DIPLOMADO DE PROFUNDIZACIÓN CISCO (DISEÑO E IMPLEMENTACIÓN DE SOLUCIONES INTEGRADAS LAN / WAN

SERGIO DAVID ROJAS VEGA

UNIVERSIDAD NACIONAL ABIERTA Y A DISTANCIA UNAD

ESCUELA CIENCIAS BÁSICAS, TECNOLOGIA E INGENIERIA

PITALITO HUILA

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INFORME DE GRADO OPCIÓN DIPLOMADO

TUTOR: GIOVANNI ALBERTO BRACHO

UNIVERSIDAD NACIONAL ABIERTA Y A DISTANCIA UNAD

ESCUELA CIENCIAS BÁSICAS, TECNOLOGIA E INGENIERIA

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2018

NOTA DE ACEPTACION

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Presidente del jurado

_____

Jurado

_____

Jurado (En caso de ser solo uno, borrar este o agregar de ser necesario

Pitalito, Diciembre 2018

CONTENIDO

INTRODUCCIÓN

En el presente trabajo observaremos todo lo relacionado con lo que el estudiante ha visto en todo el diplomado, y donde se aborda el tema practico sobre las tres unidades que se miraron en el transcurso de cada actividad colaborativa, los fundamentos de Networking es uno de los temas principales que se manejó en la práctica ya que permitió identificar el tipo de red y clasificarlos por distintos modelos como se observa en la unidad 2 que se abarco direccionamiento IP y OSI.

Esta practica refuerza todo lo visto por el estudiante en todas las unidades se observa mucho en enrutamiento y configuración de la red en VLANs, el principal objetivo de la practica de todo el diplomado es poder realizar una solución a la conexión de la red y configurarla de manera que todo se pueda comunicar entre si en este caso se configuraron red versión 2 ISP, sobrecarga de IP privada a públicas, configuración y asignación de puertos en los switch y VLANs

Descripción de escenarios propuestos para la prueba de habilidades

Escenario 1

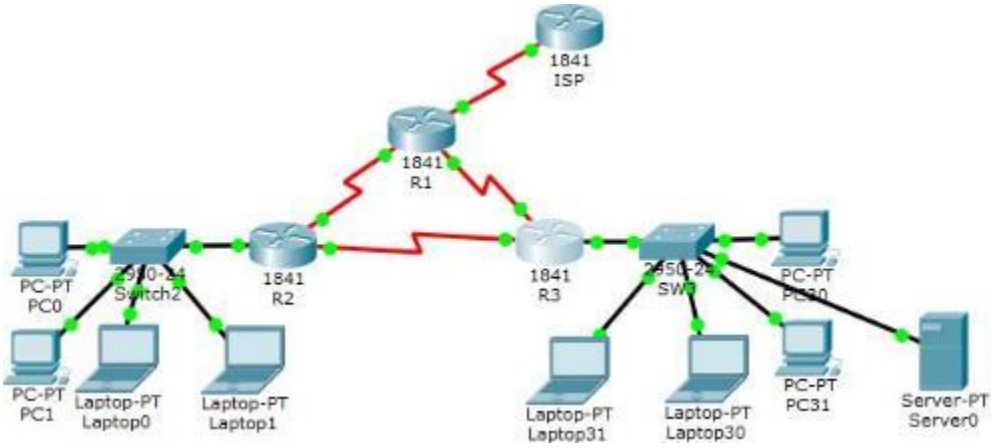


Tabla de direccionamiento

El administrador	Interfaces	Dirección IP	Máscara de subred	Gateway predeterminado
ISP	S0/0/0	200.123.211.1	255.255.255.0	N/D
R1	Se0/0/0	200.123.211.2	255.255.255.0	N/D
	Se0/1/0	10.0.0.1	255.255.255.252	N/D
	Se0/1/1	10.0.0.5	255.255.255.252	N/D
R2	Fa0/0,100	192.168.20.1	255.255.255.0	N/D
	Fa0/0,200	192.168.21.1	255.255.255.0	N/D
	Se0/0/0	10.0.0.2	255.255.255.252	N/D
	Se0/0/1	10.0.0.9	255.255.255.252	N/D
R3	Fa0/0	192.168.30.1	255.255.255.0	N/D
		2001:db8:130::9C0:80F:301	/64	N/D
	Se0/0/0	10.0.0.6	255.255.255.252	N/D
	Se0/0/1	10.0.0.10	255.255.255.252	N/D
SW2	VLAN 100	N/D	N/D	N/D
	VLAN 200	N/D	N/D	N/D
SW3	VLAN1	N/D	N/D	N/D

Tabla de direccionamiento

PC20	NIC	DHCP	DHCP	DHCP
PC21	NIC	DHCP	DHCP	DHCP
PC30	NIC	DHCP	DHCP	DHCP
PC31	NIC	DHCP	DHCP	DHCP
Laptop20	NIC	DHCP	DHCP	DHCP
Laptop21	NIC	DHCP	DHCP	DHCP
Laptop30	NIC	DHCP	DHCP	DHCP
Laptop31	NIC	DHCP	DHCP	DHCP

Tabla de asignación de VLAN y de puertos

Dispositivo	VLAN	Nombre	Interfaz
SW2	100	LAPTOPS	Fa0/2-3
SW2	200	DESTOPS	Fa0/4-5
SW3	1	-	Todas las interfaces

Tabla de enlaces troncales

Dispositivo local	Interfaz local	Dispositivo remoto
SW2	Fa0/2-3	100

Situación

En esta actividad, demostrará y reforzará sucapacidad paraimplementar NAT, servidor de DHCP, RIPV2 y el routing entre VLAN, incluida la configuración de direcciones IP, las VLAN, los enlaces troncales y las subinterfaces. Todas las pruebas de alcance deben realizarse a través de ping únicamente.

- **SW1 VLAN y las asignaciones de puertos de VLAN deben cumplir con la table**

Configuramos el switch 2

S2>en

S2#conf t

Enter configuration commands, one per line. End with CNTL/Z.

S2(config)#VLAN 100

S2(config-vlan) #name LAPTOPS

S2(config-vlan) #EXIT

S2(config)#VLAN 200

S2(config-vlan) #name DESTOPS

S2(config-vlan) #

S2(config-vlan) #EXIT

S2(config)#int f0/2-3

^

% Invalid input detected at '^' marker.

S2(config)#int range f0/2-3

S2(config-if-range) #switchport mode access

S2(config-if-range) #switchport access vlan 100

S2(config-if-range) #int range f0/4-5

S2(config-if-range) #switchport mode access

S2(config-if-range) #switchport access vlan 200

S2(config-if-range) #

S2(config-if-range) #do copy r s

Destination filename [startup-config]?

Building configuration...

[OK]

S2(config-if-range) #end

S2#

%SYS-5-CONFIG_I: Configured from console by console

wr

Building configuration...

[OK]

S2#

- **Los puertos de red que no se utilizan se deben deshabilitar.**

Deshabilitamos

S2#
S2#en
S2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
S2(config)#int range f0/6-24
S2(config-if-range) #shutdown

%LINK-5-CHANGED: Interface FastEthernet0/6, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/7, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/8, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/9, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/10, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/11, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/12, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/13, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/14, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/15, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/16, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/17, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/18, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/19, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/20, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/21, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/22, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/23, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/24, changed state to administratively down

S2(config-if-range) #

La información de dirección IP R1, R2 y R3 debe cumplir con la tabla 1.

R1>en

R1#conf t

Enter configuration commands, one per line. End with CNTL/Z.

R1(config)#int s0/0/0

R1(config-if) #ip address 200.123.211.2 255.255.255.0

R1(config-if) #int s0/1/0

R1(config-if) #ip address 10.0.0.1 255.255.255.2

Bad mask 0xFFFFFF02 for address 10.0.0.1

R1(config-if) #ip address 10.0.0.1 255.255.255.252

R1(config-if) #int s0/1/1

R1(config-if) #ip address 10.0.0.5 255.255.255.252

R1(config-if) #no shu

R1(config-if) #

R1#

Configuramos R2

R2>en

R2#conf t

Enter configuration commands, one per line. End with CNTL/Z.

R2(config)#int fa0/0.100

R2(config-subif) #encapsulation dot1Q 100

R2(config-subif) #ip address 192.168.20.1 255.255.255.0

R2(config-subif) #int fa0/0.200

R2(config-subif) #encapsulation dot1Q 200

R2(config-subif) #ip address 192.168.21.1 255.255.255.0

R2(config-subif) #int s0/0/0

R2(config-if) #ip address 10.0.0.2 255.255.255.252

R2(config-if) #int s0/0/1

R2(config-if) #ip address 10.0.0.9 255.255.255.252

R2(config-if) #

R2(config-if) #

R2(config-if) #

R2(config-if) #exit

R2(config)#

Configuramos r3

R3>en

R3#conf t

Enter configuration commands, one per line. End with CNTL/Z.

R3(config)#int fa0/0

R3(config-if) #ip address

% Incomplete command.

R3(config-if) #ip add

% Incomplete command.

R3(config-if) #ip address 192.168.30.1

% Incomplete command.

R3(config-if) #exit

R3(config)#int fa0/0

R3(config-if) #ip address 192.168.30.1 255.255.255.0

R3(config-if) #ipv6 address 2001:db8:130::9C0:80F:301/64

R3(config-if) #ipv6 no other-config-flag

R3(config-if) #

R3(config-if) #int serial 0/0/0

R3(config-if) #ip address 10.0.0.6 255.255.255.252

R3(config-if) #int serial 0/0/1

R3(config-if) #ip address 10.0.0.10 255.255.255.252

R3(config-if) #exit

R3(config)#

- **Laptop20, Laptop21, PC20, PC21, Laptop30, Laptop31, PC30 y PC31 deben obtener información IPv4 del servidor DHCP.**

Pero primero asignamos la troncal

Switch>en

Switch#conf t

Enter configuration commands, one per line. End with CNTL/Z.

Switch(config)#hostname S3

S3(config)#int f0/1

S3(config-if) #switchport mode trunk

S3(config-if) #

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

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

S3(config-if) #

R2(config)#dhcp pool VLAN_200

^

% Invalid input detected at '^' marker.

R2(config)#IP dhcp pool VLAN_200

R2(dhcp-config) #network 192.168.21.0 255.255.255.0

R2(dhcp-config) #default-router 192.168.21.1

R2(dhcp-config) #IP dhcp pool VLAN_100

R2(dhcp-config) #network 192.168.20.0 255.255.255.0

R2(dhcp-config) #default-router 192.168.20.1

R2(dhcp-config) #

R2(dhcp-config) #

R2(dhcp-config) #do copy r s

Destination filename [startup-config]?

Building configuration...

[OK]

R2(dhcp-config) #

R3>en
R3#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R3(config)#interface FastEthernet0/0
R3(config-if) #ip address 192.168.30.1 255.255.255.0
R3(config-if) #duplex auto
R3(config-if) #speed auto
R3(config-if) #ipv6 address FE80::1 link-local
R3(config-if) #ipv6 address 2001:db8:130::9C0:80F:301/64
R3(config-if) #
R3(config-if) #do copy r s
Destination filename [startup-config]?
Building configuration...
[OK]
R3(config-if) #
R3(config-if) #exit
R3(config)#ip dhcp pool VLAN_1
R3(dhcp-config) #network 192.168.30.0 255.255.255.0
R3(dhcp-config) #default-%DHCPD-4-PING_CONFLICT: DHCP address conflict: server pinged 192.16network 192.168.30.0 255.255.255.0
R3(dhcp-config) #network 192.168.30.0 255.255.255.0
R3(dhcp-config) #default-router 192.168.30.1
R3(dhcp-config) #
R3(dhcp-config) #
R3(dhcp-config) #exit
R3(config)#ipv6 dhcp pool VLAN_1
R3(config-dhcpv6) #dns-server 2001:DB8:130:
R3(config-dhcpv6) #int f0/0
R3(config-if) #ipv6 address FE80::1 link-local
R3(config-if) #ipv6 address 2001:db8:130::9C0:80F:301/64

R3(config-if) #ipv6 nd other-config-flag
R3(config-if) #ipv6 dhcp server vlan_1
R3(config-if) #
R3(config-if) #do copy r s
Destination filename [startup-config]?
Building configuration...
[OK]
R3(config-if) #
R3(config-if) #%DHCPD-4-PING_CONFLICT: DHCP address conflict: server pinged 192.168.30.1.

- **R1 debe realizar una NAT con sobrecarga sobre una dirección IPv4 pública. Asegúrese de que todos los terminales pueden comunicarse con Internet pública (haga ping a la dirección ISP) y la lista de acceso estándar se llama INSIDE-DEVS.**

R1>en

R1#conf t

Enter configuration commands, one per line. End with CNTL/Z.

R1(config)#int s0/1/1

R1(config-if) #ip nat inside

R1(config-if) #exit

R1(config)#int s0/1/0

R1(config-if) #ip nat inside

R1(config-if) #exit

R1(config)#int s0/0/0

R1(config-if) #ip nat outside

R1(config-if) #exit

R1(config)#ip nat pool INSIDE-DEVS 200.123.211.2 200.123.211.128 net

% Incomplete command.

R1(config)#ip nat pool INSIDE-DEVS 200.123.211.2 200.123.211.128 netmask 255.255.255.0

```
R1(config)#access-list 1 permit 192.168.0.0 0.0.255.255
R1(config)#access-list 1 permit 10.0.0.0 0.255.255.255
R1(config)#ip nat inside source list 1 interface s0/0/0 overload
R1(config)#ip nat inside source static tcp 192.168.30.6 80 200.123.211.1 80
R1(config)#
R1(config)#wr
^
% Invalid input detected at '^' marker.
R1(config)#exit
R1#
%SYS-5-CONFIG_I: Configured from console by console

R1#wr
Building configuration...
[OK]
R1#
R1#show ip nat translation
Pro Inside global Inside local Outside local Outside global
tcp 200.123.211.1:80 192.168.30.6:80 --- ---

R1#show ip nat statistics
Total, translations: 1 (2 static, 4294967295 dynamic, 1 extended)
Outside Interfaces: Serial0/0/0
Inside Interfaces: Serial0/1/0, Serial0/1/1
Hits: 0 Misses: 131
Expired translations: 0
```

- **R1 debe tener una ruta estática predeterminada al ISP que se configuró y que incluye esa ruta en el dominio RIPv2.**

R1(config)#router rip

R1(config-router) #network 10.0.0.0

R1(config-router) #network 10.0.0.4

R1(config-router) #ip router 0.0.0.0 0.0.0.0 serial 0/0/0

^

% Invalid input detected at '^' marker.

R1(config-router) #ip route 0.0.0.0 0.0.0.0 serial 0/0/0

R1(config)#defaul in

^

% Invalid input detected at '^' marker.

R1(config)#default in

^

% Invalid input detected at '^' marker.

R1(config)#default

^

% Invalid input detected at '^' marker.

R1(config)#router rip

R1(config-router) #default-information originate

R1(config-router) #

- **R2 es un servidor de DHCP para los dispositivos conectados al puerto FastEthernet0/0.**

Configuramos a router 2

Enter configuration commands, one per line. End with CNTL/Z.

R2(config)#ip dhcp pool INSIDE-DEVS

R2(dhcp-config) #NETwork 192.168.20.1

% Incomplete command.

R2(dhcp-config) #NETwork 192.168.20.1 255.255.255.0

R2(dhcp-config) #NETwork 192.168.21.1 255.255.255.0

R2(dhcp-config) #default-router 192.168.1.1

R2(dhcp-config) #dns

% Incomplete command.

R2(dhcp-config) #dns-server 0.0.0.0

R2(dhcp-config) #exit

R2(config)#

- **R2 debe, además de enrutamiento a otras partes de la red, ruta entre las VLAN 100 y 200.**

R2>en

R2#conf t

Enter configuration commands, one per line. End with CNTL/Z.

R2(config)#int vlan 100

R2(config-if) #ip address 192.168.20.1 255.255.255.0

% 192.168.20.0 overlaps with FastEthernet0/0.100

R2(config-if) #

R2(config)#int vlan 200

R2(config-if) #ip address 192.168.21.1 255.255.255.0

% 192.168.21.0 overlaps with FastEthernet0/0.200

R2(config-if) #end

R2#

%SYS-5-CONFIG_I: Configured from console by console

wr

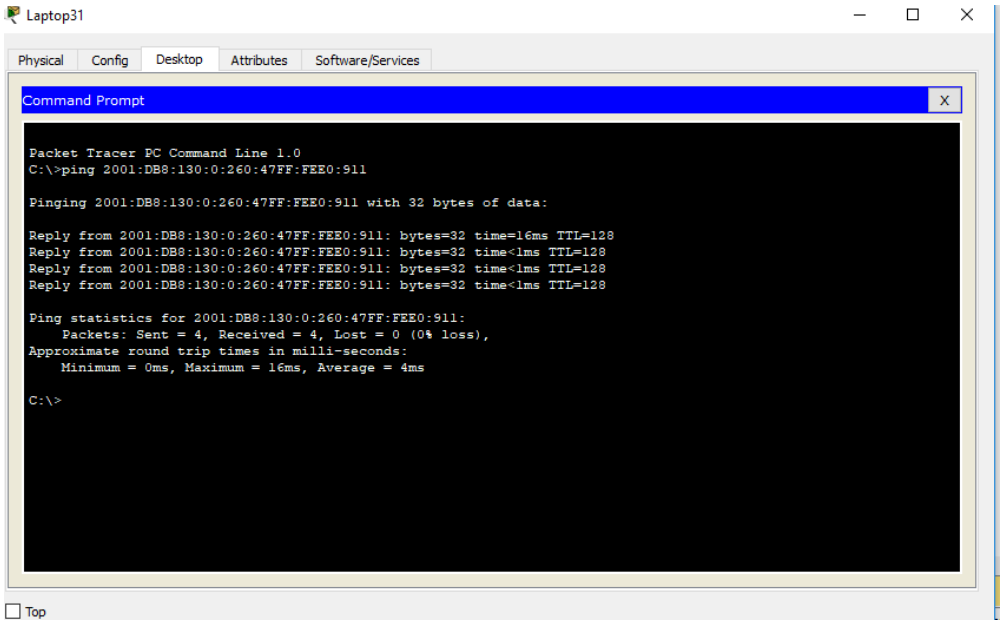
Building configuration...

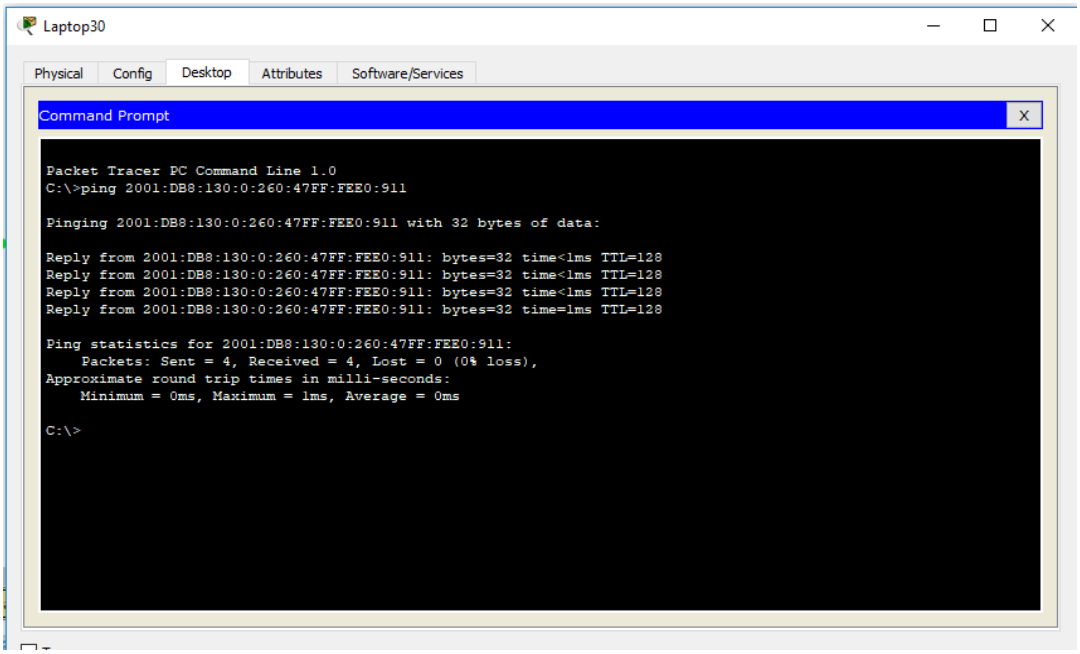
[OK]

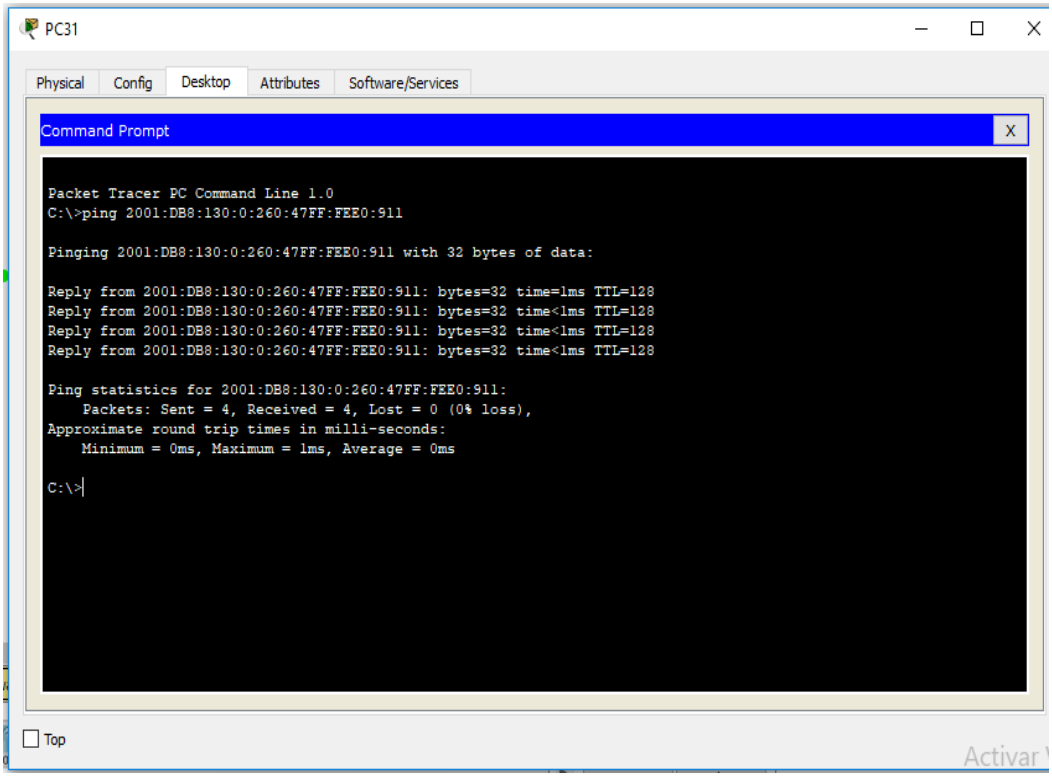
R2#

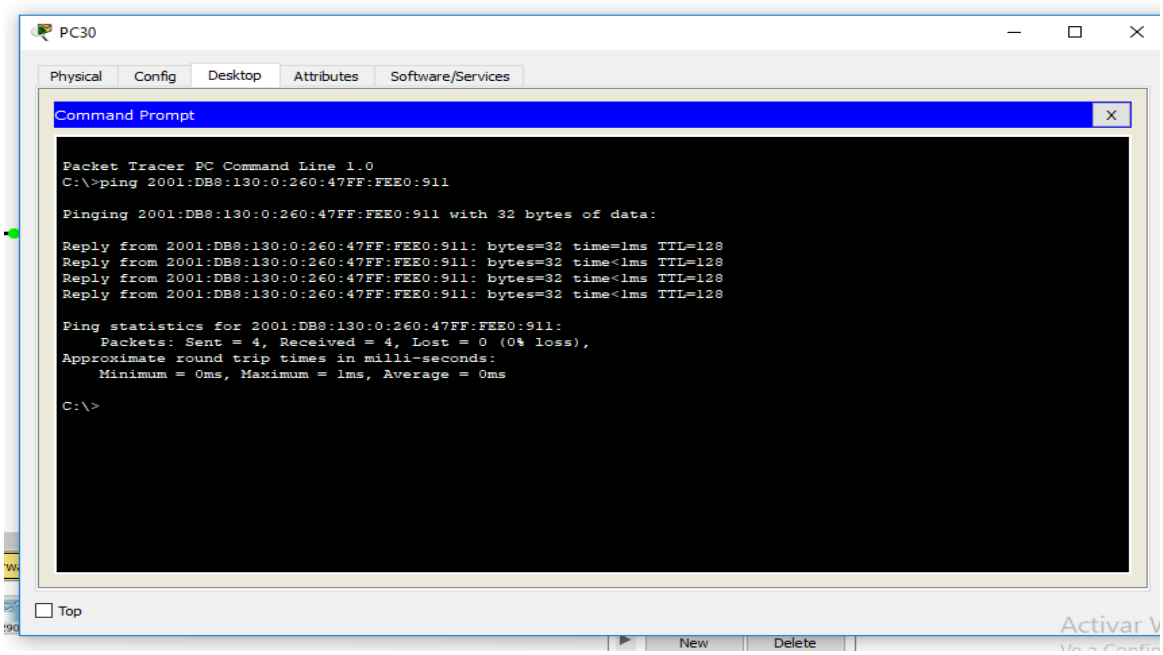
- El Servidor0 es sólo un servidor IPv6 y solo debe ser accesibles para los dispositivos en R3 (ping).

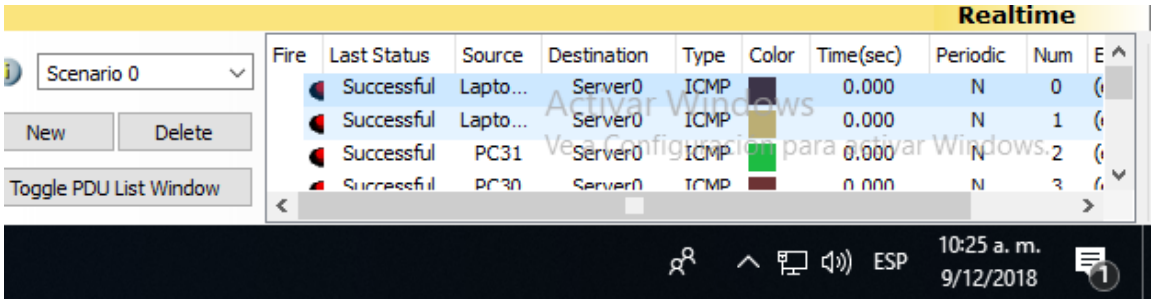
Realizamos ping desde laptop 31

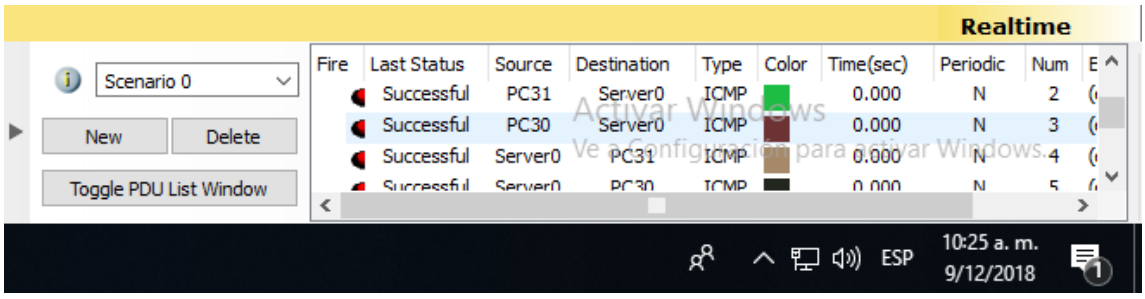



Laptop30
Physical
Config
Desktop
Attributes
Software/Services
Command Prompt
X
Packet Tracer PC Command Line 1.0
C:\>ping 2001:DB8:130:0:260:47FF:FEE0:911
Pinging 2001:DB8:130:0:260:47FF:FEE0:911 with 32 bytes of data:
Reply from 2001:DB8:130:0:260:47FF:FEE0:911: bytes=32 time<1ms TTL=128
Reply from 2001:DB8:130:0:260:47FF:FEE0:911: bytes=32 time<1ms TTL=128
Reply from 2001:DB8:130:0:260:47FF:FEE0:911: bytes=32 time<1ms TTL=128
Reply from 2001:DB8:130:0:260:47FF:FEE0:911: bytes=32 time=1ms TTL=128
Ping statistics for 2001:DB8:130:0:260:47FF:FEE0:911:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\>


PC31
Physical
Config
Desktop
Attributes
Software/Services
Command Prompt
X
Packet Tracer PC Command Line 1.0
C:\>ping 2001:DB8:130:0:260:47FF:FEE0:911
Pinging 2001:DB8:130:0:260:47FF:FEE0:911 with 32 bytes of data:
Reply from 2001:DB8:130:0:260:47FF:FEE0:911: bytes=32 time=1ms TTL=128
Reply from 2001:DB8:130:0:260:47FF:FEE0:911: bytes=32 time<1ms TTL=128
Reply from 2001:DB8:130:0:260:47FF:FEE0:911: bytes=32 time<1ms TTL=128
Reply from 2001:DB8:130:0:260:47FF:FEE0:911: bytes=32 time<1ms TTL=128
Ping statistics for 2001:DB8:130:0:260:47FF:FEE0:911:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\>
Top



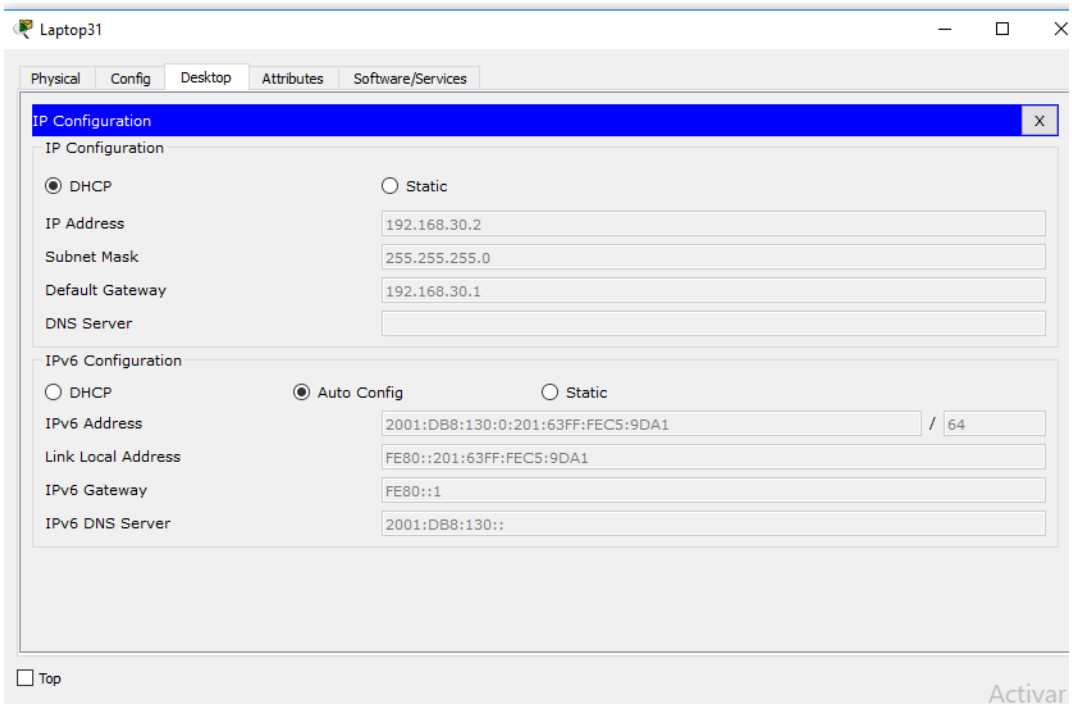


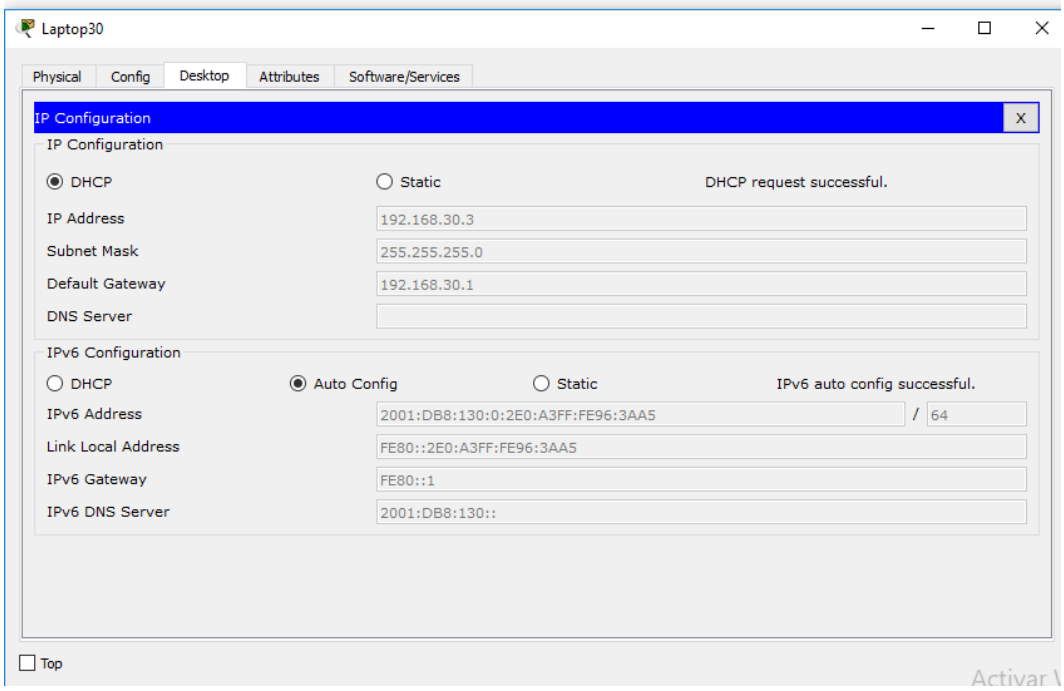


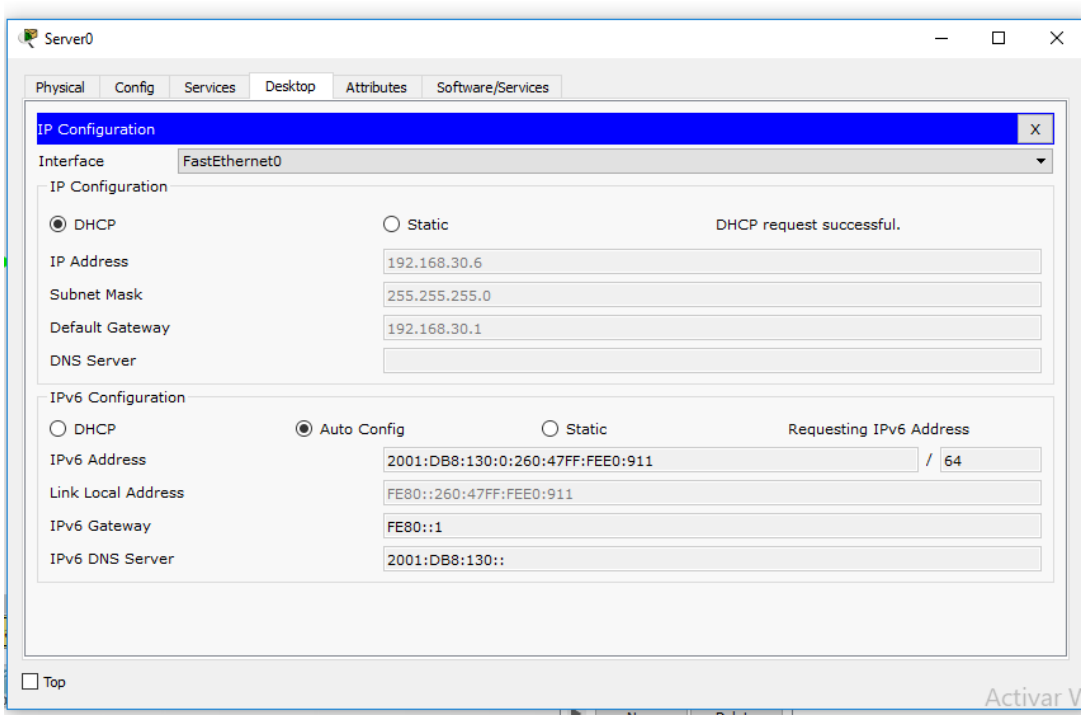
- **La NIC instalado en direcciones IPv4 e IPv6 de Laptop30, de Laptop31, de PC30 y obligación de configurados PC31**

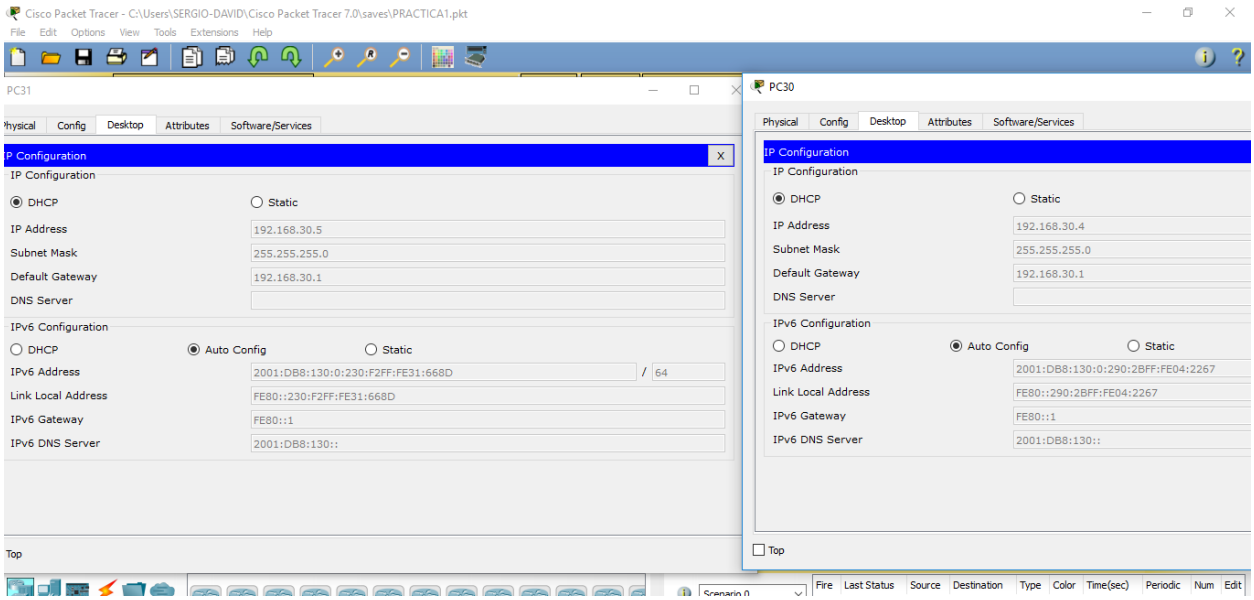
simultáneas (dual-stack). Las direcciones se deben configurar mediante DHCP y DHCPv6.

Miramos que esten configurados en dhcp






Server0
Physical
Config
Services
Desktop
Attributes
Software/Services
IP Configuration
X
Interface
FastEthernet0
IP Configuration
DHCP
Static
DHCP request successful.
IP Address
192.168.30.6
Subnet Mask
255.255.255.0
Default Gateway
192.168.30.1
DNS Server
IPv6 Configuration
DHCP
Auto Config
Static
Requesting IPv6 Address
IPv6 Address
2001:DB8:130:0:260:47FF:FEE0:911
/ 64
Link Local Address
FE80::260:47FF:FEE0:911
IPv6 Gateway
FE80::1
IPv6 DNS Server
2001:DB8:130::
Top


Cisco Packet Tracer - C:\Users\SERGIO-DAVID\Cisco Packet Tracer 7.0\saves\PRACTICA1.pkt
File Edit Options View Tools Extensions Help
PC31
Physical Config Desktop Attributes Software/Services
IP Configuration
DHCP
Static
IP Address
192.168.30.5
Subnet Mask
255.255.255.0
Default Gateway
192.168.30.1
DNS Server
IPv6 Configuration
DHCP
Auto Config
Static
IPv6 Address
2001:DB8:130:0:230:F2FF:FE31:668D
/ 64
Link Local Address
FE80::230:F2FF:FE31:668D
IPv6 Gateway
FE80::1
IPv6 DNS Server
2001:DB8:130::
Top
PC30
Physical Config Desktop Attributes Software/Services
IP Configuration
DHCP
Static
IP Address
192.168.30.4
Subnet Mask
255.255.255.0
Default Gateway
192.168.30.1
DNS Server
IPv6 Configuration
DHCP
Auto Config
Static
IPv6 Address
2001:DB8:130:0:290:2BFF:FE04:2267
Link Local Address
FE80::290:2BFF:FE04:2267
IPv6 Gateway
FE80::1
IPv6 DNS Server
2001:DB8:130::
Top
Fire Last Status Source Destination Type Color Time(sec) Periodic Num Edit

- **La interfaz FastEthernet 0/0 del R3 también deben tener direcciones IPv4 e IPv6 configuradas (dual- stack).**

nterface FastEthernet0/0

ip address 192.168.30.1 255.255.255.0

duplex auto

speed auto

ipv6 address FE80::1 link-local

ipv6 address 2001:DB8:130::9C0:80F:301/64

ipv6 dhcp server vlan_1

- **R1, R2 y R3 intercambian información de routing mediante RIP versión 2.**

R1>en

R1#conf t

Enter configuration commands, one per line. End with CNTL/Z.

R1(config)#route rip

R1(config-router) #network 10.0.0.0

R1(config-router) #network 10.0.0.4

R1(config-router) #network 200.123.211.1

R1(config-router) #end

R1#

R2#EN

R2#CONF T

Enter configuration commands, one per line. End with CNTL/Z.

R2(config)#ROUTER RIP

R2(config-router) #VERSION 2

R2(config-router) #network 192.168.30.0

R2(config-router) #network 192.168.20.0

R2(config-router) #network 192.168.21.0

R2(config-router) #network 10.0.0.0

R2(config-router) #network 10.0.0.8

R2(config-router) #

Configuramos el router 3

R3>en

R3#conf t

Enter configuration commands, one per line. End with CNTL/Z.

R3(config)#router rip

R3(config-router) #

R3(config-router) #passive-interface serial0/0/1

R3(config-router) #network 10.0.0.0

R3(config-router) #network 192.168.0.0

R3(config-router) #network 192.168.30.0

R3(config-router) #

R3(config-router) #do copy r s

Destination filename [startup-config]?

Building configuration...

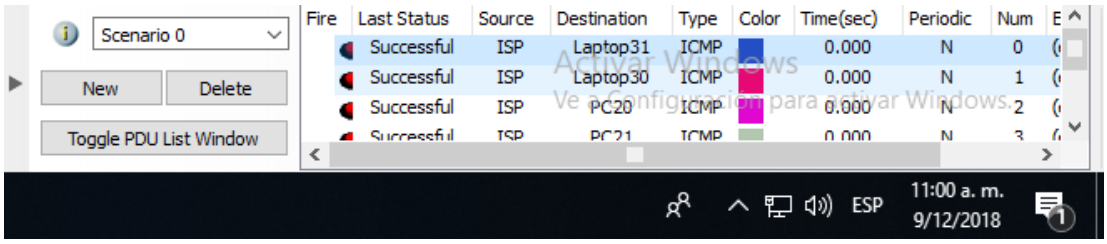
[OK]

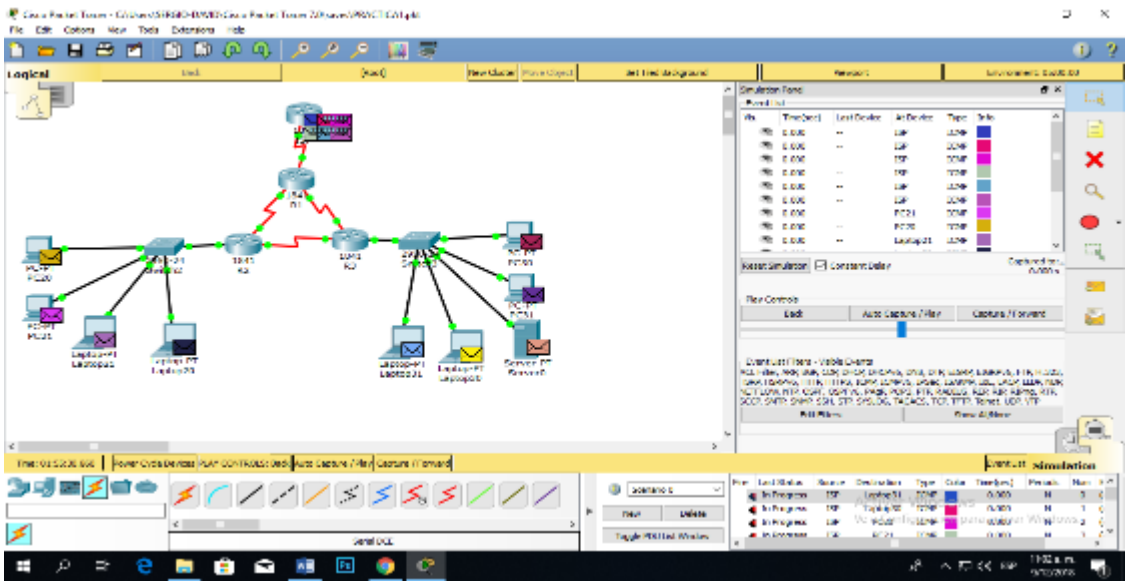
R3(config-router) #

- **R1, R2 y R3 deben saber sobre las rutas de cada uno y la ruta predeterminada desde R1.**

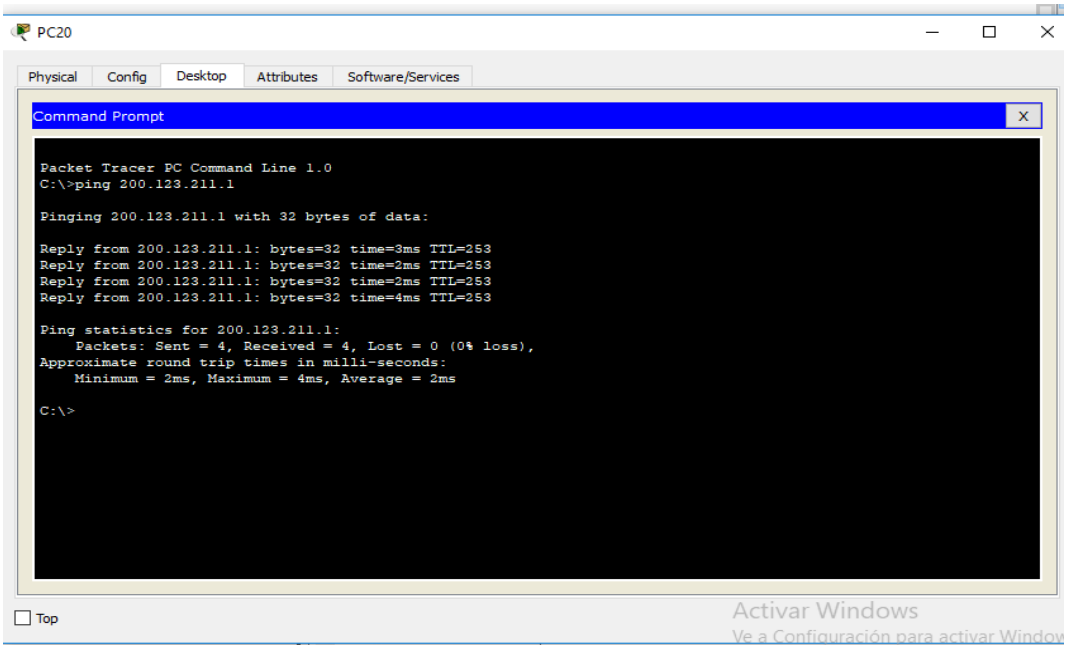
Cada router ya tiene su protocolo activo

Verifique la conectividad. Todos los terminales deben poder hacer ping entre sí y a la dirección IP del ISP. Los terminales bajo **el R3** deberían poder hacer IPv6-ping entre ellos y el servidor.

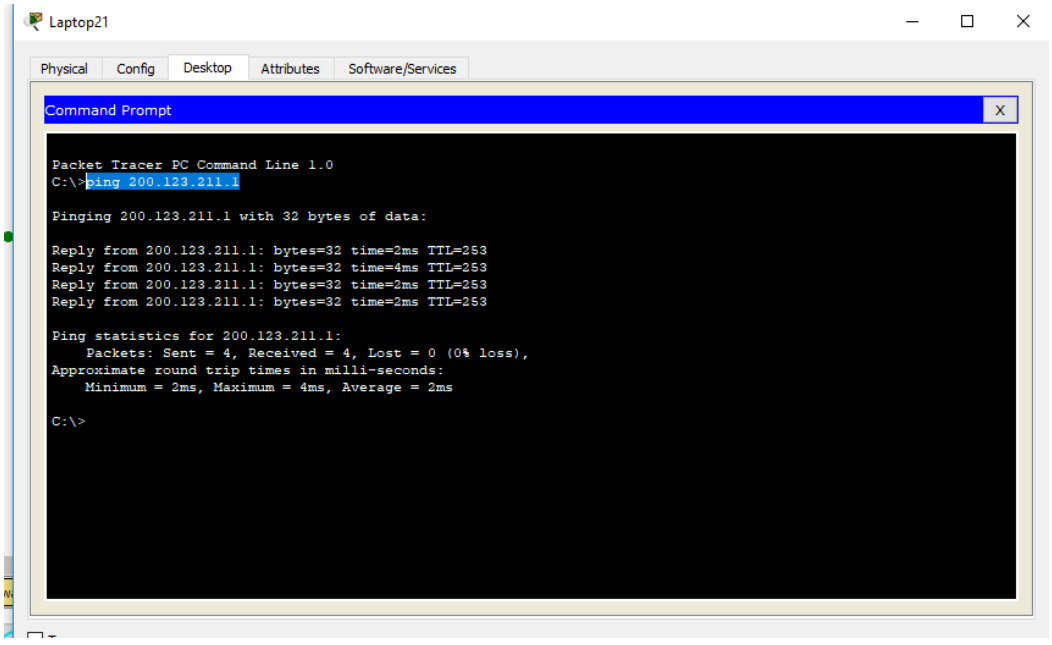




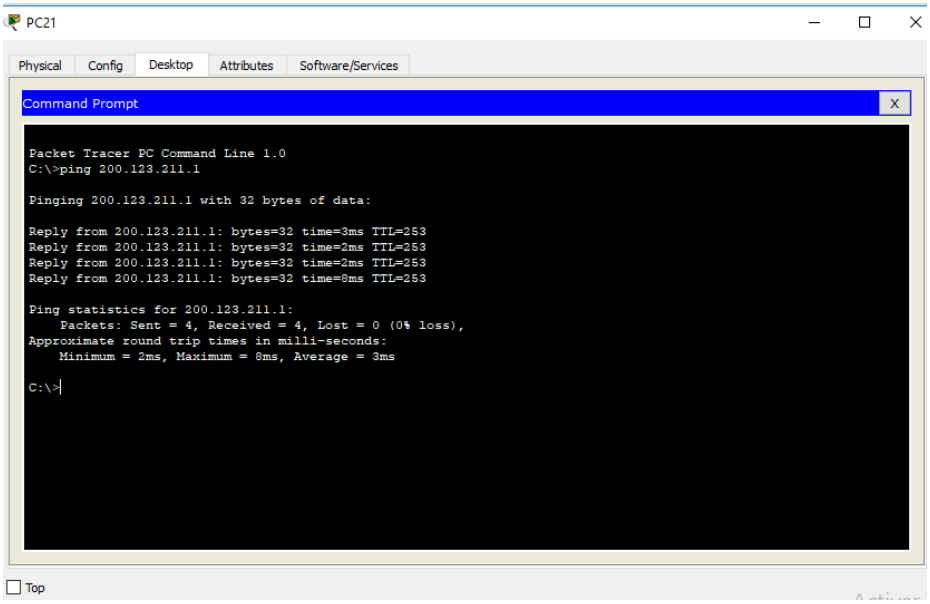
PC 20



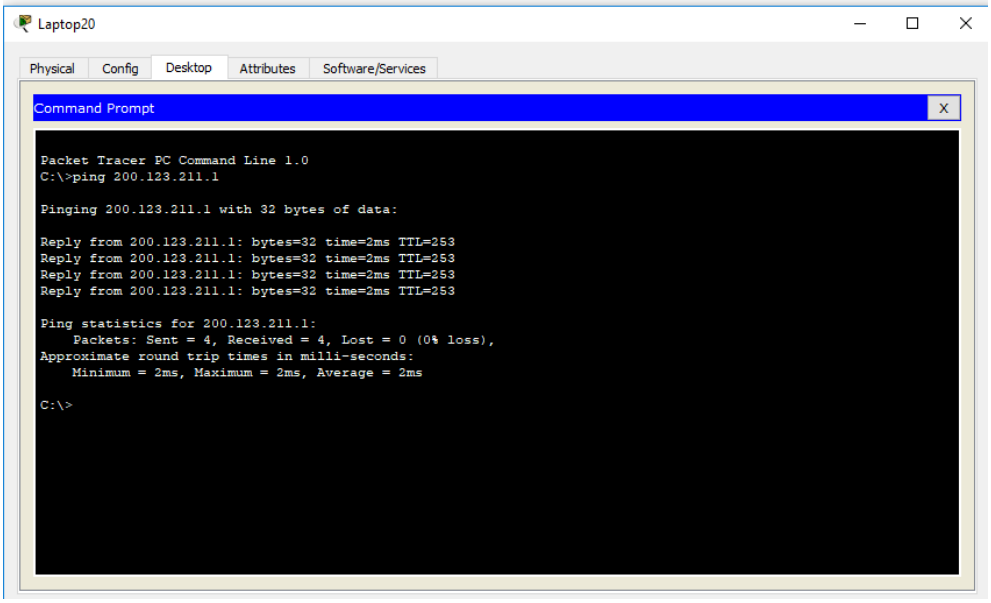
Laptop 21



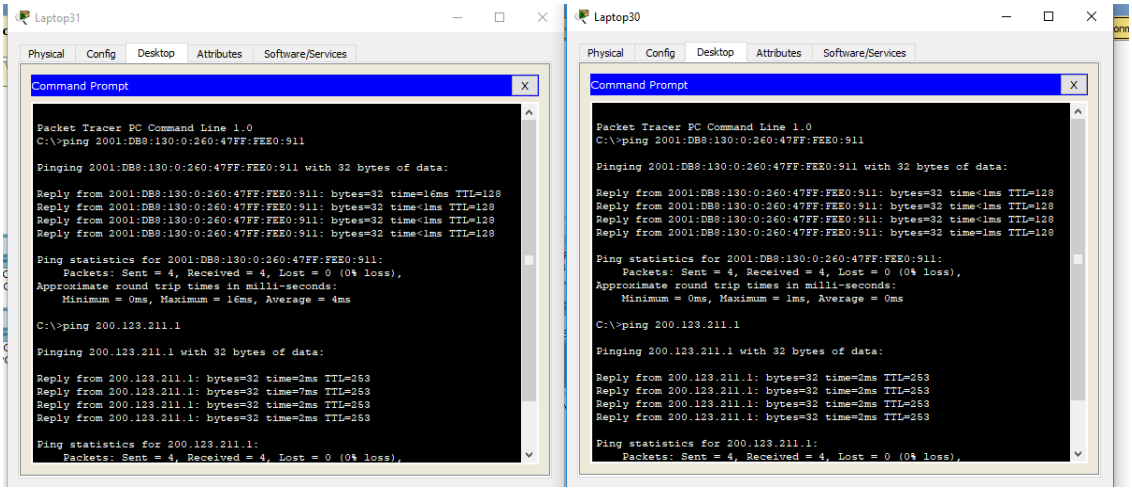
PC 21



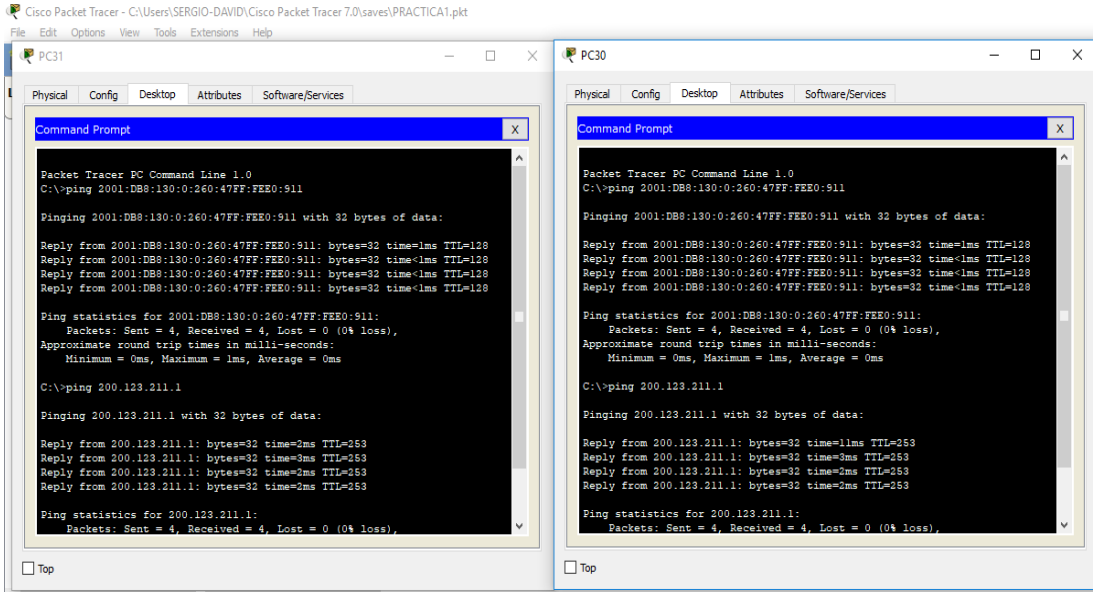
Laptop 20



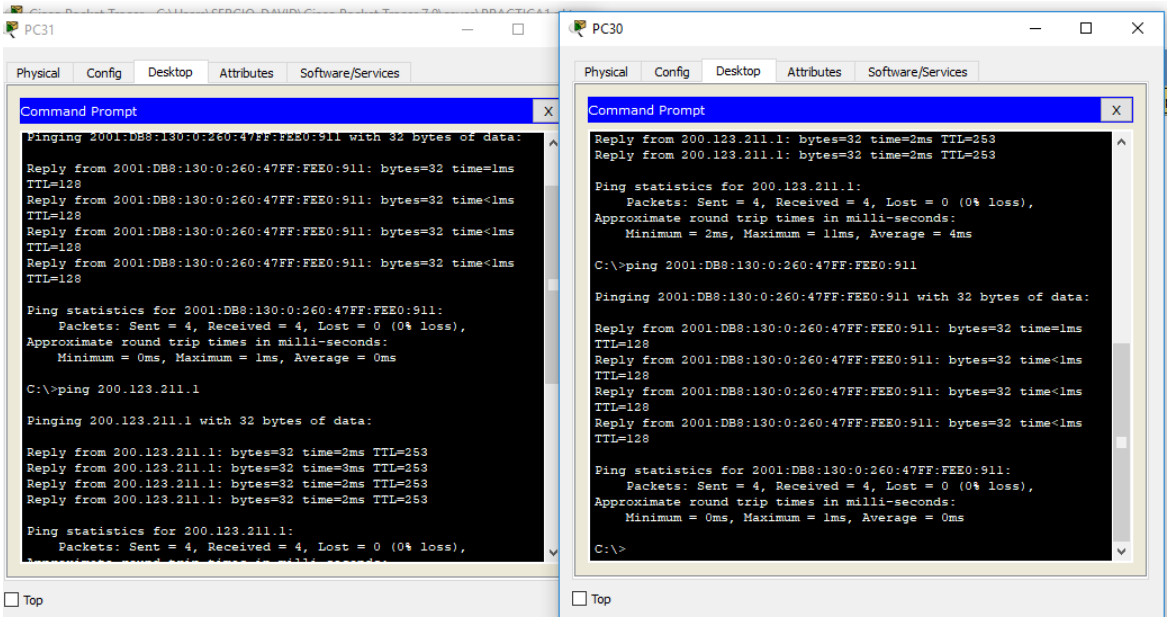
Laptop 31-30

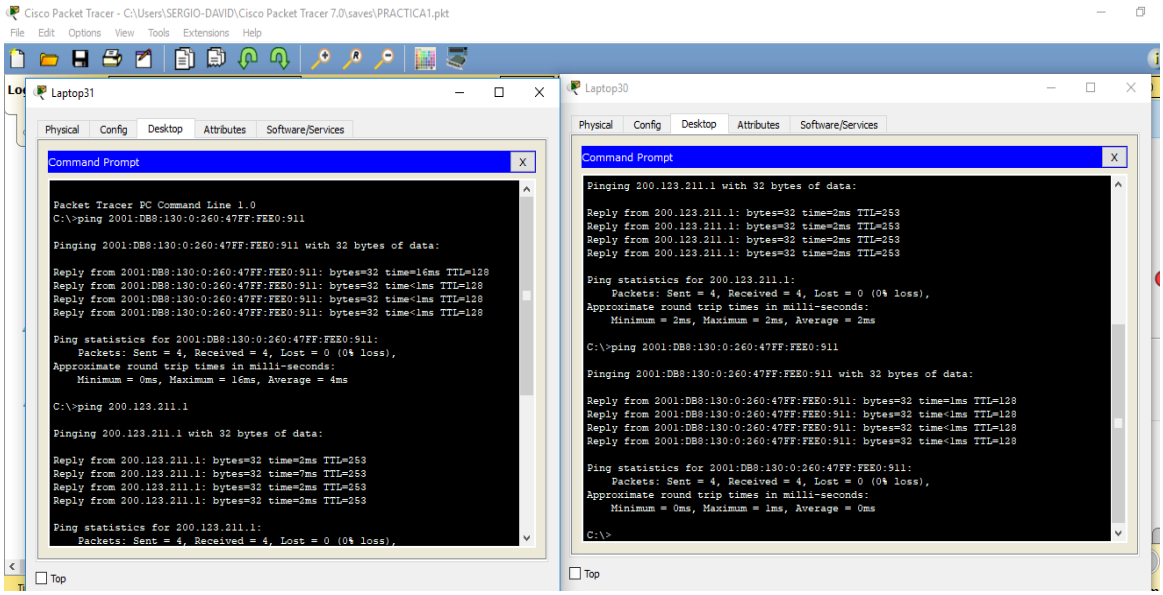


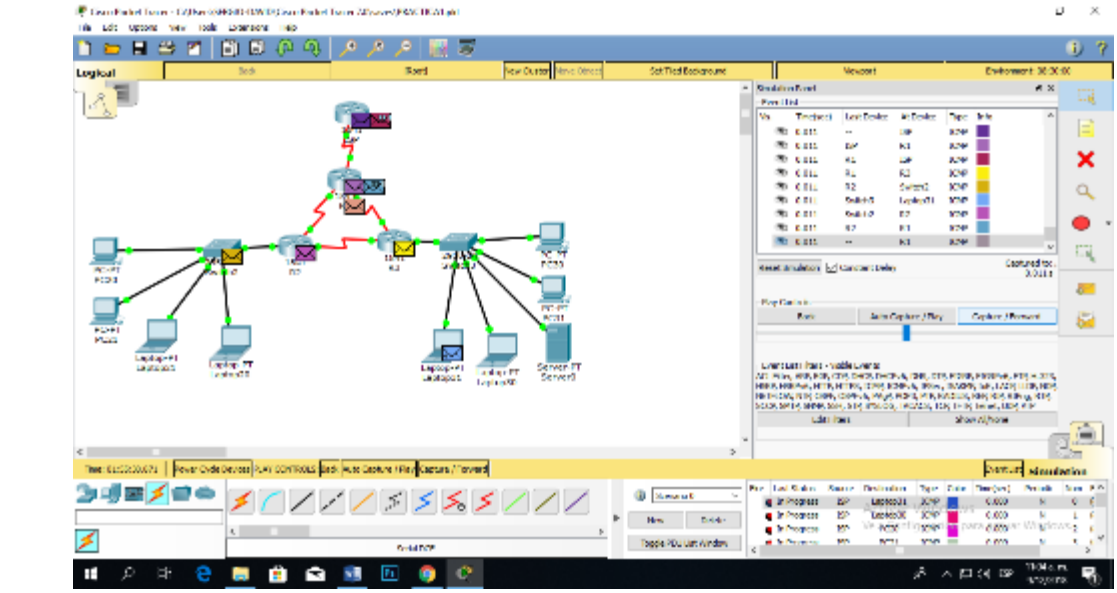
PC 31-30

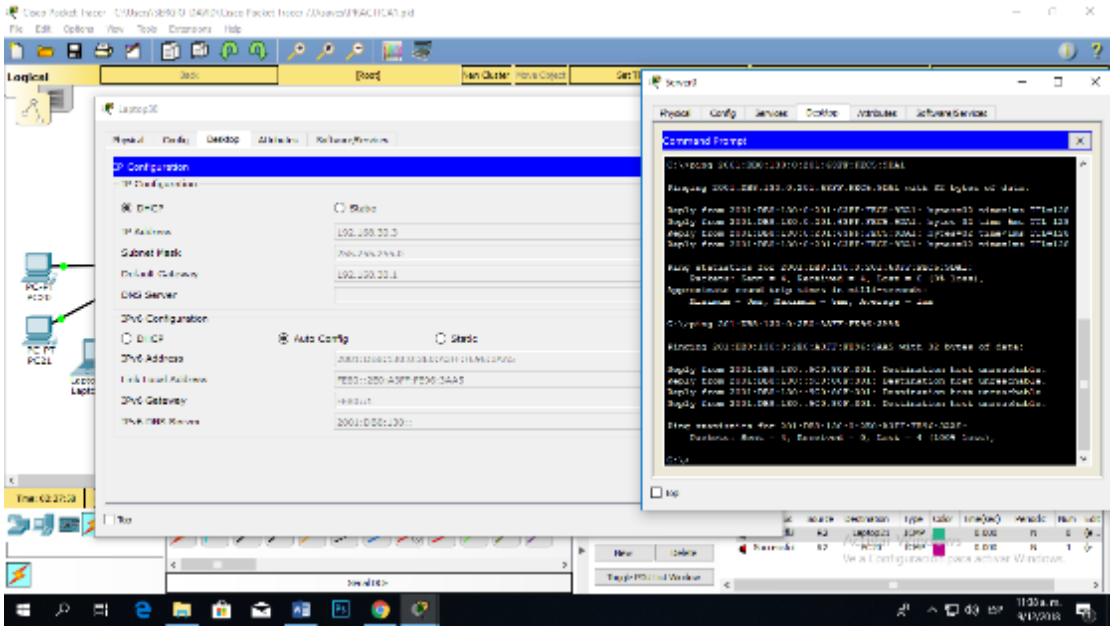


Realizamos pin por ipv6 entre servidor y pc

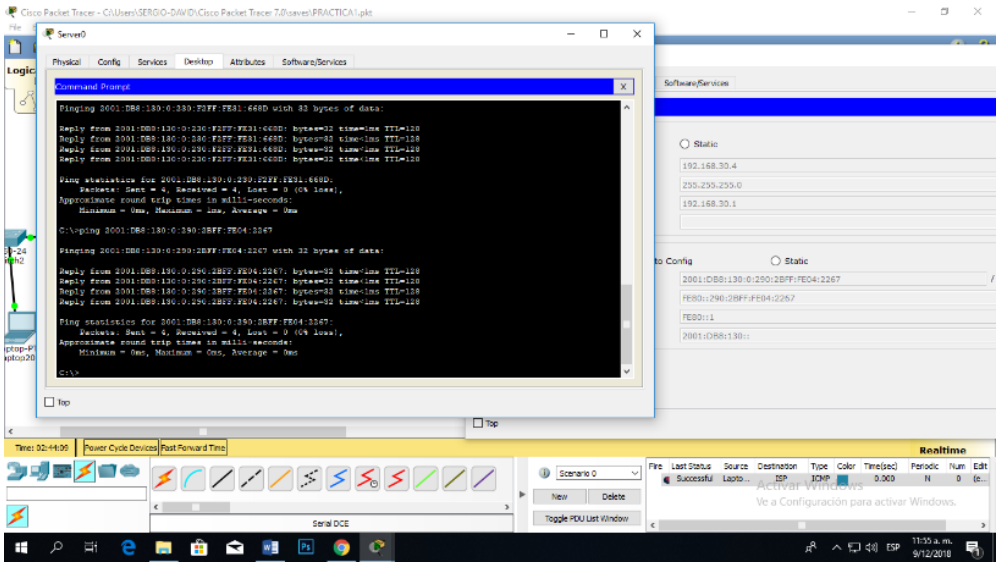

PC31
Physical
Config
Desktop
Attributes
Software/Services
Command Prompt
Pinging 2001:DB8:130:0:260:47FF:FEE0:911 with 32 bytes of data:
Reply from 2001:DB8:130:0:260:47FF:FEE0:911: bytes=32 time=1ms TTL=128
Reply from 2001:DB8:130:0:260:47FF:FEE0:911: bytes=32 time<1ms TTL=128
Reply from 2001:DB8:130:0:260:47FF:FEE0:911: bytes=32 time<1ms TTL=128
Reply from 2001:DB8:130:0:260:47FF:FEE0:911: bytes=32 time<1ms TTL=128
Ping statistics for 2001:DB8:130:0:260:47FF:FEE0:911:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\>ping 200.123.211.1
Pinging 200.123.211.1 with 32 bytes of data:
Reply from 200.123.211.1: bytes=32 time=2ms TTL=253
Reply from 200.123.211.1: bytes=32 time=3ms TTL=253
Reply from 200.123.211.1: bytes=32 time=2ms TTL=253
Reply from 200.123.211.1: bytes=32 time=2ms TTL=253
Ping statistics for 200.123.211.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Top
PC30
Physical
Config
Desktop
Attributes
Software/Services
Command Prompt
Reply from 200.123.211.1: bytes=32 time=2ms TTL=253
Reply from 200.123.211.1: bytes=32 time=2ms TTL=253
Ping statistics for 200.123.211.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 2ms, Maximum = 11ms, Average = 4ms
C:\>ping 2001:DB8:130:0:260:47FF:FEE0:911
Pinging 2001:DB8:130:0:260:47FF:FEE0:911 with 32 bytes of data:
Reply from 2001:DB8:130:0:260:47FF:FEE0:911: bytes=32 time=1ms TTL=128
Reply from 2001:DB8:130:0:260:47FF:FEE0:911: bytes=32 time<1ms TTL=128
Reply from 2001:DB8:130:0:260:47FF:FEE0:911: bytes=32 time<1ms TTL=128
Reply from 2001:DB8:130:0:260:47FF:FEE0:911: bytes=32 time<1ms TTL=128
Ping statistics for 2001:DB8:130:0:260:47FF:FEE0:911:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\>
Top

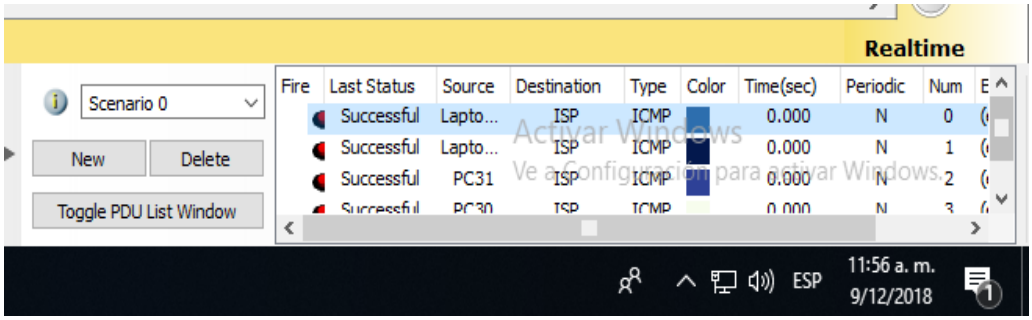

Cisco Packet Tracer - C:\Users\SERGIO-DAVID\Cisco Packet Tracer 7.0\saves\PRACTICA1.pkt
File
Edit
Options
View
Tools
Extensions
Help
Laptop31
Physical
Config
Desktop
Attributes
Software/Services
Command Prompt
Packet Tracer PC Command Line 1.0
C:\>ping 2001:DB8:130:0:260:47FF:FEE0:911
Pinging 2001:DB8:130:0:260:47FF:FEE0:911 with 32 bytes of data:
Reply from 2001:DB8:130:0:260:47FF:FEE0:911: bytes=32 time=16ms TTL=128
Reply from 2001:DB8:130:0:260:47FF:FEE0:911: bytes=32 time<1ms TTL=128
Reply from 2001:DB8:130:0:260:47FF:FEE0:911: bytes=32 time<1ms TTL=128
Reply from 2001:DB8:130:0:260:47FF:FEE0:911: bytes=32 time<1ms TTL=128
Ping statistics for 2001:DB8:130:0:260:47FF:FEE0:911:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 16ms, Average = 4ms
C:\>ping 200.123.211.1
Pinging 200.123.211.1 with 32 bytes of data:
Reply from 200.123.211.1: bytes=32 time=2ms TTL=253
Reply from 200.123.211.1: bytes=32 time=7ms TTL=253
Reply from 200.123.211.1: bytes=32 time=2ms TTL=253
Reply from 200.123.211.1: bytes=32 time=2ms TTL=253
Ping statistics for 200.123.211.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Top
Laptop30
Physical
Config
Desktop
Attributes
Software/Services
Command Prompt
Pinging 200.123.211.1 with 32 bytes of data:
Reply from 200.123.211.1: bytes=32 time=2ms TTL=253
Reply from 200.123.211.1: bytes=32 time=2ms TTL=253
Reply from 200.123.211.1: bytes=32 time=2ms TTL=253
Reply from 200.123.211.1: bytes=32 time=2ms TTL=253
Ping statistics for 200.123.211.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 2ms, Maximum = 2ms, Average = 2ms
C:\>ping 2001:DB8:130:0:260:47FF:FEE0:911
Pinging 2001:DB8:130:0:260:47FF:FEE0:911 with 32 bytes of data:
Reply from 2001:DB8:130:0:260:47FF:FEE0:911: bytes=32 time=1ms TTL=128
Reply from 2001:DB8:130:0:260:47FF:FEE0:911: bytes=32 time<1ms TTL=128
Reply from 2001:DB8:130:0:260:47FF:FEE0:911: bytes=32 time<1ms TTL=128
Reply from 2001:DB8:130:0:260:47FF:FEE0:911: bytes=32 time<1ms TTL=128
Ping statistics for 2001:DB8:130:0:260:47FF:FEE0:911:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\>
Top

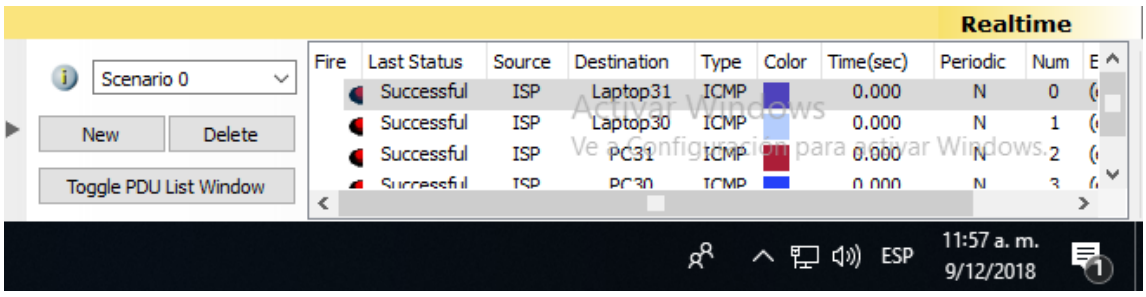




Ping entre servidor y laptops pc por ipv6

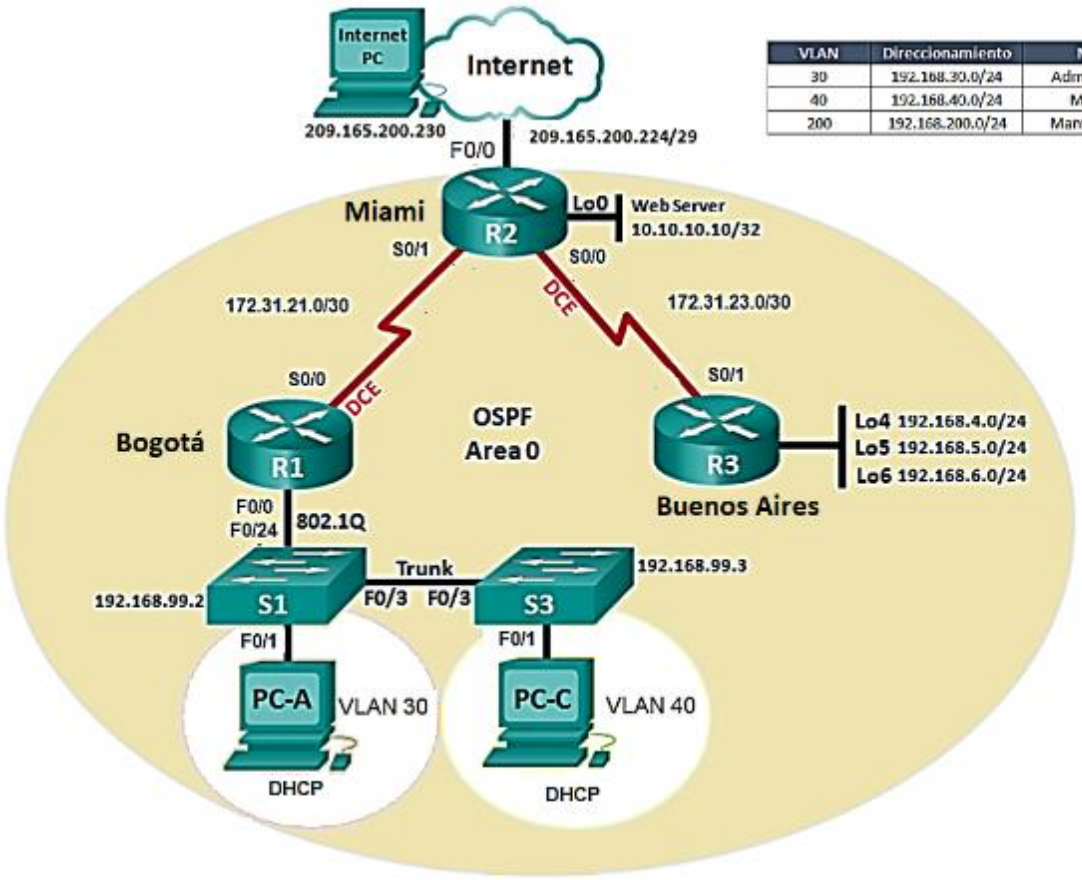



Realtime
Scenario 0
New
Delete
Toggle PDU List Window
Fire
Last Status
Source
Destination
Type
Color
Time(sec)
Periodic
Num
Successful
Lapto...
ISP
ICMP
0.000
N
0
1
2
PC31
Activar Windows
Ve a Configuración para activar Windows.
ESP
11:56 a. m.
9/12/2018


Realtime
Scenario 0
New
Delete
Toggle PDU List Window
Fire
Last Status
Source
Destination
Type
Color
Time(sec)
Periodic
Num
Successful
ISP
Laptop31
Laptop30
PC31
ICMP
0.000
N
0
1
2
Activar Windows
Ve a Configuración para activar Windows.
ESP
11:57 a. m.
9/12/2018

ESCENARIO 2

Una empresa de Tecnología posee tres sucursales distribuidas en las ciudades de Miami, Bogotá y Buenos Aires, en donde el estudiante será el administrador de la red, el cual deberá configurar e interconectar entre sí cada uno de los dispositivos que forman parte del escenario, acorde con los lineamientos establecidos para el direccionamiento IP, protocolos de enrutamiento y demás aspectos que forman parte de la topología de red.



VLAN	Direccionamiento	Nombre
30	192.168.30.0/24	Administración
40	192.168.40.0/24	Mercadeo
200	192.168.200.0/24	Mantenimiento

1. **Configurar el direccionamiento IP acorde con la topología de red para cada uno de los dispositivos que forman parte del escenario**

Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R1
R1(config)#int g0/0

R1(config-if) #ip address 172.31.21.0 255.255.0.0
R1(config-if) #
R1(config-if) #no shutdown
R1(config-if) #

Router>enable
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R3
R3(config)#int g0/0
R3(config-if) #ip address 172.31.23.0 255.255.0.0
R3(config-if) #no shutdown

R3(config-if) #
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

R3(config-if) #

2. **Configurar el protocolo de enrutamiento OSPFv2 bajo los siguientes criterios:**

OSPFv2 area 0

Configuration Item or Task	**Specification**
Router ID R1	1.1.1.1
Router ID R2	5.5.5.5
Router ID R3	8.8.8.8
Configurar todas las interfaces LAN como pasivas	
Establecer el ancho de banda para enlaces seriales en	256 Kb/s
Ajustar el costo en la métrica de S0/0 a	9500

Agregamos las direcciones IP para cada uno de los Routers y también en ella se agrega el ancho de banda de 128 Kb/s que es equivalente al comando **clock rate 128000**

R1(config-if) #int s0/0/0

R1(config-if) #no shutdown

R1(config-if) #ip address 1.1.1.1 255.255.255.252

R1(config-if) #clock rate 128000

R1(config-if) #no shutdown

R1(config-if) #no shut

R1(config-if) #

Configuramos r2

Router#conf t

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#hostname R2

R2(config)#host R2

R2(config)#int g0/0/1

%Invalid interface type and number

R2(config)#int s0/0/1

R2(config-if) #no shutdown

R2(config-if) #

R2(config-if) #ip address

% Incomplete command.

R2(config-if) #ip address 5.5.5.5 255.255.255.252

R2(config-if) #clock rate 128000

This command applies only to DCE interfaces

R2(config-if) #no shutdown

R2(config-if) #exit

R2(config)#int s0/0/0

R2(config-if) #no shutdown

R2(config-if) #ip address 5.5.5.5 255.255.255.252

% 5.5.5.4 overlaps with Serial0/0/1

R2(config-if) #clock rate 128000

R2(config-if) #no shutdown

R2(config-if) #

R3(config)#int s0/0/1

R3(config-if) #ip address 8.8.8.8 255.255.255.252 bad mask /30 for address 8.8.8.8

^

% Invalid input detected at '^' marker.

R3(config-if) #ip address 8.8.8.8 255.255.255.252

Bad mask /30 for address 8.8.8.8

R3(config-if) #ip address 8.8.8.8 255.255.255.0

R3(config-if) #clock rate 128000

This command applies only to DCE interfaces

R3(config-if) #no shutdown

R3(config-if) #

R3(config-if) #

Ahora realizamos la configuración del OSPF a cada uno de los Routers

R1(config)#router ospf 1

R1(config-router) #network 172.31.21.0 0.0.0.255 area 0

R1(config-router) #

R1(config-router) #

R2(config)#router ospf 1

R2(config-router) #network 172.31.22.0 0.0.0.255 area 0

R2(config-router) #

R2(config-router) #

R3>en

R3#conf t

Enter configuration commands, one per line. End with CNTL/Z.

R3(config)#router ospf 1

R3(config-router) #network 172.31.23.0 0.0.0.255

% Incomplete command.

R3(config-router) #network 172.31.23.0 0.0.0.255 area 0

R3(config-router) #

Asignamos las direcciones IP a los Loopback

R2(config)#interface lo0

R2(config-if) #

%LINK-5-CHANGED: Interface Loopback0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback0, changed state to up

R2(config-if) #ip address 10.10.10.10 255.255.255.255

R2(config-if) #end

R2#

%SYS-5-CONFIG_I: Configured from console by console

R2#

R3(config-router) #exit
R3(config)#interface lo4

R3(config-if) #
%LINK-5-CHANGED: Interface Loopback4, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback4, changed state to up

R3(config-if) #ip address 192.168.4.0 255.255.255.255
R3(config-if) #ip address 192.168.5.0 255.255.255.255
R3(config-if) #ip address 192.168.6.0 255.255.255.255
R3(config-if) #end
R3#
%SYS-5-CONFIG_I: Configured from console by console

R3#

Direccionamiento IP de los Switch

Switch>en
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#host S1
S1(config)#int vlan 30
S1(config-if) #ip address 192.168.99.2 255.255.255.0
S1(config-if) #exit
S1(config)#ip default-gateway 192.168.1.1
S1(config)#

S1(config)#

S3

Switch>en
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname S3
S3(config)#int vlan 40

S3(config-if) #ip address 192.168.99.3 255.255.255.0
S3(config-if) #exit
S3(config)#ip default-gateway 192.168.1.3
S3(config)#

S3(config)#

Configurar todas las interfaces LAN como pasivas

R1>en
R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#router ospf 10
R1(config-router) #passive-interface default
R1(config-router) #end
R1#
%SYS-5-CONFIG_I: Configured from console by console

R1#

R2>en
R2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#router ospf 10
R2(config-router) #passive-interface default
R2(config-router) #end
R2#
%SYS-5-CONFIG_I: Configured from console by console

R2#

R3>en
R3#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R3(config)#router ospf 10
R3(config-router) #passive-interface default
R3(config-router) #end
R3#
%SYS-5-CONFIG_I: Configured from console by console

R3#

Verificar información de OSPF

- Visualizar tablas de enrutamiento y routers conectados por OSPFv2

R1#
%SYS-5-CONFIG_I: Configured from console by console

R1#show ip route
Codes: L - local, C - connected, S - static, 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

1.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C 1.1.1.0/30 is directly connected, Serial0/0/0
L 1.1.1.1/32 is directly connected, Serial0/0/0
172.31.0.0/16 is variably subnetted, 2 subnets, 2 masks
C 172.31.0.0/16 is directly connected, GigabitEthernet0/0
L 172.31.21.0/32 is directly connected, GigabitEthernet0/0

R1#
R2#
%SYS-5-CONFIG_I: Configured from console by console

R2#show ip route
Codes: L - local, C - connected, S - static, 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

5.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C 5.5.5.4/30 is directly connected, Serial0/0/1
L 5.5.5.5/32 is directly connected, Serial0/0/1
10.0.0.0/32 is subnetted, 1 subnets
C 10.10.10.10/32 is directly connected, Loopback0

R2#

R3#show ip route
Codes: L - local, C - connected, S - static, 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

8.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C 8.8.8.0/24 is directly connected, Serial0/0/1
L 8.8.8.8/32 is directly connected, Serial0/0/1
192.168.6.0/32 is subnetted, 1 subnets
C 192.168.6.0/32 is directly connected, Loopback4

R3#

- Visualizar lista resumida de interfaces por OSPF en donde se ilustre el costo de cada interface

- El comando "**show ip ospf interface brief**" no se puede implementar en Packet Tracer. Se puede utilizar el comando "**show ip ospf interface**"

- Visualizar el OSPF Process ID, Router ID, Address summarizations, Routing Networks, and passive interfaces configuradas en cada router.

R1>show ip protocols

Routing Protocol is "ospf 1"
Outgoing update filter list for all interfaces is not set
Incoming update filter list for all interfaces is not set
Router ID 172.31.21.0
Number of areas in this router is 1. 1 normal 0 stub 0 nssa
Maximum path: 4
Routing for Networks:
172.31.21.0 0.0.0.255 area 0
Routing Information Sources:
Gateway Distance Last Update

172.31.21.0 110 00:19:35
Distance: (default is 110)

Routing Protocol is "ospf 10"
Outgoing update filter list for all interfaces is not set
Incoming update filter list for all interfaces is not set
Router ID 1.1.1.1
Number of areas in this router is 0. 0 normal 0 stub 0 nssa
Maximum path: 4
Routing for Networks:
Passive Interface(s):
Vlan1
GigabitEthernet0/0
GigabitEthernet0/1
Serial0/0/0
Serial0/0/1
Routing Information Sources:
Gateway Distance Last Update
Distance: (default is 110)

R1>
R1>

R2>show ip protocols

Routing Protocol is "ospf 1"
Outgoing update filter list for all interfaces is not set
Incoming update filter list for all interfaces is not set
Router ID 5.5.5.5
Number of areas in this router is 1. 1 normal 0 stub 0 nssa
Maximum path: 4
Routing for Networks:
172.31.22.0 0.0.0.255 area 0
Routing Information Sources:
Gateway Distance Last Update
Distance: (default is 110)

Routing Protocol is "ospf 10"
Outgoing update filter list for all interfaces is not set
Incoming update filter list for all interfaces is not set
Router ID 10.10.10.10
Number of areas in this router is 0. 0 normal 0 stub 0 nssa
Maximum path: 4
Routing for Networks:
Passive Interface(s):

Vlan1
GigabitEthernet0/0
GigabitEthernet0/1
Serial0/0/0
Serial0/0/1
Loopback0
Routing Information Sources:
Gateway Distance Last Update
Distance: (default is 110)

R2>

R3#show ip protocols

Routing Protocol is "ospf 1"
Outgoing update filter list for all interfaces is not set
Incoming update filter list for all interfaces is not set
Router ID 172.31.23.0
Number of areas in this router is 1. 1 normal 0 stub 0 nssa
Maximum path: 4
Routing for Networks:
172.31.23.0 0.0.0.255 area 0
Routing Information Sources:
Gateway Distance Last Update
Distance: (default is 110)

Routing Protocol is "ospf 10"
Outgoing update filter list for all interfaces is not set
Incoming update filter list for all interfaces is not set
Router ID 192.168.6.0
Number of areas in this router is 0. 0 normal 0 stub 0 nssa
Maximum path: 4
Routing for Networks:
Passive Interface(s):
Vlan1
GigabitEthernet0/0
GigabitEthernet0/1
Serial0/0/0
Serial0/0/1
Loopback4
Routing Information Sources:
Gateway Distance Last Update
Distance: (default is 110)

R3#

3. **Configurar VLANs, Puertos troncales, puertos de acceso, encapsulamiento, Inter-VLAN Routing y Seguridad en los Switches acorde a la topología de red establecida.**

S1>en
S1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
S1(config)#vlan 30
S1(config-vlan) #
%LINK-5-CHANGED: Interface Vlan30, changed state to up

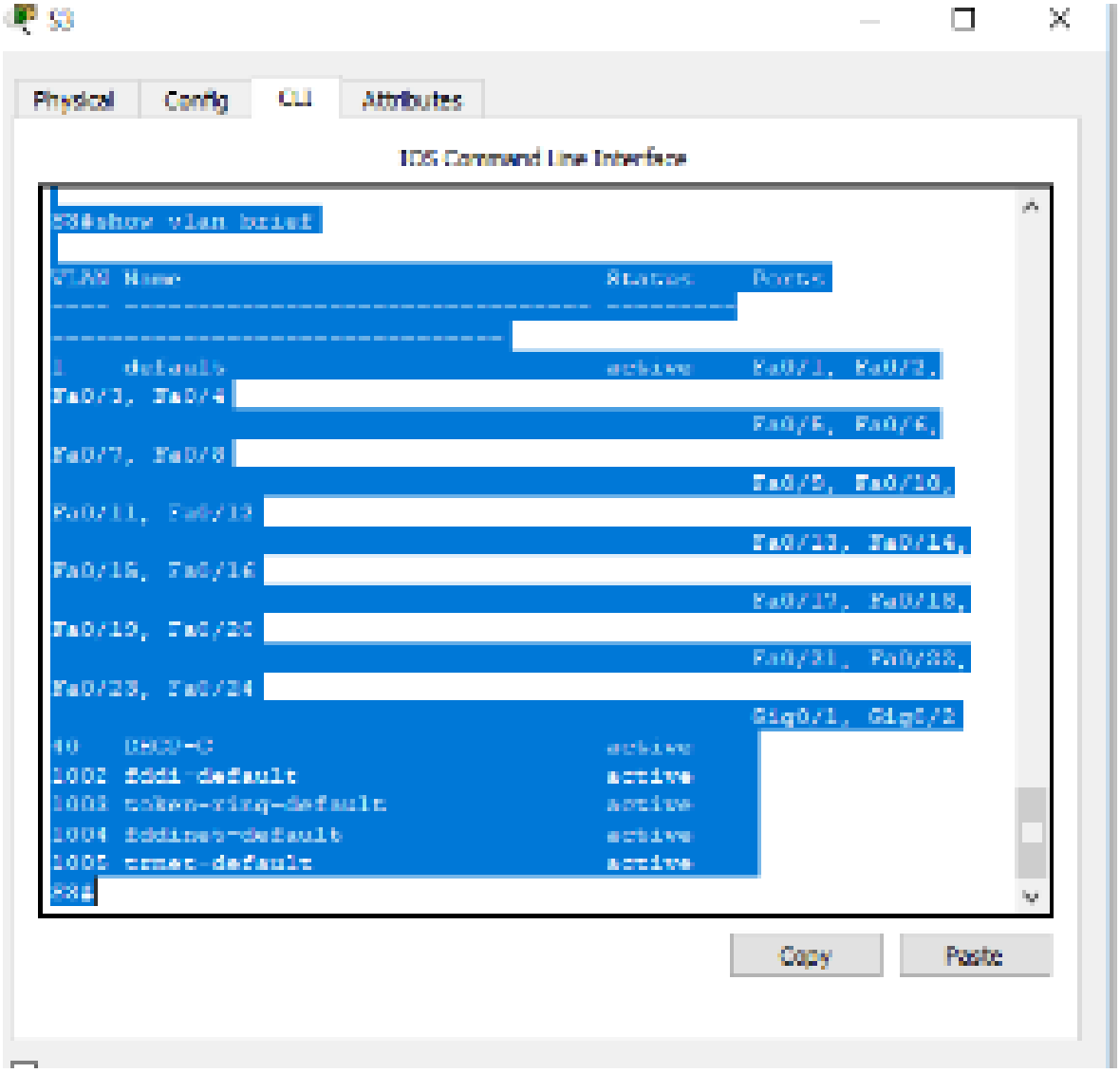
S1(config-vlan) #name DHCP-A
S1(config-vlan) #
S1(config-vlan) #
S1>en
S1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
S1(config)#vlan 30
S1(config-vlan) #
%LINK-5-CHANGED: Interface Vlan30, changed state to up

S1(config-vlan) #name DHCP-A
S1(config-vlan) #
S1(config-vlan) #END
S1#
%SYS-5-CONFIG_I: Configured from console by console

S1#SHOW VLAN BRIEF

VLAN Name Status Ports
---- -------------------------------- --------- -------------------------------
1 default active Fa0/1, Fa0/2, Fa0/3, 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
30 DHCP-A active
1002 fddi-default active
1003 token-ring-default active

1004 fddinet-default active
1005 trnet-default active
S1#



S3>EN
S3#CONF T
Enter configuration commands, one per line. End with CNTL/Z.
S3(config)#vlan 40
S3(config-vlan) #
%LINK-5-CHANGED: Interface Vlan40, changed state to up

S3(config-vlan) #name DHCP-C
S3(config-vlan) #

S3(config-vlan) #END
S3#
%SYS-5-CONFIG_I: Configured from console by console

S3#show vlan brief

VLAN Name Status Ports
---- -------------------------------- --------- -------------------------------
1 default active Fa0/1, Fa0/2, Fa0/3, 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
40 DHCP-C active
1002 fddi-default active
1003 token-ring-default active
1004 fddinet-default active
1005 trnet-default active
S3#

Puertos troncales

S1#en
S1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
S1(config)#interface f0/1
S1(config-if) #switchport mode dynamic desirable

S1(config-if) #
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

S1(config-if) #end
S1#
%SYS-5-CONFIG_I: Configured from console by console

S1#en
S1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
S1(config)#int f0/3
S1(config-if) #switchport mode dynamic desirable

S1(config-if) #
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan30, changed state to up

S3#en
S3#conf t
Enter configuration commands, one per line. End with CNTL/Z.
S3(config)#int f0/3
S3(config-if) #switchport mode dynamic desirabl

S3(config-if) #
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to up

S3(config-if) #int f0/1
S3(config-if) #switchport mode dynamic desirabl

S3(config-if) #
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

S1(config-if) #end
S1#
%SYS-5-CONFIG_I: Configured from console by console

S1#show interfaces trunk
Port Mode Encapsulation Status Native vlan
Fa0/3 desirable n-802.1q trunking 1

Port Vlans allowed on trunk
Fa0/3 1-1005

Port Vlans allowed and active in management domain
Fa0/3 1,30

Port Vlans in spanning tree forwarding state and not pruned

Fa0/3 1,30

S1#
S3#show interfaces trunk
Port Mode Encapsulation Status Native vlan
Fa0/3 desirable n-802.1q trunking 1

Port Vlans allowed on trunk
Fa0/3 1-1005

Port Vlans allowed and active in management domain
Fa0/3 1,40

Port Vlans in spanning tree forwarding state and not pruned
Fa0/3 1,40

S3#

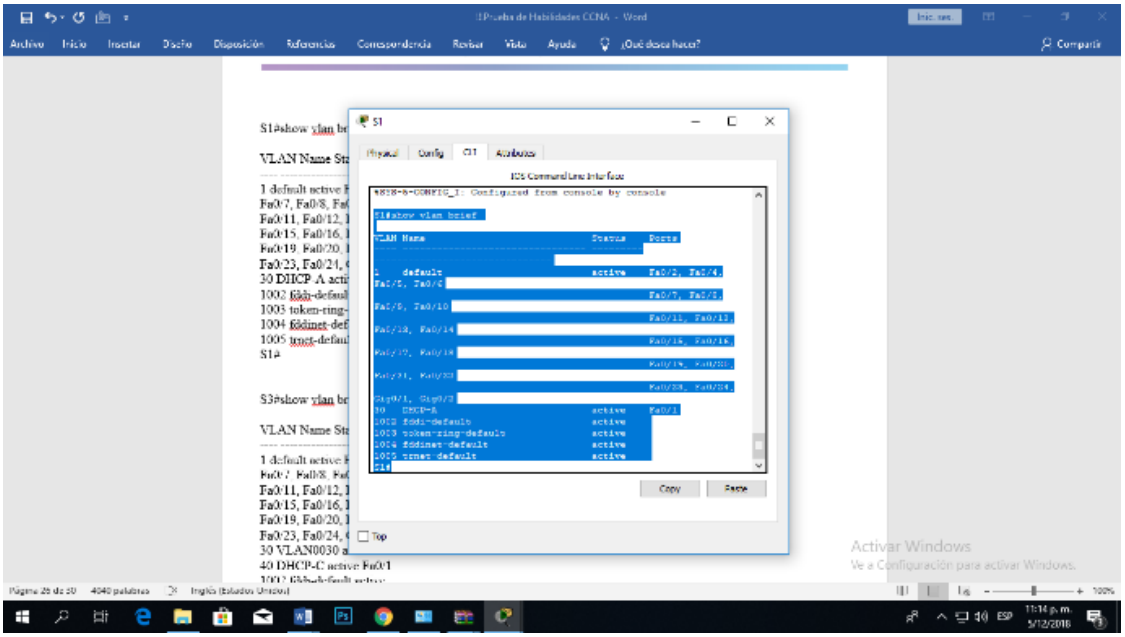
Puertos de enlace

1#en
S1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
S1(config)#interface f0/1
S1(config-if) #switchpot access vlan 30
^
% Invalid input detected at '^' marker.
S1(config-if) #switchport access vlan 30
S1(config-if) #interface f0/3
S1(config-if) #switchport access vlan 30
S1(config-if) #

S3#en
S3#conf t
Enter configuration commands, one per line. End with CNTL/Z.
S3(config)#interface f0/3
S3(config-if) #switchport access vlan 30
% Access VLAN does not exist. Creating vlan 30
S3(config-if) #switchport access vlan 40
S3(config-if) #interface f0/1
S3(config-if) #switchport access vlan 40
S3(config-if) #

S1#show vlan brief

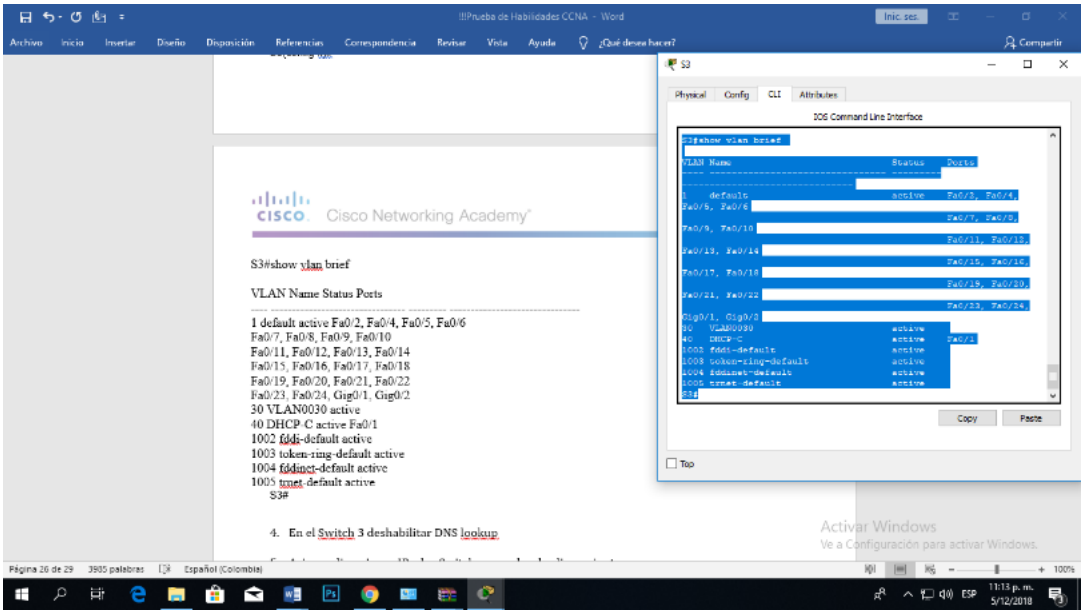
VLAN Name Status Ports
---- -------------------------------- --------- -------------------------------
1 default active Fa0/2, Fa0/4, Fa0/5, Fa0/6
Fa0/7, Fa0/8, Fa0/9, Fa0/10
Fa0/11, Fa0/12, Fa0/13, Fa0/14
Fa0/15, Fa0/16, Fa0/17, Fa0/18
Fa0/19, Fa0/20, Fa0/21, Fa0/22
Fa0/23, Fa0/24, Gig0/1, Gig0/2
30 DHCP-A active Fa0/1
1002 fddi-default active
1003 token-ring-default active
1004 fddinet-default active
1005 trnet-default active
S1#



S3#show vlan brief

VLAN Name Status Ports
---- -------------------------------- --------- -------------------------------
1 default active Fa0/2, 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
30 VLAN0030 active
40 DHCP-C active Fa0/1
1002 fddi-default active
1003 token-ring-default active
1004 fddinet-default active
1005 trnet-default active
S3#



Encapsulamiento e Inter-VLAN Routing

R1>en
R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#interface g0/1.1
R1(config-subif) #
R1(config-subif) #encapsulation dot1 Q 1
^
% Invalid input detected at '^' marker.
R1(config-subif) #encapsulation dot1Q 1
R1(config-subif) #

```
R1(config-subif) #ip address 192.168.1.1 255.255.255.0
R1(config-subif) #
    R1(config-subif) #
     Entramos a R2


R2>en
R2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#interface g0/1.1
R2(config-subif) #encapsulation dot1Q 1
R2(config-subif) #ip address 192.168.1.2 255.255.255.0
R2(config-subif) #
    R2#
    Entramos a R3


R3>en
R3#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R3(config)#interface g0/1.2
R3(config-subif) #encapsilation dot1Q 1
^
% Invalid input detected at '^' marker.
R3(config-subif) #encapsulation dot1Q 1
R3(config-subif) #ip address 192.168.1.3 255.255.255.0
    R3(config-subif) #
    Comprobamos

    R1
R1>show ip route
Codes: L - local, C - connected, S - static, 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

1.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C 1.1.1.0/30 is directly connected, Serial0/0/0
L 1.1.1.1/32 is directly connected, Serial0/0/0
172.31.0.0/16 is variably subnetted, 2 subnets, 2 masks
```

C 172.31.0.0/16 is directly connected, GigabitEthernet0/0
L 172.31.21.0/32 is directly connected, GigabitEthernet0/0

R1>

Comprobamos R2

R2#show ip route
Codes: L - local, C - connected, S - static, 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

5.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C 5.5.5.4/30 is directly connected, Serial0/0/1
L 5.5.5.5/32 is directly connected, Serial0/0/1
10.0.0.0/32 is subnetted, 1 subnets
C 10.10.10.10/32 is directly connected, Loopback0

R2#

Comprobamos R3

R3#show ip route
Codes: L - local, C - connected, S - static, 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

8.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C 8.8.8.0/24 is directly connected, Serial0/0/1
L 8.8.8.8/32 is directly connected, Serial0/0/1
192.168.6.0/32 is subnetted, 1 subnets
C 192.168.6.0/32 is directly connected, Loopback4

R3#

R1>show ip int brief
¿Interface IP-Address OK? Method Status Protocol
GigabitEthernet0/0 172.31.21.0 YES manual up up
GigabitEthernet0/1 unassigned YES unset administratively down down
GigabitEthernet0/1.1 192.168.1.1 YES manual administratively down down
Serial0/0/0 1.1.1.1 YES manual up up
Serial0/0/1 unassigned YES unset administratively down down
Vlan1 unassigned YES unset administratively down down
R1>

R2#show ip int brief
¿Interface IP-Address OK? Method Status Protocol
GigabitEthernet0/0 unassigned YES unset up up
GigabitEthernet0/1 unassigned YES unset administratively down down
GigabitEthernet0/1.1 192.168.1.2 YES manual administratively down down
Serial0/0/0 unassigned YES unset up up
Serial0/0/1 5.5.5.5 YES manual up up
Loopback0 10.10.10.10 YES manual up up
Vlan1 unassigned YES unset administratively down down
R2#

R3#show ip int brief
¿Interface IP-Address OK? Method Status Protocol
GigabitEthernet0/0 172.31.23.0 YES manual up down
GigabitEthernet0/1 unassigned YES unset administratively down down
GigabitEthernet0/1.2 192.168.1.3 YES manual administratively down down
Serial0/0/0 unassigned YES unset administratively down down
Serial0/0/1 8.8.8.8 YES manual up up
Loopback4 192.168.6.0 YES manual up up
Vlan1 unassigned YES unset administratively down down
R3#

Seguridad en los Switches

S1>en

S1#conf t

Enter configuration commands, one per line. End with CNTL/Z.

S1(config)#ip domain-name CCNA-lab.com

S1(config)#username admin privilege 15 secret sshadmin

S1(config)#line vty 0 15

S1(config-line) #transport input ssh

S1(config-line) #login local

S1(config-line) #exit

S1(config)#

S1(config)#crypto key generate rsa

The name for the keys will be: S1.CCNA-lab.com

Choose the size of the key modulus in the range of 360 to 2048 for your General Purpose Keys. Choosing a key modulus greater than 512 may take a few minutes.

How many bits in the modulus [512]: 1024

% Generating 1024 bit RSA keys, keys will be non-exportable... [OK]

S1(config)#

S3>en

S3#conf t

Enter configuration commands, one per line. End with CNTL/Z.

S3(config)#ip domain-name CCNA-Lab.com

S3(config)#username admin privilege 15 secret sshadmin

S3(config)#line vty 0 15

S3(config-line) #transport input ssh

S3(config-line) #login local

S3(config-line) #exit

S3(config)#

S3(config)#crypto key generate rsa

The name for the keys will be: S3.CCNA-Lab.com

Choose the size of the key modulus in the range of 360 to 2048 for your General Purpose Keys. Choosing a key modulus greater than 512 may take a few minutes.

How many bits in the modulus [512]: 1024

% Generating 1024 bit RSA keys, keys will be non-exportable... [OK]

S3(config)#

4. En el Switch 3 deshabilitar DNS lookup

```
S3#en
S3#conf t
Enter configuration commands, one per line. End with CNTL/Z.
S3(config)#no ip domain-lookup
S3(config)#exit
S3#
%SYS-5-CONFIG_I: Configured from console by console
```

S3#

5. **Asignar direcciones IP a los Switches acorde a los lineamientos.**

```
S1>en
S1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
S1(config)#host S1
S1(config)#int vlan 30
S1(config-if) #ip address 192.168.99.2 255.255.255.0
S1(config-if) #exit
S1(config)#ip default-gateway 192.168.1.1
```

S1(config)#

```
S3#
S3#en
S3#conf t
Enter configuration commands, one per line. End with CNTL/Z.
S3(config)#host S3
```

S3(config)#int vlan 40
S3(config-if) #ip address 192.168.99.3 255.255.255.0
S3(config-if) #exit
S3(config)#ip default-gateway 192.168.1.3
S3(config)#
S3(config)#

6. **Desactivar todas las interfaces que no sean utilizadas en el esquema de red.**

S1(config)#interface range f0/2
S1(config-if-range) #shutdown

%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to administratively down
S1(config-if-range) #shutdown
S1(config-if-range) #interface range f0/4-23
S1(config-if-range) #shutdown

%LINK-5-CHANGED: Interface FastEthernet0/4, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/5, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/6, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/7, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/8, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/9, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/10, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/11, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/12, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/13, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/14, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/15, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/16, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/17, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/18, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/19, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/20, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/21, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/22, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/23, changed state to administratively down

S1(config-if-range) #

S1#show run
Building configuration...

Current configuration: 1633 bytes
!

```
version 12.2
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname S1
!
!
!
ip domain-name CCNA-lab.com
!
username admin secret 5 $1$mERr$vReEy/CTmNb7D.2HfKA2E0
!
!
spanning-tree mode pvst
!
interface FastEthernet0/1
switchport access vlan 30
switchport mode dynamic desirable
!
interface FastEthernet0/2
shutdown
!
interface FastEthernet0/3
switchport access vlan 30
switchport mode dynamic desirable
!
interface FastEthernet0/4
shutdown
!
interface FastEthernet0/5
shutdown
!
interface FastEthernet0/6
shutdown
!
interface FastEthernet0/7
shutdown
!
interface FastEthernet0/8
shutdown
!
interface FastEthernet0/9
shutdown
!
```

```
interface FastEthernet0/10
shutdown
!
interface FastEthernet0/11
shutdown
!
interface FastEthernet0/12
shutdown
!
interface FastEthernet0/13
shutdown
!
interface FastEthernet0/14
shutdown
!
interface FastEthernet0/15
shutdown
!
interface FastEthernet0/16
shutdown
!
interface FastEthernet0/17
shutdown
!
interface FastEthernet0/18
shutdown
!
interface FastEthernet0/19
shutdown
!
interface FastEthernet0/20
shutdown
!
interface FastEthernet0/21
shutdown
!
interface FastEthernet0/22
shutdown
!
interface FastEthernet0/23
shutdown
!
interface FastEthernet0/24
!
interface GigabitEthernet0/1
```

```
!
interface GigabitEthernet0/2
!
interface Vlan1
no ip address
shutdown
!
interface Vlan30
mac-address 0010.118e.9b01
ip address 192.168.99.2 255.255.255.0
!
ip default-gateway 192.168.1.1
!
!
!
!
line con 0
!
line vty 0 4
login local
transport input ssh
line vty 5 15
login local
transport input ssh
!
!
!
end
```

S1#

```
S3#en
S3#conf t
Enter configuration commands, one per line. End with CNTL/Z.
S3(config)#interface range f0/2
S3(config-if-range) #shutdown

%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to administratively
down
S3(config-if-range) #interface range f0/4-24
S3(config-if-range) #shutdown
```

%LINK-5-CHANGED: Interface FastEthernet0/4, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/5, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/6, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/7, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/8, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/9, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/10, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/11, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/12, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/13, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/14, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/15, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/16, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/17, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/18, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/19, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/20, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/21, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/22, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/23, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/24, changed state to administratively down

S3(config-if-range) #

7. Implement DHCP and NAT for IPv4

Configuramos el EIGRP

```
R1>en
R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#igrp 1
^
% Invalid input detected at '^' marker.
R1(config)#router igrp 1
^
% Invalid input detected at '^' marker.
R1(config)#router eigrp 1
R1(config-router) #network 172.31.21.0 0.0.0.255
R1(config-router) #network 1.1.1.1 0.0.0.255
R1(config-router) #no auto-sumary
^
% Invalid input detected at '^' marker.
R1(config-router) #no auto-summary
R1(config-router) #network 172.31.21.9 0.0.0.3
R1(config-router) #no auto-summary
```

R1(config-router) #

```
R2>en
R2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#router eigrp 1
R2(config-router) #network 172.31.21.9 0.0.0.3
R2(config-router) #
R2(config-router) #redistribute static
R2(config-router) #exit
R2(config)#ip route 0.0.0.0 0.0.0.0 209.165.200.225
        R2(config)#


R3>en
R3#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R3(config)#ip route 172.31.0.0 255.255.252.0 209.165.200.226
        R3(config)#
```

Para asignar automáticamente la información de dirección en la red, configure el R2 como servidor de DHCPv4 y el R1 como agente de retransmisión DHCP

```
R2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#ip dhcp excluded-address 172.31.21.0 192.168.0.9
R2(config)#ip dhcp excluded-address 192.168.1.1 192.168.1.9
R2(config)#ip dhcp pool R1G1
R2(dhcp-config) #network 192.168.1.0 255.255.255.0
R2(dhcp-config) #default-router 192.168.1.1
R2(dhcp-config) #dns-server 209.165.200.225
R2(dhcp-config) #domain-name ccna-lab.com
^
% Invalid input detected at '^' marker.
R2(dhcp-config) #domain-name ccna-lab.com
^
% Invalid input detected at '^' marker.
R2(dhcp-config) #domain-name ccna-lab.com
^
% Invalid input detected at '^' marker.
R2(dhcp-config) #domain-name CCNA-lab.com
^
% Invalid input detected at '^' marker.
```

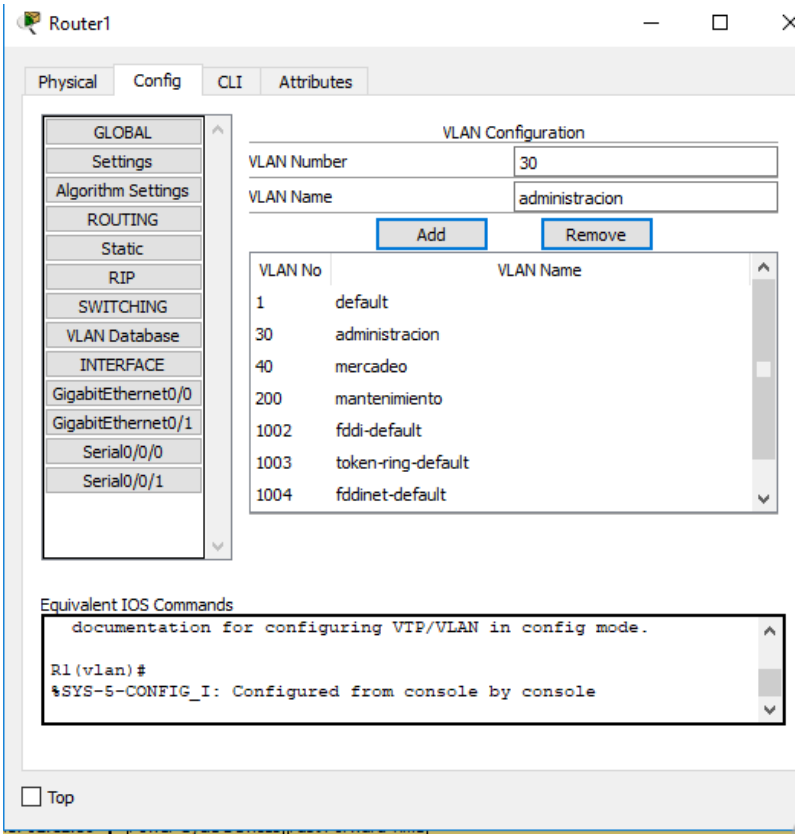
```
R2(dhcp-config) #ip dhcp pool R1G1
R2(dhcp-config) #network 192.168.1.0 255.255.255.0
R2(dhcp-config) #default-router 192.168.1.1
R2(dhcp-config) #dns-server 209.165.200.225
R2(dhcp-config) #domain-name ccna-lab.com
^
% Invalid input detected at '^' marker.
R2(dhcp-config) #domain-name CCNA-Lab.com
^
% Invalid input detected at '^' marker.
R2(dhcp-config) #ip domain-name CCNA-lab.com
R2(config)#ip dhcp pool R1G0
R2(dhcp-config) #network 192.168.0.0 255.255.255.0
R2(dhcp-config) #default-router 192.168.0.1
R2(dhcp-config) #dns-server 209.165.200.225
R2(dhcp-config) #domain-name ccna-lab.com
^
% Invalid input detected at '^' marker.
        R2(dhcp-config) #
```

8. **Configurar R1 como servidor DHCP para las VLANs 30 y 40.**

```
R1>en
R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#ip dhcp pool DHCP-AB
R1(dhcp-config) #?
default-router Default routers
dns-server Set name server
exit Exit from DHCP pool configuration mode
network Network number and mask
no Negate a command or set its defaults
option Raw DHCP options
R1(dhcp-config) #network 192.168.0.0 255.255.255.0
R1(dhcp-config) #default
% Incomplete command.
R1(dhcp-config) #default-router 172.31.21.0
R1(dhcp-config) #dns-server 8.8.8.8
R1(dhcp-config) #exit
R1(config)#do wr
```

Building configuration...
[OK]
R1(config)#

R1(config)#



9. **Reservar las primeras 30 direcciones IP de las VLAN 30 y 40 para configuraciones estáticas.**

Configurar DHCP pool para VLAN 30	Name: ADMINISTRACION DNS-Server: 10.10.10.11 Domain-Name: ccna-unad.com Establecer default gateway.
Configurar DHCP pool para VLAN 40	Name: MERCADEO DNS-Server: 10.10.10.11 Domain-Name: ccna-unad.com Establecer default gateway.

R1>en

```
R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#ip dhcp pool administracion
R1(dhcp-config) #network 192.158.30.0 255.255.255.0
R1(dhcp-config) #dns-server 10.10.10.11
R1(dhcp-config) #domain-name ccna-unad.com
^
% Invalid input detected at '^' marker.
R1(dhcp-config) #default-router 172.31.21.0
R1(dhcp-config) #domain-name ccna-unad.com
^
% Invalid input detected at '^' marker.
R1(dhcp-config) #domain-name ccna-unad.com
^
% Invalid input detected at '^' marker.
```

R1(dhcp-config) #

```
R1(dhcp-config) #
R1(dhcp-config) #exit
R1(config)#ip dhcp pool mercadeo
R1(dhcp-config) #dns-server 10.10.10.11
R1(dhcp-config) #defaul-router 172.31.21.0
^
% Invalid input detected at '^' marker.
R1(dhcp-config) #defaul-router 192.168.1.1
^
% Invalid input detected at '^' marker.
R1(dhcp-config) #defaul-router 172.31.21.0
^
% Invalid input detected at '^' marker.
R1(dhcp-config) #defaul-router 172.31.21.0
^
% Invalid input detected at '^' marker.
R1(dhcp-config) #default-router 172.31.21.0
R1(dhcp-config) #domain-name ccna-unad.com
^
% Invalid input detected at '^' marker.
```

R1(dhcp-config) #

10. **Configurar NAT en R2 para permitir que los hosts puedan salir a internet**

```
R2>en
R2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#interface g0/0
R2(config-if) #ip nat inside
R2(config-if) #interface s0/0
%Invalid interface type and number
R2(config)#interface s0/0/1
R2(config-if) #ip nat outside
R2(config-if) #interface s0/0/0
R2(config-if) #ip nat outside
    R2(config-if) #
```

11. **Configurar al menos dos listas de acceso de tipo estándar a su criterio en para restringir o permitir tráfico desde R1 o R3 hacia R2.**

```
R1#en
R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#access-list 1 deny 172.31.21.0 0.0.0.255
R1(config)#access-list 1 permit any
R1(config)#int g0/0
R1(config-if) #ip access-group 1 out
R1(config-if) #
R1(config-if) #
R1#show access-list
Standard IP access list 1
10 deny 172.31.21.0 0.0.0.255
20 permit any

R1#
```

```
R2#en
R2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#access-list 1 deny 192.168.1.2 0.0.0.255
R2(config)#access-list 1 permit any
R2(config)#int g0/1.1
R2(config-subif) #ip access-group 1 out
R2(config-subif) #
R2#
```

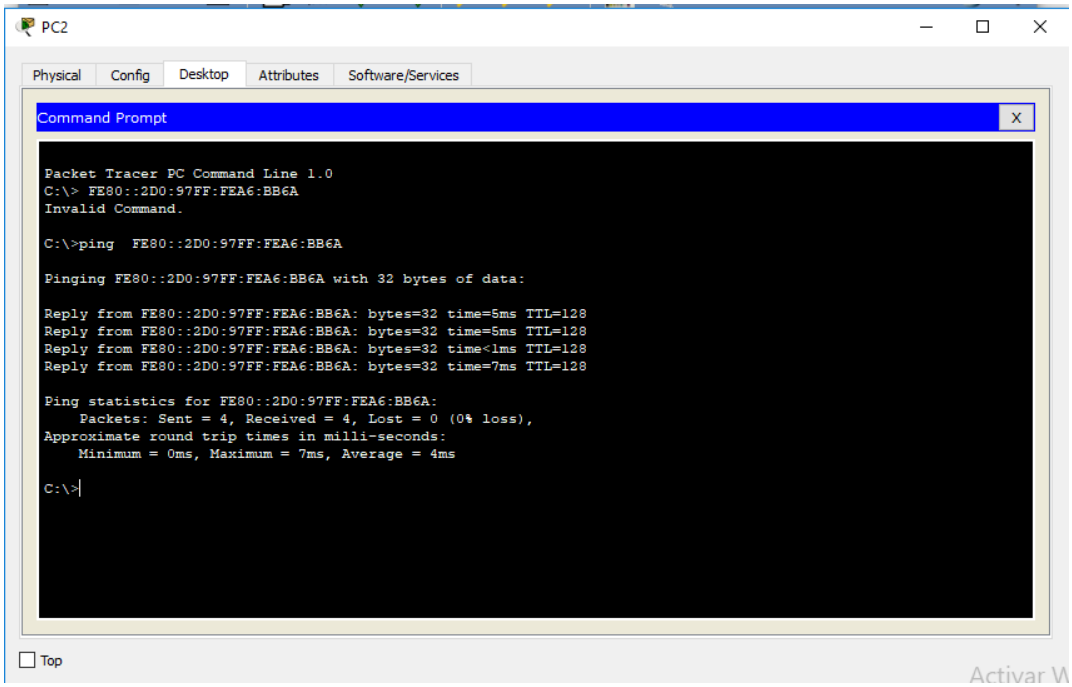
```
R2#en
R2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#access-list 1 deny 192.168.1.2 0.0.0.255
R2(config)#access-list 1 permit any
R2(config)#int g0/1.1
R2(config-subif) #ip access-group 1 out
R2(config-subif) #
R2#

R3>en
R3#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R3(config)#access-list 1 deny 172.31.23.0 0.0.0.255
R3(config)#access-list 1 permit any
R3(config)#int g0/0
R3(config-if) #ip access-group 1 out
R3(config-if) #
R3#show access-list
Standard IP access list 1
10 deny 172.31.23.0 0.0.0.255
20 permit any

R3#
```

12. **Configurar al menos dos listas de acceso de tipo extendido o nombradas a su criterio en para restringir o permitir tráfico desde R1 o R3 hacia R2.**

13. **Verificar procesos de comunicación y redireccionamiento de tráfico en los routers mediante el uso de Ping y Traceroute.**


PC2
Physical
Config
Desktop
Attributes
Software/Services
Command Prompt
X
Packet Tracer PC Command Line 1.0
C:\> FE80::2D0:97FF:FEA6:BB6A
Invalid Command.
C:\>ping FE80::2D0:97FF:FEA6:BB6A
Pinging FE80::2D0:97FF:FEA6:BB6A with 32 bytes of data:
Reply from FE80::2D0:97FF:FEA6:BB6A: bytes=32 time=5ms TTL=128
Reply from FE80::2D0:97FF:FEA6:BB6A: bytes=32 time=5ms TTL=128
Reply from FE80::2D0:97FF:FEA6:BB6A: bytes=32 time<1ms TTL=128
Reply from FE80::2D0:97FF:FEA6:BB6A: bytes=32 time=7ms TTL=128
Ping statistics for FE80::2D0:97FF:FEA6:BB6A:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 7ms, Average = 4ms
C:\>
Top

CONCLUCIONES

Durante el desarrollo y la ejecución del diplomado se identificó la importancia de cada una de las practicas que se han venido realizando en cada unidad, reforzando y manteniendo los conceptos básicos y avanzados de una red, los modelos y desarrollos que se han venido viendo uno tras otro como son las conexiones mediante IP públicas y asignaciones de puertos en los Switch y los ISP en la plataforma Cisco Packet Tracer, en el primer escenario identificamos la importancia de la Nat como configurar y observar el resultado en la simulación, pero también la configuración del S3 permitió un enlace con el servidor promedio de IPV4 y IPV6 entre los equipos de la red S3 lo cual dio como resultado que si se comunican los equipos 30-31 DESTOPD Y LAPTOS, por medio de IPV6 arrojo como resultado que al hacer ping desde el S2 no se puede conectar con el servidor si no solo por IPv4.

En la práctica final se manejó mucho RipV2, la cual permite enrutamiento interior más sencillos y utilizados. Esto es particularmente verdadero a partir de la versión 2 que introduce algunas mejoras críticas que la constituyeron en un recurso necesario para cualquier administrador de redes.

En el escenario 2 se interconectaron entre si cada uno de los dispositivos entre router y pc de cada zona para la comunicación mediante configuración DHCP y manejo de las Nat que permite un mejor flujo de comunicación, y se identificó la importancia en la asignación de IP y puertos para cada dispositivo.

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