Configuring vPC Multi-Homing

This chapter contains the following sections:

Advertising Primary IP Address

On a vPC enabled leaf or border leaf switch, by default all Layer-3 routes are advertised with the secondary IP address (VIP) of the leaf switch VTEP as the BGP next-hop IP address. Prefix routes and leaf switch generated routes are not synced between vPC leaf switches. Using the VIP as the BGP next-hop for these types of routes can cause traffic to be forwarded to the wrong vPC leaf or border leaf switch and black-holed. The provision to use the primary IP address (PIP) as the next-hop when advertising prefix routes or loopback interface routes in BGP on vPC enabled leaf or border leaf switches allows users to select the PIP as BGP next-hop when advertising these types of routes, so that traffic will always be forwarded to the right vPC enabled leaf or border leaf switch.

The configuration command for advertising the PIP is **advertise-pip**.

The following is a sample configuration:

```
switch(config)# router bgp 65536
  address-family 12vpn evpn
    advertise-pip
interface nve 1
    advertise virtual-rmac
```

The **advertise-pip** command lets BGP use the PIP as next-hop when advertising externally learned routes or for the redistributed direct routes if vPC is enabled.

VMAC (virtual-mac) is used with VIP and system MAC is used with PIP when the VIP/PIP feature is enabled.

With the **advertise-pip** and **advertise virtual-rmac** commands enabled, type 5 routes are advertised with PIP and type 2 routes are still advertised with VIP. In addition, VMAC will be used with VIP and system MAC will be used with PIP.

> **Note** The **advertise-pip** and **advertise-virtual-rmac** commands must be enabled and disabled together for this feature to work properly. If you enable or disable one and not the other, it is considered an invalid configuration.

BorderPE Switches in a vPC Setup

The two borderPE switches are configured as a vPC. In a VXLAN vPC deployment, a common, virtual VTEP IP address (secondary loopback IP address) is used for communication. The common, virtual VTEP uses a system specific router MAC address. The Layer-3 prefixes or default route from the borderPE switch is advertised with this common virtual VTEP IP (secondary IP) plus the system specific router MAC address as the next hop.

Entering the **advertise-pip** and **advertise virtual-rmac** commands cause the Layer 3 prefixes or default to be advertised with the primary IP and system-specific router MAC address, the MAC addresses to be advertised with the secondary IP, and a router MAC address derived from the secondary IP address.

DHCP Configuration in a vPC Setup

When DHCP or DHCPv6 relay function is configured on leaf switches in a vPC setup, and the DHCP server is in the non default, non management VRF, then configure the **advertise-pip** command on the vPC leaf switches. This allows BGP EVPN to advertise Route-type 5 routes with the next-hop using the primary IP address of the VTEP interface.

The following is a sample configuration:

```
switch(config)# router bgp 100
  address-family 12vpn evpn
    advertise-pip
interface nve 1
  advertise virtual-rmac
```

IP Prefix Advertisement in vPC Setup

There are 3 types of Layer-3 routes that can be advertised by BGP EVPN. They are:

- Local host routes—These routes are learned from the attached servers or hosts.

- Prefix routes—These routes are learned via other routing protocol at the leaf, border leaf and border spine switches.

- Leaf switch generated routes—These routes include interface routes and static routes.