BGP NSR Support for iBGP Peers

BGP NSR provides BGP nonstop routing (NSR) and nonstop forwarding (NSF) in the event of a switchover from an Active RP to the Standby RP. The BGP NSR Support for iBGP Peers feature provides NSR support for iBGP peers configured under the IPv4 unicast or IPv4 + label address family.

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Restrictions on BGP NSR Support for iBGP Peers

- This feature applies to iBGP peers configured under IPv4 unicast or IPv4 + label address families.
- When you configure BGP with graceful restart and remove the BGP configuration using **no router bgp** command, the graceful restart timer starts. As a result, the stale entry is present in the BGP routing table and it is only removed after the BGP graceful restart timer is over.

Information About BGP NSR Support for iBGP Peers

Benefit of BGP NSR Support for iBGP Peers

Nonstop routing is beneficial for iBGP peers because it reduces the likelihood of dropped packets during switchover from the Active RP to the Standby RP. Switchover occurs when the Active RP fails for some reason, and the Standby RP takes control of Active RP operations.

How to Configure BGP NSR Support for iBGP Peers

Making an iBGP Peer NSR-Capable for the IPv4 Address Family

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **router bgp** *autonomous-system-number*
4. **address-family ipv4** [**unicast** | **vrf** *vrf-name*]
5. **neighbor** *ip-address* **remote-as** *as-number*
6. **neighbor** *ip-address* **activate**
7. **neighbor** *ip-address* **ha-mode sso**
8. **end**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	**router bgp** *autonomous-system-number* **Example:** `Device(config)# router bgp 4000`	Enters router configuration mode for the specified routing process.
Step 4	**address-family ipv4** [**unicast**	**vrf** *vrf-name*] **Example:** `Device(config-router)# address-family ipv4 unicast`	Specifies the IPv4 address family and enters address family configuration mode. • The **unicast** keyword specifies the IPv4 unicast address family. • The **vrf** keyword and *vrf-name* argument specify the name of the virtual routing and forwarding (VRF) instance to associate with subsequent IPv4 address family configuration mode commands.

	Command or Action	Purpose
Step 5	**neighbor** *ip-address* **remote-as** *as-number* **Example:** `Device(config-router-af)# neighbor 192.168.1.1 remote-as 4000`	Specifies the autonomous system of the neighbor.
Step 6	**neighbor** *ip-address* **activate** **Example:** `Device(config-router-af)# neighbor 192.168.1.1 activate`	Activates the specified peer.
Step 7	**neighbor** *ip-address* **ha-mode sso** **Example:** `Device(config-router-af)# neighbor 192.168.1.1 ha-mode sso`	Configures a BGP neighbor to support BGP NSR with stateful switchover (SSO).
Step 8	**end** **Example:** `Device(config-router-af)# end`	Exits address family configuration mode and returns to privileged EXEC mode.

Making an iBGP Peer NSR-Capable for the VPNv4 Address Family

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **router bgp** *autonomous-system-number*
4. **neighbor** *ip-address* **remote-as** *as-number*
5. **neighbor** *ip-address* **ha-mode sso**
6. **address-family vpnv4** [**unicast**]
7. **neighbor** *ip-address* **activate**
8. **end**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.

	Command or Action	Purpose
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	**router bgp** *autonomous-system-number* **Example:** `Device(config)# router bgp 4000`	Enters router configuration mode for the specified routing process.
Step 4	**neighbor** *ip-address* **remote-as** *as-number* **Example:** `Device(config-router)# neighbor 192.168.1.1 remote-as 4000`	Specifies the autonomous system of the neighbor.
Step 5	**neighbor** *ip-address* **ha-mode sso** **Example:** `Device(config-router)# neighbor 192.168.1.1 ha-mode sso`	Configures a BGP neighbor to support BGP NSR with stateful switchover (SSO).
Step 6	**address-family vpnv4** [**unicast**] **Example:** `Device(config-router)# address-family VPNv4 unicast`	Specifies the VPNv4 address family and enters address family configuration mode.
Step 7	**neighbor** *ip-address* **activate** **Example:** `Device(config-router-af)# neighbor 192.168.1.1 activate`	Activates the specified peer.
Step 8	**end** **Example:** `Device(config-router-af)# end`	Exits address family configuration mode and returns to privileged EXEC mode.

Making an iBGP Peer NSR Capable at the Router Level

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **router bgp** *autonomous-system-number*
4. **neighbor** *ip-address* **remote-as** *as-number*

5. **neighbor** *ip-address* **activate**
6. **neighbor** *ip-address* **ha-mode sso**
7. **end**
8. **show ip bgp sso summary**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	**router bgp** *autonomous-system-number* **Example:** `Device(config)# router bgp 4000`	Enters router configuration mode for the specified routing process.
Step 4	**neighbor** *ip-address* **remote-as** *as-number* **Example:** `Device(config-router)# neighbor 192.168.1.1 remote-as 4000`	Specifies the autonomous system of the neighbor.
Step 5	**neighbor** *ip-address* **activate** **Example:** `Device(config-router)# neighbor 192.168.1.1 activate`	Activates the specified neighbor.
Step 6	**neighbor** *ip-address* **ha-mode sso** **Example:** `Device(config-router)# neighbor 192.168.1.1 ha-mode sso`	Configures the specified peer to be NSR capable in all of the NSR-supported address families under which that peer has been activated.
Step 7	**end** **Example:** `Device(config-router)# end`	Exits configuration mode and returns to privileged EXEC mode.

	Command or Action	Purpose
Step 8	**show ip bgp sso summary** **Example:** `Device# show ip bgp sso summary`	(Optional) Displays information about stateful switchover (sso) and whether a peer has NSR enabled or disabled.

Configuration Examples for BGP NSR Support for an iBGP Peer

Example: Configuring an iBGP Peer To Be NSR Capable

Configuring an iBGP Peer to Be NSR Capable at the Address Family Level

```
router bgp 4000
 address-family ipv4 unicast
 neighbor 192.168.1.1 remote-as 4000
 neighbor 192.168.1.1 activate
 neighbor 192.168.1.1 ha-mode sso
```

Configuring an iBGP Peer to Be NSR Capable at the Router Level

```
router bgp 4000
 neighbor 192.168.1.1 remote-as 4000
 neighbor 192.168.1.1 activate
 neighbor 192.168.1.1 ha-mode sso
```

Additional References

Related Documents

Related Topic	Document Title
Cisco IOS commands	Cisco IOS Master Command List, All Releases
BGP commands	Cisco IOS IP Routing: BGP Command Reference
BFD commands	Cisco IOS IP Routing: Protocol Independent Command Reference
Configuring BFD support for another routing protocol	IP Routing: BFD Configuration Guide

Technical Assistance

Description	Link
The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.	http://www.cisco.com/cisco/web/support/index.html

Feature Information for BGP NSR Support for iBGP Peers

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Table 1: Feature Information for BGP NSR Support for iBGP Peers

Feature Name	Releases	Feature Information
BGP NSR Support for iBGP Peers		BGP NSR provides BGP nonstop routing and nonstop forwarding in the event of a switchover from an active RP to the standby RP. The following commands were modified: **neighbor ha-mode sso** and **show ip bgp vpnv4 all sso summary**.