a902::2 with 32 bytes of data:

Reply from 34B1:345:234:A902::2: bytes=32 time=13ms TTL=254
Reply from 34B1:345:234:A902::2: bytes=32 time=5ms TTL=254
Reply from 34B1:345:234:A902::2: bytes=32 time=20ms TTL=254
Reply from 34B1:345:234:A902::2: bytes=32 time=15ms TTL=254

Ping statistics for 34B1:345:234:A902::2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 5ms, Maximum = 20ms, Average = 13ms
```

PC 2- Router 0

```
PC2                                                    —   □   X

Physical    Config    Desktop    Programming    Attributes

Command Prompt                                                   X

  Cisco Packet Tracer PC Command Line 1.0
  C:\>ping 34b1:345:234:a902::2

  Pinging 34b1:345:234:a902::2 with 32 bytes of data:

  Reply from 34B1:345:234:A902::2: bytes=32 time=11ms TTL=254
  Reply from 34B1:345:234:A902::2: bytes=32 time=11ms TTL=254
  Reply from 34B1:345:234:A902::2: bytes=32 time=13ms TTL=254
  Reply from 34B1:345:234:A902::2: bytes=32 time=7ms TTL=254

  Ping statistics for 34B1:345:234:A902::2:
      Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
  Approximate round trip times in milli-seconds:
      Minimum = 7ms, Maximum = 13ms, Average = 10ms
```

PC2 -Router 1
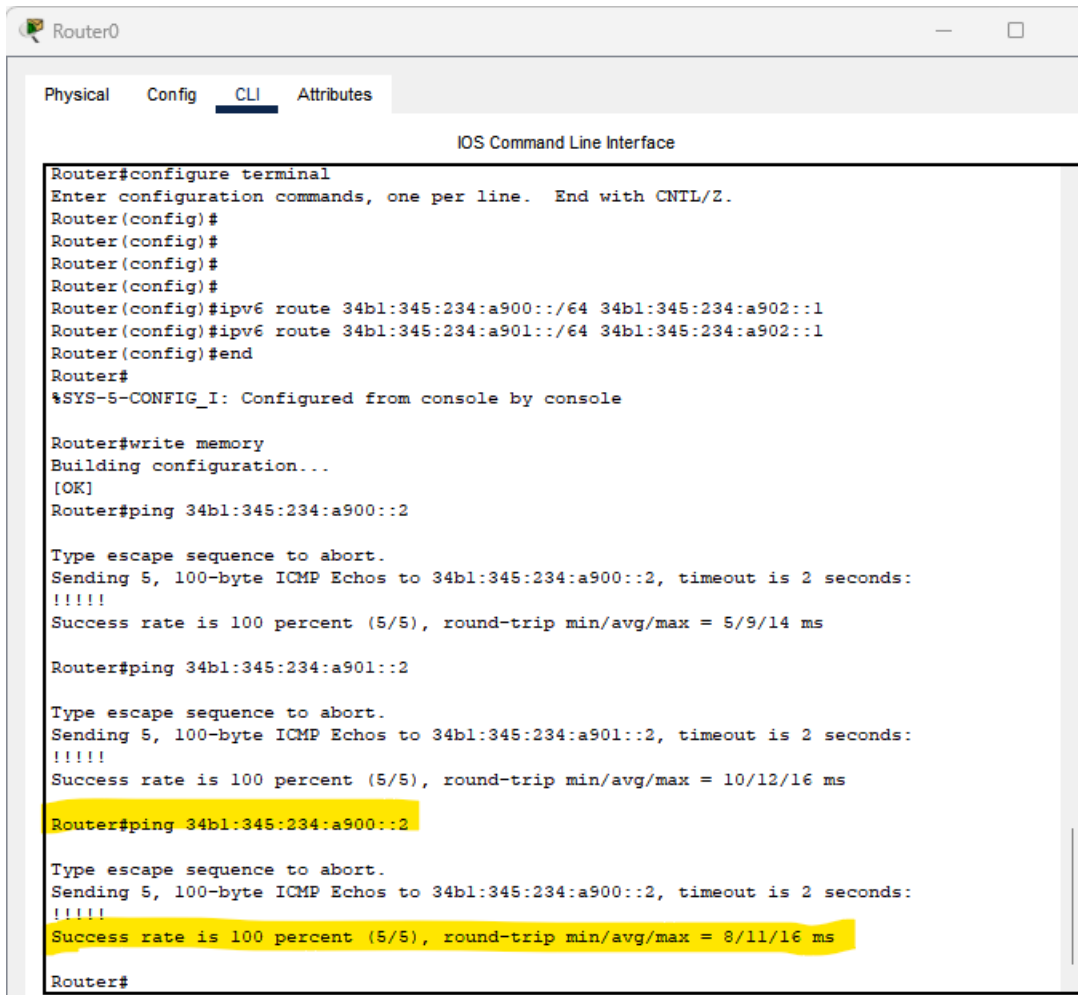
```
C:\>ping 34b1:345:234:a900::1

Pinging 34b1:345:234:a900::1 with 32 bytes of data:

Reply from 34B1:345:234:A900::1: bytes=32 time<1ms TTL=255
Reply from 34B1:345:234:A900::1: bytes=32 time<1ms TTL=255
Reply from 34B1:345:234:A900::1: bytes=32 time<1ms TTL=255
Reply from 34B1:345:234:A900::1: bytes=32 time<1ms TTL=255

Ping statistics for 34B1:345:234:A900::1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

Desde Router 0 – PC 0 - LAN A

Physical   Config   CLI   Attributes

IOS Command Line Interface

```
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#
Router(config)#
Router(config)#
Router(config)#
Router(config)#ipv6 route 34b1:345:234:a900::/64 34b1:345:234:a902::1
Router(config)#ipv6 route 34b1:345:234:a901::/64 34b1:345:234:a902::1
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#write memory
Building configuration...
[OK]
Router#ping 34b1:345:234:a900::2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 34b1:345:234:a900::2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 5/9/14 ms

Router#ping 34b1:345:234:a901::2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 34b1:345:234:a901::2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 10/12/16 ms

Router#ping 34b1:345:234:a900::2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 34b1:345:234:a900::2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 8/11/16 ms

Router#
```

Desde Router 0 – PC2 LAN B

Physical   Config   CLI   Attributes

IOS Command Line Interface

```
Router(config)#ipv6 route 34b1:345:234:a901::/64 34b1:345:234:a902::1
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#write memory
Building configuration...
[OK]
Router#ping 34b1:345:234:a900::2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 34b1:345:234:a900::2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 5/9/14 ms

Router#ping 34b1:345:234:a901::2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 34b1:345:234:a901::2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 10/12/16 ms

Router#ping 34b1:345:234:a900::2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 34b1:345:234:a900::2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 8/11/16 ms

Router#ping 34b1:345:234:a901::2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 34b1:345:234:a901::2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 7/8/11 ms

Router#
```

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