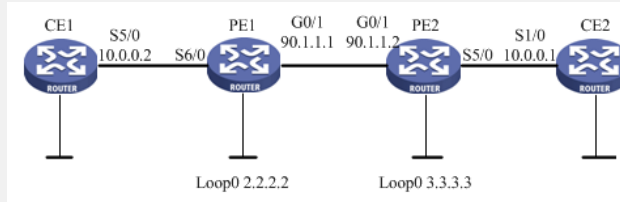


MSR系列路由器

FR over MPLS L2VPN无法建立L2VC的经验案例

一、组网：

其中CE1-PE1, CE2-PE2是FrameRelay, PE1和PE2之间运行MPLS LDP。



二、问题描述：

其中CE1-PE1, CE2-PE2是FR, PE1和PE2之间运行MPLS LDP；同样方式的ATM AAL 5 over MPLS L2VPN就可以实现，但是FR方式就不能实现，察看MPLS L2VC发现VC正常建立

```
<PE-1>dis mpls l2vc
```

```
total ldp vc : 4 2 up 2 down
```

Transport	Client	VC	Local	Remote	Tunnel
VC ID	Intf	State	VC Label	VC Label	Policy
21	Atm6/0.1	up	1030	1025	default
22	Atm6/0.2	down	1026	--	default
23	Atm6/0.3	down	1027	--	default
600	S1/0	up	1038	1032	default

三、过程分析：

查看配置发现存在以下问题：1.CE1与CE2两端的DLCI值不一致，2. CE1与CE2两端都配置为DTE侧。

FR over MPLS L2VPN 组网配置中要求DLCI 两端要一致，PE设备没有FR交换的功能；CE1与CE2要保证一端是DTE一端是DCE，PE设备是完全透传的。

典型配置如下：

CE1

```
#
interface Aux0
  async mode flow
  link-protocol ppp
#
interface Serial5/0
  link-protocol fr
  fr dlc1 200
  ip address 10.0.0.2 255.255.255.0
```

PE1

```
#
router id 2.2.2.2
#
mpls lsr-id 2.2.2.2
#
mpls
#
mpls l2vpn
#
mpls ldp
#
mpls ldp remote-peer l2vpn
  remote-ip 3.3.3.3
#
```

```
interface Serial6/0
link-protocol fr
fr interface-type dce
fr dlc1 200
mpls l2vc 3.3.3.3 600
#
interface LoopBack0
ip address 2.2.2.2 255.255.255.255
#
interface GigabitEthernet0/1
port link-mode route
ip address 90.1.1.1 255.255.255.0
mpls
mpls ldp
#
ospf 1
area 0.0.0.0
network 2.2.2.2 0.0.0.0
network 90.1.1.0 0.0.0.255
#
```

## **PE2**

```
#
router id 3.3.3.3
#
mpls lsr-id 3.3.3.3
#
mpls
#
mpls l2vpn
#
mpls ldp
#
mpls ldp remote-peer l2vpn
remote-ip 2.2.2.2
#
interface Serial5/0
link-protocol fr
fr dlc1 200
mpls l2vc 2.2.2.2 600
#
interface LoopBack0
ip address 3.3.3.3 255.255.255.255
#
interface GigabitEthernet0/1
port link-mode route
ip address 90.1.1.2 255.255.255.0
mpls
mpls ldp
#
ospf 1
area 0.0.0.0
network 3.3.3.3 0.0.0.0
network 90.1.1.0 0.0.0.255
#
```

## **CE2**

```
#
interface Serial1/0
link-protocol fr
fr interface-type dce
fr dlc1 200
ip address 10.0.0.1 255.255.255.0
#
```

#### 四、测试结果

```
[pe1]dis mpls l2vc
```

```
total ldp vc : 1 1 up 0 down down
```

```
Transport Client VC Local Remote Tunnel
```

```
VC ID Intf State VC Label VC Label Policy
```

```
600 S6/0 up 1025 1025 default
```

```
[ce1] ping 10.0.0.1
```

```
PING 10.0.0.1: 56 data bytes, press CTRL_C to break
```

```
Reply from 10.0.0.1: bytes=56 Sequence=1 ttl=255 time=53 ms
```

```
Reply from 10.0.0.1: bytes=56 Sequence=2 ttl=255 time=52 ms
```

```
Reply from 10.0.0.1: bytes=56 Sequence=3 ttl=255 time=52 ms
```

```
Reply from 10.0.0.1: bytes=56 Sequence=4 ttl=255 time=51 ms
```

```
Reply from 10.0.0.1: bytes=56 Sequence=5 ttl=255 time=52 ms
```