Solución de problemas relacionados con VRRPv3 con IPv6

Contenido

Introducción

Este documento describe los pasos para resolver problemas del Protocolo de redundancia de router virtual versión 3 (VRRPv3) con IPv6 en Nexus 9000.

Prerequisites

Requirements

Cisco NXOS® recomienda que conozca estos temas:

- VRRP
- Etanizador
- IPv6
- Protocolo de redundancia de primer salto (FHRP)

Componentes Utilizados

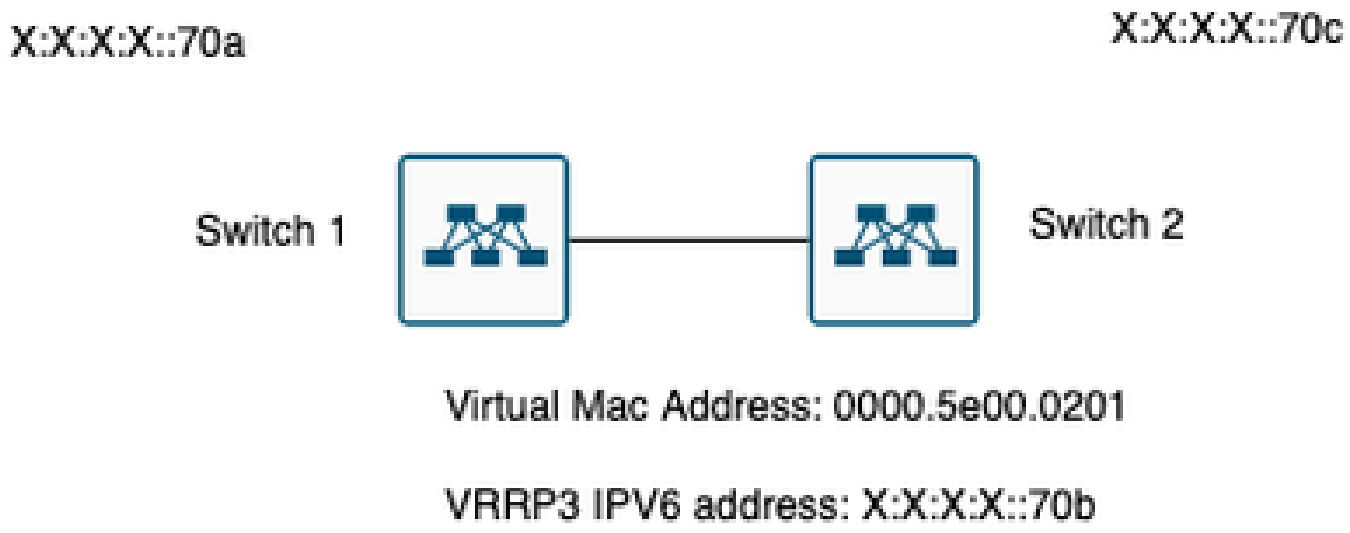
Este documento está restringido a hardware específico como Nexus 9000.

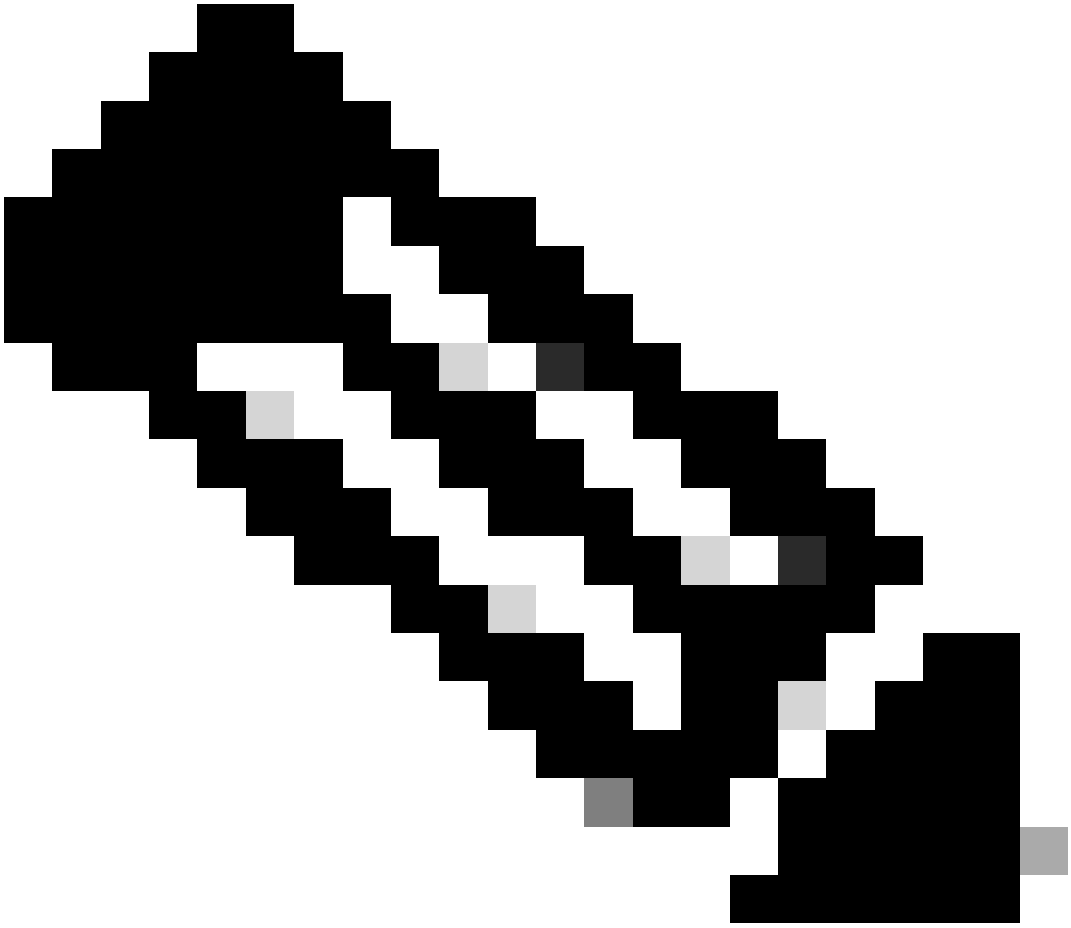
La información que contiene este documento se creó a partir de los dispositivos en un ambiente de laboratorio específico. Todos los dispositivos que se utilizan en este documento se pusieron en funcionamiento con una configuración verificada (predeterminada). Si tiene una red en vivo, asegúrese de entender el posible impacto de cualquier comando.

Antecedentes

La versión 2 de VRRP sólo admite la familia de direcciones IPv4, pero la versión 3 de VRRP (VRRP3) admite las familias de direcciones IPv4 e IPv6. En NX-OS, tanto VRRP como VRRPv3 no se pueden habilitar en el mismo dispositivo. Si la función VRRP ya está activada en el switch Nexus, al activar la función, el VRRPv3 muestra un error que indica que el VRRPv2 ya está activado. Por lo tanto, se debe realizar una migración de VRRP a VRRPv3, que tiene un impacto mínimo en los servicios.

Topología





Nota: entorno sin canal de puerto virtual (VPC).

Verificación

1) Verifique que la configuración en ambos lados coincida.

Switch 1:

```
Switch1# show run interface vlan 209

interface Vlan209
no shutdown
no ip redirects
ipv6 address X:X:X:X::70a/125
vrrpv3 1 address-family ipv6
priority 200
```

```
address X::X:X:X:297 primary

Switch1#
```

Switch 2:

```
Switch2# show run interface vlan 209

interface Vlan209
no shutdown
no ip redirects
ipv6 address X:X:X:X::70c/125
no ipv6 redirects
vrrpv3 1 address-family ipv6
address X::X:X:X:297 primary

Switch2#
```

2) Compruebe que la tabla de direcciones MAC está rellenada correctamente.

Switch 1:

```
Switch1# show mac address-table vlan 209
Legend:
* - primary entry, G - Gateway MAC, (R) - Routed MAC, O - Overlay MAC
age - seconds since last seen,+ - primary entry using vPC Peer-Link,
(T) - True, (F) - False, C - ControlPlane MAC, ~ - vsan
VLAN MAC Address Type age Secure NTFY Ports
---------+-----------------+--------+---------+------+----+------------------
G 209 0000.5e00.0201 static - F F sup-eth1(R)
G 209 689e.0baa.dea7 static - F F sup-eth1(R)
Switch1#
```

```
module-1# show hardware internal tah rmac
Instance : 0
====================================
Mac-Address Vlan Flag
------------------------------------
68:9e:0b:aa:de:a7 0 SYSTEM
00:00:5e:00:02:01 209 VRMAC

module-1#
```

Switch 2:

```
Switch2# show mac address-table vlan 209
Legend:
* - primary entry, G - Gateway MAC, (R) - Routed MAC, O - Overlay MAC
age - seconds since last seen,+ - primary entry using vPC Peer-Link,
(T) - True, (F) - False, C - ControlPlane MAC, ~ - vsan
VLAN MAC Address Type age Secure NTFY Ports
---------+-----------------+--------+---------+------+----+------------------
* 209 0000.5e00.0201 dynamic 0 F F Eth1/51
G 209 689e.0baa.de07 static - F F sup-eth1(R)
Switch2#
```

```
Switch2# show hardware mac address-table 1 address 0000.5e00.0201
FE | VLAN | MAC | Dynamic | Port |Location Index|
| | | | | |
---+------+--------------+---------+---------+--------------+
0 209 0000.5e00.0201 dynamic Eth1/51

Switch2#
```

```
module-1# show hardware internal tah rmac
Instance : 0
====================================
Mac-Address Vlan Flag
------------------------------------
68:9e:0b:aa:de:07 0 SYSTEM

module-1#
```

3) Verificar el estado de los dispositivos que participan en el grupo.

Switch 1:

```
Switch1# show vrrpv3 vlan 209


Vlan209 - Group 1 - Address-Family IPv6
State is Primary
State duration 15 hours 43 mins 44 secs
Virtual IP address is X::X:X:X:297
Virtual MAC address is 0000.5e00.0201
Advertisement interval is 1000 msec
Preemption enabled
Priority is 200, (Configured 200)
Primary Router is X::X:X:X:dea7 (local), priority is 200
Primary Advertisement interval is 1000 msec (expires in 813 msec)
Primary Down interval is unknown

Switch1#
```

Switch 2:

```
Switch2# show vrrpv3 vlan 209


Vlan209 - Group 1 - Address-Family IPv6
State is BACKUP
State duration 3 mins 57.928 secs
Virtual IP address is X::X:X:X:297
Virtual MAC address is 0000.5e00.0201
Advertisement interval is 1000 msec
Preemption enabled
Priority is 100, (Configured 100)
Primary Router is X::X:X:X:dea7, priority is 200
Primary Advertisement interval is 1000 msec (learned)
Primary Down interval is 3609 msec (expires in 3422 msec)

Switch2#
```

Troubleshoot

Escenario roto.

1) La opción de comando show vrpv3 brief muestra la información breve relacionada con el grupo, como el número de grupo, la familia de direcciones, la prioridad, la preferencia, el estado, la dirección principal y la dirección del grupo (que es la IP del grupo virtual). En este ejemplo, y como se describió anteriormente, ambos switches son primarios, lo cual no es correcto.

Switch 1:

```
Switch1# show vrrpv3 brief

Interface Grp A-F Pri Time Own Pre State Primary addr/Group addr
Vlan209 1 IPv6 200 0 N Y Primary X::X:X:X:dea7(local) X::X:X:X:297
Switch1#
```

Switch 2:

```
Switch2# show vrrpv3 brief

Interface Grp A-F Pri Time Own Pre State Primary addr/Group addr
Vlan209 1 IPv6 100 0 N Y Primary X::X:X:X:de07(local) X::X:X:X:297
Switch2#
```

2) El comando show vrpv3 detail muestra información adicional, como anuncios enviados y recibidos para VRRPv3, dirección MAC virtual y otras estadísticas relacionadas con errores y estados de transición. Por ejemplo, los anuncios VRRPv3 recibidos no aumentan.

Switch 1:

```
Switch1# show vrrpv3 detail vlan 209

Vlan209 - Group 1 - Address-Family IPv6
State is Primary
State duration 12 hours 47 mins 40 secs
Virtual IP address is X::X:X:X:297
Virtual MAC address is 0000.5e00.0201
Advertisement interval is 1000 msec
Preemption enabled
Priority is 200, (Configured 200)
Primary Router is X::X:X:X:dea7 (local), priority is 200
Primary Advertisement interval is 1000 msec (expires in 284 msec)
Primary Down interval is unknown
VRRPv3 Advertisements: sent 57138 (errors 2) - rcvd 177       <--------
VRRPv2 Advertisements: sent 0 (errors 0) - rcvd 0
Group Discarded Packets: 0
VRRPv2 incompatibility: 0
IP Address Owner conflicts: 0
Invalid address count: 0
IP address configuration mismatch : 0
Invalid Advert Interval: 0
Adverts received in Init state: 0
Invalid group other reason: 0
Group State transition:
Init to Primary: 0
Init to backup: 4 (Last change Thu Apr 11 01:01:46.418 UTC)
Backup to Primary: 4 (Last change Thu Apr 11 01:01:49.637 UTC)
Primary to backup: 0
Primary to init: 3 (Last change Thu Apr 11 00:57:37.107 UTC)
Backup to init: 0

Switch1#
```

```
Switch1# show vrrpv3 detail vlan 209

Vlan209 - Group 1 - Address-Family IPv6
State is Primary
State duration 12 hours 51 mins 29 secs
Virtual IP address is fX::X:X:X:297
Virtual MAC address is 0000.5e00.0201
Advertisement interval is 1000 msec
Preemption enabled
Priority is 200, (Configured 200)
Primary Router is X::X:X:X:dea7 (local), priority is 200
Primary Advertisement interval is 1000 msec (expires in 667 msec)
Primary Down interval is unknown
VRRPv3 Advertisements: sent 57393 (errors 2) - rcvd 177         <--------
VRRPv2 Advertisements: sent 0 (errors 0) - rcvd 0
Group Discarded Packets: 0
```

```
VRRPv2 incompatibility: 0
IP Address Owner conflicts: 0
Invalid address count: 0
IP address configuration mismatch : 0
Invalid Advert Interval: 0
Adverts received in Init state: 0
Invalid group other reason: 0
Group State transition:
Init to Primary: 0
Init to backup: 4 (Last change Thu Apr 11 01:01:46.418 UTC)
Backup to Primary: 4 (Last change Thu Apr 11 01:01:49.637 UTC)
Primary to backup: 0
Primary to init: 3 (Last change Thu Apr 11 00:57:37.107 UTC)
Backup to init: 0

Switch1#
```

Switch 2:

```
Switch2# show vrrpv3 detail vlan 209

Vlan209 - Group 1 - Address-Family IPv6
State is Primary
State duration 12 hours 51 mins 49 secs
Virtual IP address is X::X:X:X:297
Virtual MAC address is 0000.5e00.0201
Advertisement interval is 1000 msec
Preemption enabled
Priority is 100, (Configured 100)
Primary Router is X::X:X:X:de07 (local), priority is 100
Primary Advertisement interval is 1000 msec (expires in 412 msec)
Primary Down interval is unknown
VRRPv3 Advertisements: sent 51764 (errors 0) - rcvd 6032          <--------
VRRPv2 Advertisements: sent 0 (errors 0) - rcvd 0
Group Discarded Packets: 0
VRRPv2 incompatibility: 0
IP Address Owner conflicts: 0
Invalid address count: 0
IP address configuration mismatch : 0
Invalid Advert Interval: 0
Adverts received in Init state: 0
Invalid group other reason: 0
Group State transition:
Init to Primary: 0
Init to backup: 1 (Last change Wed Apr 10 23:21:09.604 UTC)
Backup to Primary: 4 (Last change Thu Apr 11 00:57:40.229 UTC)
Primary to backup: 3 (Last change Thu Apr 11 00:54:11.758 UTC)
Primary to init: 0
Backup to init: 0

Switch2#
```

```
Switch2# show vrrpv3 detail vlan 209

Vlan209 - Group 1 - Address-Family IPv6
```

```
State is Primary
State duration 12 hours 55 mins 38 secs
Virtual IP address is fX::X:X:X:297
Virtual MAC address is 0000.5e00.0201
Advertisement interval is 1000 msec
Preemption enabled
Priority is 100, (Configured 100)
Primary Router is X::X:X:X:de07 (local), priority is 100
Primary Advertisement interval is 1000 msec (expires in 479 msec)
Primary Down interval is unknown
VRRPv3 Advertisements: sent 52019 (errors 0) - rcvd 6032       <--------
VRRPv2 Advertisements: sent 0 (errors 0) - rcvd 0
Group Discarded Packets: 0
VRRPv2 incompatibility: 0
IP Address Owner conflicts: 0
Invalid address count: 0
IP address configuration mismatch : 0
Invalid Advert Interval: 0
Adverts received in Init state: 0
Invalid group other reason: 0
Group State transition:
Init to Primary: 0
Init to backup: 1 (Last change Wed Apr 10 23:21:09.604 UTC)
Backup to Primary: 4 (Last change Thu Apr 11 00:57:40.229 UTC)
Primary to backup: 3 (Last change Thu Apr 11 00:54:11.758 UTC)
Primary to init: 0
Backup to init: 0

Switch2#
```

3) El comando show vrrpv3 internal event-history debugs muestra información sobre las diferentes etapas por las que ha pasado el participante de VRRPv3.

Switch 1:

```
Switch1# show vrrpv3 internal event-history debugs

2024 Apr 11 01:01:49.642985: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: Current MAC Sta

2024 Apr 11 01:01:49.642974: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: Current MAC Sta

2024 Apr 11 01:01:49.642963: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: Pathway MAC Eve

2024 Apr 11 01:01:49.642952: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: Notifying Pathw

2024 Apr 11 01:01:49.642941: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: L2fm Alloc Resp

2024 Apr 11 01:01:49.642898: E_DEBUG vrrpv3 [23795]: VRRP-MTS: L2fm Alloc Response: RRToken=0x2f9a22, N

2024 Apr 11 01:01:49.637478: E_DEBUG vrrpv3 [23795]: VRRS Vlan209: [vrrpVlan209v61 tag] Installing ICMP

2024 Apr 11 01:01:49.637453: E_DEBUG vrrpv3 [23795]: VRRS Vlan209: [vrrpVlan209v61 tag] Activating VIP6

2024 Apr 11 01:01:49.637367: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: Current MAC Sta

2024 Apr 11 01:01:49.637306: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: Current MAC Sta
```

```
2024 Apr 11 01:01:49.637295: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: Pathway MAC Eve

2024 Apr 11 01:01:47.421619: E_DEBUG vrrpv3 [23795]: VRRP-MTS: Handling IPv6 Change 7: Ifindex=0x90100d

2024 Apr 11 01:01:46.421957: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: Current MAC Sta

2024 Apr 11 01:01:46.421950: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: Current MAC Sta

2024 Apr 11 01:01:46.421944: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: Pathway MAC Eve

2024 Apr 11 01:01:46.421938: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: Notifying Pathw

2024 Apr 11 01:01:46.421932: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: L2fm Alloc Resp

2024 Apr 11 01:01:46.421911: E_DEBUG vrrpv3 [23795]: VRRP-MTS: L2fm Alloc Response: RRToken=0x2f99cd, N

2024 Apr 11 01:01:46.419597: E_DEBUG vrrpv3 [23795]: VRRS Vlan209: [vrrpVlan209v61 tag] Installing ICMP

2024 Apr 11 01:01:46.419574: E_DEBUG vrrpv3 [23795]: VRRS Vlan209: [vrrpVlan209v61 tag] Deactivating VI

2024 Apr 11 01:01:46.419515: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: Current MAC Sta

2024 Apr 11 01:01:46.419463: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: Current MAC Sta

2024 Apr 11 01:01:46.419454: E_DEBUG vrrpv3 [23795]: VRRS Vlan209 [vrrpVlan209v61 tag]: Pathway MAC Eve
Switch1#
```

Switch 2:

```
Switch2# show vrrpv3 internal event-history debugs

2024 Apr 11 00:57:40.234767: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Current MAC 0000.5e00.0201 state

2024 Apr 11 00:57:40.234752: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Current MAC 0000.5e00.0201 State

2024 Apr 11 00:57:40.234744: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] pw id val is(983043)

2024 Apr 11 00:57:40.234736: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Notifying pathway mac of async e

2024 Apr 11 00:57:40.234728: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] fx_macdb_handle_l2fm_alloc :: Al

2024 Apr 11 00:57:40.234694: E_DEBUG VRRP-MTS: L2FM alloc resp: rrtoken 0x3ba768, msgs 1, overall statu

2024 Apr 11 00:57:40.229355: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] installing icmpv6 entry for vip

2024 Apr 11 00:57:40.229329: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] activating vip6 X::X:X:X:297, th

2024 Apr 11 00:57:40.229251: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Current MAC 0000.5e00.0201 state

2024 Apr 11 00:57:40.229195: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Current MAC 0000.5e00.0201 State

2024 Apr 11 00:57:40.229184: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] pw id val is(983043)

2024 Apr 11 00:57:36.813093: E_DEBUG VRRP-MTS: Received IM_PHY_LINK_STATE_CHANGE(down) for 0x1a006400

2024 Apr 11 00:54:11.763596: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Current MAC 0000.5e00.0201 state
```

```
2024 Apr 11 00:54:11.763587: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Current MAC 0000.5e00.0201 State

2024 Apr 11 00:54:11.763580: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] pw id val is(983043)

2024 Apr 11 00:54:11.763572: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Notifying pathway mac of async e
2024 Apr 11 00:54:11.763564: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] fx_macdb_handle_l2fm_alloc :: Al
2024 Apr 11 00:54:11.763533: E_DEBUG VRRP-MTS: L2FM alloc resp: rrtoken 0x3b791e, msgs 1, overall statu
2024 Apr 11 00:54:11.758782: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] installing icmpv6 entry for vip X
2024 Apr 11 00:54:11.758757: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] de-activating vip6 X::X:X:X:297,
2024 Apr 11 00:54:11.758685: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Current MAC 0000.5e00.0201 state
2024 Apr 11 00:54:11.758637: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Current MAC 0000.5e00.0201 State
2024 Apr 11 00:54:11.758626: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] pw id val is(983043)

2024 Apr 11 00:54:06.643584: E_DEBUG VRRP-MTS: L2_PROTO_CHANGE: intf 0x1a006400 entering L2
2024 Apr 11 00:54:06.616851: E_DEBUG VRRP-MTS: Received IM_PHY_LINK_STATE_CHANGE(up) for 0x1a006400
2024 Apr 11 00:52:11.216190: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Current MAC 0000.5e00.0201 state
2024 Apr 11 00:52:11.216182: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Current MAC 0000.5e00.0201 State
2024 Apr 11 00:52:11.216174: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] pw id val is(983043)

2024 Apr 11 00:52:11.216167: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Notifying pathway mac of async e
2024 Apr 11 00:52:11.216159: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] fx_macdb_handle_l2fm_alloc :: Al
2024 Apr 11 00:52:11.216125: E_DEBUG VRRP-MTS: L2FM alloc resp: rrtoken 0x3b3bc5, msgs 1, overall statu
2024 Apr 11 00:52:11.210932: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] installing icmpv6 entry for vip X
2024 Apr 11 00:52:11.210906: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] activating vip6 X::X:X:X:297, th
2024 Apr 11 00:52:11.210828: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Current MAC 0000.5e00.0201 state
2024 Apr 11 00:52:11.210773: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] Current MAC 0000.5e00.0201 State
2024 Apr 11 00:52:11.210762: E_DEBUG VRRS Vlan209 [vrrpVlan209v61 tag] pw id val is(983043)

2024 Apr 11 00:52:08.025681: E_DEBUG VRRP-MTS: Received IM_PHY_LINK_STATE_CHANGE(down) for 0x1a006400

Switch2#
```

4) Ethanalyzer muestra los anuncios VRRP. Los anuncios VRRP sólo los realiza el switch principal. La dirección de multidifusión para VRRPv3 es ff02::12.

Switch 1:

```
Switch1# ethanalyzer local interface inband display-filter "vrrp.adver_int" limit-captured-frames 0
Capturing on inband
2024-04-11 14:07:50.050745 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)
2024-04-11 14:07:50.967333 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)
2024-04-11 14:07:51.861690 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)
2024-04-11 14:07:52.809845 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)
2024-04-11 14:07:53.700778 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)
2024-04-11 14:07:54.693008 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)

6 packets captured
Switch1#
```

Switch 2:

```
Switch2# ethanalyzer local interface inband display-filter "vrrp.adver_int" limit-captured-frames 0
Capturing on inband
2024-04-11 14:07:49.946663 X::X:X:X:de07 -> ff02::12 VRRP Announcement (v3)
2024-04-11 14:07:50.829985 X::X:X:X:de07 -> ff02::12 VRRP Announcement (v3)
2024-04-11 14:07:51.728800 X::X:X:X:de07 -> ff02::12 VRRP Announcement (v3)
2024-04-11 14:07:52.720034 X::X:X:X:de07 -> ff02::12 VRRP Announcement (v3)
2024-04-11 14:07:53.571038 X::X:X:X:de07 -> ff02::12 VRRP Announcement (v3)
2024-04-11 14:07:54.386109 X::X:X:X:de07 -> ff02::12 VRRP Announcement (v3)

6 packets captured
Switch2#
```

A partir del resultado anterior, ambos switches están enviando sus propios anuncios (dea7 y de07). Esto indica que no hay conectividad entre los dos switches que participan en el mismo grupo VRRPv3.

Al analizar más a fondo los paquetes generados por VRRPv3, se encuentran detalles sobre la dirección MAC, la prioridad, la versión y la IP.

Switch 1:

```
Ethernet II, Src: ICANNIAN_00:02:01 (00:00:5e:00:02:01), Dst: IPv6mcast_12 (33:33:00:00:00:12)

Frame 206: 82 bytes on wire (656 bits), 82 bytes captured (656 bits)
Ethernet II, Src: ICANNIAN_00:02:01 (00:00:5e:00:02:01), Dst: IPv6mcast_12 (33:33:00:00:00:12)
Internet Protocol Version 6, Src: X::X:X:X:dea7, Dst: ff02::12
Virtual Router Redundancy Protocol
Version 3, Packet type 1 (Advertisement)
Virtual Rtr ID: 1
Priority: 200 (Default priority for a backup VRRP router)
```

```
Addr Count: 1
0000 .... = Reserved: 0
.... 0000 0110 0100 = Adver Int: 100
Checksum: 0xb912 [correct]
[Checksum Status: Good]
IPv6 Address: X::X:X:X:297
```

Switch 2:

```
Frame 82: 78 bytes on wire (624 bits), 78 bytes captured (624 bits)


Ethernet II, Src: ICANNIAN_00:02:01 (00:00:5e:00:02:01), Dst: IPv6mcast_12 (33:33:00:00:00:12)

Frame 82: 78 bytes on wire (624 bits), 78 bytes captured (624 bits)
Ethernet II, Src: ICANNIAN_00:02:01 (00:00:5e:00:02:01), Dst: IPv6mcast_12 (33:33:00:00:00:12)
Internet Protocol Version 6, Src: X::X:X:X:de07, Dst: ff02::12
Virtual Router Redundancy Protocol
Version 3, Packet type 1 (Advertisement)
Virtual Rtr ID: 1
Priority: 100 (Default priority for a backup VRRP router)
Addr Count: 1
0000 .... = Reserved: 0
.... 0000 0110 0100 = Adver Int: 100
Checksum: 0xb912 [correct]
[Checksum Status: Good]
IPv6 Address: X::X:X:X:297
```

5) Una vez resuelto el problema de conectividad, que en este caso era que la interfaz de capa 2 estaba en estado de apagado aunque la SVI estaba en estado activo, los switches ahora deben mostrar el estado correcto (primario y de respaldo respectivamente) y los anuncios sólo los envía el switch primario.

Switch 1:

```
Switch1# show vrrpv3


Vlan209 - Group 1 - Address-Family IPv6
State is Primary
State duration 13 hours 42 mins 46 secs
Virtual IP address is X::X:X:X:297
Virtual MAC address is 0000.5e00.0201
Advertisement interval is 1000 msec
Preemption enabled
Priority is 200, (Configured 200)
Primary Router is X::X:X:X:dea7 (local), priority is 200
```

```
Primary Advertisement interval is 1000 msec (expires in 118 msec)
Primary Down interval is unknown

Switch1#
Switch1#

Switch1# ethanalyzer local interface inband display-filter "vrrp" limit-captured-frames 0
Capturing on inband
2024-04-11 14:48:48.125754 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)
2024-04-11 14:48:48.125794 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)
2024-04-11 14:48:49.002998 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)
2024-04-11 14:48:49.003035 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)
2024-04-11 14:48:49.983749 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)
2024-04-11 14:48:49.983782 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)

6 packets captured
Switch1#
```

Se activa un ELAM en el switch principal que muestra las direcciones MAC correctas cuando señala a la dirección multicast para VRRPv3:

```
Switch1(TAH-elam-insel6)# set outer ipv6 src_ip fe80::6a9e:bff:feaa:dea7 dst_ip ff02::12
Switch1(TAH-elam-insel6)# start
Switch1(TAH-elam-insel6)# report
HOMEWOOD ELAM REPORT SUMMARY
slot - 1, asic - 0, slice - 0
============================

Incoming Interface: sup-eth
Src Idx : 0x0, Src BD : 209
Outgoing Interface Info: met_ptr 0

Packet Type: IPv6

Dst MAC address: 33:33:00:00:00:12
Src MAC address: 00:00:5E:00:02:01

Dst IPv6 address: FF02:0000:0000:0000:0000:0000:0000:0012
Src IPv6 address: FE80:0000:0000:0000:6A9E:0BFF:FEAA:DEA7
Ver = 6, Pkt len = 40, Payload_length = 4

L4 Protocol : 112

Drop Info:
----------

LUA:
LUB:
LUC:
LUD:
Final Drops:

vntag:
vntag_valid : 0
vntag_vir : 0
vntag_svif : 0
```

```
Switch1(TAH-elam-insel6)#
```

Switch 2:

```
Switch2# show vrrpv3


Vlan209 - Group 1 - Address-Family IPv6
State is BACKUP
State duration 1.538 secs
Virtual IP address is X::X:X:X:297
Virtual MAC address is 0000.5e00.0201
Advertisement interval is 1000 msec
Preemption enabled
Priority is 100, (Configured 100)
Primary Router is X::X:X:X:dea7, priority is 200
Primary Advertisement interval is 1000 msec (learned)
Primary Down interval is 3609 msec (expires in 2886 msec)

Switch2#


Switch2# ethanalyzer local interface inband display-filter "vrrp" limit-captured-frames 0
Capturing on inband
2024-04-11 14:48:48.082516 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)
2024-04-11 14:48:48.959735 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)
2024-04-11 14:48:49.940504 X::X:X:X:dea7 -> ff02::12 VRRP Announcement (v3)

3 packets captured
Switch2#
```

El anuncio se puede ver en el dispositivo de respaldo cuando se ejecuta un ELAM. El anuncio proviene del switch principal (X::X:X:X:dea7) y se está recibiendo en la interfaz entrante correcta que es ethernet 1/51

```
Switch2# show hardware internal tah interface e1/51
########################################
IfIndex: 0x1a006400
DstIndex: 5944
IfType: 26
Asic: 0
Asic: 0
AsicPort: 60
SrcId: 120
Slice: 0
PortOnSlice: 60
Table entries for interface Ethernet1/51

Switch2(TAH-elam)# trigger init asic 0 slice 0 in-select 6 out-select 0 use-src-id 120
```

```
Switch2(TAH-elam-insel6)# set outer ipv6 src_ip X::X:X:X:dea7
Switch2(TAH-elam-insel6)# start
Switch2(TAH-elam-insel6)# report
HOMEWOOD ELAM REPORT SUMMARY
slot - 1, asic - 0, slice - 0
============================

Incoming Interface: Eth1/51
Src Idx : 0xc9, Src BD : 209
Outgoing Interface Info: met_ptr 0

Packet Type: IPv6

Dst MAC address: 33:33:00:00:00:12
Src MAC address: 00:00:5E:00:02:01
.1q Tag0 VLAN: 209, cos = 0x6

Sup hit: 1, Sup Idx: 3344

Dst IPv6 address: FF02:0000:0000:0000:0000:0000:0000:0012
Src IPv6 address: X:X:X:X:X:X:X:DEA7
Ver = 6, Pkt len = 24, Payload_length = 4

L4 Protocol : 112

Drop Info:
----------

LUA:
LUB:
LUC:
LUD:
Final Drops:

vntag:
vntag_valid : 0
vntag_vir : 0
vntag_svif : 0

Switch2(TAH-elam-insel6)#
```

Información Relacionada

[Configuración de VRRPv3]

[Etanizador]

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