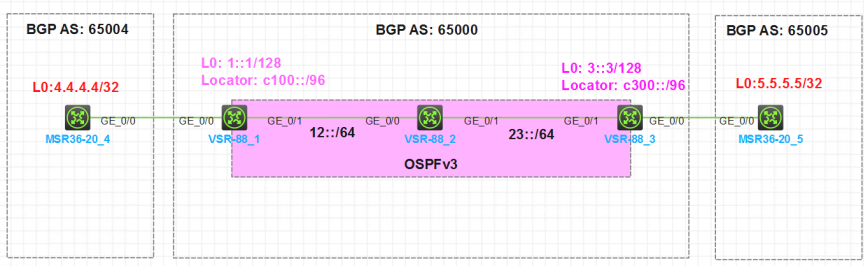


组网及说明



配置步骤

- 1、配置 IGP 互通 (OSPFv3) ， PE之间环回口IPv6路由可达；
- 2、配置PE和CE之间建立EBGP邻居， CE引入路由到PE的VPN实例路由表；
- 3、PE之间建立MP-IBGP邻居；
- 4、配置SRv6 BE隧道，并发布EVPN路由

配置步骤

关键配置

<pre># sysname pe_01 # ip vpn-instance v1 route-distinguisher 100:1 vpn-target 101:1 import-extcommunity vpn-target 101:1 export-extcommunity # ospfv3 1 router-id 1.1.1.1 segment-routing ipv6 locator pe_01 area 0.0.0.0 # interface LoopBack0 ip address 1.1.1.1 255.255.255.0 ospfv3 1 area 0.0.0.0 ipv6 address 1::1/128 # interface GigabitEthernet0/0/0 port link-mode route combo enable copper ip binding vpn-instance v1 ip address 14.1.1.1 255.255.255.0 # interface GigabitEthernet0/0/1 port link-mode route combo enable copper ospfv3 1 area 0.0.0.0 ipv6 address 12::1/64 # bgp 65000 peer 3::3 as-number 65000 peer 3::3 connect-interface LoopBack0 # address-family l2vpn evpn peer 3::3 enable peer 3::3 advertise encap-type srv6 # ip vpn-instance v1 peer 14.1.1.4 as-number 65004 # address-family ipv4 unicast segment-routing ipv6 best-effort evpn segment-routing ipv6 locator pe_01 evpn peer 14.1.1.4 enable # segment-routing ipv6 encapsulation source-address 1::1 # locator pe_01 ipv6-prefix C100:: 96 static 8 #</pre>	<pre># sysname pe_03 # ip vpn-instance v1 route-distinguisher 100:1 vpn-target 101:1 import-extcommunity vpn-target 101:1 export-extcommunity # ospfv3 1 router-id 3.3.3.3 segment-routing ipv6 locator pe_03 area 0.0.0.0 # interface LoopBack0 ip address 3.3.3.3 255.255.255.255 ospfv3 1 area 0.0.0.0 ipv6 address 3::3/128 # interface GigabitEthernet0/0/0 port link-mode route combo enable copper ip binding vpn-instance v1 ip address 35.1.1.3 255.255.255.0 # interface GigabitEthernet0/0/1 port link-mode route combo enable copper ospfv3 1 area 0.0.0.0 ipv6 address 23::3/64 # bgp 65000 peer 1::1 as-number 65000 peer 1::1 connect-interface LoopBack0 # address-family l2vpn evpn peer 1::1 enable peer 1::1 advertise encap-type srv6 # ip vpn-instance v1 peer 35.1.1.5 as-number 65005 # address-family ipv4 unicast segment-routing ipv6 best-effort evpn segment-routing ipv6 locator pe_03 evpn peer 35.1.1.5 enable # segment-routing ipv6 encapsulation source-address 3::3 # locator pe_03 ipv6-prefix C300:: 96 static 8 #</pre>
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Locator和Local-SID信息

<pre><pe_01>disp segment-routing ipv6 locator Locator configuration table Locator name : pe_01 Fla g(A) : 0 IPv6 prefix : C100:: Prefix l length : 96 Static length : 8 Args len length : 0 Common prefix length: 0 Algorithm : 0 Auto SID start : C100::100 Auto SID end : C100::FFFF:FFFF Static SID start : C100::1 Static SID end : C100::FF ----静态段长度为8 Compressed Auto SID count : 0 Compressed Static SID count : 0 Non-compressed Auto SID count : 3 Non-compressed Static SID count: 0</pre>	<pre><pe_03>disp segment-routing ipv6 locator Locator configuration table Locator name : pe_03 FI g(A) : 0 IPv6 prefix : C300:: Prefix l length : 96 Static length : 8 Args le length : 0 Common prefix length: 0 Algorithm : 0 Auto SID start : C300::100 Auto SID end : C300::FFFF:FFFF Static SID start : C300::1 Static SID end : C300::FF Compressed Auto SID count : 0 Compressed Static SID count : 0 Non-compressed Auto SID count : 3 Non-compressed Static SID count: 0</pre>
<pre><pe_01>disp segment-routing ipv6 local-sid Local SID forwarding table Total SIDs: 3 SID : C100::101/96 Function type : End Flavor : PSP Locator name : pe_01 Allocation t ype: Dynamic Owner : OSPFV3-1 State : Active Create Time : Sep 15 15:34:51.463 2024 SID : C100::102/96 Function type : End.X Flavor : PSP Interface : GE0/0/1 Interface inde x: 0x2 Next hop : FE80::54CC:AEFF:FE36:205 All ocation type: Dynamic Locator name : pe_01 State Owner : OSPFV3-1 State : Active Create Time : Sep 15 15:34:51.469 2024 SID : C100::100/96 Function type : End.DT4 Flavor : PSP VPN instance : v1 Allocation ty pe: Dynamic Network type : EVPN L3VPN Locator name : pe_01 State : A ctive Create Time : Sep 15 15:25:06.143 2024</pre>	<pre><pe_03>disp segment-routing ipv6 local-sid Local SID forwarding table Total SIDs: 3 SID : C300::100/96 Function type : End Flavor : PSP Locator name : pe_03 Allocation type: Dynamic Owner : OSPFV3-1 State : Active Create Time : Sep 15 15:38:04.172 2024 SID : C300::101/96 Function type : End.X Flavor : PSP Interface : GE0/0/1 Interface ind ex: 0x2 Next hop : FE80::54CC:AEFF:FE36:206 All ocation type: Dynamic Locator name : pe_03 State Owner : OSPFV3-1 State : Active Create Time : Sep 15 15:38:04.180 2024 SID : C300::102/96 Function type : End.DT4 Flavor : PSP VPN instance : v1 Allocation t ype: Dynamic Network type : EVPN L3VPN Locator name : pe_03 State Owner : BGP State : Active Create Time : Sep 15 15:40:10.715 2024</pre>

IPv4路由传递过程 (控制平面)

<pre><ce_04>disp bgp routing-table ipv4 4.4.4.4 BGP local router ID: 4.4.4.4 Local AS number: 65004 Paths: 1 available, 1 best BGP routing table information of 4.4.4.4/32: Imported route. Original nexthop: 127.0.0.1 OutLabel : NULL AS-path : (null) Origin : igp Attribute value : MED 0, prefer-val 32768 State : valid, local, best IP precedence : N/A QoS local ID : N/A Traffic index : N/A VPN-Peer UserID : N/A DSCP : N/A EXP : N/A Tunnel policy : NULL Rely tunnel IDs : N/A</pre>	<pre><pe_01>disp bgp routing-table vpnv4 4.4.4.4 BGP local router ID: 1.1.1.1 Local AS number: 65000 Route distinguisher: 100:1(v1) Total number of routes: 1 Paths: 1 available, 1 best BGP routing table information of 4.4.4.4/32: From : 14.1.1.4 (4.4.4.4) Rely nexthop : 14.1.1.4 Original nexthop: 14.1.1.4 Out interface : GigabitEthernet0/0/0 Route age : 01h36m47s OutLabel : NULL Ext-Community : <RT: 101:1> RxPathID : 0x0 TxPathID : 0x0 AS-path : 65004 Origin : igp Attribute value : MED 0, prefer-val 0 State : valid, external, best Source type : local IP precedence : N/A QoS local ID : N/A Traffic index : N/A Tunnel policy : NULL Rely tunnel IDs : N/A</pre>	<pre><pe_01>disp bgp l2vpn evpn [5] [0][32][4.4.4.4]/80 BGP local router ID: 1.1.1.1 Local AS number: 65000 Route distinguisher: 100:1(v1) Total number of routes: 1 Paths: 1 available, 1 best BGP routing table information of [5] [0][32][4.4.4.4]/80: From : 14.1.1.4 (4.4.4.4) Rely nexthop : 14.1.1.4 Original nexthop: 14.1.1.4 Out interface : GigabitEthernet0/0/0 Route age : 01h24m50s OutLabel : NULL Ext-Community : <RT: 101:1> RxPathID : 0x0 TxPathID : 0x0 PrefixSID : End.DT4 SID <C100::100> AS-path : 65004 Origin : igp Attribute value : MED 0, prefer-val 0 State : valid, external, best, localredist Source type : local-import IP precedence : N/A QoS local ID : N/A Traffic index : N/A EVPN route type : IP prefix advertisement route ESI : 0000.0000.0000.0000.0000 Ethernet tag ID : 0 IP prefix : 4.4.4.4/32 Gateway address : 0.0.0.0 MPLS label : 4294967295 Tunnel policy : NULL Rely tunnel IDs : N/A</pre>
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<pre><pe_03>disp bgp l2vpn evpn [5][0] [[32][4.4.4.4]/80 BGP local router ID: 3.3.3.3 Local AS number: 65000 Route distinguisher: 100:1(v1) Total number of routes: 1 Paths: 1 available, 1 best BGP routing table information of [5][0][32][4.4.4.4]/80: From : 1::1 (1.1.1.1) Rely nexthop : FE80::54CC:AEFF:FE36:206 Original nexthop: 1::1 Out interface : GigabitEthernet0/0/1 Route age : 01h24m13s OutLabel : 3 Ext-Community : <RT: 101:1> RxPathID : 0x0 TxPathID : 0x0 PrefixSID : End.DT4 SID <C100::100> AS-path : 65004 Origin : igp Attribute value : MED 0, localpref 100, pref-val 0 State : valid, internal, best Source type : local IP precedence : N/A QoS local ID : N/A Traffic index : N/A EVPN route type : IP prefix advertisement route ESI : 0000.0000.0000.0000.0000 Ethernet tag ID : 0 IP prefix : 4.4.4.4/32 Gateway address : 0.0.0.0 MPLS label : 3 Tunnel policy : NULL Rely tunnel IDs : N/A Re-origination : Disable</pre>	<pre><pe_03>disp bgp routing-table v pnv4 4.4.4.4 BGP local router ID: 3.3.3.3 Local AS number: 65000 Route distinguisher: 100:1(v1) Total number of routes: 1 Paths: 1 available, 1 best BGP routing table information of f 4.4.4.4/32: From : 1::1 (1.1.1.1) Rely nexthop : FE80::54CC:A EFF:FE36:206 Original nexthop: 1::1 Out interface : GigabitEthernet 0/0/1 Route age : 01h24m54s OutLabel : 3 Ext-Community : <RT: 101:1> RxPathID : 0x0 TxPathID : 0x0 PrefixSID : End.DT4 SID < C100::100> AS-path : 65004 Origin : igp Attribute value : MED 0, localpr ef 100, pref-val 0 State : valid, internal, bes t, remoteredist Source type : evpn remote-i mport IP precedence : N/A QoS local ID : N/A Traffic index : N/A Tunnel policy : NULL Rely tunnel IDs : N/A</pre>	<pre><ce_05> disp bgp rou ipv4 .4.4.4 BGP local router ID: 5.5.5.5 Local AS number: 65005 Paths: 1 available, 1 best BGP routing table information of 4.4.4.4/32: From : 35.1.1.3 (3.3. 3.3) Rely nexthop : 35.1.1.3 Original nexthop: 35.1.1.3 OutLabel : NULL AS-path : 65000 65004 Origin : igp Attribute value : pref-val 0 State : valid, external, best IP precedence : N/A QoS local ID : N/A Traffic index : N/A VPN-Peer UserID : N/A DSCP : N/A EXP : N/A Tunnel policy : NULL Rely tunnel IDs : N/A</pre>
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数据转发

<pre><ce_05>disp ip rou 4.4.4.4 Summary count : 1 Destination/Mask Proto Pre Cost NextHop Interface 4.4.4.4/32 BGP 255 0 35.1.1.3 GE0/0</pre>
<pre><pe_03>disp fib v v1 4.4.4.4 FIB entry count: 1 Flag: U:Usable G:Gateway H:Host B:Blackhole D:Dynamic S:Static R:Relay F:FRR Destination/Mask Nexthop Flag OutInterface/Token Label 4.4.4.4/32 FE80::54CC:AEFF:FE36:206 UGHR GE0/0/1 Null</pre>
<pre><pe_03>disp ip rou v v1 4.4.4.4 Summary count : 1 Destination/Mask Proto Pre Cost NextHop Interface 4.4.4.4/32 BGP 255 0 C100:: GE0/0/1 <pe_03>disp ipv6 rou c100:: Summary count : 1 Destination: C100::/96 Protocol : O_INTRA NextHop : FE80::54CC:AEFF:FE36:206 Preference: 10 Interface : GE0/0/1 Cost : 2</pre>
<pre><p_02>disp ipv6 rou c100:: Summary count : 1 Destination: C100::/96 Protocol : O_INTRA NextHop : FE80::54CC:A9FF:FE73:106 Preference: 10 Interface : GE0/0/0 Cost : 1</pre>

```
<pe_01>disp ipv6 routing-table c100::
```

```
Summary count : 2
```

```
Destination: C100::96          Protocol : O_INTRA  
NextHop    : ::              Preference: 10  
Interface  : NULL0           Cost      : 0
```

```
Destination: C100::/128       Protocol : SRv6  
NextHop    : ::1            Preference: 4  
Interface  : InLoop0        Cost      : 0
```

```
<pe_01>disp fib v v1 4.4.4.4  
FIB entry count: 1
```

```
Flag:
```

```
U:Usable G:Gateway H:Host B:Blackhole D:Dynamic S:Static  
R:Relay F:FRR
```

```
Destination/Mask Nexthop  Flag  OutInterface/Token  Label  
4.4.4.4/32      14.1.1.4  UGHR  GE0/0/0             Null  
<pe_01>disp ip rou v v1 4.4.4.4
```

```
Summary count : 1
```

```
Destination/Mask Proto Pre Cost  NextHop  Interface  
4.4.4.4/32      BGP  255 0    14.1.1.4  GE0/0/0
```

配置关键点

不涉及