

Actividad | 2 | Administración de Redes y Servidores

Calculando direcciones

Ingeniería en Desarrollo de Software



TUTOR: Marco Alonso Rodríguez Tapia

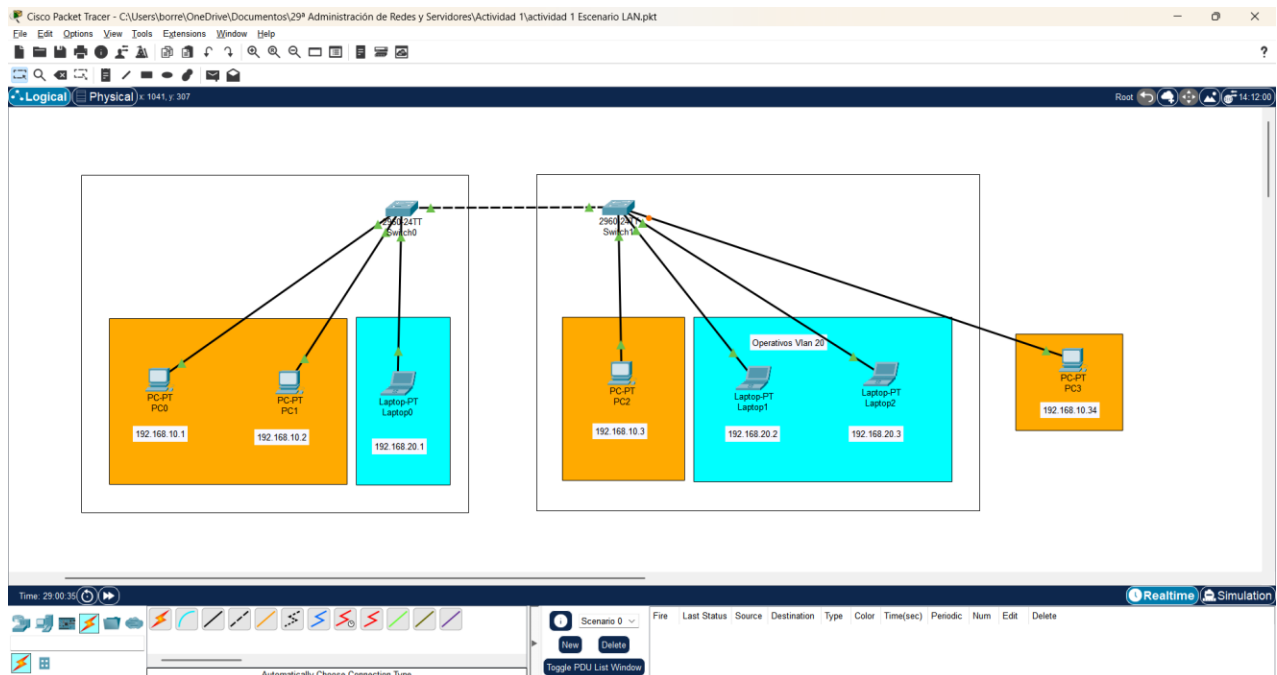
ALUMNO: Juan Carlos Legorreta Ramos

FECHA: 12-11-2025

Índice

Creación de escenario.....	1
Comandos utilizados.....	1
Capturas de pantalla.....	6
Conclusión.....	19

Creación de escenario



Comandos utilizados

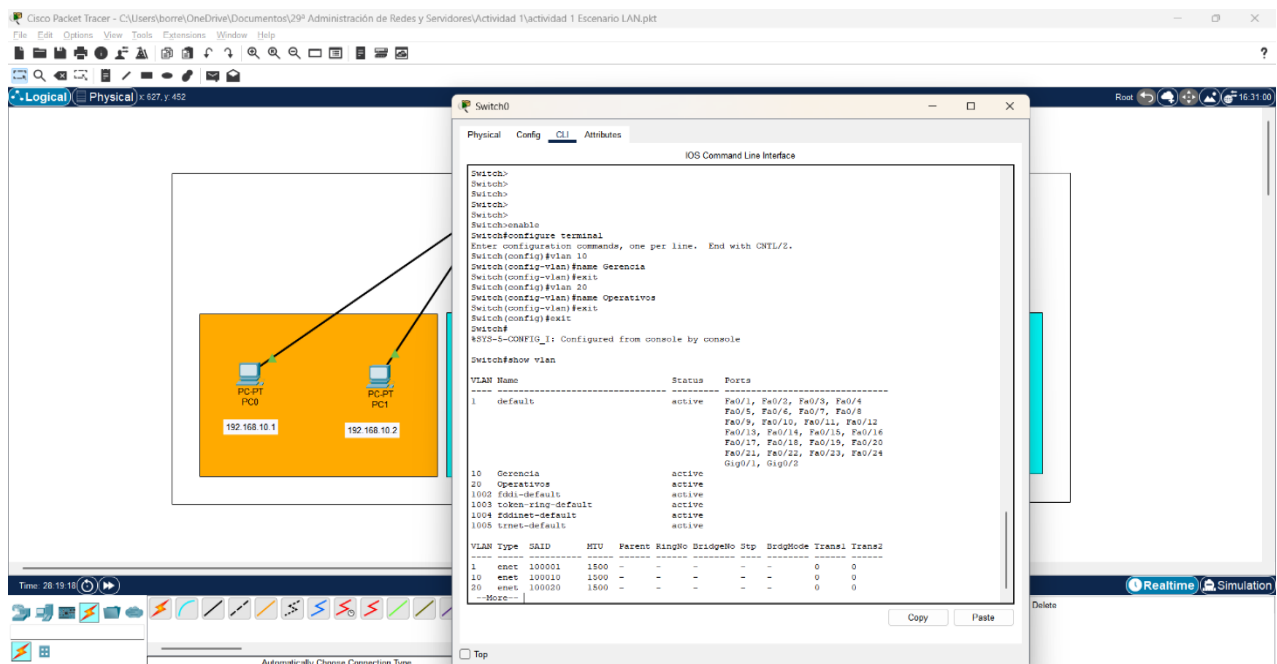
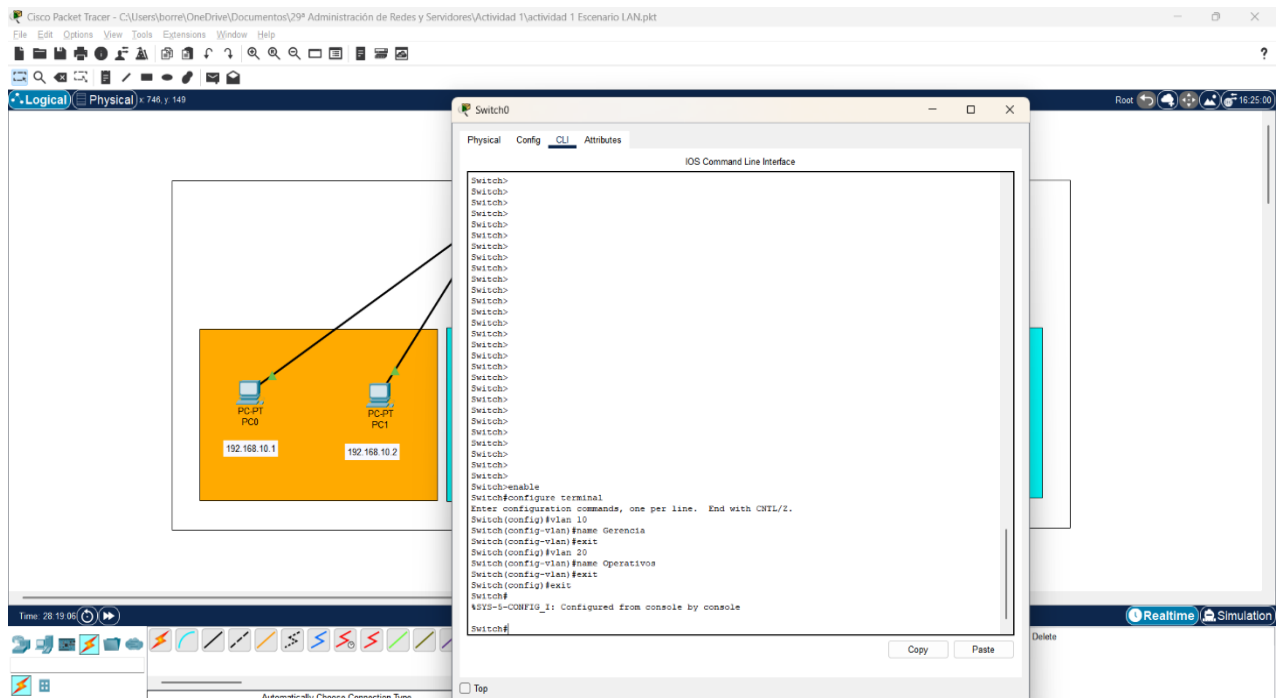
Comandos para crear Vlan en switch:

1. enable
2. configure terminal
3. Vlan 10
4. name "Gerencia"
5. exit

y

1. enable
2. configure terminal
3. Vlan 20
4. name "Operativos"
5. exit

Esto para cada uno de los SWITCH



Comandos para asignar un puerto Vlan:

Switch0

1. enable
2. configure terminal
3. interface fastethernet 0/1
4. switchport mode access
5. switchport access vlan 10
6. exit
7. interface fastethernet 0/2
8. switchport mode Access
9. switchport access vlan 10
10. exit
11. interface fastethernet 0/3
12. switchport mode Access
13. switchport access vlan 20
14. exit

The screenshot shows a Cisco IOS CLI window with the title bar "Switch0" and standard window controls. The window has three tabs: "Physical", "Config", and "CLI", with "CLI" being the active tab. The main content area displays the following text:

```
Switch(config-if)#switchport access vlan 10
Switch(config-if)#
Switch(config-if)#exit
Switch(config)#
Switch(config)#
Switch(config)#interface fastethernet 0/2
Switch(config-if)#
Switch(config-if)#switchport mode access
Switch(config-if)#
Switch(config-if)#switchport access vlan 10
Switch(config-if)#
Switch(config-if)#exit
Switch(config)#interface fastethernet 0/3
Switch(config-if)#
Switch(config-if)#switchport mode access
Switch(config-if)#
Switch(config-if)#switchport access vlan 20
Switch(config-if)#
Switch(config-if)#exit
Switch(config)#exit
Switch#
$SYS-5-CONFIG_I: Configured from console by console
show vlan
```

The output of the "show vlan" command is displayed in two tables. The first table shows VLAN status and associated ports, and the second table shows detailed VLAN configuration.

VLAN	Name	Status	Ports
1	default	active	Fa0/4, Fa0/5, Fa0/6, Fa0/7 Fa0/8, Fa0/9, Fa0/10, Fa0/11 Fa0/12, Fa0/13, Fa0/14, Fa0/15 Fa0/16, Fa0/17, Fa0/18, Fa0/19 Fa0/20, Fa0/21, Fa0/22, Fa0/23 Fa0/24, Gig0/1, Gig0/2
10	Gerencia	active	Fa0/1, Fa0/2
20	Operativos	active	Fa0/3
1002	fdi-default	active	
1003	token-ring-default	active	
1004	fdiinet-default	active	
1005	trnet-default	active	

VLAN	Type	SAID	MTU	Parent	RingNo	BridgeNo	Stp	BridgMode	Transl	Trans2
1	enet	100001	1500	-	-	-	-	-	0	0
10	enet	100010	1500	-	-	-	-	-	0	0
20	enet	100020	1500	-	-	-	-	-	0	0
1002	fdi	101002	1500	-	-	-	-	-	0	0

Below the second table, the text "--More--" is visible. At the bottom of the window, there are two buttons: "Copy" and "Paste".

Switch1

1. enable
2. configure terminal
3. interface fastethernet 0/1
4. switchport mode access
5. switchport access vlan 10
6. exit
7. interface fastethernet 0/2
8. switchport mode Access
9. switchport access vlan 20
10. exit
11. interface fastethernet 0/3
12. switchport mode Access
13. switchport access vlan 20
14. exit
15. interface fastethernet 0/20
16. switchport mode Access
17. switchport access vlan 10
18. exit

```
Switch1
Physical  Config  CLI  Attributes
IOS Command Line Interface

Switch(config-if)#exit
Switch(config)#interface fastethernet 0/2
Switch(config-if)#
Switch(config-if)#switchport mode access
Switch(config-if)#
Switch(config-if)#switchport access vlan 20
Switch(config-if)#
Switch(config-if)#exit
Switch(config)#interface fastethernet 0/3
Switch(config-if)#
Switch(config-if)#switchport mode access
Switch(config-if)#
Switch(config-if)#switchport access vlan 20
Switch(config-if)#
Switch(config-if)#exit
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console
show vlan

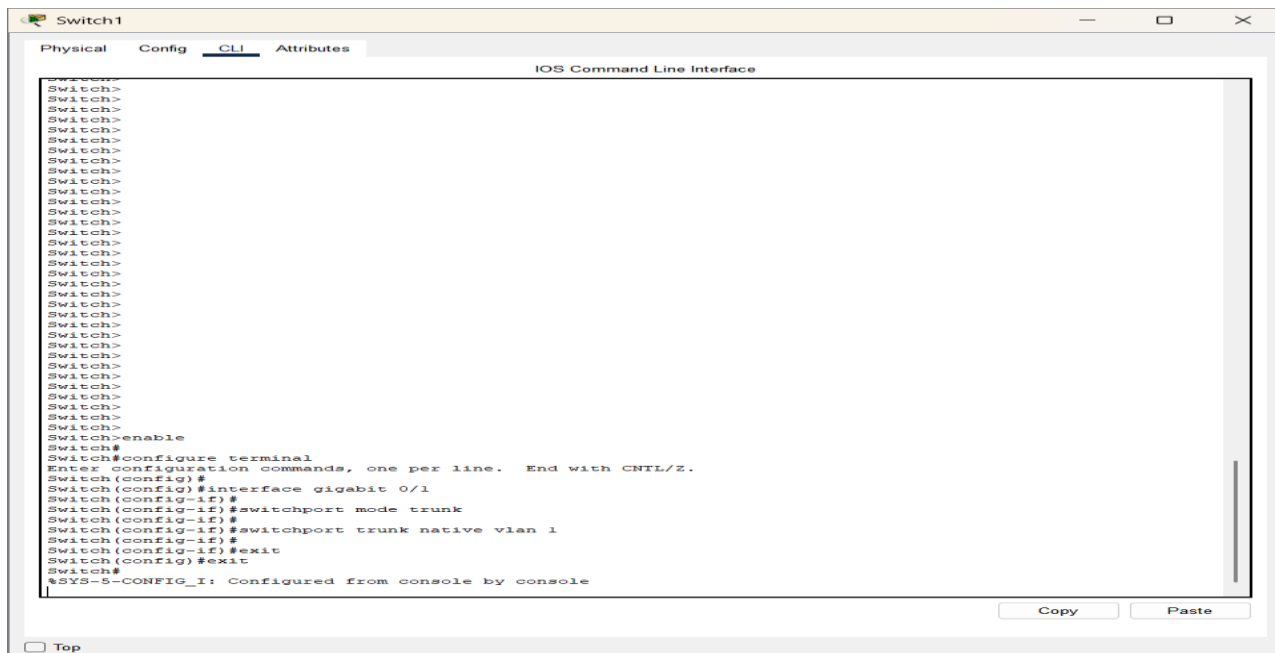
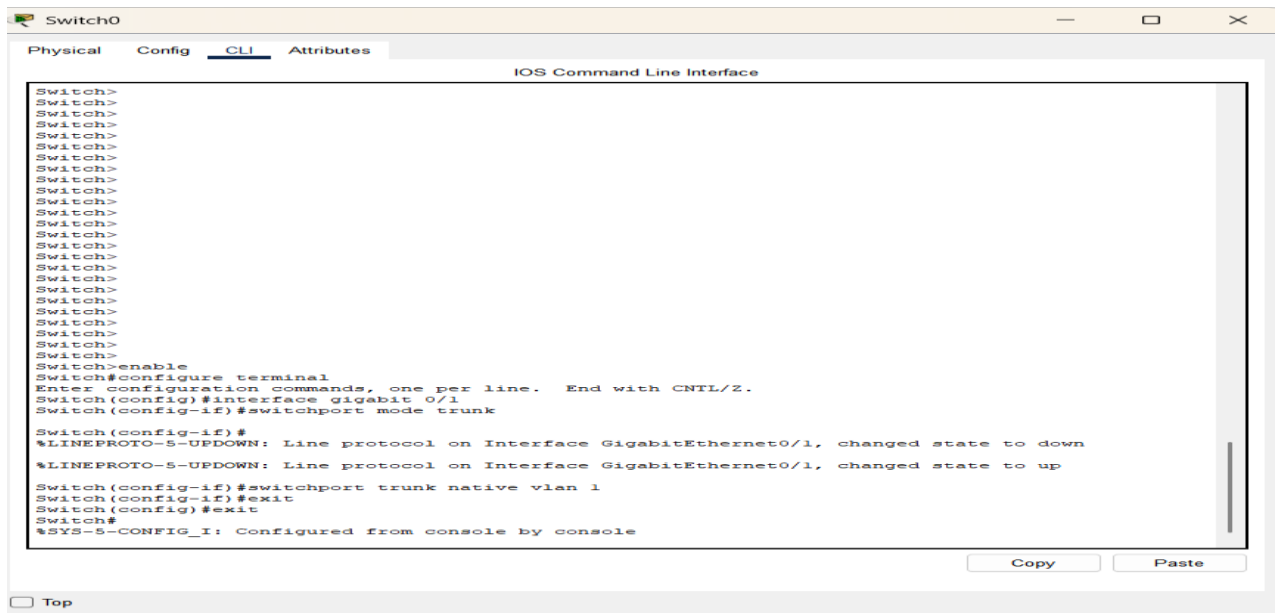
VLAN Name      Status      Ports
----
1    default    active     Fa0/4, Fa0/5, Fa0/6, Fa0/7
                                           Fa0/8, Fa0/9, Fa0/10, Fa0/11
                                           Fa0/12, Fa0/13, Fa0/14, Fa0/15
                                           Fa0/16, Fa0/17, Fa0/18, Fa0/19
                                           Fa0/20, Fa0/21, Fa0/22, Fa0/23
                                           Fa0/24, Giga0/1, Giga0/2

10   Gerencia   active     Fa0/1
20   Operativos active     Fa0/2, Fa0/3
1002 fddi-default active
1003 token-ring-default active
1004 fddinet-default active
1005 trnet-default active

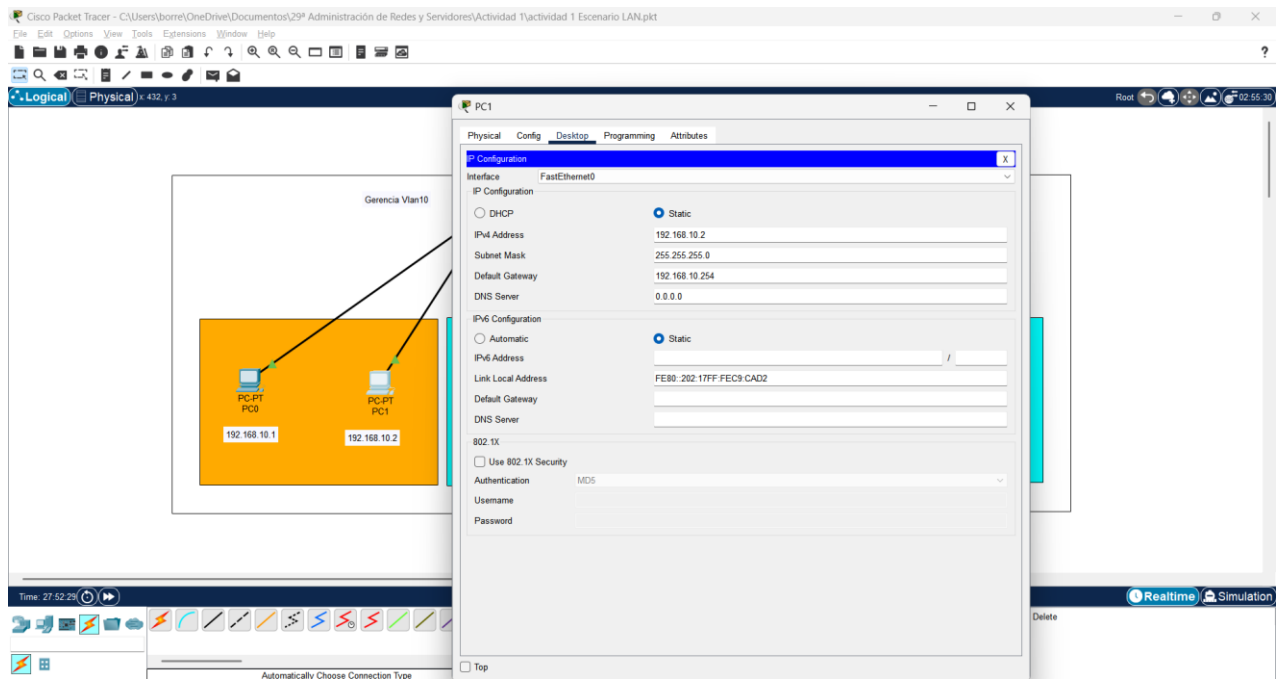
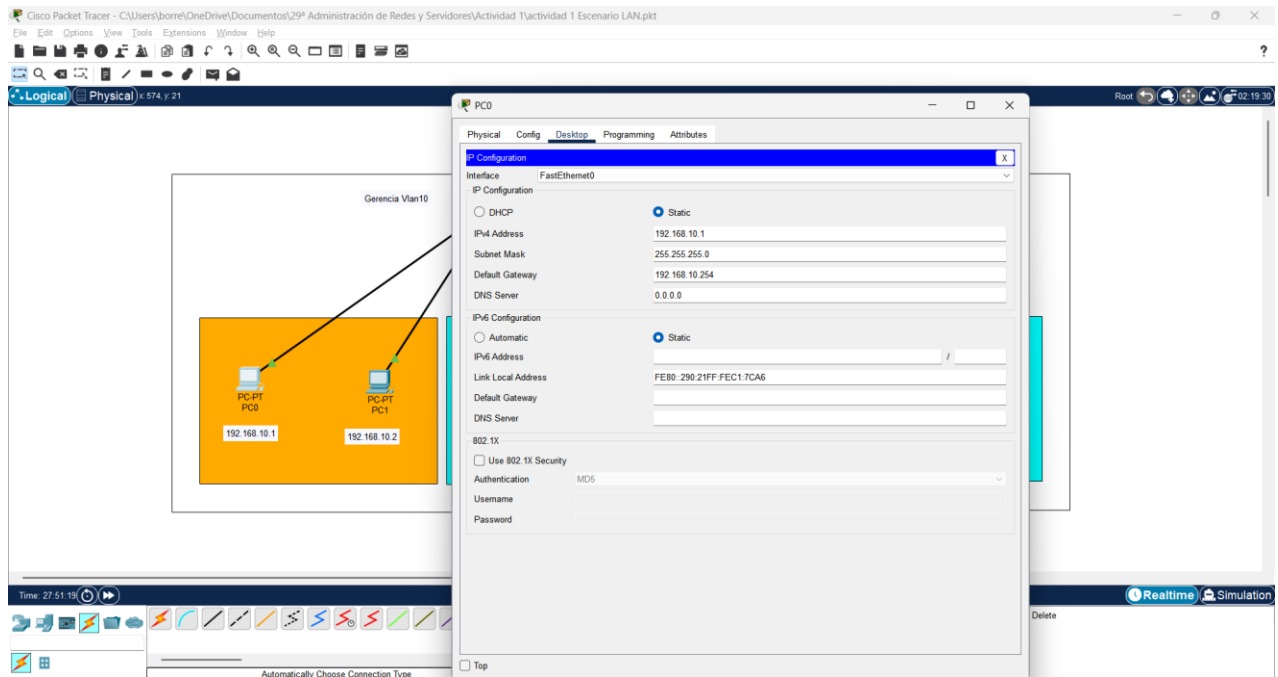
VLAN Type  SAID      MTU    Parent RingNo BridgeNo Stp  BldgMode Trans1 Trans2
----
1    enet  100001    1500   -      -      -      -      0        0
10   enet  100010    1500   -      -      -      -      0        0
20   enet  100020    1500   -      -      -      -      0        0
1002 fddi  101002    1500   -      -      -      -      0        0
--More--
```

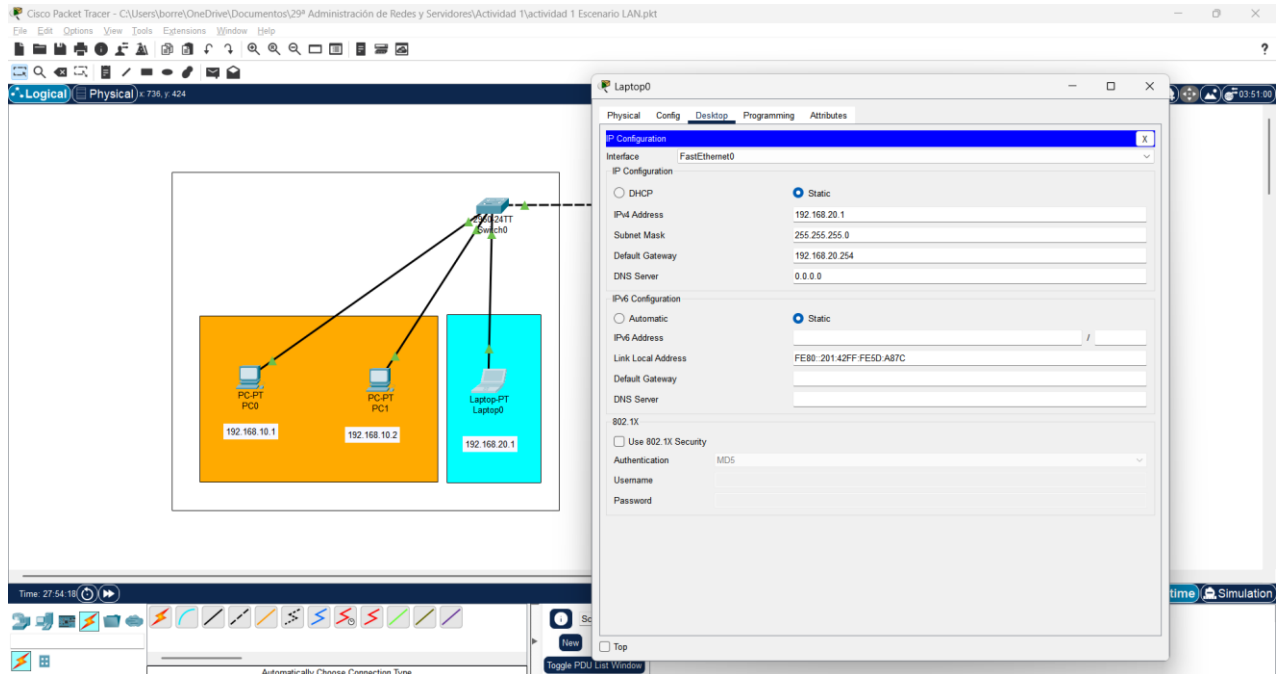
Comandos para los puertos de switch a switch:

1. enable
2. configure terminal
3. interface Gigabit 0/1
4. switchport mode trunk
5. switchport trunk native vlan 1
6. exit

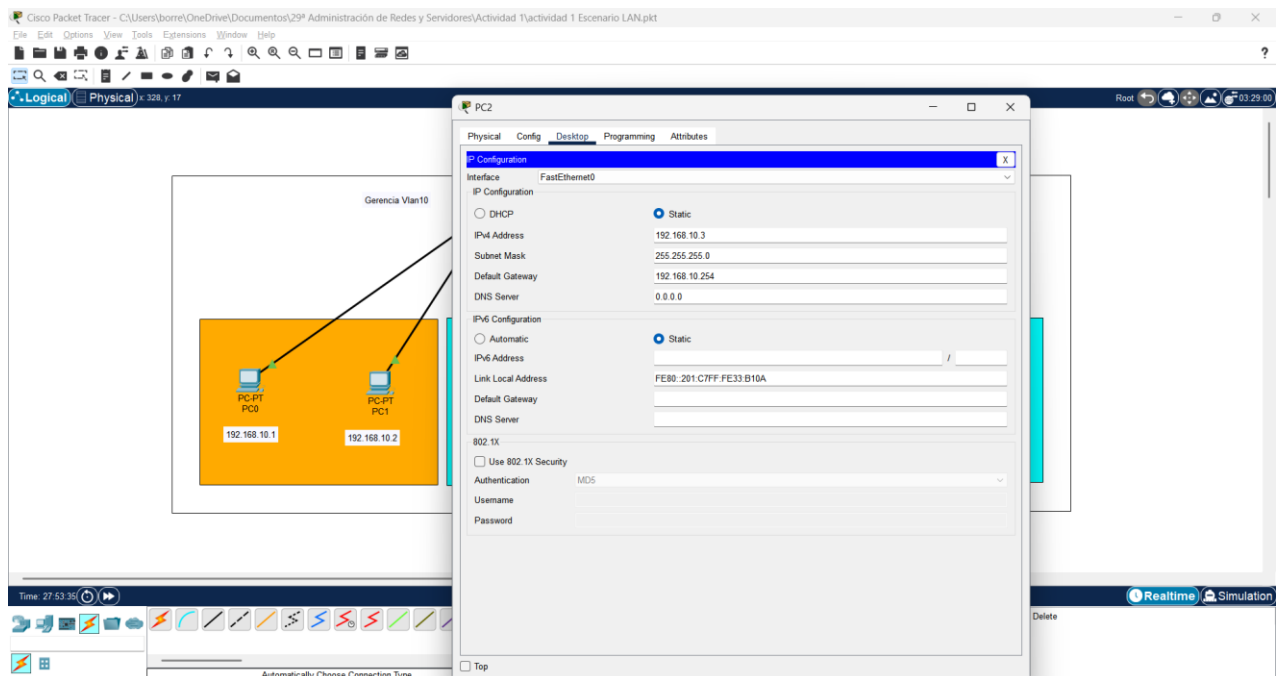


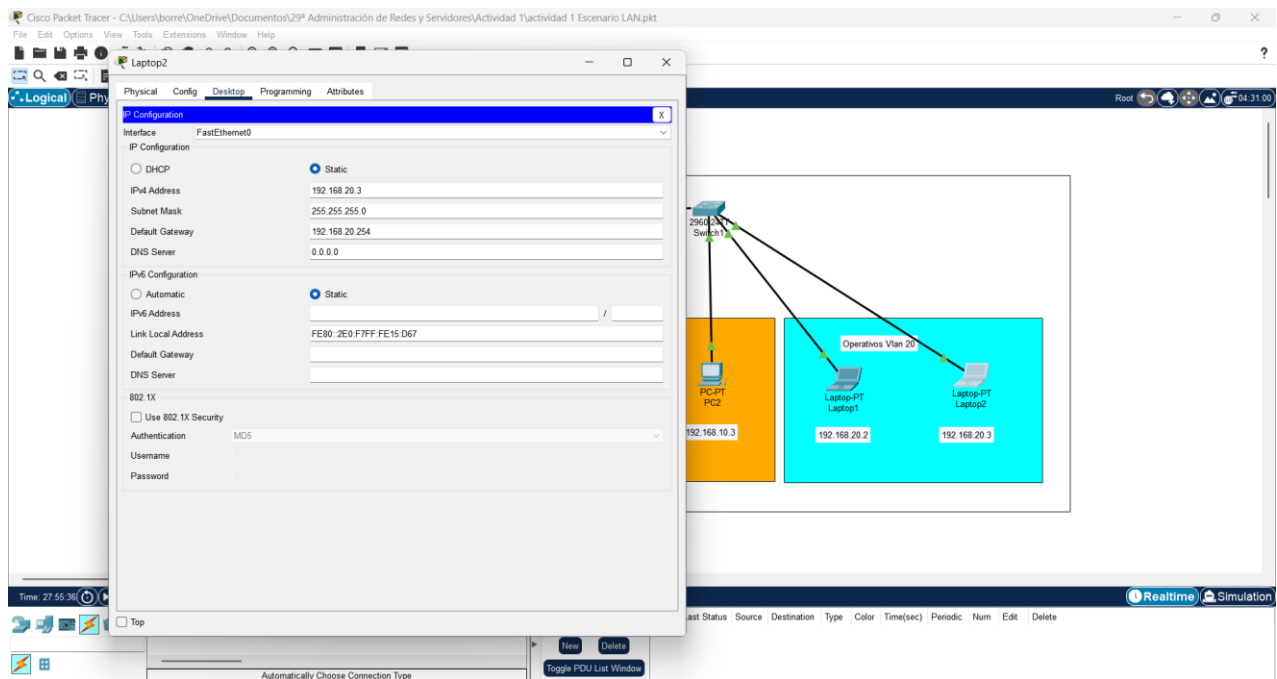
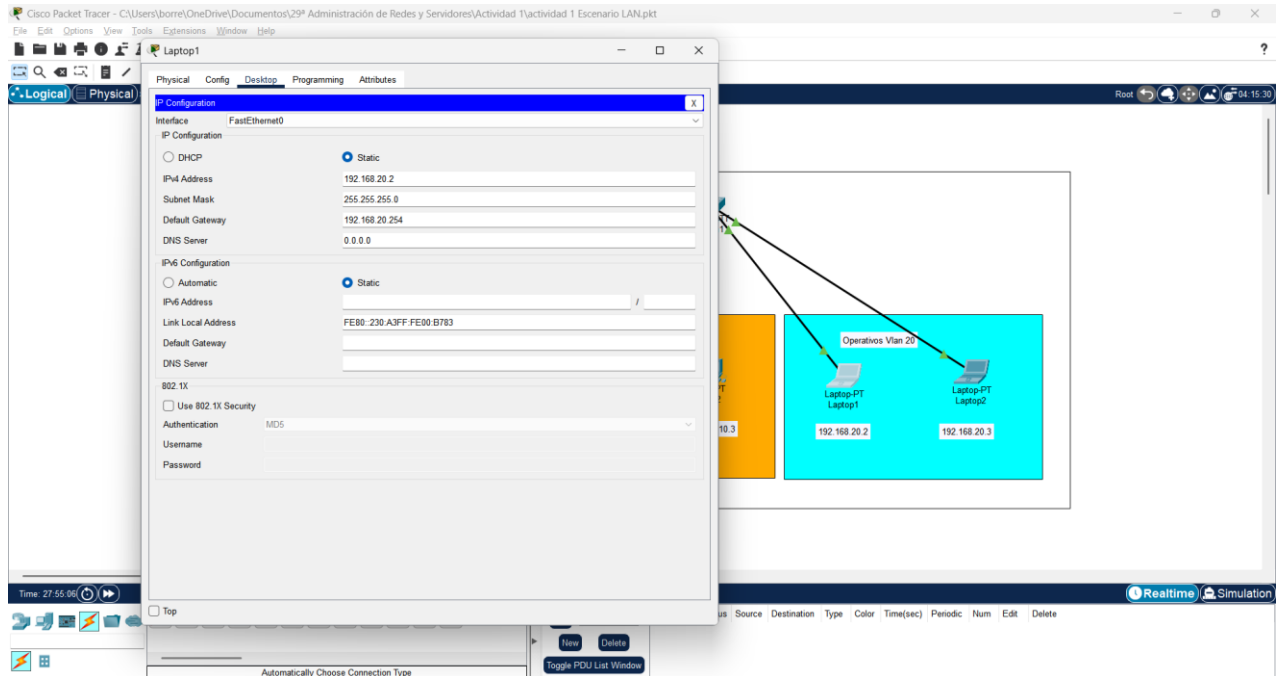
Capturas de pantalla





Aquí estaremos verificando las IP de cada una de las CP y Laptops de SWICHT0 siendo
192.168.10.1, 192.168.10.2, 192.168.20.1





De igual manera se revisarán las IP de los PC y Laptops de SWICHT1 teniendo 192.168.10.3, 192.168.20.2, 192.168.20.3

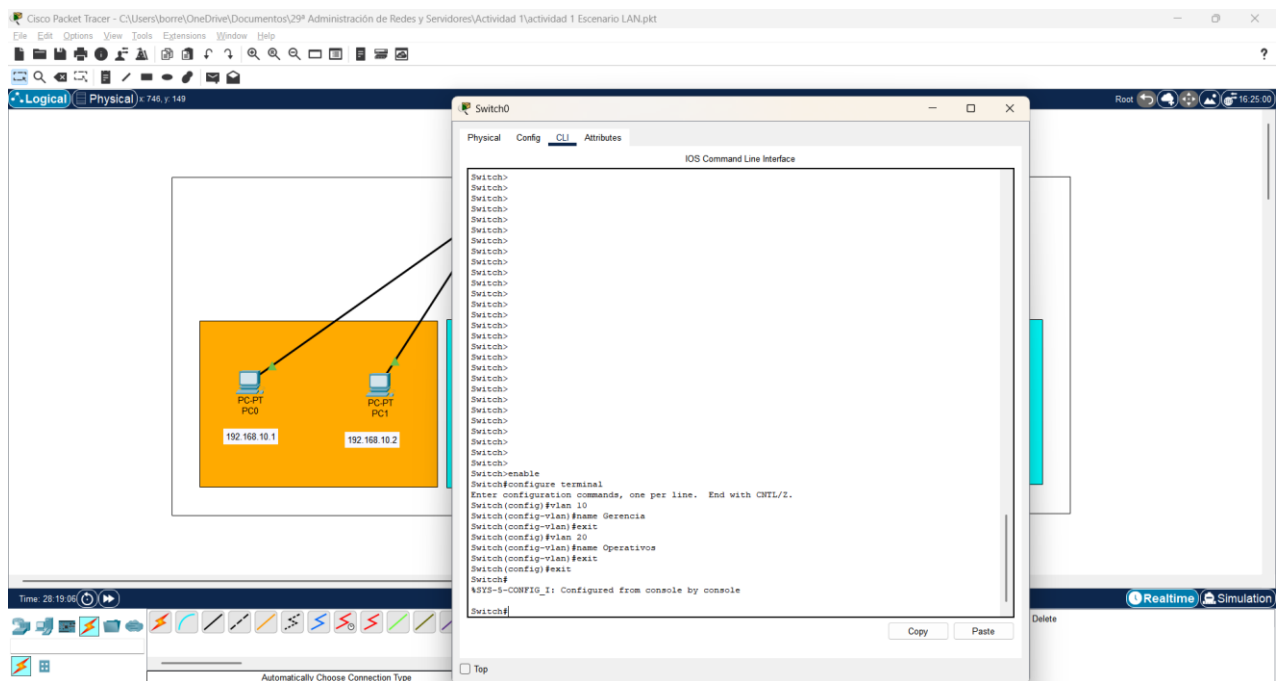
En esta parte le estaremos dando una dirección IP y una puerta de enlace a cada uno de los dispositivos siendo los clientes

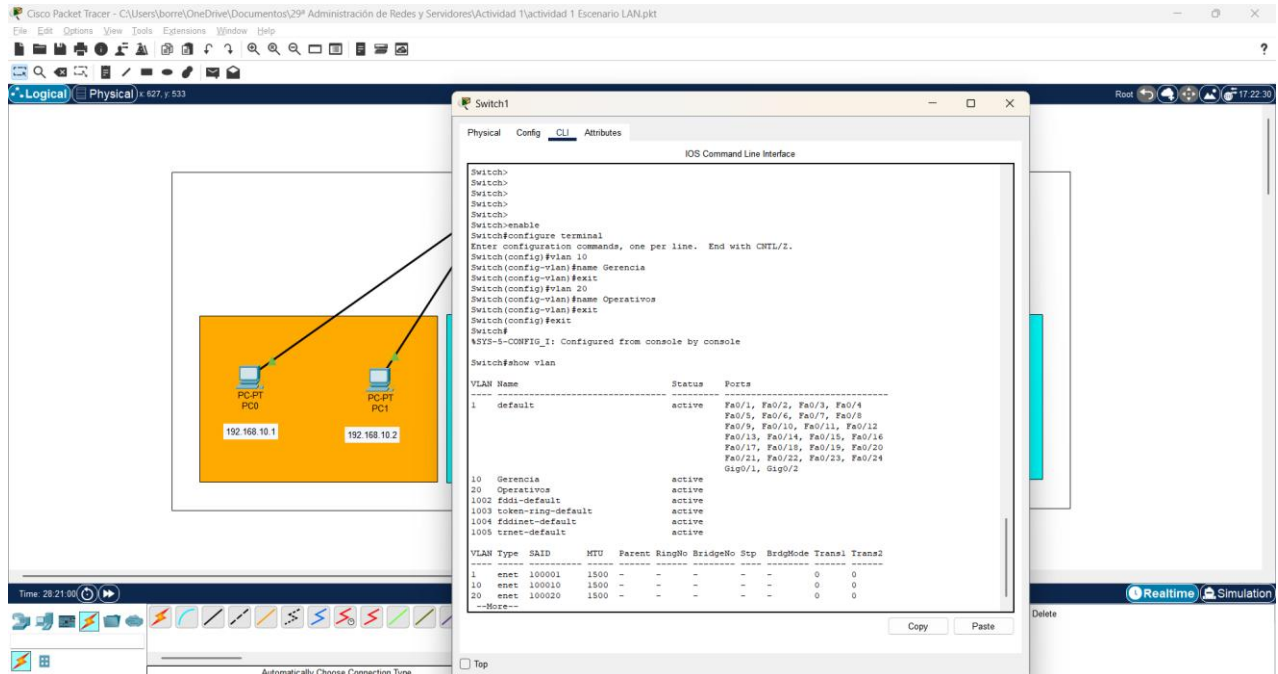
SWITCH0

1. PC0: 192.168.10.1 / 192.169.10.254
2. PC1: 192.168.10.2 / 192.169.10.254
3. Laptop0: 192.168.20.1 / 192.169.20.254

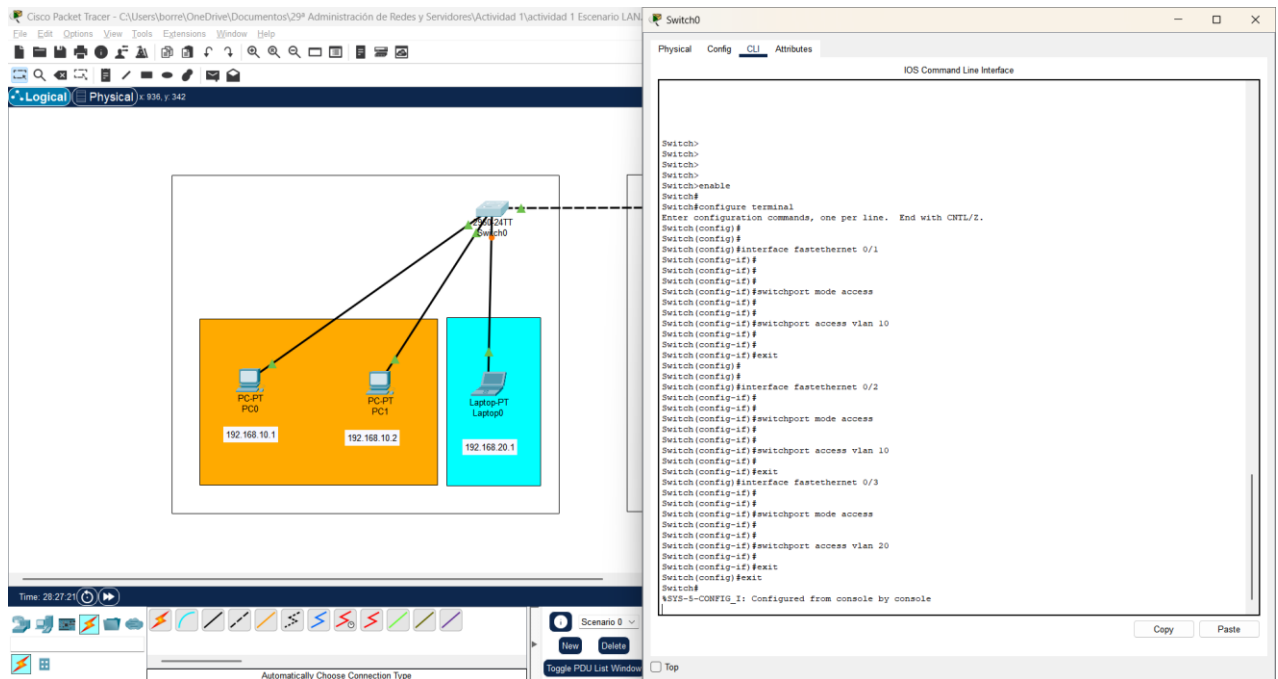
SWITCH1

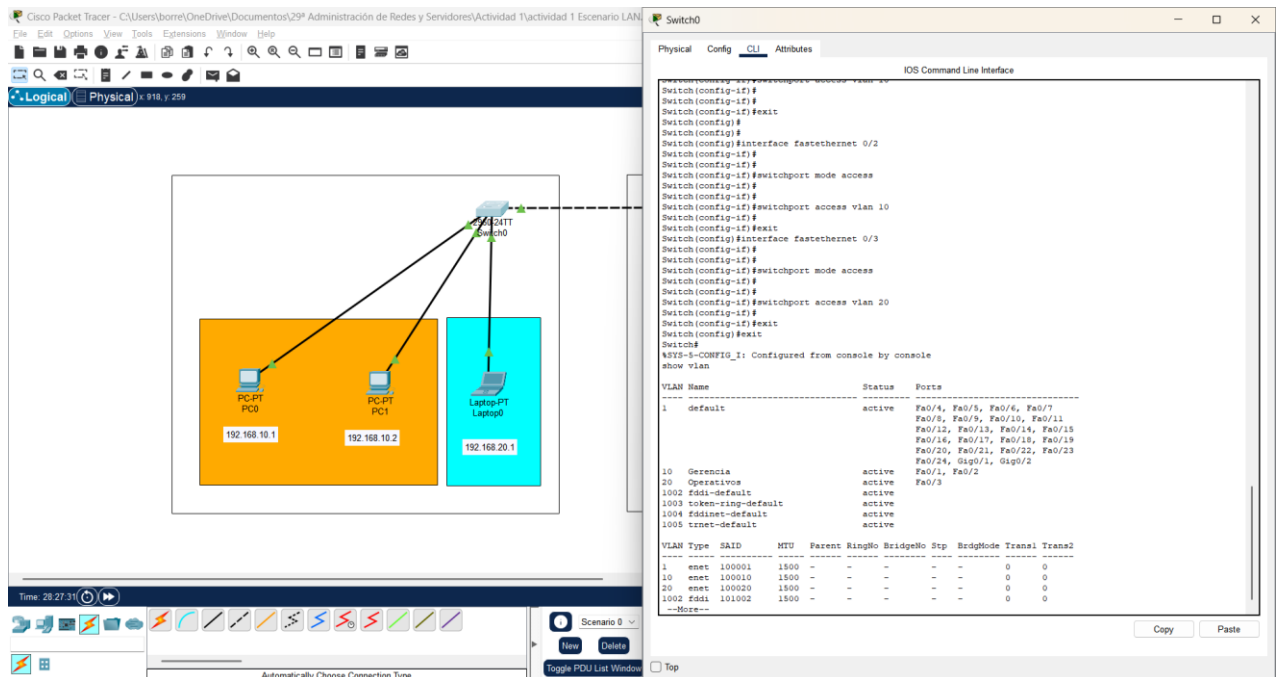
1. PC2: 192.168.10.3 / 192.169.10.254
2. Laptop1: 192.168.20.2 / 192.169.20.254
3. Laptop2: 192.168.20.3 / 192.169.20.254





Como vimos se estarán creando dos Vlan siendo la 10 y la 20 al igual que darles un nombre descriptivo Gerencia y Operativos.





La utilización del **comando interface fastethernet 0/1, interface fastethernet 0/2, interface fastethernet 0/3** nos permitirá seleccionar en que puerto vamos a trabajar.

El comando **switchport mode Access** asignará que este puerto solo le pertenecerá a un vlan siendo el segundo comando **switchport access vlan 10, switchport access vlan 20** marcanos aque puerto pertenecerá ya sea el 10 o 20.

Lo que en resumen seria que cada PC o laptop se conecta al switch y forme parte ala vlan correcta

En el caso seria esta la representación correcta:

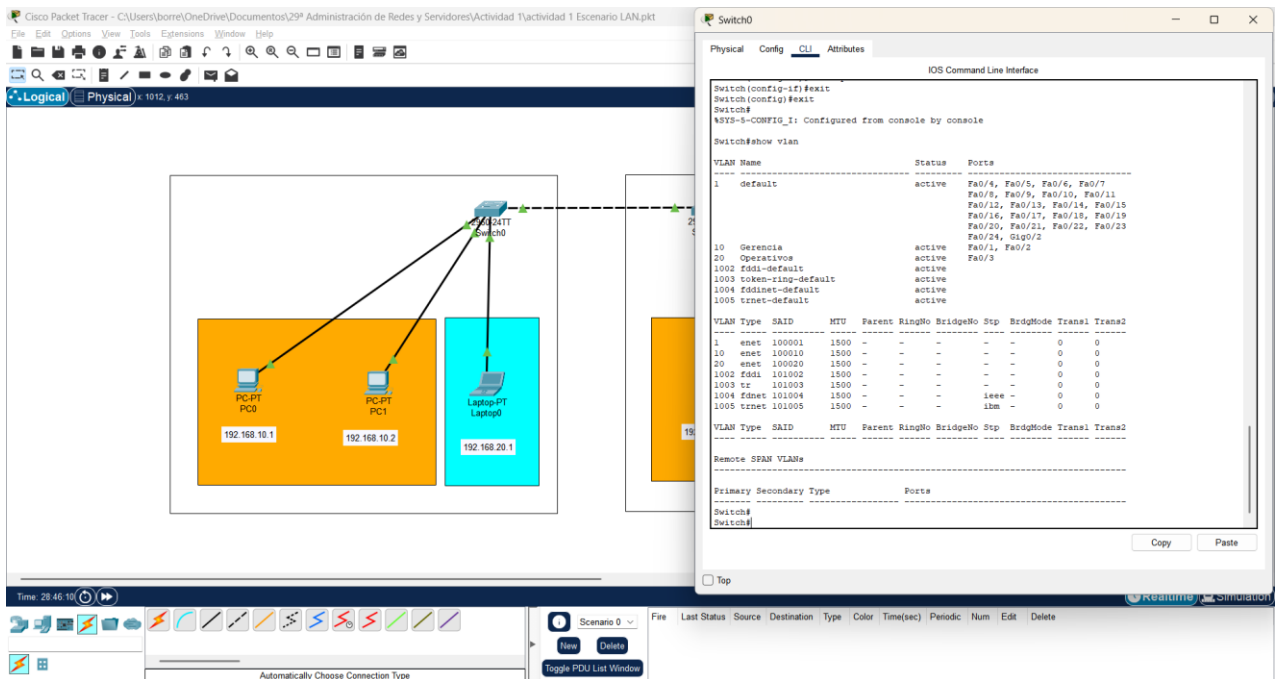
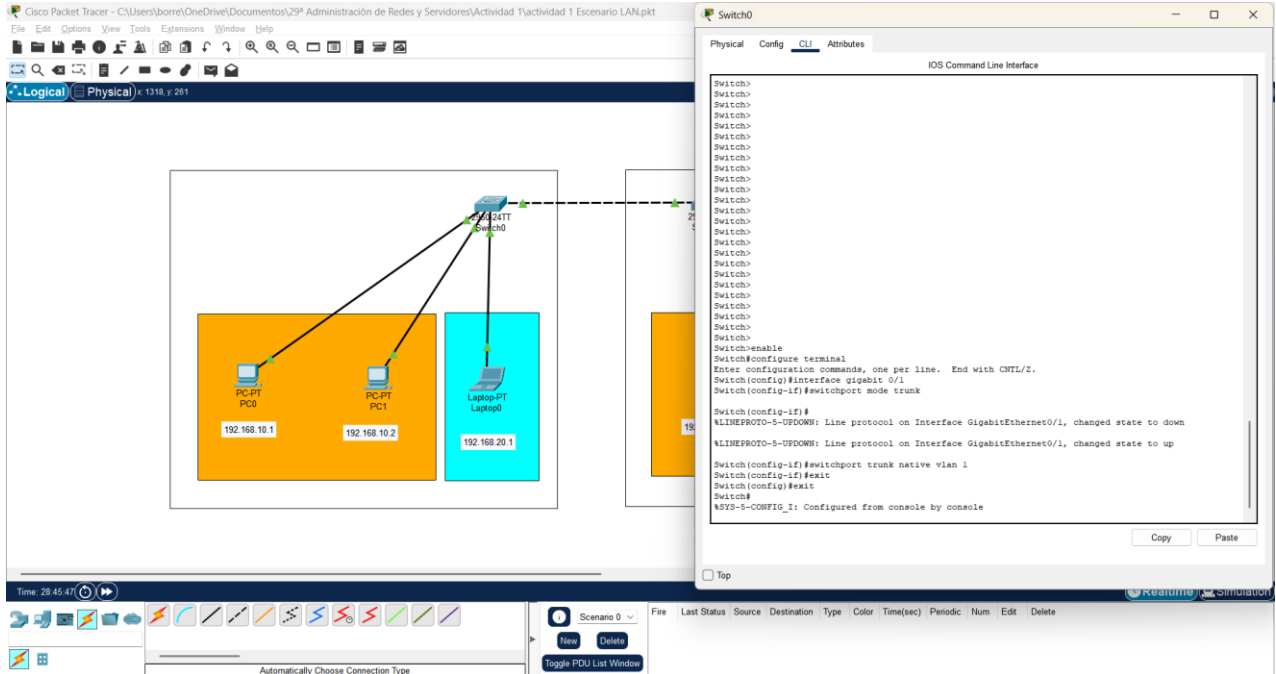
Switch0

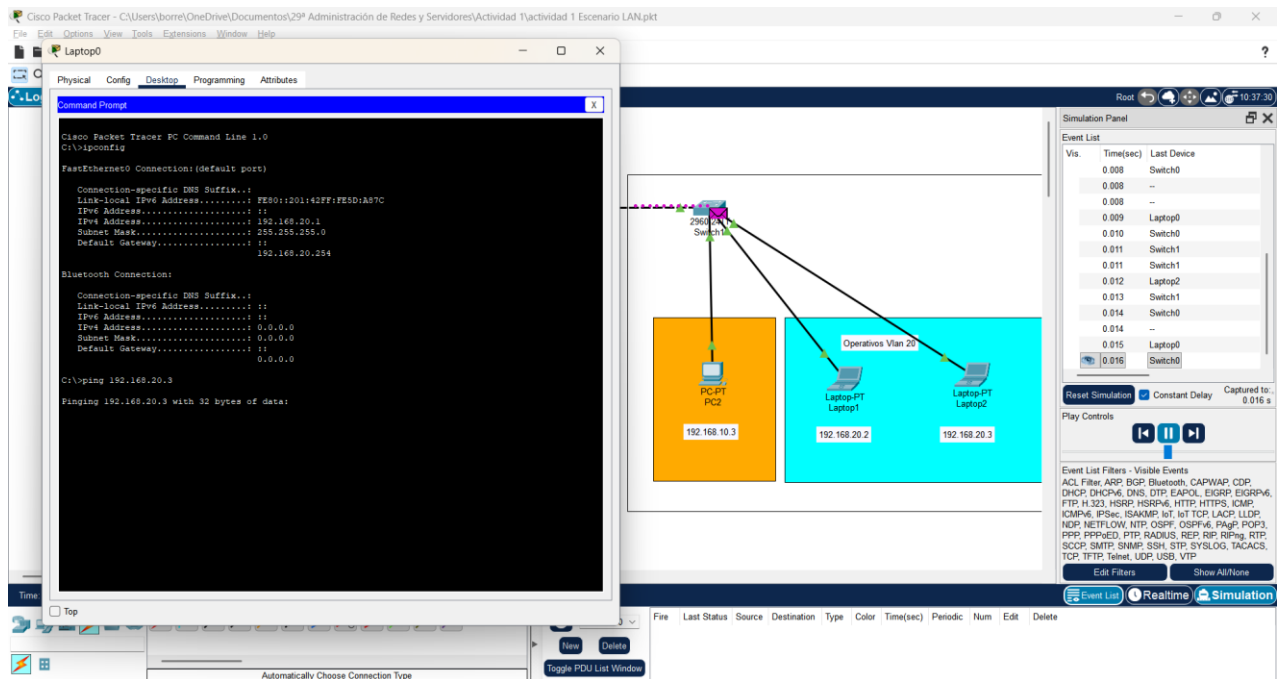
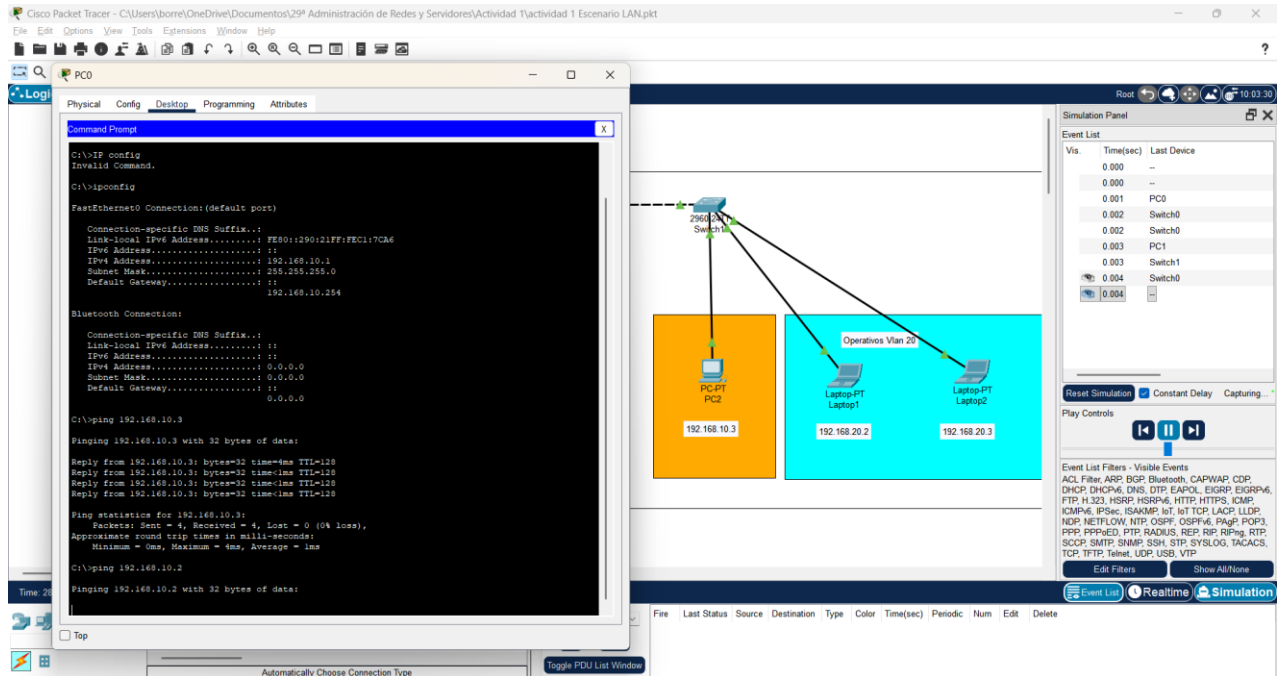
1. Puertos 0/1 y 0/2 PC de Gerencia Vlan 10
2. Puerto 0/3 PC de OperativosS Vlan20

Switch1

1. Puertos 0/1 PC de Gerencia Vlan10

2. Puerto 0/2 0/3 PC de Operativos Vlan20





Estaremos mandando ping a IP para asegurar la correcta configuración.

Cisco Packet Tracer - C:\Users\borre\OneDrive\Documents\29ª Administración de Redes y Servidores\Actividad 1\Actividad 1 Escenario LAN.pkt

File Edit Options View Tools Extensions Window Help

Logical Physical 730 y 155 Root 11:04:00

Device Name: Switch0
Custom Device Model: 2960 IOS15
Hostname: Switch

Port	Link	VLAN	IP Address	MAC Address
FastEthernet0/1	Up	10	--	0009.7C71.0901
FastEthernet0/2	Up	10	--	0009.7C71.0902
FastEthernet0/3	Up	20	--	0009.7C71.0903
FastEthernet0/4	Down	1	--	0009.7C71.0904
FastEthernet0/5	Down	1	--	0009.7C71.0905
FastEthernet0/6	Down	1	--	0009.7C71.0906
FastEthernet0/7	Down	1	--	0009.7C71.0907
FastEthernet0/8	Down	1	--	0009.7C71.0908
FastEthernet0/9	Down	1	--	0009.7C71.0909
FastEthernet0/10	Down	1	--	0009.7C71.090A
FastEthernet0/11	Down	1	--	0009.7C71.090B
FastEthernet0/12	Down	1	--	0009.7C71.090C
FastEthernet0/13	Down	1	--	0009.7C71.090D
FastEthernet0/14	Down	1	--	0009.7C71.090E
FastEthernet0/15	Down	1	--	0009.7C71.090F
FastEthernet0/16	Down	1	--	0009.7C71.0910
FastEthernet0/17	Down	1	--	0009.7C71.0911
FastEthernet0/18	Down	1	--	0009.7C71.0912
FastEthernet0/19	Down	1	--	0009.7C71.0913
FastEthernet0/20	Down	1	--	0009.7C71.0914
FastEthernet0/21	Down	1	--	0009.7C71.0915
FastEthernet0/22	Down	1	--	0009.7C71.0916
FastEthernet0/23	Down	1	--	0009.7C71.0917
FastEthernet0/24	Down	1	--	0009.7C71.0918
GigabitEthernet0/1	Up	--	--	0009.7C71.0919
GigabitEthernet0/2	Down	1	--	0009.7C71.091A
Vlan1	Down	1	<not set>	0000.0A0D.7213

Physical Location: Intercity > Home City > Corporate Office > Main Wiring Closet > Rack > Switch0

Time: 28:54:26

Scenario 0

Fire Last Status Source Destination Type Color Time(sec) Periodic Num Edit Delete

Toggle PDU List Window

Automatically Choose Connection Type

Cisco Packet Tracer - C:\Users\borre\OneDrive\Documents\29ª Administración de Redes y Servidores\Actividad 1\Actividad 1 Escenario LAN.pkt

File Edit Options View Tools Extensions Window Help

Logical Physical 1050 y 152 Root 11:07:30

Device Name: Switch1
Custom Device Model: 2960 IOS15
Hostname: Switch

Port	Link	VLAN	IP Address	MAC Address
FastEthernet0/1	Up	10	--	00E0.F79C.0301
FastEthernet0/2	Up	20	--	00E0.F79C.0302
FastEthernet0/3	Up	20	--	00E0.F79C.0303
FastEthernet0/4	Down	1	--	00E0.F79C.0304
FastEthernet0/5	Down	1	--	00E0.F79C.0305
FastEthernet0/6	Down	1	--	00E0.F79C.0306
FastEthernet0/7	Down	1	--	00E0.F79C.0307
FastEthernet0/8	Down	1	--	00E0.F79C.0308
FastEthernet0/9	Down	1	--	00E0.F79C.0309
FastEthernet0/10	Down	1	--	00E0.F79C.030A
FastEthernet0/11	Down	1	--	00E0.F79C.030B
FastEthernet0/12	Down	1	--	00E0.F79C.030C
FastEthernet0/13	Down	1	--	00E0.F79C.030D
FastEthernet0/14	Down	1	--	00E0.F79C.030E
FastEthernet0/15	Down	1	--	00E0.F79C.030F
FastEthernet0/16	Down	1	--	00E0.F79C.0310
FastEthernet0/17	Down	1	--	00E0.F79C.0311
FastEthernet0/18	Down	1	--	00E0.F79C.0312
FastEthernet0/19	Down	1	--	00E0.F79C.0313
FastEthernet0/20	Down	1	--	00E0.F79C.0314
FastEthernet0/21	Down	1	--	00E0.F79C.0315
FastEthernet0/22	Down	1	--	00E0.F79C.0316
FastEthernet0/23	Down	1	--	00E0.F79C.0317
FastEthernet0/24	Down	1	--	00E0.F79C.0318
GigabitEthernet0/1	Up	--	--	00E0.F79C.0319
GigabitEthernet0/2	Down	1	--	00E0.F79C.031A
Vlan1	Down	1	<not set>	000C.8569.ACAB

Physical Location: Intercity > Home City > Corporate Office > Main Wiring Closet > Rack > Switch1

Time: 28:54:30

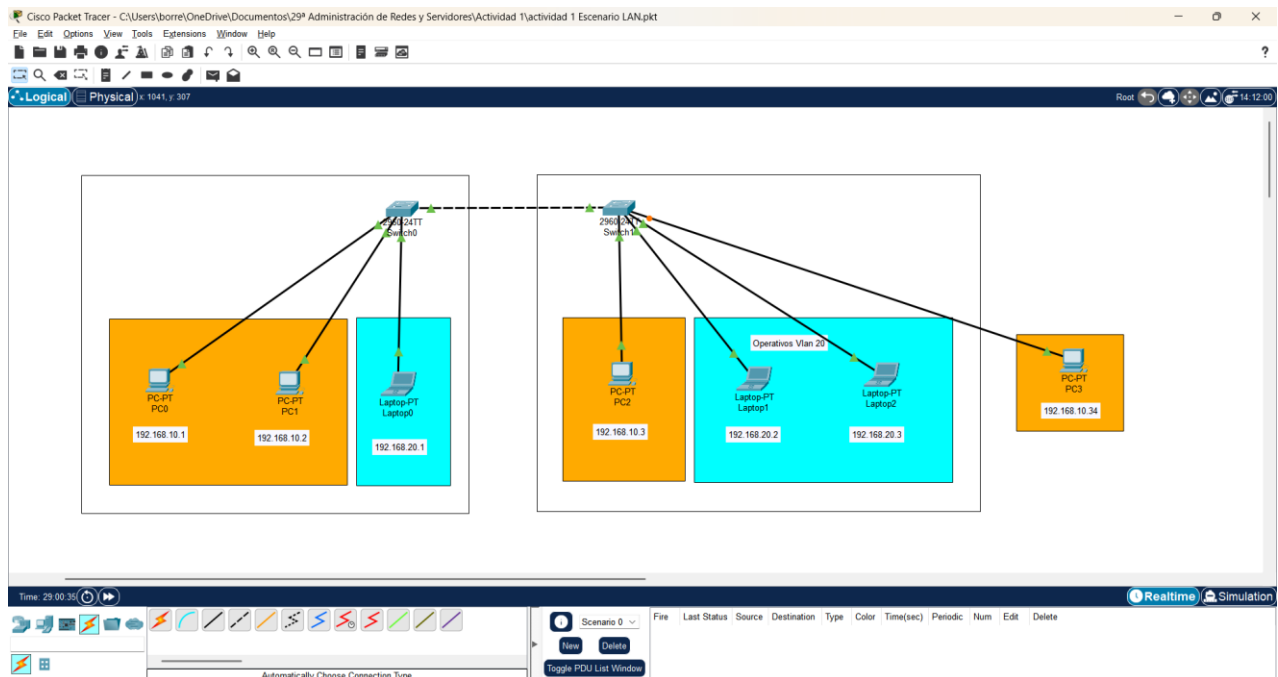
Scenario 0

Fire Last Status Source Destination Type Color Time(sec) Periodic Num Edit Delete

Toggle PDU List Window

Automatically Choose Connection Type

Vemos como es que quedo organizada los puertos.



Crearemos una nueva PC la cual nos demostrara como al no tener una configuración del puerto con la vlan asignada no permitirá una conexión con las demás de la misma Vlan 10

```

Cisco Packet Tracer PC Command Line 1.0
C:\>ipconfig

FastEthernet0 Connection: (default port)

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address...: FE80::201:97FF:FEB7:9E53
    IPv6 Address...: ::
    IPv4 Address...: 192.168.10.34
    Subnet Mask...: 255.255.255.0
    Default Gateway...: ::

Bluetooth Connection:

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address...: ::
    IPv6 Address...: ::
    IPv4 Address...: 0.0.0.0
    Subnet Mask...: 0.0.0.0
    Default Gateway...: ::

C:\>ping 192.168.10.1

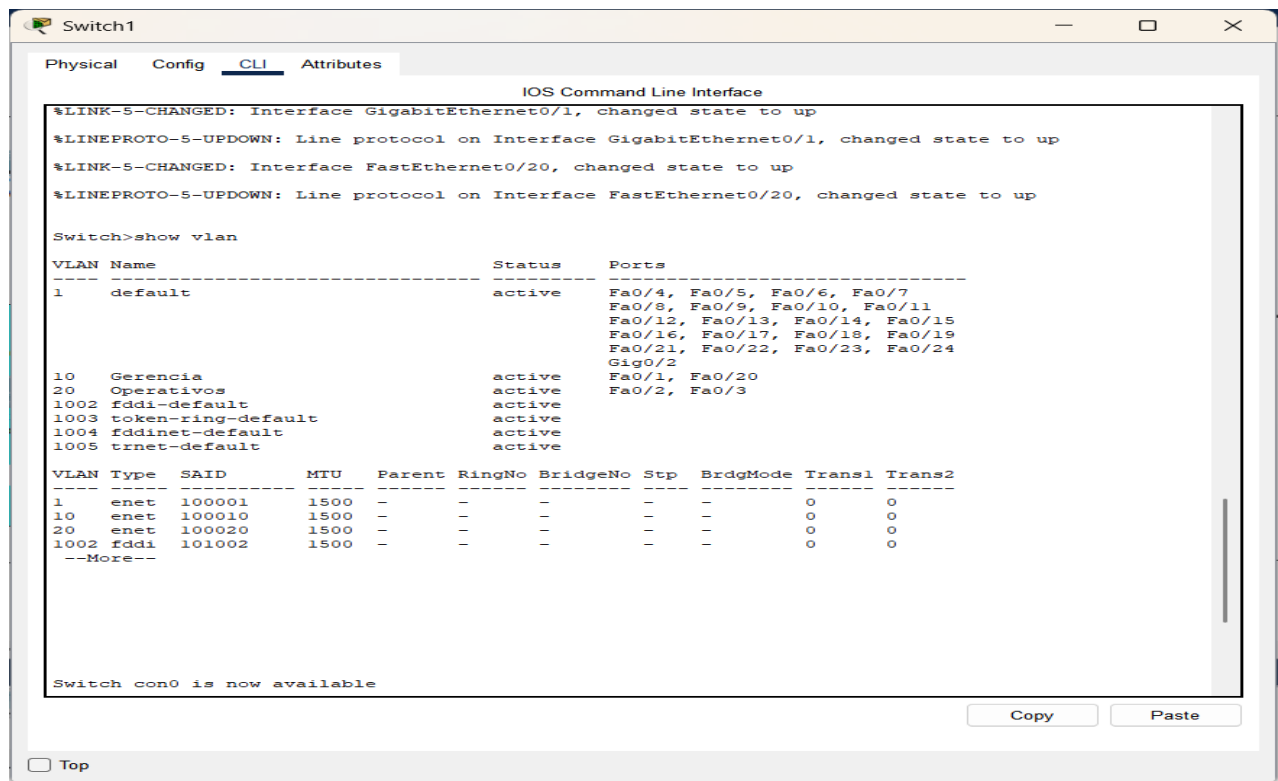
Pinging 192.168.10.1 with 32 bytes of data:

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

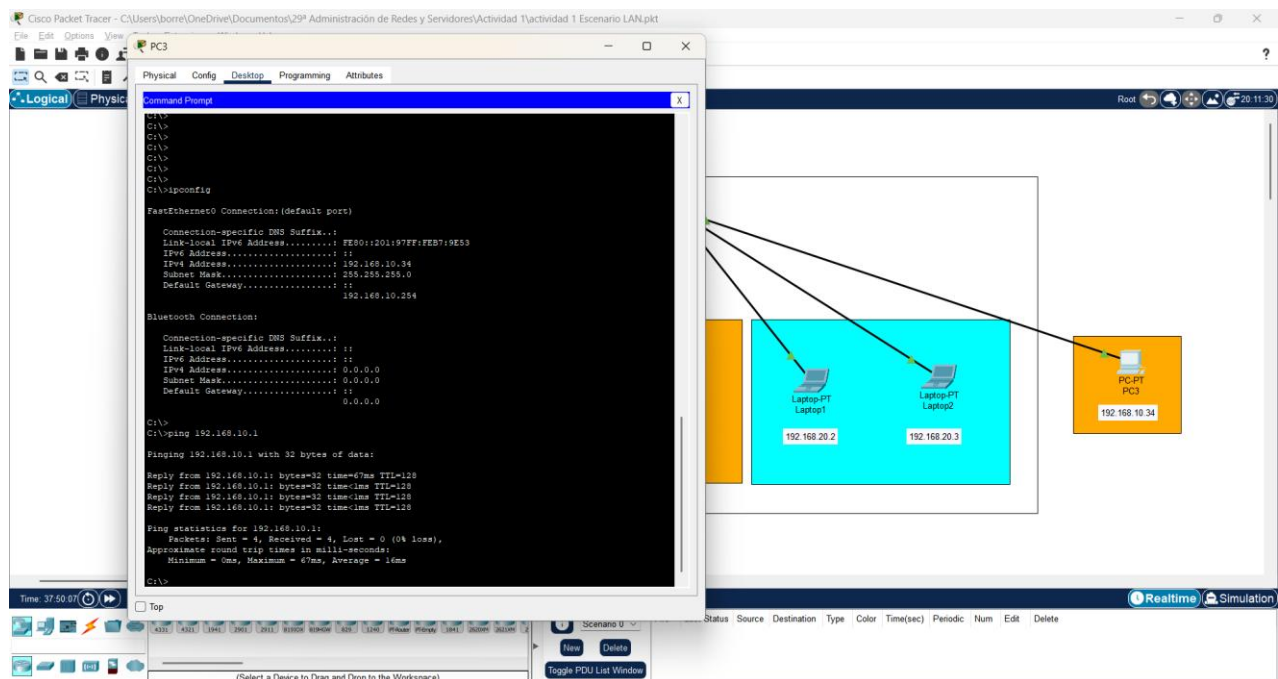
Ping statistics for 192.168.10.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>

```



Al asignar un puerto 20 a la vlan 10 a la pc tendremos una conexión demostrada en la siguiente imagen



Conclusión

Con esta segunda actividad los conceptos quedaron más claros al momento de hablar de administración de redes desde como segmentar la red mediante Vlan esto para poder asignar puertos específicas a cada Vlan para así poder organizar a los usuarios, sin olvidar el como enlazar los SWITCH esto mediante los puertos TRUNK siendo este importante ya que si esta no se podría enviar las Vlan correctas de un switch a otro y no habría comunicación estando las vlan 10 y 20 en diferente switch.

Todo esto me permitió entender mas como es que funciona una red real con áreas separadas.

Enlace GitHub

<https://github.com/juanitolamaravilla/Administraci-n-de-Redes-y-Servidores.git>