DIPLOMADO DE PROFUNDIZACIÓN CISCO CCNP

EVALUACIÓN – PRUEBA DE HABILIDADES PRÁCTICAS CCNP

HECTOR FERNANDO SABOGAL

UNIVERSIDAD NACIONAL ABIERTA Y A DISTANCIA – UNAD

ESCUELA DE CIENCIAS BÁSICAS, TECNOLOGÍA E INGENIERÍA

INGENIERÍA ELECTRÓNICA

BOGOTÁ D.C.

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Presentado a:

GIOVANNI ALBERTO BRACHO

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PÁGINA DE ACEPTACIÓN.

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Bogota D.C, 15 de Mayo de 2020, (15, 05, 2020)

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RESUMEN

En el siguiente informe se desarrolla de acuerdo a las indicaciones para la presentación del examen de habilidades prácticas para el curso diplomado de profundización cisco ccnp, en el cual se procede abordar y conocer la importancia del curso como forma de aprendizaje acerca del proceso de enrutamiento y configuración avanzado usando switch, para segmentar la red a través de vlan para enviar paquetes a la red de destino a través de equipos conectados y pasando por capa 2 y capa 3 respectivamente mediante dos escenarios.

ABSTRACT

In the following report, it is developed according to the indications for the presentation of the practical skills exam for the cisco ccnp in-depth diploma course, in which it is necessary to approach and know the importance of the course as a way of learning about the routing process and advanced configuration using switch, to segment the network through vlan to send packets to the destination network through connected equipment and through layer 2 and layer 3 respectively using two scenarios.

GLOSARIO

CISCO: Cisco es una empresa de origen estadounidense fabricante de dispositivos para redes locales y externa, también presta el servicio de soluciones de red, su objetivo es conectar a todos y demostrar las cosas asombrosas que se pueden lograr con una visión clara del futuro.

Fuente: https://www.netec.com/

ELECTRONICA: es una rama de la ingeniería, basada en electrónica, que se encarga de resolver problemas de ingeniería, como el control de procesos industriales, la transformación de electricidad para el funcionamiento de diversos dispositivos y tiene aplicación en la industria, en las telecomunicaciones, en el diseño y análisis de microcontroladores y microprocesadores de instrumentación electrónica.

Fuente: https://conceptodefinicion.de/ingenieria-electronica/

CCNP: Un Cisco Certified Network Professional (CCNP) es una persona en la industria de TI que ha alcanzado el nivel profesional de Certificación de Carrera de Cisco.

Fuente: https://en.wikipedia.org/wiki/CCNP

CONMUTACION: En las redes de comunicaciones, forma de establecer un camino entre dos puntos, un transmisor y un receptor a través de nodos o equipos de transmisión. La conmutación permite la entrega de la señal desde el origen hasta el destino requerido.

Fuente:
https://www.ecured.cu/Conmutaci%C3%B3n_(Redes_de_comunicaci%C3%B3n)

ENRUTAMIENTO: Se conoce con el nombre de enrutamiento (routing) el proceso que permite que los paquetes IP enviados por el host origen lleguen al host destino de forma adecuada.

Fuente: https://sites.google.com/site/redesdecomputadorashamed/unidad-3-capas-inferiores-del-modelo-osi-y-tcp-ip/3-1-capa-de-red/3-1-3-enrutamiento-y-sus-caracteristicas

RED: Interconexión de un número determinado de computadores (o de redes, a su vez) mediante dispositivos alámbricos o inalámbricos que, mediante impulsos eléctricos, ondas electromagnéticas u otros medios físicos, les permiten enviar y recibir información en paquetes de datos, compartir sus recursos y actuar como un conjunto organizado.

Fuente: https://concepto.de/red-2/

INTRODUCCIÓN

La prueba de habilidades prácticas es una herramienta de evaluación del Diplomado de profundización de CCNP, con la cual se busca medir las habilidades y competencias que el estudiante logró alcanzar mediante el desarrollo del diplomado y cada una de sus actividades, esta evaluación pondrá a prueba al estudiante mediante la solución de problemas relacionados con redes.

En el escenario 1 se demuestran las habilidades obtenidas en el diplomado para administrar una red, configurando e interconectando todos los dispositivos que forman parte de este escenario.

En el escenario 2 se administrará la red de una empresa de telecomunicaciones, haciendo así la configuración e interconexiones según los lineamientos expuestos en la topología.

1. EVALUACIÓN – PRUEBA DE HABILIDADES PRÁCTICAS CCNP

1.1. DESCRIPCIÓN GENERAL DE LA PRUEBA DE HABILIDADES

La evaluación denominada "**Prueba de habilidades prácticas**", forma parte de las actividades evaluativas del Diplomado de Profundización CCNP, y busca identificar el grado de desarrollo de competencias y habilidades que fueron adquiridas a lo largo del diplomado. Lo esencial es poner a prueba los niveles de comprensión y solución de problemas relacionados con diversos aspectos de Networking.

Para esta actividad, el estudiante dispone de cerca de dos semanas para realizar las tareas asignadas en cada uno de los dos (2) escenarios propuestos, acompañado de los respectivos procesos de documentación de la solución, correspondientes al registro de la configuración de cada uno de los dispositivos, la descripción detallada del paso a paso de cada una de las etapas realizadas durante su desarrollo, el registro de los procesos de verificación de conectividad mediante el uso de comandos **ping, traceroute, show ip route, entre otros.**

Teniendo en cuenta que la Prueba de habilidades está conformada por dos (2) escenarios, el estudiante deberá realizar el proceso de configuración de usando cualquiera de las siguientes herramientas: **Packet Tracer** , **GNS3 o SMARTLAB**.

- Es muy importante mencionar que esta actividad es de carácter **INDIVIDUAL y OBLIGATORIA.**
- Toda evidencia de **copy-paste o plagio (de la web o de otros informes)** será penalizada con severidad.

Descripción de escenarios propuestos para la prueba de habilidades

1.2.   ESCENARIO 1

Una empresa de confecciones posee tres sucursales distribuidas en las ciudades de Bogotá, Medellín y Bucaramanga, 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.

Topología de red

Figura 1. Topología de red Escenario 1
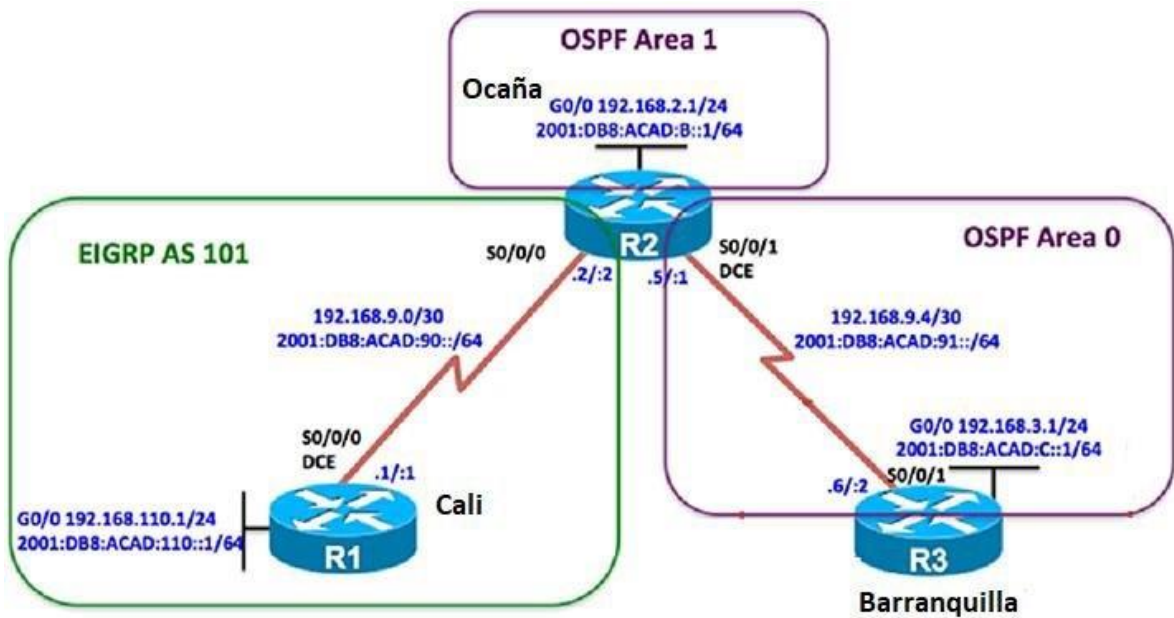
Fuente: Autor.

Configurar la topología de red, de acuerdo con las siguientes especificaciones.

Parte 1: Configuración del escenario propuesto

1. Configurar las interfaces con las direcciones IPv4 e IPv6 que se muestran en la topología de red.

En R1.

Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#no ip domain-lookup
Router(config)#hostname R1 R1(config)#interface
s0/0/0
R1(config-if)#ip address 192.168.9.1 255.255.255.252 R1(config-if)#no
shutdown

%LINK-5-CHANGED: Interface Serial0/0/0, changed state to down
R1(config-if)#exit
R1(config)#interface g0/0
R1(config-if)#ip address 192.168.110.1 255.255.255.0 R1(config-if)#no
shutdown

R1(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

R1(config-if)#ipv6 unicast-routing
R1(config)#interface s0/0/0
R1(config-if)#ipv6 address 2001:DB8:ACAD:90::1/64
R1(config-if)#ipv6 address FE80::1 link-local R1(config-if)#no
shutdown
R1(config-if)#exit
R1(config)#interface g0/0
R1(config-if)#ipv6 address 2001:DB8:ACAD:110::1/64
R1(config-if)#ipv6 address FE80::1 link-local R1(config-if)#no
shutdown
R1(config-if)#exit
R1(config)#

En R2

Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#no ip domain-lookup

Router(config)#hostname R2 R2(config)#interface
s0/0/0
R2(config-if)#ip address 192.168.9.2 255.255.255.252
R2(config-if)#no shutdown
R2(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up

R2(config-if)#exit
R2(config)#interf
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state
to up ace g0/0
R2(config-if)#ip address 192.168.2.1 255.255.255.0
R2(config-if)#no shutdown

R2(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

R2(config-if)#exit
R2(config)#interface s0/0/1
R2(config-if)#ip address 192.168.9.5 255.255.255.252 R2(config-if)#no
shutdown

%LINK-5-CHANGED: Interface Serial0/0/1, changed state to down
R2(config-if)#exit
R2(config)#ipv6 unicast-routing R2(config)#interface
s0/0/0
R2(config-if)#ipv6 address 2001:DB8:ACAD:90::2/64
R2(config-if)#ipv6 address FE80::2 link-local R2(config-if)#no
shutdown
R2(config-if)#exit
R2(config)#interface g0/0
R2(config-if)#ipv6 address 2001:DB8:ACAD:8::1/64
R2(config-if)#ipv6 address FE80::2 link-local R2(config-if)#no
shutdown
R2(config-if)#exit
R2(config)#interface s0/0/1
R2(config-if)#ipv6 address 2001:DB8:ACAD:91::1/64
R2(config-if)#ipv6 address FE80::2 link-local R2(config-if)#no
shutdown
R2(config-if)#exit
R2(config)#

En R3.

Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#no ip domain-lookup
Router(config)#hostname R3 R3(config)#interface
s0/0/1
R3(config-if)#ip address 192.168.9.6 255.255.255.252 R3(config-if)#no
shutdown

R3(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/1, changed state to up

R3(config-if)#exit
R3(config)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/1, changed state to
up

R3(config)#interface g0/0
R3(config-if)#ip address 192.168.3.1 255.255.255.0 R3(config-if)#no
shutdown

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

R3(config-if)#exit
R3(config)#ipv6 unicast-routing R3(config)#interface
s0/0/1
R3(config-if)#ipv6 address 2001:DB8:ACAD:91::2/64
R3(config-if)#ipv6 address FE80::3 link-local R3(config-if)#no
shutdown
R3(config-if)#exit
R3(config)#interface g0/0
R3(config-if)#ipv6 address 2001:DB8:ACAD:C::1/64
R3(config-if)#ipv6 address FE80::3 link-local R3(config-if)#no
shutdown
R3(config-if)#exit
R3(config)#

2. Ajustar el ancho de banda a 128 kbps sobre cada uno de los enlaces seriales ubicados en R1, R2, y R3 y ajustar la velocidad de reloj de las conexiones de DCE según sea apropiado.

En R1.

R1>enable
R1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#interface s0/0/0
R1(config-if)#bandwidth 128
R1(config-if)#clock rate 128000
R1(config-if)#exit
R1(config)#

En R2.

R2(config)#interface se0/0/0
R2(config-if)#bandwidth 128
R2(config-if)#exit
R2(config)#interface se0/0/1
R2(config-if)#bandwidth 128
R2(config-if)#clock rate 128000
R2(config-if)#exit
R2(config)#

En R3.

R3(config)#interface se0/0/1
R3(config-if)#bandwidth 128
R3(config-if)#exit
R3(config)#

3. En R2 y R3 configurar las familias de direcciones OSPFv3 para IPv4 e IPv6. Utilice el identificador de enrutamiento 2.2.2.2 en R2 y 3.3.3.3 en R3 para ambas familias de direcciones.

En R2.

R2(config)#router ospf 1
R2(config-router)#router-id 2.2.2.2
R2(config-router)#exit
R2(config)#ipv6 router ospf 1
R2(config-rtr)#router-id 2.2.2.2
R2(config-rtr)#exit R2(config)#

En R3.

R3(config)#router ospf 1
R3(config-router)#router-id 3.3.3.3
R3(config-router)#exit
R3(config)#ipv6 router ospf 1
R3(config-rtr)#router-id 3.3.3.3
R3(config-rtr)#exit
R3(config)#

4. En R2, configurar la interfaz F0/0 en el área 1 de OSPF y la conexión serial entre R2 y R3 en OSPF área 0.

En R2.

R2#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#router ospf 1
R2(config-router)#network 192.168.2.0 0.0.0.255 area 1
R2(config-router)#network 192.168.9.4 0.0.0.3 area 0
R2(config-router)#exit
R2(config)#

5. En R3, configurar la interfaz F0/0 y la conexión serial entre R2 y R3 en OSPF área 0.

En R3.

R3#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
R3(config)#router ospf 1
R3(config-router)#network 192.168.9.4 0.0.0.3 area 0
R3(config-router)#network 192.168.3.0 0.0.0.255 area 0
R3(config-router)#exit
R3(config)#

6. Configurar el área 1 como un área totalmente Stubby.

En R2.

R2(config)#router ospf 1
R2(config-router)#area 1 nssa
R2(config-router)#exit
R2(config)#

En R3.

R3(config)#router ospf 1
R3(config-router)#area 1 nssa
R3(config-router)#exit
R3(config)#

7. Propagar rutas por defecto de IPv4 y IPv6 en R3 al interior del dominio OSPFv3.
   Nota: Es importante tener en cuenta que una ruta por defecto es diferente a la definición de rutas estáticas.

En R3.

R3(config)#router ospf 1
R3(config-router)#log-adjacency-changes
R3(config-router)#exit

R3(config)#ipv6 router ospf 1
R3(config-rtr)#log-adjacency-changes
R3(config-rtr)#exit
R3(config)#

8. Realizar la configuración del protocolo EIGRP para IPv4 como IPv6. Configurar la interfaz F0/0 de R1 y la conexión entre R1 y R2 para EIGRP con el sistema autónomo 101. Asegúrese de que el resumen automático está desactivado.

En R1.

R1>enable
R1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z. R1(config)#router eigrp 101
R1(config-router)#passive-interface gi
R1(config-router)#passive-interface gigabitEthernet 0/0 R1(config-router)#network 192.168.110.0
R1(config-router)#network 192.168.9.0 0.0.0.3
R1(config-router)#
%DUAL-5-NBRCHANGE: IP-EIGRP 101: Neighbor 192.168.9.2 (Serial0/0/0) is up: new adjacency

R1(config-router)#no auto-summary
R1(config-router)#exit
R1(config)#ipv6 router eigrp 101
R1(config-rtr)#eigrp router-id 1.1.1.1
R1(config-rtr)#no shutdown
R1(config-rtr)#passive-interfa
R1(config-rtr)#passive-interface gigabitEthernet 0/0
R1(config-rtr)#passive-interface serial 0/0/0 R1(config-rtr)#

En R2.

R2(config)#router eigrp 101
R2(config-router)#eigrp router-id 2.2.2.2
R2(config-router)#redistribute ospf 1

R2(config-router)#redistribute connected
R2(config-router)#network 192.168.9.0 0.0.0.3
R2(config-router)#no auto-summary
R2(config-router)#exit
R2(config)#ipv6 router eigrp 101
R2(config-rtr)#eigrp router-id 2.2.2.2
R2(config-rtr)#no shutdown
R2(config-rtr)#passive-interface Gigabi
R2(config-rtr)#passive-interface GigabitEthernet 0/0
R2(config-rtr)#passive-interface Ser
R2(config-rtr)#passive-interface Serial 0/0/1
R2(config-rtr)#redistribute ospf 1
R2(config-rtr)#redistribute connected

9. Configurar las interfaces pasivas para EIGRP según sea apropiado.
En R1.

R1(config)#router eigrp 101
R1(config-router)#passive
R1(config-router)#passive-interface gi
R1(config-router)#passive-interface gigabitEthernet 0/0 R1(config-router)#

En R2.

R2(config)#router eigrp 101
R2(config-router)#pass
R2(config-router)#passive-interface gi
R2(config-router)#passive-interface gigabitEthernet 0/0
R2(config-router)#exit
R2(config-rtr)#passive-interface Gigabi
R2(config-rtr)#passive-interface GigabitEthernet 0/0
R2(config-rtr)#passive-interface Ser
R2(config-rtr)#passive-interface Serial 0/0/1
R2(config-rtr)#redistribute ospf 1
R2(config-rtr)#redistribute connected

10. En R2, configurar la redistribución mutua entre OSPF y EIGRP para IPv4 e IPv6.
    Asignar métricas apropiadas cuando sea necesario.

En R2.

R2(config)#router ospf 1
R2(config-router)#router-id 2.2.2.2
R2(config-router)#log-adjacency-changes
R2(config-router)#area 1 stub no-summary
R2(config-router)#OSPF: Area is configured as NSSA already

R2(config-router)#redistribute eigrp 101 subnets
R2(config-router)#exit
R2(config)#ipv6 router ospf 1
R2(config-rtr)#router-id 2.2.2.2
R2(config-rtr)#log-adjacency-changes
R2(config-rtr)#area 1 stub no-summary
R2(config-rtr)#redistribute   eigrp   101   R2(config-rtr)#%OSPF-4-
ASBR_WITHOUT_VALID_AREA: Router is currently an
ASBR while having only one area which is a stub area

R2(config-rtr)#redistribute connected
R2(config-rtr)#%OSPF-4-ASBR_WITHOUT_VALID_AREA: Router is currently an
ASBR while having only one area which is a stub area

R2(config-rtr)#
R2(config-rtr)#exit
R2(config)#router eigrp 101
R2(config-router)#eigrp router-id 2.2.2.2
R2(config-router)#redistribute ospf 1
R2(config-router)#redistribute connected
R2(config-router)#passi
R2(config-router)#passive-interface gi
R2(config-router)#passive-interface gigabitEthernet 0/0
R2(config-router)#exit
R2(config)#ipv6 router eigrp 101
R2(config-rtr)#eigrp router-id 2.2.2.2
R2(config-rtr)#no shutdown
R2(config-rtr)#passiv
R2(config-rtr)#passive-interface gi
R2(config-rtr)#passive-interface gigabitEthernet 0/0
R2(config-rtr)#passi
R2(config-rtr)#passive-interface se

R2(config-rtr)#passive-interface serial 0/0/1
R2(config-rtr)#redistribute ospf 1
R2(config-rtr)#redistribute connected
R2(config-rtr)#exit
R2(config)#

11. En R2, de hacer publicidad de la ruta 192.168.3.0/24 a R1 mediante una lista de distribución y ACL.

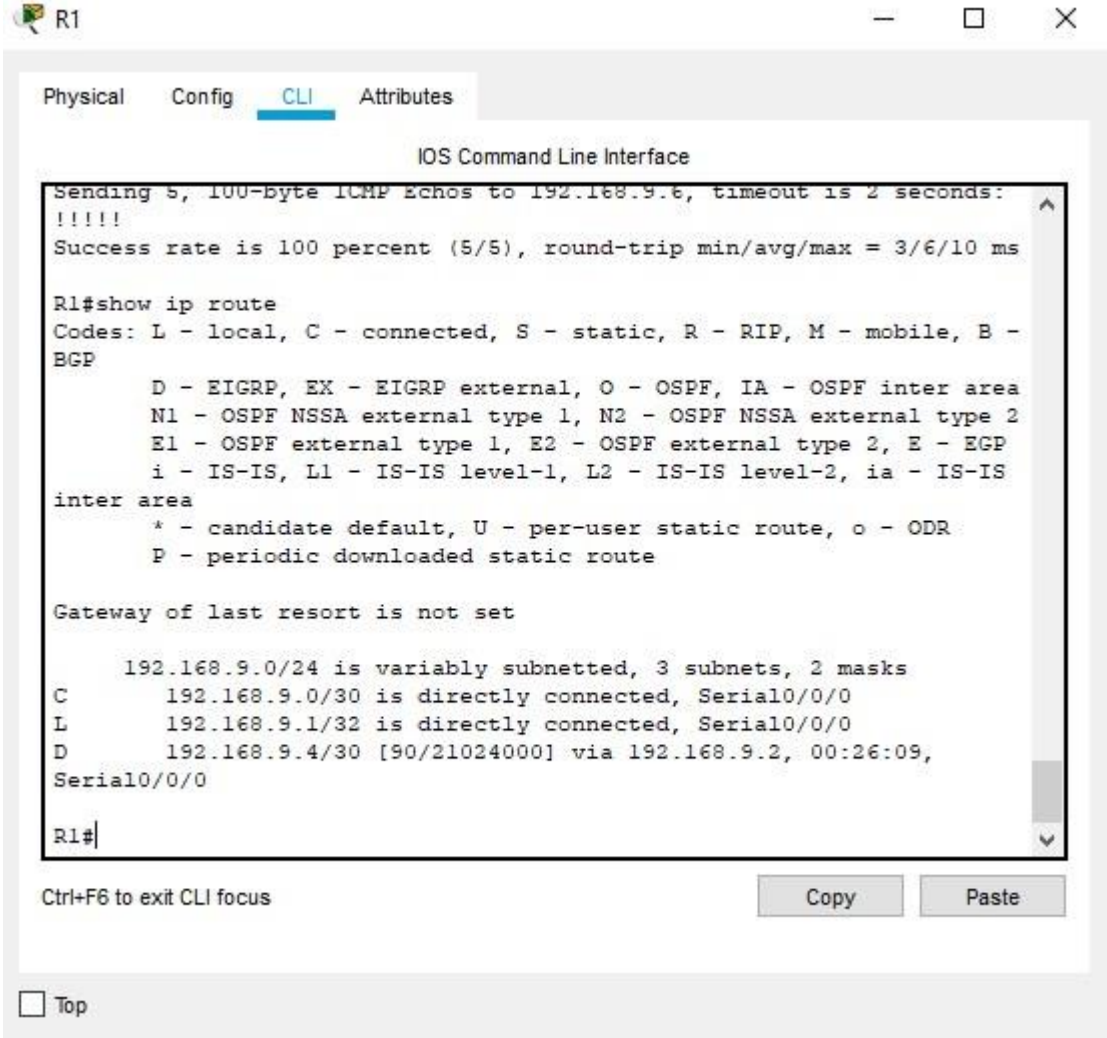**En R2.**

R2(config)#
R2(config)#access-list 1 permit 192.168.3.0 255.255.255.0 R2(config)#

Parte 2: Verificar conectividad de red y control de la trayectoria.

      a. Registrar las tablas de enrutamiento en cada uno de los routers, acorde con los parámetros de configuración establecidos en el escenario propuesto.

Figura 2. Registro de las tablas de enrutamiento en R1

Fuente: Autor

Figura 3. Registro de las tablas de enrutamiento en R2


```
R2>enable
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

     192.168.9.0/24 is variably subnetted, 4 subnets, 2 masks
C       192.168.9.0/30 is directly connected, Serial0/0/0
L       192.168.9.2/32 is directly connected, Serial0/0/0
C       192.168.9.4/30 is directly connected, Serial0/0/1
L       192.168.9.5/32 is directly connected, Serial0/0/1

R2#
```
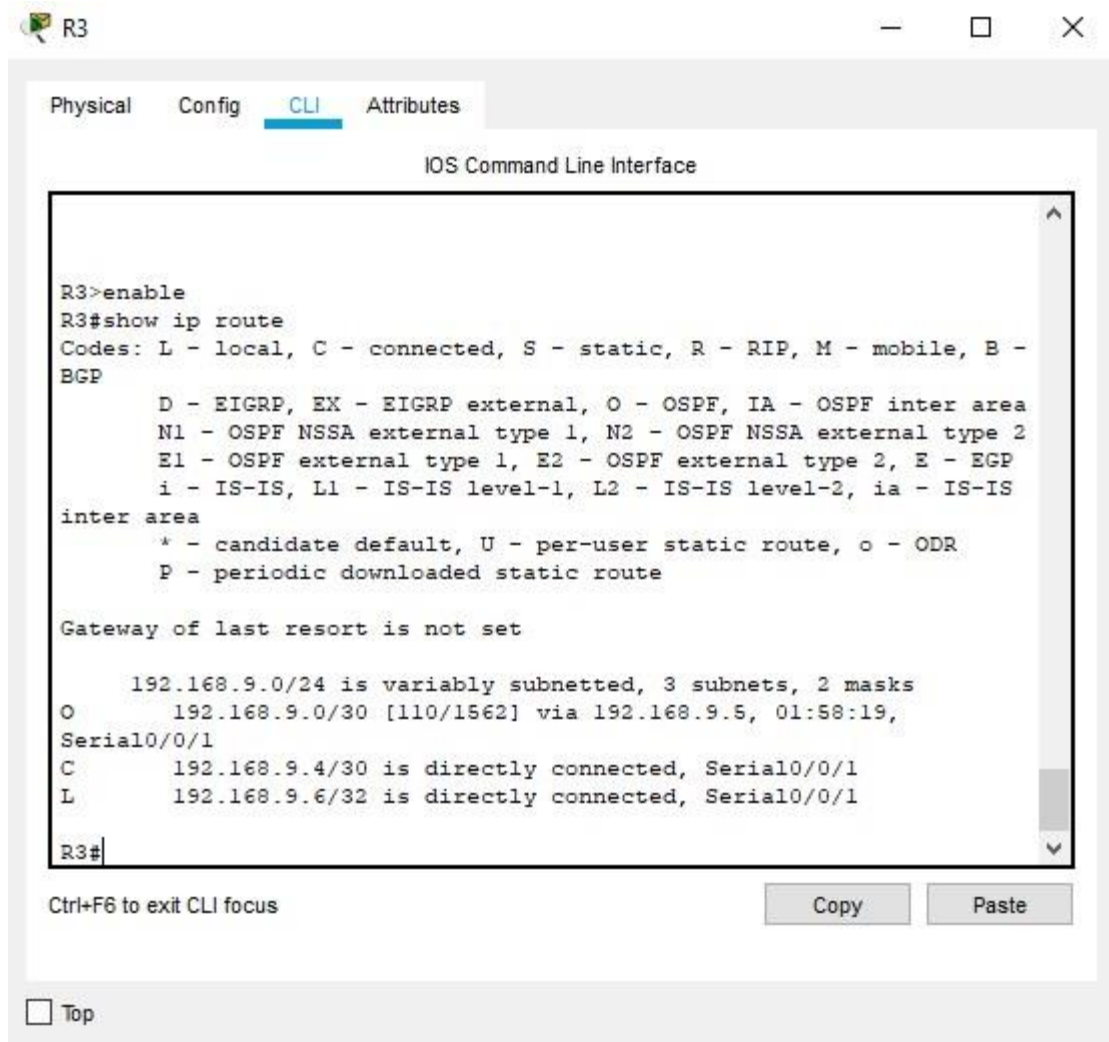
Fuente: Autor

Figura 4. Registro de las tablas de enrutamiento en R3


```
R3>enable
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

     192.168.9.0/24 is variably subnetted, 3 subnets, 2 masks
O       192.168.9.0/30 [110/1562] via 192.168.9.5, 01:58:19,
Serial0/0/1
C       192.168.9.4/30 is directly connected, Serial0/0/1
L       192.168.9.6/32 is directly connected, Serial0/0/1

R3#
```
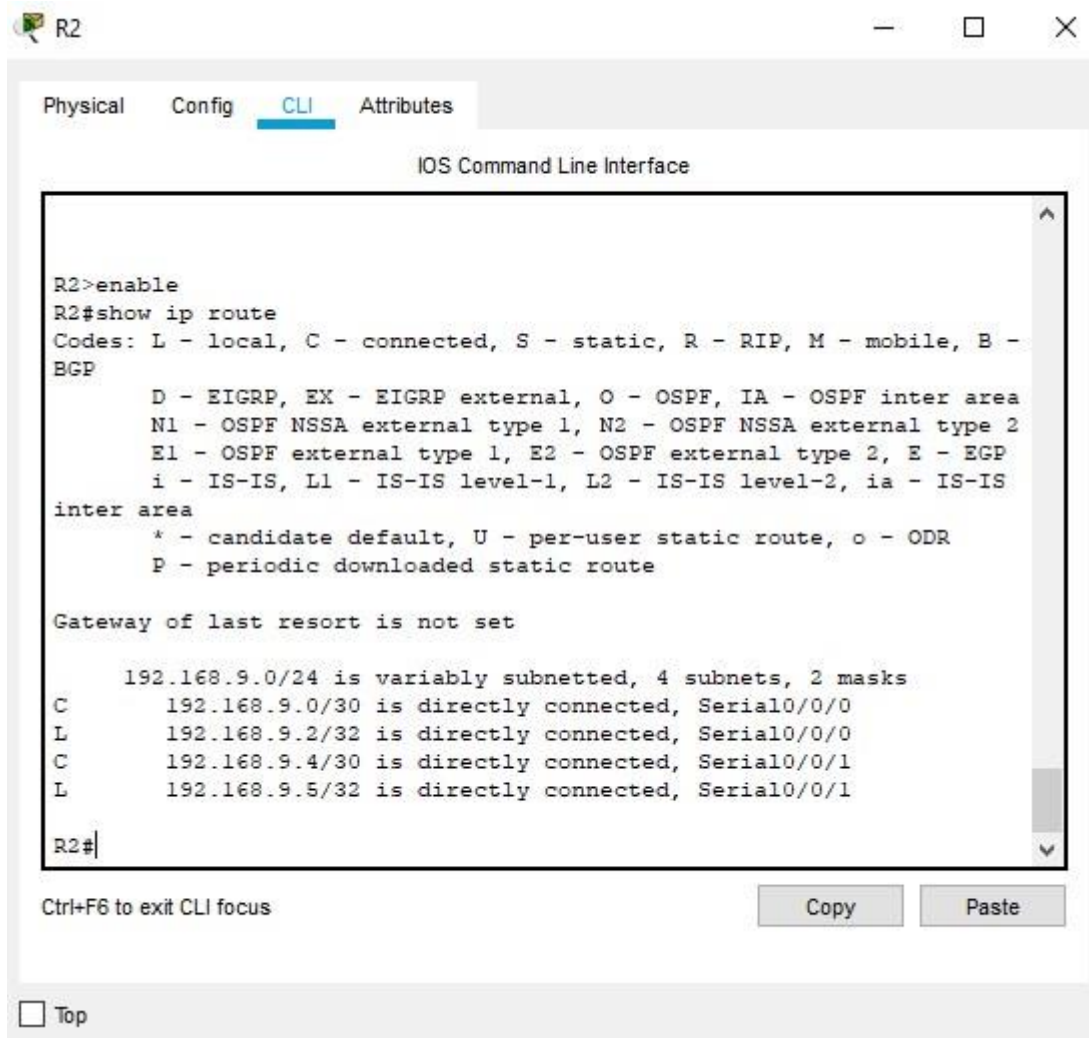
Fuente: Autor
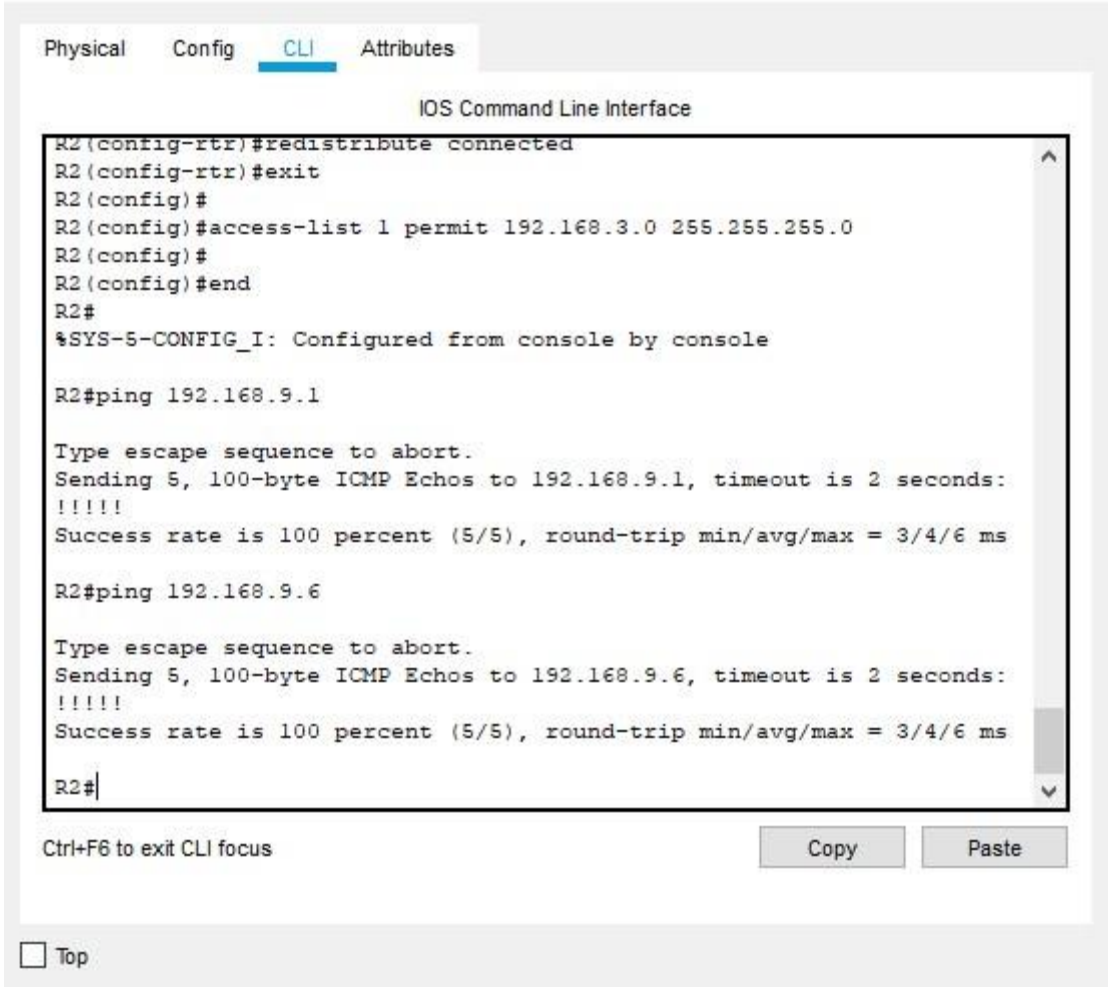
b. Verificar comunicación entre routers mediante el comando ping y traceroute

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Figura 5. Prueba de ping en R1

Fuente: Au

Figura 6. Prueba de ping en R2

Fuente: Autor

Figura 7. Prueba de ping en R3
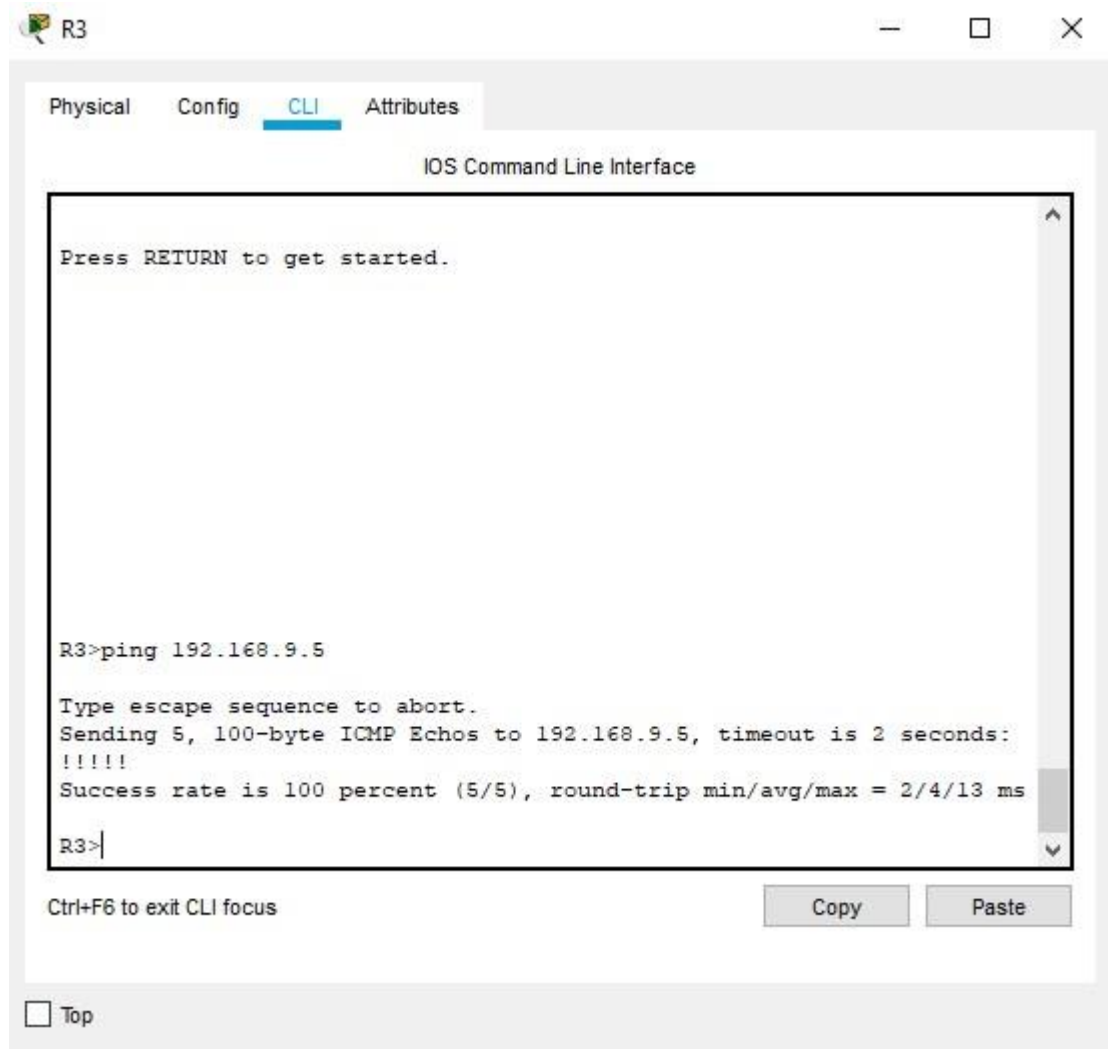
Fuente: Autor

c. Verificar que las rutas filtradas no están presentes en las tablas de enrutamiento de los routers correctas.

Figura 8. Verificación de las rutas filtradas.
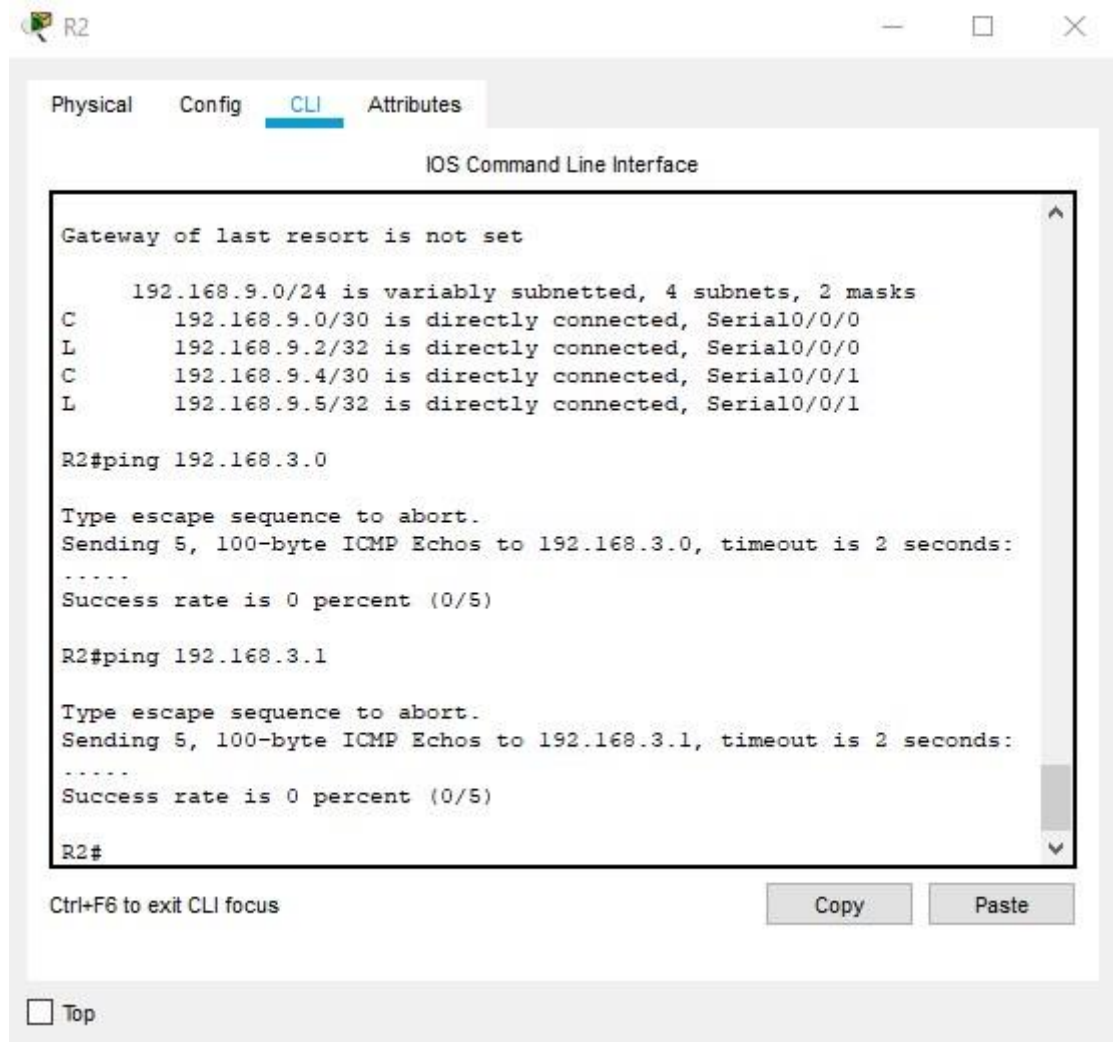
Nota: Puede ser que Una o más direcciones no serán accesibles desde todos los routers después de la configuración final debido a la utilización de listas de distribución para filtrar rutas y el uso de IPv4 e IPv6 en la misma red.

1.3. ESCENARIO 2

Una empresa de comunicaciones presenta una estructura Core acorde a la topología de red, 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, etherchannels, VLANs y demás aspectos que forman parte del escenario propuesto.

Topología de red

Figura 9. Topología de red Escenario 2
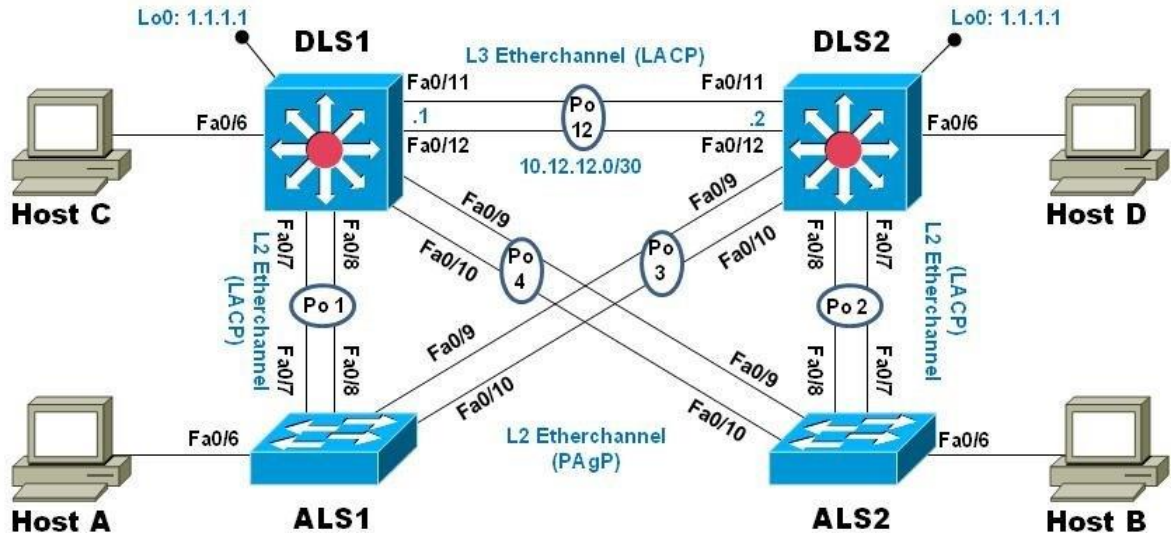
Fuente: Autor.

Parte 1: Configurar la red de acuerdo con las especificaciones.

a. Apagar todas las interfaces en cada switch.

En DLS1.

Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#interface range fa0/1-24 Switch(config-if-range)#shutdown

%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to administratively down

%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 FastEthernet0/13, 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 Switch(config-if-range)#
%LINK-5-CHANGED: Interface FastEthernet0/6, changed state to administratively down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/6, changed state to down

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/7, changed state to down

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/8, changed state to down

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/9, changed state to down

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/10, changed state to down

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/11, changed state to down
%LINK-5-CHANGED: Interface FastEthernet0/12, changed state to administratively down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/12, changed state to down

Switch(config-if-range)#exit
Switch(config)#

En DLS2

Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#interface range fa0/1-24
Switch(config-if-range)#shutdown

%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to administratively down

%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 FastEthernet0/11, 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 Switch(config-if-range)#
%LINK-5-CHANGED: Interface FastEthernet0/6, changed state to administratively down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/6, changed state to down

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/7, changed state to down
%LINK-5-CHANGED: Interface FastEthernet0/8, changed state to administratively down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/8, changed state to down

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/9, changed state to down

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/10, changed state to down

Switch(config-if-range)#exit
Switch(config)#

En ALS1

Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#interface range fa0/1-24 Switch(config-if-range)#shutdown

%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to administratively down

%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 FastEthernet0/7, 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 Switch(config-if-range)#
%LINK-5-CHANGED: Interface FastEthernet0/6, changed state to administratively down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/6, changed state to down

Switch(config-if-range)#exit
Switch(config)#

En ALS2

Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#interface range fa0/1-24

Switch(config-if-range)#shutdown

%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to administratively down

%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to administratively down

%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 FastEthernet0/7, 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 Switch(config-if-range)#
%LINK-5-CHANGED: Interface FastEthernet0/6, changed state to administratively down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/6, changed state to down

Switch(config-if-range)#exit
Switch(config)#

b. Asignar un nombre a cada switch acorde al escenario establecido.

En DLS1.

Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname DLS1
DLS1(config)#

En DLS2

Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname DLS2
DLS2(config)#

En ALS1

Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname ALS1
ALS1(config)#

En ALS2

Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname ALS2
ALS2(config)#

c. Configurar los puertos troncales y Port-channels tal como se muestra en el diagrama.

1) La conexión entre DLS1 y DLS2 será un EtherChannel capa-3 utilizando LACP. Para DLS1 se utilizará la dirección IP 10.12.12.1/30 y para DLS2 utilizará 10.12.12.2/30.

En DLS1.

DLS1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
DLS1(config)#interface fastethernet0/11
DLS1(config-if)#channel-group 1 mode active
DLS1(config-if)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/11, changed state to down
DLS1(config-if)#description "Conexion Sw DLS2 Port Fa0/11"
DLS1(config-if)#exit
DLS1(config)#interface fastethernet0/12
DLS1(config-if)#channel-group 1 mode active
DLS1(config-if)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/12, changed state to down
DLS1(config-if)#description "Conexion Sw DLS2 Port Fa0/12"
DLS1(config-if)#exit
Creating a port-channel interface Port-channel 1 DLS1(config)#interface port-channel 1
DLS1(config-if)#no switchport
DLS1(config-if)#ip address 10.12.12.1 255.255.255.252
DLS1(config-if)#description "Channel Group 1 Ports 11-12"
DLS1(config-if)#no shutdown
DLS1(config-if)#exit

En DLS2.

DLS2#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
DLS2(config)#interface fastethernet0/11
DLS2(config-if)#channel-group 1 mode active
DLS2(config-if)#no shutdown

DLS2(config-if)#description "Conexion Sw DLS1 Port Fa0/11"
DLS2(config-if)#exit
DLS2(config)#interface fastethernet0/12
DLS2(config-if)#channel-group 1 mode active
DLS2(config-if)#no shutdown

DLS2(config-if)#description "Conexion Sw DLS1 Port Fa0/12"
DLS2(config-if)#exit
DLS2(config)#interface port-channel 1
DLS2(config-if)#no switchport
DLS2(config-if)#ip address 10.12.12.2 255.255.255.252
DLS2(config-if)#description "Channel Group 1 Ports 11-12"
DLS2(config-if)#no shutdown
DLS2(config-if)#exit
Creating a port-channel interface Port-channel 1

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/11, changed
state to up

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/12, changed
state to up

%LINK-5-CHANGED: Interface Port-channel1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Port-channel1, changed
state to up

2) Los Port-channels en las interfaces Fa0/7 y Fa0/8 utilizarán LACP.

En DLS1.

DLS1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
DLS1(config)#interface fastethernet0/7
DLS1(config-if)#channel-group 2 mode active
DLS1(config-if)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/7, changed state to down
DLS1(config-if)#description "Conexion Sw ALS1 Port Fe0/7"
DLS1(config-if)#exit
DLS1(config)#interface fastethernet0/8
DLS1(config-if)#channel-group 2 mode active
DLS1(config-if)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/8, changed state to down
DLS1(config-if)#description "Conexion Sw ALS1 Port Fe0/8"
DLS1(config-if)#exit
Creating a port-channel interface Port-channel 2

DLS1(config)#

En DLS2

DLS2#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
DLS2(config)#interface fastethernet0/7
DLS2(config-if)#channel-group 2 mode active
DLS2(config-if)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/7, changed state to down
DLS2(config-if)#description "Conexion Sw ALS2 Port Fe0/7"
DLS2(config-if)#exit
DLS2(config)#interface fastethernet0/8
DLS2(config-if)#channel-group 2 mode active

DLS2(config-if)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/8, changed state to down
DLS2(config-if)#description "Conexion Sw ALS2 Port Fe0/8"
DLS2(config-if)#exit
Creating a port-channel interface Port-channel 2

DLS2(config)#

En ALS1

ALS1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
ALS1(config)#interface fastethernet0/7
ALS1(config-if)#channel-group 2 mode active ALS1(config-if)#no
shutdown

ALS1(config-if)#description "Conexion Sw DLS1 Port Fe0/7" ALS1(config-if)#exit
ALS1(config)#interface fastethernet0/8
ALS1(config-if)#channel-group 2 mode active
ALS1(config-if)#no shutdown

ALS1(config-if)#description "Conexion Sw DLS1 Port Fe0/8"
ALS1(config-if)#exit
Creating a port-channel interface Port-channel 2

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/7, changed
state to up

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/8, changed
state to up

%LINK-5-CHANGED: Interface Port-channel2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Port-channel2, changed state to up

ALS1(config)#

En ALS2

ALS2#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
ALS2(config)#interface fastethernet0/7
ALS2(config-if)#channel-group 2 mode active
ALS2(config-if)#no shutdown

ALS2(config-if)#description "Conexion Sw DLS2 Port Fe0/7"
ALS2(config-if)#exit
ALS2(config)#interface fastethernet0/8
ALS2(config-if)#channel-group 2 mode active
ALS2(config-if)#no shutdown

ALS2(config-if)#description "Conexion Sw DLS2 Port Fe0/8"
ALS2(config-if)#exit
Creating a port-channel interface Port-channel 2

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/7, changed state to up

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/8, changed state to up

%LINK-5-CHANGED: Interface Port-channel2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Port-channel2, changed state to up

ALS2(config)#

3) Los Port-channels en las interfaces F0/9 y fa0/10 utilizará PAgP.

En DLS1.

DLS1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
DLS1(config)#interface fastethernet0/9
DLS1(config-if)#channel-group 3 mode desirable
DLS1(config-if)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/9, changed state to down
DLS1(config-if)#description "Conexion Sw ALS2 Port Fe0/9"
DLS1(config-if)#exit
DLS1(config)#interface fastethernet0/10
DLS1(config-if)#channel-group 3 mode desirable DLS1(config-if)#no
shutdown

%LINK-5-CHANGED: Interface FastEthernet0/10, changed state to down
DLS1(config-if)#description "Conexion Sw ALS2 Port Fe0/10"
DLS1(config-if)#exit
Creating a port-channel interface Port-channel 3

DLS1(config)#

En DLS2

DLS2#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
DLS2(config)#interface fastethernet0/9
DLS2(config-if)#channel-group 3 mode desirable

DLS2(config-if)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/9, changed state to down
DLS2(config-if)#description "Conexion Sw ALS1 Port Fe0/9"
DLS2(config-if)#exit
DLS2(config)#interface fastethernet0/10
DLS2(config-if)#channel-group 3 mode desirable DLS2(config-if)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/10, changed state to down
DLS2(config-if)#description "Conexion Sw ALS1 Port Fe0/10"
DLS2(config-if)#exit
Creating a port-channel interface Port-channel 3

DLS2(config)#

En ALS1

ALS1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
ALS1(config)#interface fastethernet0/9
ALS1(config-if)#channel-group 3 mode desirable ALS1(config-if)#no shutdown

ALS1(config-if)#description "Conexion Sw DLS2 Port Fe0/9" ALS1(config-if)#exit
ALS1(config)#interface fastethernet0/10
ALS1(config-if)#channel-group 3 mode desirable ALS1(config-if)#no shutdown

ALS1(config-if)#description "Conexion Sw DLS2 Port Fe0/10"
ALS1(config-if)#exit
Creating a port-channel interface Port-channel 3

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/9, changed state to up

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/10, changed state to up

%LINK-5-CHANGED: Interface Port-channel3, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Port-channel3, changed state to up

ALS1(config)#

En ALS2

ALS2#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
ALS2(config)#interface fastethernet0/9
ALS2(config-if)#channel-group 3 mode desirable ALS2(config-if)#no shutdown

ALS2(config-if)#description "Conexion Sw DLS1 Port Fe0/9"
ALS2(config-if)#exit
ALS2(config)#interface fastethernet0/10
ALS2(config-if)#channel-group 3 mode desirable ALS2(config-if)#no shutdown

ALS2(config-if)#description "Conexion Sw DLS1 Port Fe0/10"
ALS2(config-if)#exit
Creating a port-channel interface Port-channel 3

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/9, changed state to up

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

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/10, changed state to up

%LINK-5-CHANGED: Interface Port-channel3, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Port-channel3, changed state to up

ALS2(config)#

4) Todos los puertos troncales serán asignados a la VLAN 800 como la VLAN nativa.

En DLS1.

DLS1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
DLS1(config)#vlan 800
DLS1(config-vlan)#name NATIVA
DLS1(config-vlan)#exit
DLS1(config)#interface range fastethernet0/7-12
DLS1(config-if-range)#switchport trunk native vlan 800
DLS1(config-if-range)#exit
DLS1(config)#

En DLS2.

DLS2(config)#vlan 800
DLS2(config-vlan)#name NATIVA
DLS2(config-vlan)#exit
DLS2(config)#interface range fastethernet0/7-12
DLS2(config-if-range)#switchport trunk native vlan 800
DLS2(config-if-range)#exit
DLS2(config)# DLS2#

En ALS1.

ALS1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
ALS1(config)#vlan 800
ALS1(config-vlan)#name NATIVA
ALS1(config-vlan)#exit
ALS1(config)#interface range fastethernet0/7-12
ALS1(config-if-range)#switchport trunk native vlan 800
ALS1(config-if-range)#exit
ALS1(config)#

En ALS2.

ALS2#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
ALS2(config)#vlan 800
ALS2(config-vlan)#name NATIVA
ALS2(config-vlan)#exit
ALS2(config)#interface range fastethernet0/7-12
ALS2(config-if-range)#switchport trunk native vlan 800
ALS2(config-if-range)#exit
ALS2(config)#

a. Configurar DLS1, ALS1, y ALS2 para utilizar VTP versión 3

En DLS1.

DLS1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z. DLS1(config)#vtp
version 2

En ALS1.

ALS1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z. ALS1(config)#vtp version 2

En ALS2.

ALS2#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
ALS2(config)#vtp version 2
ALS2(config)#

1) Utilizar el nombre de dominio UNAD con la contraseña cisco123

En DLS1.

DLS1(config)#vtp domain UNAD
Changing VTP domain name from NULL to UNAD
DLS1(config)#vtp password cisco123
Setting device VLAN database password to cisco123 DLS1(config)#

En ALS1.

ALS1(config)#vtp domain UNAD
Changing VTP domain name from NULL to UNAD
ALS1(config)#vtp password cisco123
Setting device VLAN database password to cisco123 ALS1(config)#

En ALS2.

ALS2(config)#vtp domain UNAD
Changing VTP domain name from NULL to UNAD
ALS2(config)#vtp password cisco123
Setting device VLAN database password to cisco123 ALS2(config)#

2) Configurar DLS1 como servidor principal para las VLAN.

En DLS1.

DLS1(config)#vtp domain server
Changing VTP domain name from UNAD to server
DLS1(config)#00:32:11 %DTP-5-DOMAINMISMATCH: Unable to perform trunk negotiation on port Po3 because of VTP domain mismatch.

DLS1(config)#

3) Configurar ALS1 y ALS2 como clientes VTP.

En ALS1.

ALS1(config)#vtp mode client Setting
device to VTP CLIENT mode.
ALS1(config)#

En ALS2.

ALS2(config)#vtp mode client Setting
device to VTP CLIENT mode.
ALS2(config)#

a. Configurar en el servidor principal las siguientes VLAN:

TABLA DE VLAN A CONFIGURAR

Número de VLAN	Nombre de VLAN	Número de VLAN	Nombre de VLAN
800	NATIVA	434	ESTACIONAMIENTO
12	EJECUTIVOS	123	MANTENIMIENTO
234	HUESPEDES	1010	VOZ
1111	VIDEONET	3456	ADMINISTRACIÓN

En DLS1.

DLS1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
DLS1(config)#vlan 12
DLS1(config-vlan)#name EJECUTIVOS
DLS1(config-vlan)#vlan 234
DLS1(config-vlan)#name HUESPEDES
DLS1(config-vlan)#vlan 1111
VLAN_CREATE_FAIL: Failed to create VLANs 1111 : extended VLAN(s) not allowed in current VTP mode
DLS1(config)#name VIDEONET
^
% Invalid input detected at '^' marker.
DLS1(config)#vlan 434
DLS1(config-vlan)#name ESTACIONAMIENTO
DLS1(config-vlan)#vlan 123
DLS1(config-vlan)#name MANTENIMIENTO
DLS1(config-vlan)#vlan 1010
VLAN_CREATE_FAIL: Failed to create VLANs 1010 : extended VLAN(s) not allowed in current VTP mode

DLS1(config)#name VOZ
^
% Invalid input detected at '^' marker.
DLS1(config)#vlan 3456
VLAN_CREATE_FAIL: Failed to create VLANs 3456 : extended VLAN(s) not allowed in current VTP mode
DLS1(config)#name ADMINISTRACION
^
% Invalid input detected at '^' marker.

b. En DLS1, suspender la VLAN 434.

En DLS1.

DLS1#configure terminal
DLS1(config)#vlan 434
DLS1(config-vlan)#state suspend
^
% Invalid input detected at '^' marker. DLS1(config-vlan)#exit
DLS1(config)#

c. Configurar DLS2 en modo VTP transparente VTP utilizando VTP versión 2, y configurar en DLS2 las mismas VLAN que en DLS1.

En DLS2.

DLS2#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
DLS2(config)#vtp version 2
DLS2(config)#vtp mode transparent
Setting device to VTP TRANSPARENT mode.
DLS2(config)#vlan 12
DLS2(config-vlan)#name EJECUTIVOS

DLS2(config-vlan)#vlan 234
DLS2(config-vlan)#name HUESPEDES
DLS2(config-vlan)#vlan 1111
DLS2(config-vlan)#name VIDEONET
DLS2(config-vlan)#vlan 123
DLS2(config-vlan)#name MANTENIMIENTO
DLS2(config-vlan)#vlan 1010 DLS2(config-vlan)#name
VOZ
DLS2(config-vlan)#vlan 3456
DLS2(config-vlan)#name ADMINISTRACION
DLS2(config-vlan)#vlan 434
DLS2(config-vlan)#name ESTACIONAMIENTO
DLS2(config-vlan)#exit
DLS2(config)#

d. Suspender VLAN 434 en DLS2.

En DLS2.

DLS2(config)#
DLS2(config)#vlan 434
DLS2(config-vlan)#state suspend
^
% Invalid input detected at '^' marker. DLS2(config-vlan)#exit
DLS2(config)#

e. En DLS2, crear VLAN 567 con el nombre de CONTABILIDAD. La VLAN de
CONTABILIDAD no podrá estar disponible en cualquier otro Switch de la
red.

En DLS2.

DLS2(config)#

DLS2(config)#vlan 567
DLS2(config-vlan)#name CONTABILIDAD
DLS2(config-vlan)#exit
DLS2(config)#

     f. Configurar DLS1 como Spanning tree root para las VLAN 1, 12, 434, 800, 1010, 1111 y 3456 y como raíz secundaria para las VLAN 123 y 234.

En DLS1.

DLS1#
DLS1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z. DLS1(config)#
DLS1(config)#spanning-tree vlan 1 root primary DLS1(config)#spanning-tree vlan 12 root primary
DLS1(config)#spanning-tree vlan 434 root primary
DLS1(config)#spanning-tree vlan 800 root primary
DLS1(config)#spanning-tree vlan 1010 root primary
DLS1(config)#spanning-tree vlan 1111 root primary
DLS1(config)#spanning-tree vlan 3456 root primary
DLS1(config)#spanning-tree vlan 123 root secondary
DLS1(config)#spanning-tree vlan 234 root secondary DLS1(config)#

     g. Configurar DLS2 como Spanning tree root para las VLAN 123 y 234 y como una raíz secundaria para las VLAN 12, 434, 800, 1010, 1111 y 3456.

En DLS2.

DLS2(config)#
DLS2(config)#spanning-tree vlan 123 root primary
DLS2(config)#spanning-tree vlan 234 root primary
DLS2(config)#spanning-tree vlan 12 root secondary

DLS2(config)#spanning-tree vlan 434 root secondary
DLS2(config)#spanning-tree vlan 800 root secondary
DLS2(config)#spanning-tree vlan 1010 root secondary
DLS2(config)#spanning-tree vlan 1111 root secondary
DLS2(config)#spanning-tree vlan 3456 root secondary DLS2(config)#

h. Configurar todos los puertos como troncales de tal forma que solamente las VLAN que se han creado se les permitirá circular a través de éstos puertos.

En DLS2.

DLS2(config)#
DLS2(config)#interface range fas
DLS2(config)#interface range fastEthernet 0/1-24
DLS2(config-if-range)#switchport mode trunk
Command rejected: An interface whose trunk encapsulation is "Auto" can not be configured to "trunk" mode.
Command rejected: An interface whose trunk encapsulation is "Auto" can not be configured to "trunk" mode.
Command rejected: An interface whose trunk encapsulation is "Auto" can not be configured to "trunk" mode.
Command rejected: An interface whose trunk encapsulation is "Auto" can not be configured to "trunk" mode.
Command rejected: An interface whose trunk encapsulation is "Auto" can not be configured to "trunk" mode.
Command rejected: An interface whose trunk encapsulation is "Auto" can not be configured to "trunk" mode.
Command rejected: An interface whose trunk encapsulation is "Auto" can not be configured to "trunk" mode.
Command rejected: An interface whose trunk encapsulation is "Auto" can not be configured to "trunk" mode.
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Command rejected: An interface whose trunk encapsulation is "Auto" can not be configured to "trunk" mode.
Command rejected: An interface whose trunk encapsulation is "Auto" can not be configured to "trunk" mode.

Command rejected: An interface whose trunk encapsulation is "Auto" can not be configured to "trunk" mode.
Command rejected: An interface whose trunk encapsulation is "Auto" can not be configured to "trunk" mode.
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Command rejected: An interface whose trunk encapsulation is "Auto" can not be configured to "trunk" mode.
Command rejected: An interface whose trunk encapsulation is "Auto" can not be configured to "trunk" mode.
Command rejected: An interface whose trunk encapsulation is "Auto" can not be configured to "trunk" mode.
Command rejected: An interface whose trunk encapsulation is "Auto" can not be configured to "trunk" mode.
Command rejected: An interface whose trunk encapsulation is "Auto" can not be configured to "trunk" mode.
Command rejected: An interface whose trunk encapsulation is "Auto" can not be configured to "trunk" mode. DLS2(config-if-range)#exit
DLS2(config)#

i. Configurar las siguientes interfaces como puertos de acceso, asignados a las VLAN de la siguiente manera:

Interfaz	DLS1	DLS2	ALS1	ALS2
Interfaz Fa0/6	3456	12 , 1010	123, 1010	234
Interfaz Fa0/15	1111	1111	1111	1111

Interfaces F0 /16-18	567

En DLS1.

DLS1(config)#
DLS1(config)#interface fastethernet0/6
DLS1(config-if)#switchport mode access
DLS1(config-if)#switchport access vlan 3456
% Access VLAN does not exist. Creating vlan 3456
DLS1(config-if)#no shutdown

DLS1(config-if)#interface fastethernet0/15
DLS1(config-if)#switchport mode access
DLS1(config-if)#switchport access vlan 1111
% Access VLAN does not exist. Creating vlan 1111
DLS1(config-if)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/15, changed state to down
DLS1(config-if)#exit
%LINK-5-CHANGED: Interface FastEthernet0/6, changed state to up

En DLS2.

DLS2#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
DLS2(config)#
DLS2(config)#interface fastethernet0/6
DLS2(config-if)#switchport mode access
DLS2(config-if)#switchport access vlan 12
DLS2(config-if)#no shutdown

DLS2(config-if)#interface fastethernet0/15
DLS2(config-if)#switchport mode access
DLS2(config-if)#switchport access vlan 1111

DLS2(config-if)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/15, changed state to down
DLS2(config-if)#interface range fastethernet0/16-18
DLS2(config-if-range)#switchport mode access
DLS2(config-if-range)#switchport access vlan 567
DLS2(config-if-range)#no shutdown

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

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

%LINK-5-CHANGED: Interface FastEthernet0/18, changed state to down
DLS2(config-if-range)#exit
%LINK-5-CHANGED: Interface FastEthernet0/6, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/6, changed state to up

En ALS1.

ALS1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
ALS1(config)#interface fastethernet0/6
ALS1(config-if)#switchport mode access
ALS1(config-if)#switchport access vlan 123
ALS1(config-if)#no shutdown

ALS1(config-if)#interface fastethernet0/15
ALS1(config-if)#switchport mode access
ALS1(config-if)#switchport access vlan 1111 ALS1(config-if)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/15, changed state to down
ALS1(config-if)#exit

%LINK-5-CHANGED: Interface FastEthernet0/6, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/6, changed
state to up

ALS1(config)#

En ALS2.

ALS2#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
ALS2(config)#interface fastethernet0/6
ALS2(config-if)#switchport mode access
ALS2(config-if)#switchport access vlan 234
ALS2(config-if)#no shutdown

ALS2(config-if)#interface fastethernet0/15
ALS2(config-if)#switchport mode access
ALS2(config-if)#switchport access vlan 1111 ALS2(config-if)#no
shutdown

%LINK-5-CHANGED: Interface   FastEthernet0/15,   changed   state   to   down
ALS2(config-if)#exit
%LINK-5-CHANGED: Interface FastEthernet0/6, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/6, changed
state to up

ALS2(config)#

Parte 2:   conectividad de red de prueba y las opciones configuradas.

   a. Verificar la existencia de las VLAN correctas en todos los switches y la
      asignación de puertos troncales y de acceso

   b. Verificar que el EtherChannel entre DLS1 y ALS1 está configurado
      correctamente

   c. Verificar la configuración de Spanning tree entre DLS1 o DLS2 para cada
      VLAN.

CONCLUSIONES

Con el desarrollo del trabajo de habilidades prácticas se pudo poner a prueba la capacidad de diseñar y configurar una red en los escenarios propuestos, en tal sentido se establecieron los direccionamientos IP, protocolos de enrutamiento y seguridad.

Los escenarios propuestos afianzaron las capacidades en configuración de dispositivos como router y switches, configuración de Vlan, puertos troncales, configuración de redes primarias y secundarias.

Con el desarrollo del ejercicio de habilidades prácticas permitió evidenciar los diferentes problemas que pueden llegarse a presentar y como solucionarlos, también permitió el uso de diferentes herramientas de simulación que afianzaron las habilidades y competencias adquiridas durante el desarrollo del diplomado de profundización de CCNP.

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