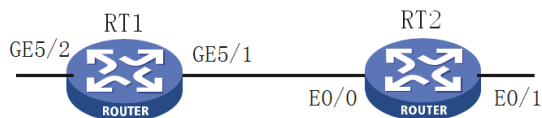


某局点MSR3600 MPLS L2VPN建立失败问题处理案例

L2TP VPN 张自成 2018-06-25 发表

组网及说明



设备型号和版本:

RT1-MSR3600-V7 0605P13 RT2-MSR2020-V5 2207P38

问题描述

现场需求: 两台设备通过建立MPLS L2VPN BGP PW隧道实现二层互访, 目前的问题, 隧道建立失败, 无法通信。

```
<RT-1>dis l2vpn xconnect-group //显示L2VPN PW信息
```

Total number of cross-connections: 1, 0 up, 1 down, 0 admin down

Xconnect-group Name Connection ID MTU State

```
vpn1 0 1500 Down
```

```
<RT-2>dis mpls l2vpn connection //显示Kompella方式的L2VPN连接信息
```

1 total connections, connections: 0 up, 1 down, 0 local, 0 remote, 1 unknown

VPN name: vpn1, 1 total connections,

connections: 0 up, 1 down, 0 local, 0 remote, 1 unknown

CE name: cel, id: 1,

```
Rid type status peer-id route-distinguisher intf
```

```
2 --- down --- --- Eth0/1
```

过程分析

1、首先查看LDP Remote Peer状态是否建立成功

```
<RT-1>dis mpls ldp peer
```

Total number of peers: 1

```
Peer LDP ID State Role GR MD5 KA Sent/Rcvd
```

```
1.1.1.1:0 Operational Active Off Off 24/24
```

```
[RT-2]dis mpls ldp session
```

LDP Session(s) in Public Network

```
Total number of sessions: 1 -----
```

```
Peer-ID Status LAM SsnRole FT MD5 KA-Sent/Rcv -----
```

```
2.2.2.2:0 Operational DU Passive Off Off 19/19 -----
```

LAM : Label Advertisement Mode FT : Fault Tolerance

2、查看BGP L2VPN Peer是否建立成功

```
<RT-1>dis bgp peer l2vpn
```

BGP local router ID: 2.2.2.2

Local AS number: 100 Total number of peers: 1

Peers in established state: 0

* - Dynamically created peer Peer

```
AS MsgRcvd MsgSent OutQ PrefRcv Up/Down State
```

```
1.1.1.1 100 4 6 0 0 00:03:03 No Neg
```

状态为NO Neg, 表示地址组能力指定错误, 邻居两端的地址组能力不匹配, 一般会出现在V5, V7设备对接以及与第三方厂商对接时候出现

解决方法

核对两台设备的关键配置

RT-1:

```

bgp 100
router-id 2.2.2.2
peer 1.1.1.1 as-number 100
peer 1.1.1.1 connect-interface LoopBack0
#
address-family l2vpn
peer 1.1.1.1 enable
#
connect-group vpn1
auto-discovery bgp
route-distinguisher 3:3
vpn-target 3:3 export-extcommunity
vpn-target 3:3 import-extcommunity
site 2 range 10 default-offset 0
connection remote-site-id 1
ac interface GigabitEthernet5/2

```

RT-2:

```

bgp 100 router-id 1.1.1.1
undo synchronization
#
peer 2.2.2.2 as-number 100
peer 2.2.2.2 connect-interface LoopBack0
#
l2vpn-family
peer 2.2.2.2 enable
#
mpls l2vpn vpn1 encapsulation ethernet
route-distinguisher 3:3
vpn-target 3:3 import-extcommunity
vpn-target 3:3 export-extcommunity
ce cel id 1 range 10 default-offset 0
connection ce-offset 2 interface Ethernet0/1

```

可以看到RT-2使用的是Kompella方式MPLS L2VPN，而在建立BGP PW的时候，PE设备需要通过MP-BGP协议来交换标签块信息。

在RT-1这侧的BGP L2VPN地址族试图下制定peer 1.1.1.1 enable之后，默认情况下，本地路由器即具有与peer对等体采用RFC 4716中定义的MP_REACH_NLRI格式交换标签信息的能力。所以两端的配置不兼容，需要在RT-1侧添加如下命令：

```

address-family l2vpn
peer 1.1.1.1 enable
peer 1.1.1.1 signaling non-standard
undo peer 1.1.1.1 auto-discovery

```

该参数的作用是使能本地路由器与对等体1.1.1.1交换MPLS L2VPN标签块信息的能力，并指定采用draft-kompella-ppvpn-l2vpn-03草案中定义的MP_REACH_NLRI格式交换标签块信息，同时关闭自动发现邻居。

添加改命令之后BGP Peer l2vpn状态变成Establish

添加改命令之后BGP PW仍然没有建立成功，进一步排查发现

RT-2这边mpls l2vpn采用的是Ethernet的封装，RT-1这边没有配置模式，默认是vlan的方式，需要修改为一致。

```

pw-class pw100
pw-type ethernet

```

```

xconnect-group vpn1
auto-discovery bgp
pw-class pw100 //在L2VPN交叉连接组下面调用pw-class

```

最后需要注意的是查看PW状态前，需要保持AC口的状态是UP，否则即使配置正确，PW的状态也会是down

基于上述三点进行排查修改之后，BGP PW建立成功，测试业务互访正常。

```
<RT-1> dis l2vpn pw
```

```
Flags: M - main, B - backup, BY - bypass, H - hub link, S - spoke link, N - no split horizon
```

```
Total number of PWs: 1 1 up, 0 blocked, 0 down, 0 defect, 0 idle, 0 duplicate
```

Xconnect-group Name: vpn1

Peer PW ID/Rmt Site In/Out Label Proto Flag Link ID State

1.1.1.1 1 917505/20482 BGP M 1 Up

<RT-2>dis mpls l2vpn connection

1 total connections, connections: 1 up, 0 down, 0 local, 1 remote, 0 unknown

VPN name: vpn1,

1 total connections, connections: 1 up, 0 down, 0 local, 1 remote, 0 unknown

CE name: cel, id: 1,

Rid type status peer-id route-distinguisher intf

2 rmt **up 2.2.2.2** 3:3 Eth0/1