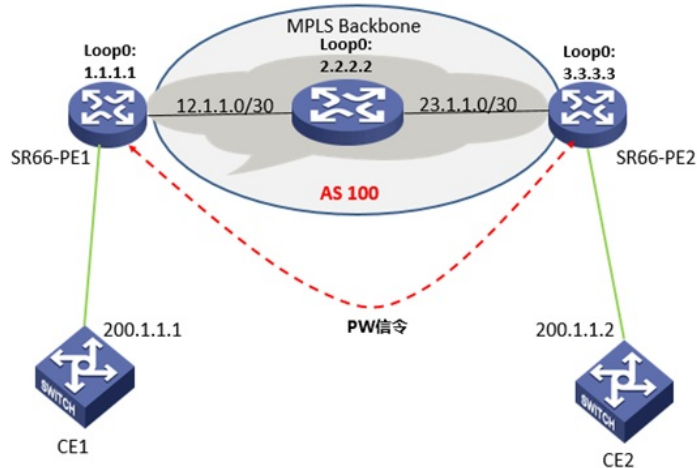


知 SR66路由器BGP方式 (Kompella) VPLS Site值导致VC state 无法up的经验案例

MPLS L2VPN 李长剑 2014-10-21 发表

一、组网:

两台SR66路由器分别为PE1、PE2，中间为Mpls骨干网，PE1、PE2和P设备之间通过三层链路聚合互联，IGP为OSPF，SR66-PE1路由器和SR66-PE2路由器之间采用Kompella方式VPLS，具体组网参考下图:



二、问题描述:

VPLS (Virtual Private LAN Service, 虚拟专用局域网服务) 是在公用网络中提供的一种点到多点的L2 VPN业务。VPLS使地域上隔离的用户站点能通过MAN (Metropolitan Area Network, 城域网) 或WAN (Wide Area Network, 广域网) 相连, 并且使各个站点间的连接效果像在一个LAN中一样。

在本组网中, 客户反馈两台SR66路由器作为VPLS的PE, MPLS骨干网正常分发公网标签, dis bgp vpls peer的BGP邻居状态为Established, 但是通过命令dis vpls connection、dis vpls connection vsi 查看无任何信息输出。

三、过程分析:

SR66-PE1设备主要配置:

```
mpls lsr-id 1.1.1.1
#
Mpls
#
l2vpn
mpls l2vpn
#
mpls ldp
#vsi sccn_zg_l2_office auto
pwsignal bgp
route-distinguisher 65502:1000
vpn-target 65502:1000 import-extcommunity
vpn-target 65502:1000 export-extcommunity
site 1 range 10 default-offset 0

interface Route-Aggregation1
ip address 12.1.1.1 255.255.255.252
mpls
mpls ldp
#
interface LoopBack0
ip address 1.1.1.1 255.255.255.255
#
interface GigabitEthernet0/0/2
l2 binding vsi sccn_zg_l2_office
```

```
bgp 65502
router-id 1.1.1.1
undo synchronization
peer 3.3.3.3 as-number 65502
peer 3.3.3.3 connect-interface LoopBack0
#
vpls-family
peer 3.3.3.3 enable
#
ospf 1 router-id 1.1.1.1
area 0.0.0.0
network 1.1.1.1 0.0.0.0
network 12.1.1.0 0.0.0.3
network 10.138.9.44 0.0.0.3
#
```

P设备的主要配置:

```
mpls lsr-id 2.2.2.2
#
mpls
#
l2vpn
mpls l2vpn
#
mpls ldp
#
interface Route-Aggregation2
ip address 23.1.1.1 255.255.255.252
mpls
mpls ldp
#
interface Route-Aggregation3
ip address 12.1.1.2 255.255.255.252
mpls
mpls ldp
#
interface LoopBack0
ip address 2.2.2.2 255.255.255.255
#
ospf 1 router-id 2.2.2.2
area 0.0.0.0
network 12.1.1.0 0.0.0.3
network 23.1.1.0 0.0.0.3
network 2.2.2.2 0.0.0.0
```

PE2路由器的主要配置:

```
mpls lsr-id 3.3.3.3
#
mpls
#
l2vpn
mpls l2vpn
#
mpls ldp
# vsi sccn_zg_l2_office auto
pwsignal bgp
route-distinguisher 65502:1000
vpn-target 65502:1000 import-extcommunity
vpn-target 65502:1000 export-extcommunity
site 1 range 10 default-offset 0
#
interface Route-Aggregation1
ip address 23.1.1.2 255.255.255.252
mpls
```

```

mpls ldp
#
interface LoopBack0
ip address 3.3.3.3 255.255.255.255
#
interface GigabitEthernet0/0/3
l2 binding vsi sccn_zg_l2_office
# bgp 65502
router-id 3.3.3.3
undo synchronization
peer 1.1.1.1 as-number 65502
peer 1.1.1.1 connect-interface LoopBack0
#
vpls-family
peer 1.1.1.1 enable
#
ospf 1 router-id 3.3.3.3
area 0.0.0.0
network 23.1.1.2 0.0.0.255
network 3.3.3.3 0.0.0.0

```

通过检查SR66-PE1路由器、SR66-PE2路由器的配置，发现在vsi sccn_zg_l2_office auto下面 site 1 range 10 default-offset 0的site值都为1。但是，在Kompella方式的VPLS VPN中，同一VPN内SITE-ID不允许重复，并且平台会检查如果site值配置成一样的话，会打印信息提示，但是现场在调试的时候并没有任何提示。通过查看诊断信息里面的日志发现：

```

%Aug 12 10:12:54:232 2014 SR66-PE1 BGP/5/BGP_STATE_CHANGED:
10.138.9.202 state is changed from OPENCONFIRM to ESTABLISHED.
%Aug 12 10:12:56:032 2014 SR66-PE1 L2V/5/VPLS_BGP_LOCAL_SITEID_CONFLICT: Remote site ID 1 (from PE 3.3.3.3, Route-Distinguisher 65502:1000) conflicts with local site ID.

```

但是为什么在现场两边PE配置site 1 range 10 default-offset 0的时候，为什么没有提示呢？后了解到现场当时是通过telnet远程到设备上，没有开启terminal monitor和terminal debugging。开启terminal monitor和terminal debugging再次测试：

```

[SR66-PE1-vsi-sccn_zg_l2_office-bgp]site 1 range 10
Error: Site ID is used by a remote site.

```

四、解决方法：

修改SR66-PE1设备site值，保证同一VPN内SITE-ID不允许重复，问题解决。

SR66-PE1:

```

vsi sccn_zg_l2_office auto
pwsignal bgp
route-distinguisher 65502:1000
vpn-target 65502:1000 import-extcommunity
vpn-target 65502:1000 export-extcommunity
site 2 range 10 default-offset 0

```

SR66-PE2:

```

vsi sccn_zg_l2_office auto
pwsignal bgp
route-distinguisher 65502:1000
vpn-target 65502:1000 import-extcommunity
vpn-target 65502:1000 export-extcommunity
site 1 range 10 default-offset 0

```

```

dis vpls connection
Total 1 connection(s),
connection(s): 1 up, 0 block, 0 down, 0 ldp, 1 bgp, 0 static
VSI Name: sccn_zg_l2_office      Signaling: bgp
SiteID  RD      PeerAddr  InLabel OutLabel LinkID  VCState
2      65502:1000    1.1.1.1  36866  36895  1      up

```

```

dis vpls connection
Total 1 connection(s),
connection(s): 1 up, 0 block, 0 down, 0 ldp, 1 bgp, 0 static

```

VSI Name: sccn_zg_l2_office Signaling: bgp
SiteID RD PeerAddr InLabel OutLabel LinkID VCState
1 65502:1000 3.3.3.3 36895 36866 1 up