

Risoluzione dei problemi correlati a VRRPv3 con IPv6

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Introduzione

In questo documento viene descritto come risolvere i problemi relativi al protocollo VRRPv3 (Virtual Router Redundancy Protocol versione 3) con IPv6 in Nexus 9000.

Prerequisiti

Requisiti

Cisco NXOS® raccomanda la conoscenza dei seguenti argomenti:

- VRRP
- Etanalizzatore
- IPv6
- Protocollo FHRP (First Hop Redundancy Protocol)

Componenti usati

Il documento può essere consultato per tutti i componenti hardware, ad esempio Nexus 9000.

Le informazioni discusse in questo documento fanno riferimento a dispositivi usati in uno specifico ambiente di emulazione. Su tutti i dispositivi menzionati nel documento la configurazione è stata ripristinata ai valori predefiniti. Se la rete è operativa, valutare attentamente eventuali conseguenze derivanti dall'uso dei comandi.

Premesse

Il protocollo VRRP versione 2 supporta solo la famiglia di indirizzi IPv4, mentre il protocollo VRRP versione 3 (VRRP3) supporta entrambe le famiglie di indirizzi IPv4 e IPv6. In NX-OS, non è possibile abilitare sia VRRP che VRRPv3 sullo stesso dispositivo. Se la funzionalità VRRP è già abilitata sullo switch Nexus, l'abilitazione della funzionalità VRRPv3 visualizza un errore che indica che VRRPv2 è già abilitato. Pertanto, è necessario eseguire una migrazione da VRRP a VRRPv3, con un impatto minimo sui servizi.

Topologia

X:X:X:X::70a

X:X:X:X::70c



Virtual Mac Address: 0000.5e00.0201

VRRP3 IPV6 address: X:X:X:X::70b



Nota: nessun ambiente VPC (Virtual Port-Channel).

Verifica

1) Verificare che la configurazione su entrambi i lati corrisponda.

Switch 1:

```
Switch1# show run interface vlan 209
```

```
interface Vlan209
no shutdown
no ip redirects
ipv6 address X:X:X:X::70a/125
vrrp3 1 address-family ipv6
priority 200
```

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

```
Switch1#
```

Switch 2:

```
Switch2# show run interface v1an 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) Verificare che la tabella degli indirizzi MAC sia compilata correttamente.

Switch 1:

```
Switch1# show mac address-table v1an 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) Verificare lo stato dei dispositivi che fanno parte del gruppo.

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#
```

Risoluzione dei problemi

Scenario interrotto.

1) L'opzione del comando `show vrrpv3 brief` permette di visualizzare le brevi informazioni correlate al gruppo, ad esempio il numero del gruppo, la famiglia di indirizzi, la priorità, l'interruzione per diritti di priorità, lo stato, l'indirizzo di base e l'indirizzo del gruppo (ossia l'IP del gruppo virtuale). In questo esempio, e come descritto sopra, entrambi gli switch sono switch primari, il che non è corretto.

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) Il comando show vrrpv3 detail visualizza ulteriori informazioni, ad esempio gli annunci inviati e ricevuti per il VRRPv3, l'indirizzo MAC virtuale e altre statistiche relative agli errori e agli stati di transizione. Ad esempio, gli annunci VRRPv3 ricevuti non sono in aumento.

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 v1an 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 v1an 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) Il comando `show vrrpv3 internal event-history debugs` visualizza informazioni sulle diverse fasi attraversate dal partecipante al 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 Ever
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 Event
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 Event
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 Event
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 :: A
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 :: A
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
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 :: A
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
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 mostra gli annunci VRRP. Gli annunci VRRP vengono effettuati solo dallo switch primario. L'indirizzo multicast per VRRPv3 è 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#
```

Dall'output mostrato sopra, entrambi gli switch inviano la propria pubblicità (dea7 e de07). Ciò indica che non vi è connettività tra i due switch che fanno parte dello stesso gruppo VRRPv3.

Analizzando più in dettaglio i pacchetti generati dal protocollo VRRPv3, è possibile ottenere informazioni dettagliate su indirizzo MAC, priorità, versione e 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 volta risolto il problema di connettività, nel caso specifico perché l'interfaccia di layer 2 era in stato di arresto anche se la SVI era in stato attivo, gli switch devono ora mostrare lo stato corretto (rispettivamente primario e di backup) e gli annunci vengono inviati solo dallo 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#

Nello switch primario viene attivato un ELAM che mostra gli indirizzi MAC corretti quando si punta all'indirizzo multicast per 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# ethalyzer 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#
```

L'annuncio può essere visualizzato sul dispositivo di backup quando si esegue un ELAM.
L'annuncio proviene dallo switch primario (X:X:X:X:dea7) e viene ricevuto nell'interfaccia in ingresso corretta, ovvero 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-inse16)# 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: FF02:0000:0000:0000:0000:0000:0012
Src IPv6 address: 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-inse16)#
```

Informazioni correlate

[Configurazione di VRRPv3](#)

[Etanalizzatore](#)

Informazioni su questa traduzione

Cisco ha tradotto questo documento utilizzando una combinazione di tecnologie automatiche e umane per offrire ai nostri utenti in tutto il mondo contenuti di supporto nella propria lingua. Si noti che anche la migliore traduzione automatica non sarà mai accurata come quella fornita da un traduttore professionista. Cisco Systems, Inc. non si assume alcuna responsabilità per l'accuratezza di queste traduzioni e consiglia di consultare sempre il documento originale in inglese (disponibile al link fornito).