**Example for Configuring Eth-Trunk Sub-interfaces to Access a BD EVPN IRB in Active-Active Mode (Carrying Both Layer 2 and Layer 3 Services)**

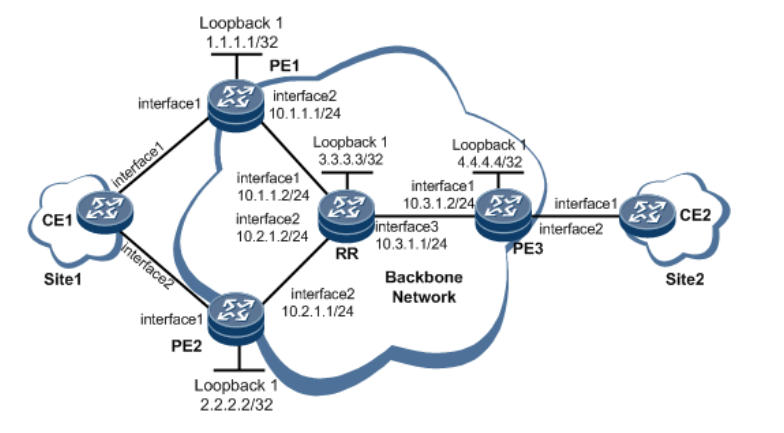
This section provides an example for enabling transmission of both Layer 2 and Layer 3 traffic in a CE dual-homing scenario.

1、Networking Requirements

On the network shown in Figure 1, Layer 2 traffic is transmitted within Site 1 and Site 2 separately. To allow Site 1 and Site 2 to communicate over the backbone network, configure the EVPN and VPN functions to transmit both Layer 2 and Layer 3 traffic. If Site 1 and Site 2 are connected through the same subnet, create an EVPN instance on each PE to store EVPN routes. Layer 2 forwarding is based on an EVPN route that matches a MAC address. If Site 1 and Site 2 are connected through different subnets, create a VPN instance on each PE to store VPN routes. In this situation, Layer 2 traffic is terminated, and Layer 3 traffic is forwarded through a Layer 3 gateway. A route reflector (RR) is configured to reflect both EVPN and VPN routes. To balance BUM traffic along the links between CE1 and PE1 and between CE1 and PE2, configure Eth-Trunk sub-interfaces on PE1 and PE2 to connect to Site 1.

Figure 1 Configuring eth-trunk sub-interfaces to access a BD EVPN IRB in active-active mode (carrying both layer 2 and layer 3 services)

NOTE:In this example, interface1, interface2, and interface3 stand for GigabitEthernet 1/0/0, GigabitEthernet 2/0/0, and GigabitEthernet 3/0/0, respectively.



2、Precautions

When you configure Eth-Trunk sub-interfaces to access a BD EVPN IRB in active-active mode (carrying both layer 2 and layer 3 services), note the following:

For the same EVPN instance, the export VPN target list of a site shares VPN targets with the import VPN target lists of the other sites; the import VPN target list of a site shares VPN targets with the export VPN target lists of the other sites.

Using the local loopback interface address of a PE as the source address is recommended.

3、Configuration Roadmap

The configuration roadmap is as follows:

Configure an IGP on the backbone network to allow PEs and the RR to communicate.

Configure basic MPLS functions and MPLS LDP, and establish MPLS LSPs on the backbone network.

Configure an EVPN instance and a VPN instance on PE.

Configure a source address on each PE.

Configure each PE's sub-interface connecting to a CE.

Bind each PE's sub-interface to the EVPN and VPN instances.

Configure an ESI for each PE interface that connects to a CE.

Configure EVPN BGP peer relationships between the PEs and RR, and configure the PEs as RR clients.

Configure CEs and PEs to communicate.

4、Data Preparation

To complete the configuration, you need the following data:

EVPN instance named evpna and VPN instance named vpnb

EVPN instance evpna's RDs (100:1, 200:1, 300:1) and RTs (1:1) on PEs VPN instance vpnb's RDs (100:2, 200:2, 300:2) and RTs (2:2) on PEs

5、Configuration Files

5.1、PE1 configuration file

#

sysname PE1

#

evpn

#

evpn vpn-instance evpna bd-mode

route-distinguisher 100:1

vpn-target 1:1 export-extcommunity

vpn-target 1:1 import-extcommunity

#

ip vpn-instance vpnb

route-distinguisher 100:2

arp vlink-direct-route advertise

vpn-target 2:2 export-extcommunity

vpn-target 2:2 import-extcommunity

#

mpls lsr-id 1.1.1.1

#

mpls

#

bridge-domain 10

evpn binding vpn-instance evpna

#

mpls ldp

#

e-trunk 1

peer-address 2.2.2.2 source-address 1.1.1.1

#

interface Vbdif10

ip binding vpn-instance vpnb

ip address 192.168.1.1 255.255.255.0

#

interface Eth-Trunk10

e-trunk 1

e-trunk mode force-master

esi 0000.1111.2222.1111.1111

#

interface Eth-Trunk10.1 mode l2

encapsulation dot1q vid 2

rewrite pop single

bridge-domain 10

#

interface GigabitEthernet1/0/0

undo shutdown

eth-trunk 10

#

interface GigabitEthernet2/0/0

undo shutdown

ip address 10.1.1.1 255.255.255.0

mpls

mpls ldp

#

interface LoopBack1

ip address 1.1.1.1 255.255.255.255

#

bgp 100

peer 3.3.3.3 as-number 100

peer 3.3.3.3 connect-interface LoopBack1

#

ipv4-family unicast

undo synchronization

peer 3.3.3.3 enable

#

ipv4-family vpnv4

policy vpn-target

peer 3.3.3.3 enable

#

l2vpn-family evpn

undo policy vpn-target

peer 3.3.3.3 enable

#

ipv4-family vpn-instance vpnb

import-route direct

#

ospf 1

area 0.0.0.0

network 1.1.1.1 0.0.0.0

network 10.1.1.0 0.0.0.255

#

evpn source-address 1.1.1.1

#

return

5.2、PE2 configuration file

#

sysname PE2

#

evpn

#

evpn vpn-instance evpna bd-mode

route-distinguisher 100:1

vpn-target 1:1 export-extcommunity

vpn-target 1:1 import-extcommunity

#

ip vpn-instance vpnb

route-distinguisher 100:2

arp vlink-direct-route advertise

vpn-target 2:2 export-extcommunity

vpn-target 2:2 import-extcommunity

#

mpls lsr-id 2.2.2.2

#

mpls

#

bridge-domain 10

evpn binding vpn-instance evpna

#

mpls ldp

#

e-trunk 1

peer-address 1.1.1.1 source-address 2.2.2.2

#

interface Vbdif10

ip binding vpn-instance vpnb

ip address 192.168.1.1 255.255.255.0

#

interface Eth-Trunk10

e-trunk 1

e-trunk mode force-master

esi 0000.1111.2222.1111.1111

#

interface Eth-Trunk10.1 mode l2

encapsulation dot1q vid 2

rewrite pop single

bridge-domain 10

#

interface GigabitEthernet1/0/0

undo shutdown

eth-trunk 10

#

interface GigabitEthernet2/0/0

undo shutdown

ip address 10.2.1.1 255.255.255.0

mpls

mpls ldp

#

interface LoopBack1

ip address 2.2.2.2 255.255.255.255

#

bgp 100

peer 3.3.3.3 as-number 100

peer 3.3.3.3 connect-interface LoopBack1

#

ipv4-family unicast

undo synchronization

peer 3.3.3.3 enable

#

ipv4-family vpnv4

policy vpn-target

peer 3.3.3.3 enable

#

l2vpn-family evpn

undo policy vpn-target

peer 3.3.3.3 enable

#

ipv4-family vpn-instance vpnb

import-route direct

#

ospf 1

area 0.0.0.0

network 2.2.2.2 0.0.0.0

network 10.2.1.0 0.0.0.255

#

evpn source-address 2.2.2.2

#

return

5.3、PE3 configuration file

#

sysname PE3

#

ip vpn-instance vpnb

route-distinguisher 100:2

vpn-target 2:2 export-extcommunity

vpn-target 2:2 import-extcommunity

#

mpls lsr-id 4.4.4.4

#

mpls

#

mpls ldp

#

interface vlanif10

ip binding vpn-instance vpnb

ip address 192.166.1.1 255.255.255.0

#

interface GigabitEthernet1/0/0

undo shutdown

ip address 10.3.1.2 255.255.255.0

mpls

mpls ldp

#

interface GigabitEthernet2/0/0

undo shutdown

eth-trunk 10

#

interface LoopBack1

ip address 4.4.4.4 255.255.255.255

#

bgp 100

peer 3.3.3.3 as-number 100

peer 3.3.3.3 connect-interface LoopBack1

#

ipv4-family unicast

undo synchronization

peer 3.3.3.3 enable

#

ipv4-family vpnv4

policy vpn-target

peer 3.3.3.3 enable

#

ipv4-family vpn-instance vpnb

import-route xxxxx

#

ospf 1

area 0.0.0.0

network 4.4.4.4 0.0.0.0

network 10.3.1.0 0.0.0.255

#

return

5.4、RR configuration file

#

sysname RR

#

mpls lsr-id 3.3.3.3

#

mpls

#

mpls ldp

#

interface GigabitEthernet1/0/0

undo shutdown

ip address 10.1.1.2 255.255.255.0

mpls

mpls ldp

#

interface GigabitEthernet2/0/0

undo shutdown

ip address 10.2.1.2 255.255.255.0

mpls

mpls ldp

#

interface GigabitEthernet3/0/0

undo shutdown

ip address 10.3.1.1 255.255.255.0

mpls

mpls ldp

#

interface LoopBack1

ip address 3.3.3.3 255.255.255.255

#

bgp 100

peer 1.1.1.1 as-number 100

peer 1.1.1.1 connect-interface LoopBack1

peer 2.2.2.2 as-number 100

peer 2.2.2.2 connect-interface LoopBack1

peer 4.4.4.4 as-number 100

peer 4.4.4.4 connect-interface LoopBack1

#

ipv4-family unicast

undo synchronization

peer 1.1.1.1 enable

peer 2.2.2.2 enable

peer 4.4.4.4 enable

#

ipv4-family vpnv4

undo policy vpn-target

peer 1.1.1.1 enable

peer 1.1.1.1 reflect-client

peer 2.2.2.2 enable

peer 2.2.2.2 reflect-client

#

l2vpn-family evpn

undo policy vpn-target

peer 1.1.1.1 enable

peer 1.1.1.1 reflect-client

peer 2.2.2.2 enable

peer 2.2.2.2 reflect-client

#

ospf 1

area 0.0.0.0

network 3.3.3.3 0.0.0.0

network 10.1.1.0 0.0.0.255

network 10.2.1.0 0.0.0.255

network 10.3.1.0 0.0.0.255

#

return

5.5、CE1 configuration file

#

sysname CE1

#

bridge-domain 10

#

interface Eth-Trunk20

#

interface Eth-Trunk20.1 mode l2

encapsulation dot1q vid 2

bridge-domain 10

#

interface GigabitEthernet1/0/0

undo shutdown

eth-trunk 20

#

interface GigabitEthernet2/0/0

undo shutdown

eth-trunk 20

#

return