Contenido

Introducción

Un problema común al usar el Open Shortest Path First (OSPF) es rutas en la base de datos no aparece en la tabla de ruteo. En la mayoría de los casos el OSPF encuentra una discrepancia en la base de datos así que no instala la ruta en la tabla de ruteo. A menudo, usted puede ver que el `router anunciante es el` mensaje no-`accesible` (que significa que el router que hace publicidad del LSA no es OSPF directo accesible) encima del anuncio del estado del vínculo (LSA) en la base de datos cuando ocurre este problema. Aquí tiene un ejemplo:

```
Adv Router is not-reachableLS age: 418Options: (No TOS-capability, DC)LS Type: Router LinksLink State ID: 172.16.32.2Advertising Router: 172.16.32.2LS Seq Number: 80000002Checksum: 0xFA63Length: 60 Number of Links: 3
```

Hay varias razones de este problema, la mayoría cuyo trato con mis configuration o de una topología quebrada. Cuando sale la configuración se corrige la discrepancia de la base de datos OSPF y las rutas aparecen en la tabla de ruteo. Este documento explica algunas de las más razones comunes que pueden causar la discrepancia en la base de datos.

Algunos de los comandos usados en este documento para la verificación del comportamiento OSPF incluyen la **interfaz OSPF del IP de la demostración**, **la database router OSPF del IP**, **el vecino OSPF del IP de la demostración** y el **externo de la base de datos OSPF del IP de la demostración**. Si usted tiene la salida de ninguno de estos comandos de su dispositivo de Cisco, usted puede utilizar para visualizar los problemas potenciales y los arreglos. Para utilizar , usted debe ser un cliente registrado, se abra una sesión, y hace el Javascript habilitar.

Para usar Output Interpreter, debe estar registrado como cliente, conectado y debe tener permiso para JavaScript.

prerrequisitos

Requisitos

Los Quien lea este documento deben tener conocimiento de estos temas

- Comprensión básica del OSPF
- Configuración básica del OSPF

Componentes Utilizados

La información que contiene este documento se basa en las siguientes versiones de software y hardware.

- El Release12.3 del Cisco IOS ® Software se ejecutaba en todo el Routers.
- Esto se soporta en todas las plataformas del router de Cisco.

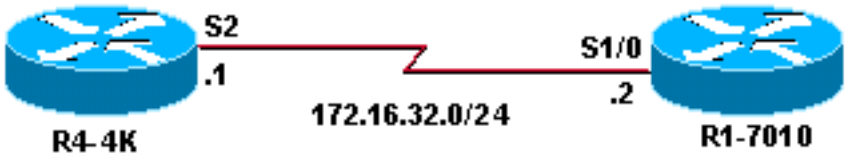
La información que contiene este documento se creó a partir de los dispositivos en un ambiente de laboratorio específico. Todos los dispositivos que se utilizan en este documento se pusieron en funcionamiento con una configuración verificada (predeterminada). Si la red está funcionando, asegúrese de haber comprendido el impacto que puede tener cualquier comando.

Convenciones

Para obtener más información sobre las convenciones del documento, consulte Convenciones de Consejos Técnicos de Cisco.

Razón 1: Discrepancia entre tipos de red

Utilicemos el siguiente diagram de red como un ejemplo:



R4-4K	R1-7010
interface Loopback0 ip address 172.16.33.1 255.255.255.255interface Serial2 ip address 172.16.32.1 255.255.255.0 **ip ospf network broadcast**router ospf 20 network 172.16.0.0 0.0.255.255 area 0	interface Loopback0 ip address 172.16.33.1 255.255.255.255interface Serial2 ip address 172.16.32.1 255.255.255.0 **ip ospf network broadcast**router ospf 20 network 172.16.0.0 0.0.255.255 area 0

R4-4K(4)# **show ip ospf interface serial 2**Serial2 is up, line protocol is up Internet Address 172.16.32.1/24, Area 0 Process ID 20, Router ID 172.16.33.1, **Network Type BROADCAST**, Cost: 64 Transmit Delay is 1 sec, State DR, Priority 1 Designated Router (ID) 172.16.33.1, Interface address 172.16.32.1 Backup Designated router (ID) 172.16.32.2, Interface address 172.16.32.2

```
Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5    Hello due in 00:00:08
Neighbor Count is 1, Adjacent neighbor count is 1     Adjacent with neighbor 172.16.32.2
(Backup Designated Router)  Suppress hello for 0 neighbor(s)R1-7010(5)# show ip ospf interface
serial 1/0Serial1/0 is up, line protocol is up   Internet Address 172.16.32.2/24, Area 0
Process ID 20, Router ID 172.16.32.2, Network Type POINT_TO_POINT, Cost: 64  Transmit Delay is 1
sec, State POINT_TO_POINT,  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
Hello due in 00:00:02  Neighbor Count is 1, Adjacent neighbor count is 1     Adjacent with
neighbor 172.16.33.1  Suppress hello for 0 neighbor(s)
```

Como usted puede ver arriba, configuran al router R4-4K para el broadcast, y configuran al router R1-7010 para el Punto a punto. Esta clase de discrepancia del tipo de red hace al router de anuncio inalcanzable.

```
R4-4K(4)# show ip ospf database router 172.16.32.2  Adv Router is not-reachable  LS age: 418
Options: (No TOS-capability, DC)  LS Type: Router Links  Link State ID: 172.16.32.2  Advertising
Router: 172.16.32.2  LS Seq Number: 80000002  Checksum: 0xFA63  Length: 60   Number of Links: 3
Link connected to: another Router (point-to-point)    (Link ID) Neighboring Router ID:
172.16.33.1    (Link Data) Router Interface address: 172.16.32.2    Number of TOS metrics: 0
TOS 0 Metrics: 64    Link connected to: a Stub Network    (Link ID) Network/subnet number:
172.16.32.0    (Link Data) Network Mask: 255.255.255.0    Number of TOS metrics: 0    TOS 0
Metrics: 64R1-7010(5)# show ip ospf database router 172.16.33.1  Adv Router is not-reachable  LS
age: 357  Options: (No TOS-capability, DC)  LS Type: Router Links  Link State ID: 172.16.33.1
Advertising Router: 172.16.33.1  LS Seq Number: 8000000A  Checksum: 0xD4AA  Length: 48   Number
of Links: 2     Link connected to: a Transit Network     (Link ID) Designated Router address:
172.16.32.1     (Link Data) Router Interface address: 172.16.32.1     Number of TOS metrics: 0
TOS 0 Metrics: 64
```

Usted puede ver que para la subred 172.16.32.0/24, el router R1-7010 está generando a un enlace punto a punto y el router R4-4K está generando un link de tránsito. Esto crea una discrepancia en la base de datos de estado de link, que significa que no se instala ningunas rutas en la tabla de ruteo.

```
R1-7010(5)# show ip route172.16.0.0/16 is variably subnetted, 3 subnets, 2 masksC
172.16.32.0/24 is directly connected, Serial1/0C       172.16.30.1/32 is directly connected,
Loopback0
```

Solución

Para solucionar este problema, configure a ambo Routers para el mismo tipo de red. Usted puede cambiar el tipo de red del router R1-7010 para transmitir, o para cambiar la interfaz serial del router R4-4K al Punto a punto.

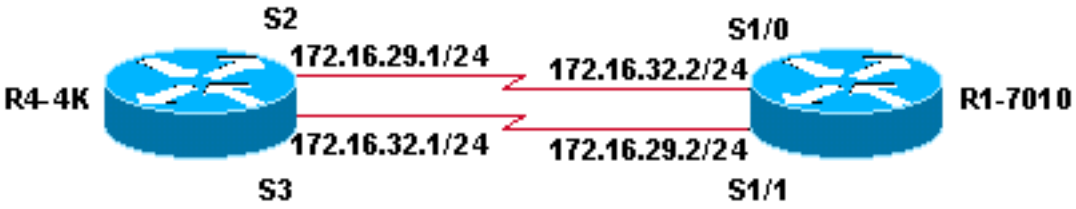
Nota: Si usted tiene una situación donde está una interfaz multipunto un lado y el otro lado es una sub-interfaz después cambia el tipo de red para transmitir en los ambos lados.

En este ejemplo hemos quitado la declaración del “broadcast de tipo de red” sobre el R4-4K porque los ambos lados son interfaces encapsuladas de punto a punto del High-Level Data Link Control (HDLC).

```
R4-4K(4)# configure terminal R4-4K(4)(config)# interface serial 2 R4-4K(4)(config-if)# no ip
ospf network broadcast R4-4K(4)(config-if)# endR4-4K(4)# show ip ospf interface serial 2 Serial2
is up, line protocol is up   Internet Address 172.16.32.1/24, Area 0   Process ID 20, Router ID
172.16.33.1, Network Type POINT_TO_POINT, Cost: 64  Transmit Delay is 1 sec, State
POINT_TO_POINT,  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5   Hello
due in 00:00:04  Neighbor Count is 1, Adjacent neighbor count is 1   Adjacent with neighbor
172.16.32.2  Suppress hello for 0 neighbor(s)
```

Razón 2: Asignación de dirección incorrecta en configuración del link serial DUAL

Considere este diagrama de la red como un ejemplo:



R4-4K	R1-7010
R4-4K(4)# **configure terminal** R4-4K(4)(config)# **interface serial 2** R4-4K(4)(config-if)# **no ip ospf network broadcast** R4-4K(4)(config-if)# **end**R4-4K(4)# **show ip ospf interface serial 2** Serial2 is up, line protocol is up Internet Address 172.16.32.1/24, Area 0 Process ID 20, Router ID 172.16.33.1, **Network Type POINT_TO_POINT**, Cost: 64 Transmit Delay is 1 sec, State POINT_TO_POINT, Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5 Hello due in 00:00:04 Neighbor Count is 1, Adjacent neighbor count is 1 Adjacent with neighbor 172.16.32.2 Suppress hello for 0 neighbor(s)	R4-4K(4)# **configure terminal** R4-4K(4)(config)# **interface serial 2** R4-4K(4)(config-if)# **no ip ospf network broadcast** R4-4K(4)(config-if)# **end**R4-4K(4)# **show ip ospf interface serial 2** Serial2 is up, line protocol is up Internet Address 172.16.32.1/24, Area 0 Process ID 20, Router ID 172.16.33.1, **Network Type POINT_TO_POINT**, Cost: 64 Transmit Delay is 1 sec, State POINT_TO_POINT, Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5 Hello due in 00:00:04 Neighbor Count is 1, Adjacent neighbor count is 1 Adjacent with neighbor 172.16.32.2 Suppress hello for 0 neighbor(s)

Usted puede ver que los IP Addresses están movidos de un tirón en las configuraciones antedichas, que causa una discrepancia en la base de datos OSPF. Sin embargo, el Routers todavía forma a los vecinos en la versión deL Cisco IOS anterior de 12.1 porque en un enlace punto a punto, los routeres para OSPF no verifican que el router de la vencidad esté en la misma subred.

```
R4-4K(4)# show ip ospf neighborNeighbor ID     Pri   State           Dead Time   Address
Interface172.16.32.2       1   FULL/  -        00:00:37    172.16.32.2     Serial2172.16.32.2
1   FULL/  -        00:00:31    172.16.29.2     Serial3
```

De la salida antedicha, usted puede ver que el Serial2 está formando a los vecinos con la dirección IP 172.16.32.2, que no está en la misma subred. Aunque formen a los vecinos, no se instala ningunas rutas en la tabla de ruteo:

```
R1-7010(5)# show ip route172.16.0.0/16 is variably subnetted, 3 subnets, 2 masksC
172.16.32.0/24 is directly connected, Serial1/0C       172.16.29.0/24 is directly connected,
Serial1/1C       172.16.30.1/32 is directly connected, Loopback0
```

Solución

Para solucionar este problema, asigna correctamente los IP Addresses o conmuta los cables seriales. Aquí hemos corregido los IP Addresses:

R4-4K	R1-7010
R1-7010(5)# **show ip route**172.16.0.0/16 is variably subnetted, 3 subnets, 2 masksC 172.16.32.0/24 is directly connected, Serial1/0C 172.16.29.0/24 is directly connected, Serial1/1C 172.16.30.1/32 is directly connected, Loopback0	R1-7010(5)# **show ip route**172.16.0.0/16 is variably subnetted, 3 subnets, 2 masksC 172.16.32.0/24 is directly connected, Serial1/0C 172.16.29.0/24 is directly connected, Serial1/1C 172.16.30.1/32 is directly connected, Loopback0

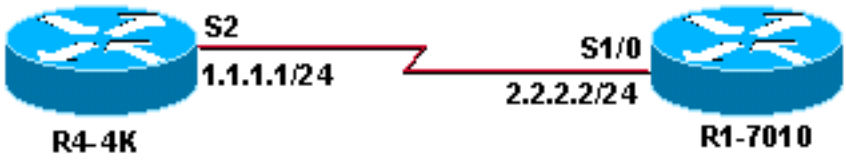
```
R4-4K(4)# show ip ospf neighborNeighbor ID     Pri   State           Dead Time   Address
Interface172.16.32.2       1   FULL/  -        00:00:36    172.16.32.2     Serial2172.16.32.2
1   FULL/  -        00:00:39    172.16.29.2     Serial3
```

Ahora muestra a la dirección de vecino correcta en la interfaz del Serial2. Las rutas están también en la tabla de ruteo:

```
R1-7010(5)# show ip route172.16.0.0/16 is variably subnetted, 4 subnets, 2 masksC
172.16.32.0/24 is directly connected, Serial1/0O       172.16.35.1/32 [110/65] via 172.16.32.1,
00:03:12, Serial1/0                    [110/65] via 172.16.29.1, 00:03:12, Serial1/1C
172.16.29.0/24 is directly connected, Serial1/1C       172.16.30.1/32 is directly connected,
Loopback0
```

Razón 3: Una parte del link punto a punto incluido en Majornet o subred incorrectos

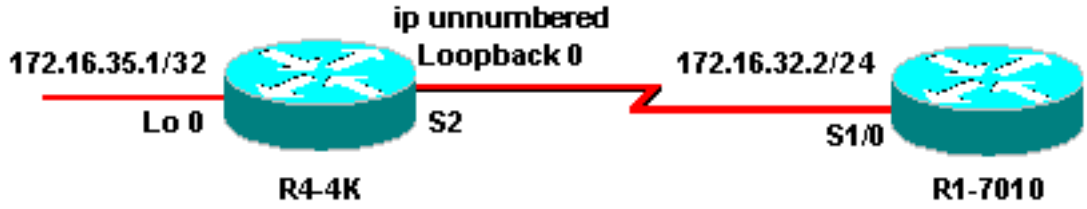
Considere este diagrama de la red como un ejemplo:



Esta situación crea exactamente el mismo comportamiento que la asignación de dirección incorrecta en configuración del link serial DUAL. Para solucionar el problema, asigne los IP Addresses en la misma subred en ambo Routers.

Razón 4: Un lado está sin numerar y el otro lado está numerado

Considere el siguiente diagram de red como un ejemplo:



R4-4K	R1-7010

interface Loopback0 ip address 172.16.35.1 255.255.255.255interface Serial2 **ip unnumbered Loopback0** router ospf 20 network 172.16.0.0 0.0.255.255 area 0	interface Loopback0 ip address 172.16.35.1 255.255.255.255interface Serial2 **ip unnumbered Loopback0** router ospf 20 network 172.16.0.0 0.0.255.255 area 0

R4-4K(4)# **show interface serial 2**Serial2 is up, line protocol is up Hardware is cxBus Serial **Interface is unnumbered. Using address of Loopback0** (172.16.35.1)R1-7010(5)# **show interface serial 1/0**Serial1/0 is up, line protocol is up Hardware is cxBus Serial **Internet address is 172.16.32.2/24**

La salida antedicha muestra que la interfaz del Serial2 R4-4K es innumerable al loopback0, mientras que el Serial1/0 R1-7010 es una interfaz numerada.

R4-4K(4)# **show ip ospf interface serial 2**Serial2 is up, line protocol is up Internet Address **0.0.0.0/24**, Area 0 Process ID 20, Router ID 172.16.35.1, **Network Type** POINT_TO_POINT, Cost: 64 Transmit Delay is 1 sec, State POINT_TO_POINT, Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5 Hello due in 00:00:02 Neighbor Count is 1, Adjacent neighbor count is 1 Adjacent with neighbor 172.16.32.2 Suppress hello for 0 neighbor(s)R1-7010(5)# **show ip ospf interface serial 1/0**Serial1/0 is up, line protocol is up Internet Address 172.16.32.2/24, Area 0 Process ID 20, Router ID 172.16.32.2, **Network Type** POINT_TO_POINT, Cost: 64 Transmit Delay is 1 sec, State POINT_TO_POINT, Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5 Hello due in 00:00:02 Neighbor Count is 1, Adjacent neighbor count is 1 Adjacent with neighbor 172.16.33.1 Suppress hello for 0 neighbor(s)

Como usted puede ver arriba, el tipo de red en ambos casos es de punto a punto. El problema es que un lado es innumerable y no es el otro lado, que crea una discrepancia en la base de datos como se muestra abajo.

R4-4K(4)# **show ip ospf database router 172.16.30.1** OSPF Router with ID (172.16.35.1) (Process ID 20) Router Link States (Area 0) LS age: 202 Options: (No TOS-capability, DC) LS Type: Router Links Link State ID: 172.16.30.1 Advertising Router: 172.16.30.1 LS Seq Number: 80000002 Checksum: 0xC899 Length: 60 Number of Links: 3 Link connected to: another Router (point-to-point) (Link ID) Neighboring Router ID: 172.16.35.1 (Link Data) Router Interface address: 172.16.32.2 Number of TOS metrics: 0 TOS 0 Metrics: 64 Link connected to: a Stub Network (Link ID) Network/subnet number: 172.16.32.0 (Link Data) Network Mask: 255.255.255.0 Number of TOS metrics: 0 TOS 0 Metrics: 64 Link connected to: a Stub Network (Link ID) Network/subnet number: 172.16.30.1 (Link Data) Network Mask: 255.255.255.255 Number of TOS metrics: 0 TOS 0 Metrics: 1 R4-4k(4)# R1-7010(5)# **show ip ospf database router 172.16.35.1**OSPF Router with ID (172.16.30.1) (Process ID 20) Router Link States (Area 0) Adv Router is not-reachable LS age: 396 Options: (No TOS-capability, DC) LS Type: Router Links Link State ID: 172.16.35.1 Advertising Router: 172.16.35.1 LS Seq Number: 80000003 Checksum: 0xBEA1 Length: 48 Number of Links: 2 Link connected to: another Router (point-to-point) (Link ID) Neighboring Router ID: 172.16.30.1 (Link Data) Router Interface address: 0.0.0.3 *!--- In case of an unnumbered link we use MIB !--- II IfIndex value which usually starts with 0.* Number of TOS metrics: 0 TOS 0 Metrics: 64 Link connected to: a Stub Network (Link ID) Network/subnet number: 172.16.35.1 (Link Data) Network Mask: 255.255.255.255 Number of TOS metrics: 0 TOS 0 Metrics: 1 R1-7010(5)#

Usted puede ver que el R1-7010 está generando un LSA por este enlace punto a punto con el campo de los datos de link que contiene su direccionamiento de la interfaz, mientras que el R4-4K está generando el LSA para el mismo link con el campo de los datos de link que contiene el valor del ifIndex MIBII. Esto crea una discrepancia en la base de datos de estado de link, que significa que no se instala ningunas rutas en la tabla de ruteo.

R1-7010(5)# **show ip route**172.16.0.0/16 is variably subnetted, 3 subnets, 2 masksC 172.16.32.0/24 is directly connected, Serial1/0C 172.16.30.1/32 is directly connected, Loopback0

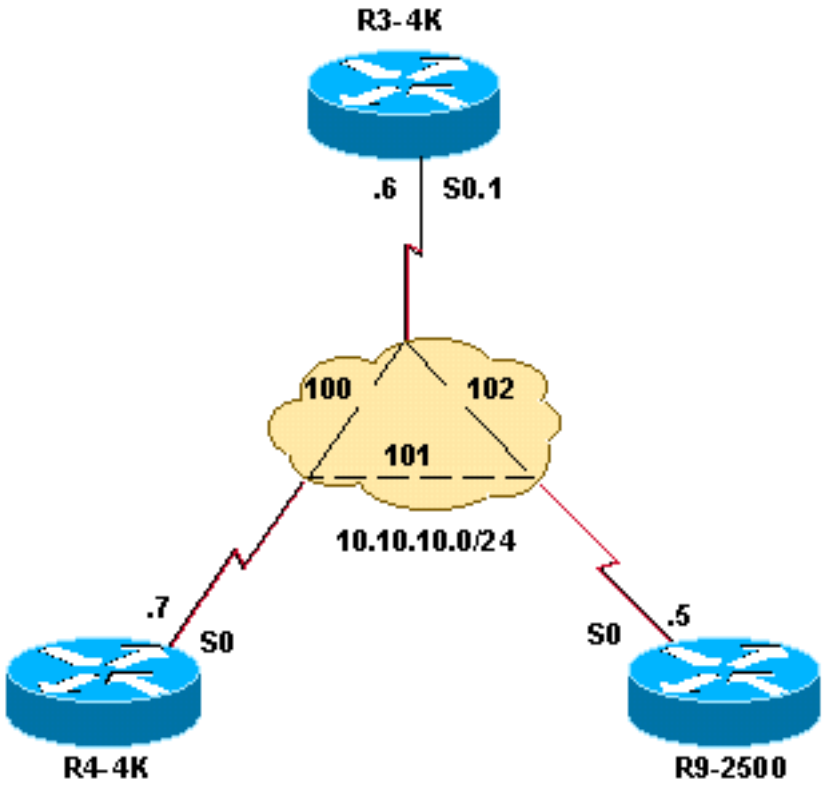
Solución

Para solucionar este problema, configure las interfaces seriales del Routers según lo o numerado o innumerable. En este ejemplo hemos numerado la interfaz del serial 2 del router R4-4K.

```
R4-4K(4)# configure terminal R4-4K(4)(config)# interface serial 2R4-4K(4)(config-if)# no ip unnumbered loopback 0 R4-4K(4)(config-if)# ip address 172.16.32.1 255.255.255.0R4-4K(4))# show ip ospf interface serial 2Serial2 is up, line protocol is up  Internet Address 172.16.32.1/24, Area 0  Process ID 20, Router ID 172.16.33.1, Network Type POINT_TO_POINT, Cost: 64  Transmit Delay is 1 sec, State POINT_TO_POINT,  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5  Hello due in 00:00:02  Neighbor Count is 1, Adjacent neighbor count is 1  Adjacent with neighbor 172.16.32.2  Suppress hello for 0 neighbor(s)R1-7010(5)# show ip route172.16.0.0/16 is variably subnetted, 3 subnets, 2 masksC  172.16.32.0/24 is directly connected, Serial1/0O  172.16.33.1/32 [110/65] via 172.16.32.1, 00:03:08, Serial1/0C 172.16.30.1/32 is directly connected, Loopback0
```

Razón 5: PVC quebrado en entorno de retransmisión de tramas completamente mallado

Considere este diagrama de la red como un ejemplo:



R9-2500
`R4-4K(4)# configure terminal R4-4K(4)(config)# interface serial 2R4-4K(4)(config-if)# no ip unnumbered loopback 0 R4-4K(4)(config-if)# ip address 172.16.32.1 255.255.255.0R4-4K(4))# show ip ospf interface serial 2Serial2 is up, line protocol is up Internet Address 172.16.32.1/24, Area 0 Process ID 20, Router ID 172.16.33.1, Network Type POINT_TO_POINT, Cost: 64 Transmit Delay is 1 sec, State POINT_TO_POINT, Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5 Hello due in 00:00:02 Neighbor Count is 1, Adjacent neighbor count is 1 Adjacent with neighbor 172.16.32.2 Suppress hello for 0 neighbor(s)R1-7010(5)# show ip route172.16.0.0/16 is`

```
variably subnetted, 3 subnets, 2 masksC
172.16.32.0/24 is directly connected, Serial1/0O
172.16.33.1/32 [110/65] via 172.16.32.1, 00:03:08,
Serial1/0C       172.16.30.1/32 is directly connected,
Loopback0
```

R4-4K

```
R4-4K(4)# configure terminal R4-4K(4)(config)# interface
serial 2R4-4K(4)(config-if)# no ip unnumbered loopback 0
R4-4K(4)(config-if)# ip address 172.16.32.1
255.255.255.0R4-4K(4))# show ip ospf interface serial
2Serial2 is up, line protocol is up   Internet Address
172.16.32.1/24, Area 0   Process ID 20, Router ID
172.16.33.1, Network Type POINT_TO_POINT, Cost: 64
Transmit Delay is 1 sec, State POINT_TO_POINT,  Timer
intervals configured, Hello 10, Dead 40, Wait 40,
Retransmit 5    Hello due in 00:00:02  Neighbor Count is
1, Adjacent neighbor count is 1     Adjacent with
neighbor 172.16.32.2  Suppress hello for 0
neighbor(s)R1-7010(5)# show ip route172.16.0.0/16 is
variably subnetted, 3 subnets, 2 masksC
172.16.32.0/24 is directly connected, Serial1/0O
172.16.33.1/32 [110/65] via 172.16.32.1, 00:03:08,
Serial1/0C       172.16.30.1/32 is directly connected,
Loopback0
```

R3-4K

```
R4-4K(4)# configure terminal R4-4K(4)(config)# interface
serial 2R4-4K(4)(config-if)# no ip unnumbered loopback 0
R4-4K(4)(config-if)# ip address 172.16.32.1
255.255.255.0R4-4K(4))# show ip ospf interface serial
2Serial2 is up, line protocol is up   Internet Address
172.16.32.1/24, Area 0   Process ID 20, Router ID
172.16.33.1, Network Type POINT_TO_POINT, Cost: 64
Transmit Delay is 1 sec, State POINT_TO_POINT,  Timer
intervals configured, Hello 10, Dead 40, Wait 40,
Retransmit 5    Hello due in 00:00:02  Neighbor Count is
1, Adjacent neighbor count is 1     Adjacent with
neighbor 172.16.32.2  Suppress hello for 0
neighbor(s)R1-7010(5)# show ip route172.16.0.0/16 is
variably subnetted, 3 subnets, 2 masksC
172.16.32.0/24 is directly connected, Serial1/0O
172.16.33.1/32 [110/65] via 172.16.32.1, 00:03:08,
Serial1/0C       172.16.30.1/32 is directly connected,
Loopback0
```

El modelo de broadcast sobre el Frame Relay funciona correctamente mientras la nube de Frame Relay se enrede completamente. Si algunos circuitos virtuales permanentes (PVC) están quebrados, puede crear los problemas en la base de datos OSPF, que a su vez presenta el `mensaje alcanzable del router anunciante no`.

En este ejemplo, el PVC entre el R9-2500 y el R4-4K está quebrados, y el link R9-2500 al router designado (DR) está quebrado. Como consecuencia, el R9-2500 declara todos los LSA del R3-4K (que no es un DR), como inalcanzable. Como usted puede ver, el R9-2500 no está generando un link de tránsito para la interfaz serial asociada al R3-4K; está generando un link del stub en lugar de otro porque por lo que el R9-2500 no hay DR en este link.

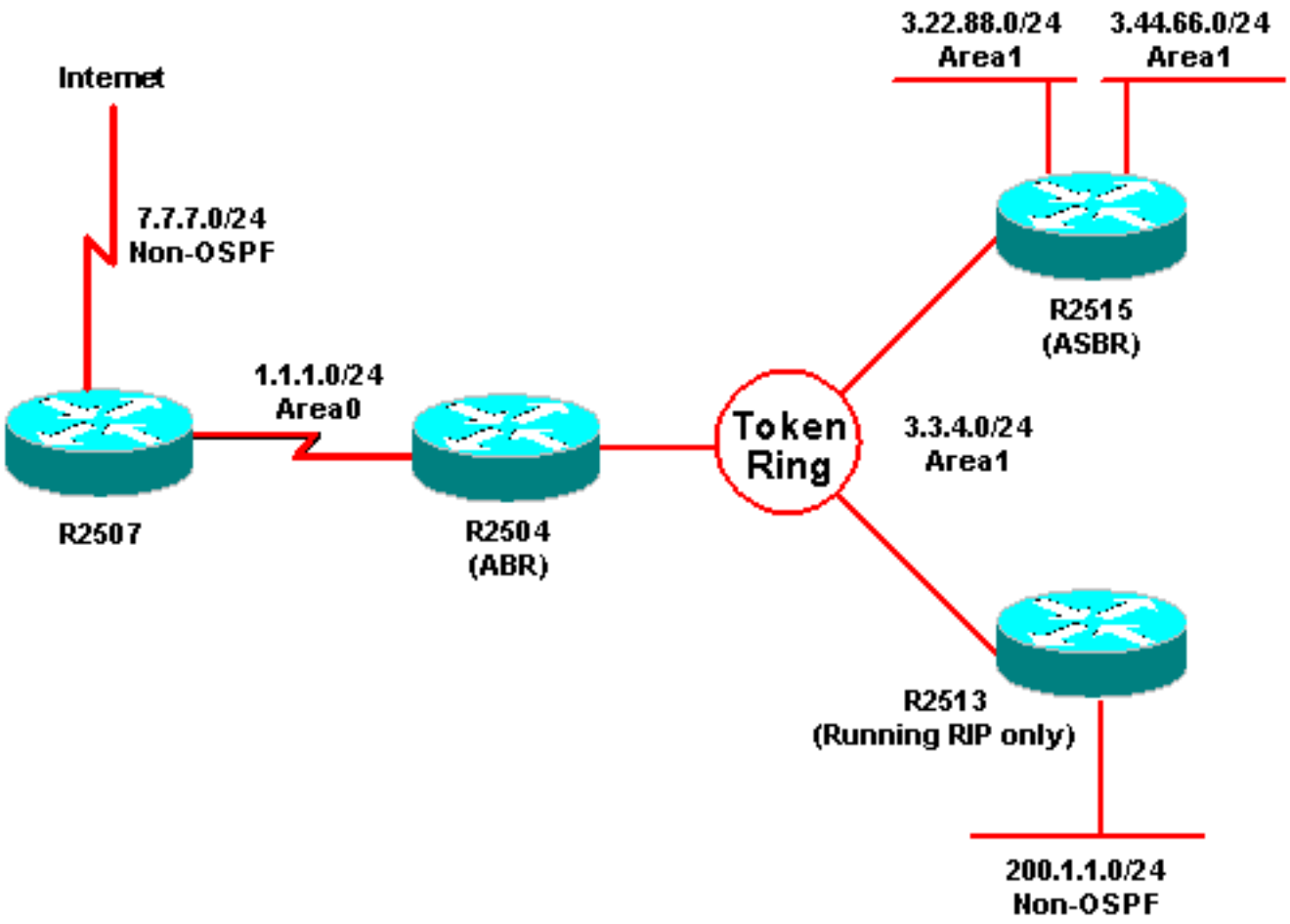
```
R9-2500(3)# show ip ospf database router       OSPF Router with ID (50.50.50.50) (Process ID 10)
Router Link States (Area 0)  LS age: 148  Options: (No TOS-capability, DC)  LS Type: Router
Links  Link State ID: 50.50.50.50  Advertising Router: 50.50.50.50  LS Seq Number: 8000000B
Checksum: 0x55A  Length: 48   Number of Links: 2    Link connected to: a Stub Network    (Link
```

ID) Network/subnet number: 10.10.10.0 (Link Data) Network Mask: 255.255.255.0 Number of TOS metrics: 0 TOS 0 Metrics: 64 Link connected to: a Stub Network (Link ID) Network/subnet number: 50.50.50.50 (Link Data) Network Mask: 255.255.255.255 Number of TOS metrics: 0 TOS 0 Metrics: 1 **Adv Router is not-reachable** LS age: 1081 Options: (No TOS-capability, DC) LS Type: Router Links Link State ID: 60.60.60.60 Advertising Router: 60.60.60.60 LS Seq Number: 80000006 Checksum: 0x4F72 Length: 48 Number of Links: 2 Link connected to: a Stub Network (Link ID) Network/subnet number: 60.60.60.60 (Link Data) Network Mask: 255.255.255.255 Number of TOS metrics: 0 TOS 0 Metrics: 1 Link connected to: a Transit Network (Link ID) Designated Router address: 10.10.10.7 (Link Data) Router Interface address: 10.10.10.6 Number of TOS metrics: 0 TOS 0 Metrics: 64 **Adv Router is not-reachable** LS age: 306 Options: (No TOS-capability, DC) LS Type: Router Links Link State ID: 70.70.70.70 Advertising Router: 70.70.70.70 LS Seq Number: 80000007 Checksum: 0xC185 Length: 48 Number of Links: 2 Link connected to: a Stub Network (Link ID) Network/subnet number: 70.70.70.70 (Link Data) Network Mask: 255.255.255.255 Number of TOS metrics: 0 TOS 0 Metrics: 1 Link connected to: a Transit Network (Link ID) Designated Router address: 10.10.10.7 (Link Data) Router Interface address: 10.10.10.7 Number of TOS metrics: 0 TOS 0 Metrics: 64

Refiera a los problemas con ejecutar el OSPF en el modo NBMA sobre el Frame Relay para información más detallada sobre este problema.

Razón 6: Dirección de reenvío que se conoce a través de una ruta externa

Considere este diagrama de la red como un ejemplo:



R2507
R9-2500(3)# **show ip ospf database router** OSPF Router with ID (50.50.50.50) (Process ID 10)

Router Link States (Area 0) LS age: 148 Options: (No TOS-capability, DC) LS Type: Router Links Link State ID: 50.50.50.50 Advertising Router: 50.50.50.50 LS Seq Number: 8000000B Checksum: 0x55A Length: 48 Number of Links: 2 Link connected to: a Stub Network (Link ID) Network/subnet number: 10.10.10.0 (Link Data) Network Mask: 255.255.255.0 Number of TOS metrics: 0 TOS 0 Metrics: 64 Link connected to: a Stub Network (Link ID) Network/subnet number: 50.50.50.50 (Link Data) Network Mask: 255.255.255.255 Number of TOS metrics: 0 TOS 0 Metrics: 1 **Adv Router is not-reachable** LS age: 1081 Options: (No TOS-capability, DC) LS Type: Router Links Link State ID: 60.60.60.60 Advertising Router: 60.60.60.60 LS Seq Number: 80000006 Checksum: 0x4F72 Length: 48 Number of Links: 2 Link connected to: a Stub Network (Link ID) Network/subnet number: 60.60.60.60 (Link Data) Network Mask: 255.255.255.255 Number of TOS metrics: 0 TOS 0 Metrics: 1 Link connected to: a Transit Network (Link ID) Designated Router address: 10.10.10.7 (Link Data) Router Interface address: 10.10.10.6 Number of TOS metrics: 0 TOS 0 Metrics: 64 **Adv Router is not-reachable** LS age: 306 Options: (No TOS-capability, DC) LS Type: Router Links Link State ID: 70.70.70.70 Advertising Router: 70.70.70.70 LS Seq Number: 80000007 Checksum: 0xC185 Length: 48 Number of Links: 2 Link connected to: a Stub Network (Link ID) Network/subnet number: 70.70.70.70 (Link Data) Network Mask: 255.255.255.255 Number of TOS metrics: 0 TOS 0 Metrics: 1 Link connected to: a Transit Network (Link ID) Designated Router address: 10.10.10.7 (Link Data) Router Interface address: 10.10.10.7 Number of TOS metrics: 0 TOS 0 Metrics: 64

R2504

R9-2500(3)# **show ip ospf database router** OSPF Router with ID (50.50.50.50) (Process ID 10)
Router Link States (Area 0) LS age: 148 Options: (No TOS-capability, DC) LS Type: Router Links Link State ID: 50.50.50.50 Advertising Router: 50.50.50.50 LS Seq Number: 8000000B Checksum: 0x55A Length: 48 Number of Links: 2 Link connected to: a Stub Network (Link ID) Network/subnet number: 10.10.10.0 (Link Data) Network Mask: 255.255.255.0 Number of TOS metrics: 0 TOS 0 Metrics: 64 Link connected to: a Stub Network (Link ID) Network/subnet number: 50.50.50.50 (Link Data) Network Mask: 255.255.255.255 Number of TOS metrics: 0 TOS 0 Metrics: 1 **Adv Router is not-reachable** LS age: 1081 Options: (No TOS-capability, DC) LS Type: Router Links Link State ID: 60.60.60.60 Advertising Router: 60.60.60.60 LS Seq Number: 80000006 Checksum: 0x4F72 Length: 48 Number of Links: 2 Link connected to: a Stub Network (Link ID) Network/subnet number: 60.60.60.60 (Link Data) Network Mask: 255.255.255.255 Number of TOS metrics: 0 TOS 0 Metrics: 1 Link connected to: a Transit Network (Link ID) Designated Router address: 10.10.10.7 (Link Data) Router Interface address: 10.10.10.6 Number of TOS metrics: 0 TOS 0 Metrics: 64 **Adv Router is not-reachable** LS age: 306 Options: (No TOS-capability, DC) LS Type: Router Links Link State ID: 70.70.70.70 Advertising Router:

```
70.70.70.70  LS Seq Number: 80000007  Checksum: 0xC185
Length: 48   Number of Links: 2    Link connected to: a
Stub Network    (Link ID) Network/subnet number:
70.70.70.70    (Link Data) Network Mask: 255.255.255.255
Number of TOS metrics: 0    TOS 0 Metrics: 1    Link
connected to: a Transit Network    (Link ID) Designated
Router address: 10.10.10.7    (Link Data) Router
Interface address: 10.10.10.7    Number of TOS metrics:
0    TOS 0 Metrics: 64
```

R2515

```
R9-2500(3)# show ip ospf database router        OSPF
Router with ID (50.50.50.50) (Process ID 10)
Router Link States (Area 0)  LS age: 148  Options: (No
TOS-capability, DC)  LS Type: Router Links  Link State
ID: 50.50.50.50  Advertising Router: 50.50.50.50  LS Seq
Number: 8000000B  Checksum: 0x55A  Length: 48   Number
of Links: 2    Link connected to: a Stub Network
(Link ID) Network/subnet number: 10.10.10.0    (Link
Data) Network Mask: 255.255.255.0    Number of TOS
metrics: 0    TOS 0 Metrics: 64    Link connected to: a
Stub Network    (Link ID) Network/subnet number:
50.50.50.50    (Link Data) Network Mask: 255.255.255.255
Number of TOS metrics: 0    TOS 0 Metrics: 1  Adv Router
is not-reachable  LS age: 1081  Options: (No TOS-
capability, DC)  LS Type: Router Links  Link State ID:
60.60.60.60  Advertising Router: 60.60.60.60  LS Seq
Number: 80000006  Checksum: 0x4F72  Length: 48   Number
of Links: 2    Link connected to: a Stub Network
(Link ID) Network/subnet number: 60.60.60.60    (Link
Data) Network Mask: 255.255.255.255    Number of TOS
metrics: 0    TOS 0 Metrics: 1    Link connected to: a
Transit Network    (Link ID) Designated Router address:
10.10.10.7    (Link Data) Router Interface address:
10.10.10.6    Number of TOS metrics: 0    TOS 0 Metrics:
64            Adv Router is not-reachable  LS age: 306
Options: (No TOS-capability, DC)  LS Type: Router Links
Link State ID: 70.70.70.70  Advertising Router:
70.70.70.70  LS Seq Number: 80000007  Checksum: 0xC185
Length: 48   Number of Links: 2    Link connected to: a
Stub Network    (Link ID) Network/subnet number:
70.70.70.70    (Link Data) Network Mask: 255.255.255.255
Number of TOS metrics: 0    TOS 0 Metrics: 1    Link
connected to: a Transit Network    (Link ID) Designated
Router address: 10.10.10.7    (Link Data) Router
Interface address: 10.10.10.7    Number of TOS metrics:
0    TOS 0 Metrics: 64
```

R2513

```
R9-2500(3)# show ip ospf database router        OSPF
Router with ID (50.50.50.50) (Process ID 10)
Router Link States (Area 0)  LS age: 148  Options: (No
TOS-capability, DC)  LS Type: Router Links  Link State
ID: 50.50.50.50  Advertising Router: 50.50.50.50  LS Seq
Number: 8000000B  Checksum: 0x55A  Length: 48   Number
of Links: 2    Link connected to: a Stub Network
(Link ID) Network/subnet number: 10.10.10.0    (Link
Data) Network Mask: 255.255.255.0    Number of TOS
metrics: 0    TOS 0 Metrics: 64    Link connected to: a
Stub Network    (Link ID) Network/subnet number:
50.50.50.50    (Link Data) Network Mask: 255.255.255.255
Number of TOS metrics: 0    TOS 0 Metrics: 1  Adv Router
is not-reachable  LS age: 1081  Options: (No TOS-
```

```
capability, DC)  LS Type: Router Links  Link State ID:
60.60.60.60  Advertising Router: 60.60.60.60  LS Seq
Number: 80000006  Checksum: 0x4F72  Length: 48   Number
of Links: 2    Link connected to: a Stub Network
(Link ID) Network/subnet number: 60.60.60.60    (Link
Data) Network Mask: 255.255.255.255    Number of TOS
metrics: 0    TOS 0 Metrics: 1    Link connected to: a
Transit Network    (Link ID) Designated Router address:
10.10.10.7    (Link Data) Router Interface address:
10.10.10.6    Number of TOS metrics: 0    TOS 0 Metrics:
64            Adv Router is not-reachable  LS age: 306
Options: (No TOS-capability, DC)  LS Type: Router Links
Link State ID: 70.70.70.70  Advertising Router:
70.70.70.70  LS Seq Number: 80000007  Checksum: 0xC185
Length: 48   Number of Links: 2    Link connected to: a
Stub Network    (Link ID) Network/subnet number:
70.70.70.70    (Link Data) Network Mask: 255.255.255.255
Number of TOS metrics: 0    TOS 0 Metrics: 1    Link
connected to: a Transit Network    (Link ID) Designated
Router address: 10.10.10.7    (Link Data) Router
Interface address: 10.10.10.7    Number of TOS metrics:
0    TOS 0 Metrics: 64
```

```
R2507# show ip ospf data external 200.1.1.0       OSPF Router with ID (7.7.7.1) (Process ID 1)
Type- 5 AS External Link States       LS age: 72       Options: (No TOS- capability, DC)
LS Type: AS External Link       Link State ID: 200.1.1.0 (External Network Number )
Advertising Router: 3.44.66.3       LS Seq Number: 80000001       Checksum: 0xF161       Length:
36       Network Mask: /24                    Metric Type: 2 (Larger than any link state path)
TOS: 0                   Metric: 20                    Forward Address: 3.3.4.4
External Route Tag: 0
```

El R2507 tiene 200.1.1.0/24 en su base de datos pero no la ha instalado en la tabla de ruteo porque 3.3.4.4 es docto vía una ruta externo OSPF.

```
R2507# show ip route 3.3.4.4       Routing entry for 3.3.4.0/ 24       Known via "ospf 1",
distance 110, metric 20,type extern 2, forward metric 70       Redistributing via ospf 1
Last update from 1.1.1.2 on Serial0, 00: 00: 40 ago       Routing Descriptor Blocks:       *
1.1.1.2, from 3.44.66.3, 00: 00: 40 ago, via Serial0          Route metric is 20, traffic share
count is 1
```

Nota: Con el arreglo del CSCdp72526 del Id. de bug Cisco (clientes registrados solamente), el OSPF no genera un anuncio del estado del vínculo type-5 (LSA) de una red externa solapada; por lo tanto, el R2507 tendrá solamente una ruta dentro de una zona sumaria de 3.0.0.0/8. Entonces, el R2507 instalará 200.1.1.0/24 como la dirección de reenvío y él serán accesibles vía la ruta dentro de una zona 3.0.0.0/8, así de acuerdo con el RFC 2328 .

Después de que el arreglo del bug antedicho, salida parezca el siguiente:

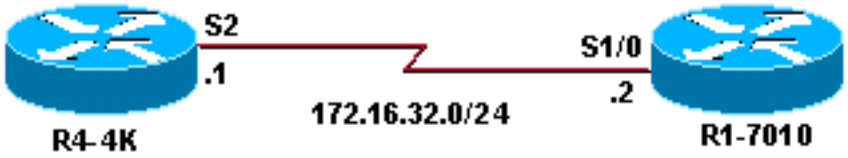
```
R2507# show ip route 3.3.4.4       Routing entry for 3.0.0.0/8       Known via "ospf 1", distance
110, metric 74, type inter area       Last update from 1.1.1.2 on Serial0, 00:19:20 ago
Routing Descriptor Blocks:       * 1.1.1.2, from 3.3.4.2, 00:19:20 ago, via Serial0R2507# show ip
route         Codes: 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       i - IS-IS,
su - IS-IS summary, 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
routeGateway of last resort is not set1.0.0.0/24 is subnetted, 1 subnets     C 1.1.1.0 is
directly connected, Serial0     O IA 3.0.0.0/8 [110/74] via 1.1.1.2, 00:30:18, Serial0     O E2
200.1.1.0/24 [110/20] via 1.1.1.2, 00:22:58, Serial0     Route metric is 74, traffic share count
is 1R2507#
```

Si conocen a la dirección de reenvío también vía una ruta externo, el OSPF no instala esa ruta en la tabla de ruteo. Para información más detallada sobre este problema, vea el problema de Ruteo

Común con el OSPF Forwarding Address.

Razón 7: Distribuir lista bloquea las rutas

Utilicemos el siguiente diagram de red como un ejemplo:



R4-4K	R1-7010
R2507# **show ip route 3.3.4.4** Routing entry for 3.0.0.0/8 Known via "ospf 1", distance 110, metric 74, type inter area Last update from 1.1.1.2 on Serial0, 00:19:20 ago Routing Descriptor Blocks: * 1.1.1.2, from 3.3.4.2, 00:19:20 ago, via Serial0R2507# **show ip route** Codes: 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 i - IS-IS, su - IS-IS summary, 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 routeGateway of last resort is not set1.0.0.0/24 is subnetted, 1 subnets C 1.1.1.0 is directly connected, Serial0 O IA 3.0.0.0/8 [110/74] via 1.1.1.2, 00:30:18, Serial0 O E2 200.1.1.0/24 [110/20] via 1.1.1.2, 00:22:58, Serial0 Route metric is 74, traffic share count is 1R2507#	R2507# **show ip route 3.3.4.4** Routing entry for 3.0.0.0/8 Known via "ospf 1", distance 110, metric 74, type inter area Last update from 1.1.1.2 on Serial0, 00:19:20 ago Routing Descriptor Blocks: * 1.1.1.2, from 3.3.4.2, 00:19:20 ago, via Serial0R2507# **show ip route** Codes: 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 i - IS-IS, su - IS-IS summary, 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 routeGateway of last resort is not set1.0.0.0/24 is subnetted, 1 subnets C 1.1.1.0 is directly connected, Serial0 O IA 3.0.0.0/8 [110/74] via 1.1.1.2, 00:30:18, Serial0 O E2 200.1.1.0/24 [110/20] via 1.1.1.2, 00:22:58, Serial0 Route metric is 74, traffic share count is 1R2507#

Como usted puede ver arriba, el R1-7010 tiene el **comando distribute-list** configurado y solamente está permitiendo que a 172.16.32.0/24 el intervalo de direcciones fuera instalado en la tabla de

ruteo. En los protocolos del link-state usted no puede filtrar realmente un LSA con el **comando distribute-list**. El LSA todavía estará en la base de datos; sin embargo el LSA no será instalado en la tabla de ruteo.

```
R1-7010(5)# show ip ospf database router 172.16.33.1  LS age: 357  Options: (No TOS-capability,
DC)  LS Type: Router Links  Link State ID: 172.16.33.1  Advertising Router: 172.16.33.1  LS Seq
Number: 8000000A  Checksum: 0xD4AA  Length: 48   Number of Links: 3 Link connected to: another
Router (point-to-point)    (Link ID) Neighboring Router ID: 172.16.32.2    (Link Data) Router
Interface address: 172.16.32.1    Number of TOS metrics: 0    TOS 0 Metrics: 64
```

El comando distribute-list configuration en el R1-7010 está filtrando la red 172.16.33.1/32 de ser instalado en la tabla de ruteo.

```
R1-7010(5)# show ip route172.16.0.0/16 is variably subnetted, 3 subnets, 2 masksC
172.16.32.0/24 is directly connected, Serial1/0C       172.16.30.1/32 is directly connected,
Loopback0
```

Solución

Para solucionar este problema, configuración R1-7010 y permitir 172.16.33.0/24 en el Access Control List (ACL) que esta red consigue tan instalado en la tabla de ruteo.

```
R1-7010(5)# configure terminal R1-7010(5)(config)# access-list 1 permit 172.16.33.0 0.0.0.255
R1-7010(5)(config)# endR1-7010(5)# show ip access-list 1Standard IP access list 1    permit
172.16.32.0, wildcard bits 0.0.0.255    permit 172.16.33.0, wildcard bits 0.0.0.255R1-7010(5)#
show ip route172.16.0.0/16 is variably subnetted, 3 subnets, 2 masksC       172.16.32.0/24 is
directly connected, Serial1/0O       172.16.33.1/32 [110/65] via 172.16.32.1, 00:00:08,
Serial1/0C       172.16.30.1/32 is directly connected, Loopback0
```

Información Relacionada

- Página de Soporte OSPF
- OSPF (Abrir la ruta más corta en primer lugar) Preguntas Frecuentes
- Soporte Técnico - Cisco Systems