Supporting Redundant Routing Protocols

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Information About Redundant Routing Protocols

The Cisco Nexus 1000V implements a loop detection mechanism that is based on source and destination MAC addresses and drops packets that are coming in on uplink ports if the source MAC address is already present on a local vEthernet interface. As a result, such protocols as the Virtual Router Redundancy Protocol (VRRP), the Common Address Redundancy Protocol (CARP), the Hot Standby Router Protocol (HSRP), and other similar protocols fail on Virtual Machines (VMs) that are associated to the Cisco Nexus 1000V.

Disabling loop detection provides a flexible way of supporting these protocols on VMs that are associated to the Cisco Nexus 1000V. By disabling the loop detection mechanism, you can configure any combination of the above mentioned protocols on a port profile or a vEthernet interface. As a result, you can run multiple protocols on the same VM.

Guidelines and Limitations

Supporting the redundant routing protocols feature has the following configuration guidelines and limitations:

- A disabled loop detection configuration is not supported on PVLAN ports.
- A disabled loop detection configuration is not supported on the port security ports.

Supporting Redundant Routing Protocols

Configuring a vEthernet Interface to Support Redundant Routing Protocols

You can configure a vEthernet interface to support redundant routing protocols.

Before You Begin

- Log in to the CLI in EXEC mode.
- Know which redundant routing protocol that you want to disable.

Procedure

	Command or Action	Purpose
Step 1	switch# **configure terminal**	Enters global configuration mode.
Step 2	switch(config)# **interface vethernet** *interface-number*	Enters interface configuration mode for the specified vEthernet interface (from 1 to 1048575).
Step 3	switch(config-if)# **disable-loop-detection** {**carp** | **hsrp** | **vrrp** |**custom-rp** [**src-mac-range** *s_mac end_mac*] [**dest-ip** *ip_address*] [**ip-proto** *no*] [**port** *port*]}	Enables or disables the loop detection mechanism to support a redundant routing protocol on a vEthernet interface. • **disable-loop-detection—**Disables the loop detection mechanism. • **no disable-loop-detection—**Enables the loop detection mechanism. This is the default configuration. The protocols supported on a vEthernet interface are as follows: • **carp—**Common Address Redundancy Protocol • **custom-rp—**User-defined protocol • **hsrp—**Hot Standby Router Protocol • **vrrp—**Virtual Router Redundancy Protocol The parameters for custom defined protocols are as follows: • **src-mac-range—**Source MAC address range for the user-defined protocol. • **dest-ip—**Destination IP address for the user-defined protocol. • **ip-proto—**IP protocol number for the user-defined protocol. • **port—**UDP or TCP destination port number for the user-defined protocol.

	Command or Action	Purpose
Step 4	switch(config-if)# **show running-config interface vethernet** *interface-number*	(Optional) Displays the interface status and information.
Step 5	switch(config-if)# **copy running-config startup-config**	(Optional) Saves the change persistently through reboots and restarts by copying the running configuration to the startup configuration.

This example shows how to configure a vEthernet interface to support VRRP, CERP, HSRP, and user-defined protocols on a VM:

```
switch# configure terminal
switch# show running-config interface vethernet 5
switch(config)# interface veth5
switch(config-if)# disable-loop-detection carp
switch(config-if)# disable-loop-detection vrrp
switch(config-if)# disable-loop-detection hsrp
switch(config-if)# disable-loop-detection custom-rp dest-ip 224.0.0.12 port 2234
!Command: show running-config interface Vethernet5
!Time: Fri Nov 4 02:21:24 2011

version 4.2(1)SV1(5.1)

interface Vethernet5
inherit port-profile vm59
description Fedora117, Network Adapter 2
disable-loop-detection carp
disable-loop-detection custom-rp dest-ip 224.0.0.12 port 2234
disable-loop-detection hsrp
disable-loop-detection vrrp
vmware dvport 32 dvswitch uuid "ea 5c 3b 50 cd 00 9f 55-41 a3 2d 61 84 9e 0e c4"
vmware vm mac 0050.56B3.00B2

switch#
```

Configuring a Port Profile to Support Redundant Routing Protocols

You can configure a port profile to support redundant routing protocols. Use this procedure when the master in a master/slave relationship has lost connectivity, the slave has taken over the master role, or the original master is attempting to overtake the master role.

Note If you configure a vEthernet interface and a port profile to run multiple protocols on the same VM, the configuration on the vEthernet interface overrides the configuration on the port profile.

Before You Begin

- Log in to the CLI in EXEC mode.
- Know which redundant routing protocol that you want to disable.

Procedure

	Command or Action	Purpose
Step 1	switch# **configure terminal**	Enters global configuration mode.
Step 2	switch(config)# **port-profile** *name*	Enters port profile configuration mode for the named port profile.
Step 3	switch(config-port-prof)# **switchport mode** {**access** | **trunk**}	Designates that the interface is to be used as a trunking port. A trunk port transmits untagged packets for the native VLAN and transmits encapsulated, tagged packets for all other VLANs.
Step 4	switch(config-port-prof)# **no shutdown**	Administratively enables all ports in the profile.
Step 5	switch(config-port-prof)# **disable-loop-detection** {**carp** | **hsrp** | **vrrp** |**custom-rp** [**src-mac-range** *s_mac end_mac*] [**dest-ip** *ip_address*] [**ip-proto** *no*] [**port** *port*]}	Enables or disables the loop detection mechanism to support a redundant routing protocol on vEthernet interface. • **disable-loop-detection—**Disables the loop detection mechanism. • **no disable-loop-detection—**Enables the loop detection mechanism. This is the default configuration. The protocols supported on a vEthernet interface are as follows: • **carp—**Common Address Redundancy Protocol • **custom-rp—**User defined protocol • **hsrp—**Hot Standby Router Protocol • **vrrp—**Virtual Router Redundancy Protocol The parameters for custom defined protocols are as follows: • **src-mac-range—**Source MAC address range for the user defined protocol. • **dest-ip—**Destination IP address for the user defined protocol. • **ip-proto—**IP protocol number for the user defined protocol. • **port—**UDP or TCP destination port number for the user defined protocol.
Step 6	switch(config-port-prof)# **show port-profile** [**brief** | **expand-interface** | **usage**] [**name** *profile-name*]	(Optional) Displays the configuration for verification.

	Command or Action	Purpose
Step 7	switch(config-port-prof)# **copy running-config startup-config**	(Optional) Saves the change persistently through reboots and restarts by copying the running configuration to the startup configuration.

This example shows how to disable loop detection for the HSRP:

```
switch# configure terminal
switch(config)# port-profile hsrp-1
switch(config-port-prof)# switchport mode trunk
switch(config-port-prof)# no shutdown
switch(config-port-prof)# disable-loop-detection hsrp
switch(config-port-prof)# show port-profile name hsrp-1
port-profile hsrp-1
 type: Vethernet
 description:
 status: enabled
 max-ports: 32
 min-ports: 1
 inherit:
 config attributes:
  switchport mode trunk
  disable-loop-detection hsrp
  no shutdown
 evaluated config attributes:
  switchport mode trunk
  disable-loop-detection hsrp
  no shutdown
 assigned interfaces:
 port-group: hsrp-1
 system vlans: none
 capability l3control: no
 capability iscsi-multipath: no
 capability vxlan: no
 capability l3-vservice: no
 port-profile role: none
 port-binding: static
```

This example shows how to disable loop detection for the VRRP:

```
n1000v# configure terminal
switch(config)# port-profile vrrp-1
switch(config-port-prof)# switchport mode trunk
switch(config-port-prof)# no shutdown
switch(config-port-prof)# disable-loop-detection vrrp
switch(config-port-prof)# show port-profile name vrrp-1
port-profile vrrp-1
 type: Vethernet
 description:
 status: enabled
 max-ports: 32
 min-ports: 1
 inherit:
 config attributes:
  switchport mode trunk
  disable-loop-detection vrrp
  no shutdown
 evaluated config attributes:
  switchport mode trunk
  disable-loop-detection vrrp
  no shutdown
 assigned interfaces:
 port-group: vrrp-1
 system vlans: none
 capability l3control: no
```

```
capability iscsi-multipath: no
capability vxlan: no
capability l3-vservice: no
port-profile role: none
port-binding: static
```

Feature History for Supporting Redundant Routing Protocol

Feature Name	Feature Name	Releases
Supporting Redundant Routing Protocol	4.2(1)SV1(5.1)	This feature was introduced.