



L3VPN iBGP PE-CE

The L3VPN iBGP PE-CE feature enables the provider edge (PE) and customer edge (CE) devices to exchange Border Gateway Protocol (BGP) routing information by peering as iBGP instead of as external BGP peering between the PE and CE.

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Restrictions for L3VPN iBGP PE-CE

We recommend not using the soft-reconfiguration inbound or BGP soft-reconfig-backup feature with the iBGP PE CE.

Information About L3VPN iBGP PE-CE

L3VPN iBGP PE-CE

When BGP is used as the provider edge (PE) or customer edge (CE) routing protocol, the peering sessions are configured as an external peering between the VPN provider autonomous system (AS) and the customer network autonomous system. The L3VPN iBGP PE-CE feature enables the PE and CE devices to exchange Border Gateway Protocol (BGP) routing information by peering as internal Border Gateway Protocol (iBGP) instead of the widely used external BGP peering between the PE and the CE. This mechanism applies at each PE device where a VRF-based CE is configured as iBGP. This eliminates the need for service providers (SPs) to configure autonomous system override for the CE. With this feature enabled, there is no need to configure the virtual private network (VPN) sites using different autonomous systems.

The introduction of the **neighbor internal-vpn-client** command enables PE devices to make an entire VPN cloud act like an internal VPN client to the CE devices. These CE devices are connected internally to the VPN cloud through the iBGP PE-CE connection inside the VRF. After this connection is established, the PE device encapsulates the CE-learned path into an attribute called ATTR_SET and carries it in the iBGP-sourced path throughout the VPN core to the remote PE device. At the remote PE device, this attribute is assigned with

individual attributes and the source CE path is extracted and sent to the remote CE devices. ATTR_SET is an optional transitive attribute that carries a set of BGP path attributes. It can include any BGP attribute that can occur in a BGP update message as received from the source CE device.

How to Configure L3VPN iBGP PE-CE

Configuring L3VPN iBGP PE-CE

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **router bgp** *as-number*
4. **address-family ipv4 vrf** *name*
5. **neighbor** *ip-address* **internal-vpn-client**

DETAILED STEPS

Procedure

| | Command or Action | Purpose |
|---------------|---|--|
| Step 1 | enable Example: Device> enable | Enables privileged EXEC mode. |
| Step 2 | configure terminal Example: Device(config)# configure terminal | Enters global configuration mode. |
| Step 3 | router bgp <i>as-number</i> Example: Device(config)# router bgp 100 | Enters router configuration mode and creates a BGP routing process. |
| Step 4 | address-family ipv4 vrf <i>name</i> Example: Device(config-router)# address-family ipv4 vrf blue | Enters address family configuration mode and configures VPN routing and forwarding. |
| Step 5 | neighbor <i>ip-address</i> internal-vpn-client Example: Device(config-router-af)# neighbor 10.0.0.1 internal-vpn-client | Defines a neighboring device with which to exchange routing information. The neighbor internal-vpn-client command stacks the iBGP-CE neighbor path in the VPN attribute set . |

Configuration Examples for L3VPN iBGP PE-CE

Example: Configuring L3VPN iBGP PE-CE

The following example shows how to configure L3VPN iBGP PE-CE:

```
Device# enable
Device(config)# configure terminal
Device(config)# router bgp 100
Device(config-router)# address-family ipv4 vrf blue
Device(config-router-af)# neighbor 10.0.0.1 internal-vpn-client
```

Additional References for L3VPN iBGP PE-CE

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 |

Technical Assistance

| Description | Link |
|---|---|
| <p>The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies.</p> <p>To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds.</p> <p>Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.</p> | http://www.cisco.com/support |

Feature Information for L3VPN iBGP PE-CE

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 L3VPN iBGP PE-CE

| Feature Name | Releases | Feature Information |
|------------------|----------|---|
| L3VPN iBGP PE-CE | | <p>The L3VPN iBGP PE-CE feature enables the provider edge (PE) and customer edge (CE) devices to exchange Border Gateway Protocol (BGP) routing information by peering as iBGP instead of as external BGP between the PE and CE.</p> <p>The neighbor internal-vpn-client command was introduced.</p> |