

问题描述

组网大致如下:

SWA (1.1.1.1) ---- (1.1.1.2) SWB

SWA和SWB之间用vlan 1互联, SWA上loopback0:2.2.2.2模拟业务地址, SWB上loopback0:3.3.3.3模拟业务地址。SWB上的int vlan 1是加入了vpn实例的, 现在2台设备之间跑ospf, SWB上的3.3.3.3网段SWA学习不到。

SWA大概配置如下:

```
#
interface Vlan-interface1
ip address 1.1.1.1 255.255.255.0
#
interface LoopBack0
ip address 2.2.2.2 255.255.255.0
#
ospf 1
area 0.0.0.0
network 1.1.1.0 0.0.0.255
network 2.2.2.2 0.0.0.0
#
```

SWB上配置大概如下:

```
#
interface Vlan-interface1
ip binding vpn-instance 1
ip address 1.1.1.2 255.255.255.0
#
interface LoopBack0
ip address 3.3.3.3 255.255.255.255
#
ospf 1 vpn-instance 1
area 0.0.0.0
network 1.1.1.0 0.0.0.255
network 3.3.3.3 0.0.0.0
#
```

ospf邻居正常建立:

SWB侧:

```
[H3C]dis ospf peer
      OSPF Process 1 with Router ID 1.1.1.2
      Neighbor Brief Information
Area: 0.0.0.0
Router ID   Address   Pri Dead-Time State      Interface
1.1.1.1    1.1.1.1   1 32   Full/DR   Vlan1
```

但SWA上学习不到对应的3.3.3.3网段:

```
[H3C]dis ip routing-table
```

Destinations : 20 Routes : 20

Destination/Mask	Proto	Pre	Cost	NextHop	Interface
0.0.0.0/32	Direct	0	0	127.0.0.1	InLoop0
1.1.1.0/24	Direct	0	0	1.1.1.1	Vlan1
1.1.1.0/32	Direct	0	0	1.1.1.1	Vlan1
1.1.1.1/32	Direct	0	0	127.0.0.1	InLoop0
1.1.1.255/32	Direct	0	0	1.1.1.1	Vlan1
2.2.2.0/24	Direct	0	0	2.2.2.2	Loop2
2.2.2.0/32	Direct	0	0	2.2.2.2	Loop2

```

2.2.2.2/32    Direct 0 0    127.0.0.1    InLoop0
2.2.2.255/32  Direct 0 0    2.2.2.2      Loop2
4.4.4.0/24   Direct 0 0    4.4.4.1      Vlan2
4.4.4.0/32   Direct 0 0    4.4.4.1      Vlan2
4.4.4.1/32   Direct 0 0    127.0.0.1    InLoop0
4.4.4.255/32 Direct 0 0    4.4.4.1      Vlan2
127.0.0.0/8  Direct 0 0    127.0.0.1    InLoop0
127.0.0.0/32 Direct 0 0    127.0.0.1    InLoop0
127.0.0.1/32 Direct 0 0    127.0.0.1    InLoop0
127.255.255.255/32 Direct 0 0    127.0.0.1    InLoop0
224.0.0.0/4  Direct 0 0    0.0.0.0      NULL0
224.0.0.0/24 Direct 0 0    0.0.0.0      NULL0
255.255.255.255/32 Direct 0 0    127.0.0.1    InLoop0

```

查看SWB的VPN路由表发现，没有3.3.3.3这个直连路由：

```

[H3C]dis ip routing-table vpn-instance 1
Destinations : 13    Routes : 13
Destination/Mask Proto Pre Cost NextHop Interface
0.0.0.0/32      Direct 0 0    127.0.0.1    InLoop0
1.1.1.0/24      Direct 0 0    1.1.1.2      Vlan1
1.1.1.0/32      Direct 0 0    1.1.1.2      Vlan1
1.1.1.2/32      Direct 0 0    127.0.0.1    InLoop0
1.1.1.255/32    Direct 0 0    1.1.1.2      Vlan1
2.2.2.2/32      O_INTRA 10 1    1.1.1.1      Vlan1
127.0.0.0/8     Direct 0 0    127.0.0.1    InLoop0
127.0.0.0/32    Direct 0 0    127.0.0.1    InLoop0
127.0.0.1/32    Direct 0 0    127.0.0.1    InLoop0
127.255.255.255/32 Direct 0 0    127.0.0.1    InLoop0
224.0.0.0/4     Direct 0 0    0.0.0.0      NULL0
224.0.0.0/24    Direct 0 0    0.0.0.0      NULL0
255.255.255.255/32 Direct 0 0    127.0.0.1    InLoop0

```

查看SWB的全局路由表，是有3.3.3.3的直连路由的：

```

[H3C]dis ip routing-table
Destinations : 13    Routes : 13
Destination/Mask Proto Pre Cost NextHop Interface
0.0.0.0/32      Direct 0 0    127.0.0.1    InLoop0
3.3.3.3/32      Direct 0 0    127.0.0.1    InLoop0
4.4.4.0/24      Direct 0 0    4.4.4.2      GE1/0/2
4.4.4.0/32      Direct 0 0    4.4.4.2      GE1/0/2
4.4.4.2/32      Direct 0 0    127.0.0.1    InLoop0
4.4.4.255/32    Direct 0 0    4.4.4.2      GE1/0/2
127.0.0.0/8     Direct 0 0    127.0.0.1    InLoop0
127.0.0.0/32    Direct 0 0    127.0.0.1    InLoop0
127.0.0.1/32    Direct 0 0    127.0.0.1    InLoop0
127.255.255.255/32 Direct 0 0    127.0.0.1    InLoop0
224.0.0.0/4     Direct 0 0    0.0.0.0      NULL0
224.0.0.0/24    Direct 0 0    0.0.0.0      NULL0
255.255.255.255/32 Direct 0 0    127.0.0.1    InLoop0

```

因为配置的3.3.3.3是在全局下配置，未加VPN实例，所以需要把全局路由表引入VPN路由表，让VPN路由表里有3.3.3.3的直连路由

解决方法

在SWB的VPN下：

```

ip vpn-instance 1
#
address-family ipv4
route-replicate from public protocol direct advertise
#

```

route-replicate命令用来将公网或其他VPN实例的路由信息引入到指定VPN实例中。

advertise：允许发布引入的路由。如果未指定本参数，则表示引入的路由不允许发布。

此时再查看SWB的VPN路由表：

```

[H3C]dis ip routing-table vpn-instance 1

```

Destinations : 18 Routes : 18

Destination/Mask	Proto	Pre	Cost	NextHop	Interface
0.0.0.0/32	Direct	0	0	127.0.0.1	InLoop0
1.1.1.0/24	Direct	0	0	1.1.1.2	Vlan1
1.1.1.0/32	Direct	0	0	1.1.1.2	Vlan1
1.1.1.2/32	Direct	0	0	127.0.0.1	InLoop0
1.1.1.255/32	Direct	0	0	1.1.1.2	Vlan1
2.2.2.2/32	O_INTRA	10	1	1.1.1.1	Vlan1
3.3.3.3/32	Direct	0	0	127.0.0.1	InLoop0
4.4.4.0/24	Direct	0	0	4.4.4.2	GE1/0/2
4.4.4.0/32	Direct	0	0	4.4.4.2	GE1/0/2
4.4.4.2/32	Direct	0	0	127.0.0.1	InLoop0
4.4.4.255/32	Direct	0	0	4.4.4.2	GE1/0/2
127.0.0.0/8	Direct	0	0	127.0.0.1	InLoop0
127.0.0.0/32	Direct	0	0	127.0.0.1	InLoop0
127.0.0.1/32	Direct	0	0	127.0.0.1	InLoop0
127.255.255.255/32	Direct	0	0	127.0.0.1	InLoop0
224.0.0.0/4	Direct	0	0	0.0.0.0	NULL0
224.0.0.0/24	Direct	0	0	0.0.0.0	NULL0
255.255.255.255/32	Direct	0	0	127.0.0.1	InLoop0

但是如果需要对端学习到的话，需在SWB的ospf里再引入直连：

```
#
ospf 1 vpn-instance 1
import-route direct
area 0.0.0.0
network 1.1.1.0 0.0.0.255
network 3.3.3.3 0.0.0.0
#
```

此时SWA上查看路由表，能正常学习：

```
[H3C]dis ip routing-table
```

Destinations : 22 Routes : 22

Destination/Mask	Proto	Pre	Cost	NextHop	Interface
0.0.0.0/32	Direct	0	0	127.0.0.1	InLoop0
1.1.1.0/24	Direct	0	0	1.1.1.1	Vlan1
1.1.1.0/32	Direct	0	0	1.1.1.1	Vlan1
1.1.1.1/32	Direct	0	0	127.0.0.1	InLoop0
1.1.1.255/32	Direct	0	0	1.1.1.1	Vlan1
2.2.2.0/24	Direct	0	0	2.2.2.2	Loop2
2.2.2.0/32	Direct	0	0	2.2.2.2	Loop2
2.2.2.2/32	Direct	0	0	127.0.0.1	InLoop0
2.2.2.255/32	Direct	0	0	2.2.2.2	Loop2
3.3.3.3/32	O_ASE2	150	1	1.1.1.2	Vlan1
4.4.4.0/24	Direct	0	0	4.4.4.1	Vlan2
4.4.4.0/32	Direct	0	0	4.4.4.1	Vlan2
4.4.4.1/32	Direct	0	0	127.0.0.1	InLoop0
4.4.4.2/32	O_ASE2	150	1	1.1.1.2	Vlan1
4.4.4.255/32	Direct	0	0	4.4.4.1	Vlan2
127.0.0.0/8	Direct	0	0	127.0.0.1	InLoop0
127.0.0.0/32	Direct	0	0	127.0.0.1	InLoop0
127.0.0.1/32	Direct	0	0	127.0.0.1	InLoop0
127.255.255.255/32	Direct	0	0	127.0.0.1	InLoop0