

某局点V7 MSR5660与华为AR3200对接 LLDP邻居建立异常

LLDP 罗燕 2019-03-31 发表

组网及说明



问题描述

某局点客户，新购了一批V7的MSR代替之前V5设备，于华为端对接后，发现华为端无法识别V7 MSR的LLDP邻居。

华三端：

```
dis lldp neighbor-information
```

```
LLDP neighbor-information of port xxxx[GigabitEthernet0/1]:
```

```
LLDP agent nearest-bridge:
```

```
LLDP neighbor index : 1 //检测到0/1接口有一个LLDP邻居
```

```
ChassisID/subtype : aaaa-bbbb-cccc/MAC address
```

```
PortID/subtype : GigabitEthernet0/1/Interface name
```

```
Capabilities : Bridge
```

华为端：

```
display lldp neighbor
```

```
GigabitEthernet0/1 has 0 neighbors
```

```
display lldp statistics
```

```
LLDP statistics global Information:
```

```
Statistics for GigabitEthernet0/1:
```

```
Transmitted Frames Total:111111
```

```
Received Frames Total: 111111 Frames Discarded Total: 111111
```

```
Frames Error Total: 111111 TLVs Discarded Total: 111111
```

```
TLVs Unrecognized Total: 0 Neighbors Expired Total: 0 //0/1接口没有检测到邻居
```

过程分析

因为V5可以正常识别，而V7不可以，所以在实验室抓包对比V5设备和V7设备发的LLDP报文如下：

V7 MSR发送的LLDP报文：

```
IEEE - Link Aggregation
> IEEE 802.3 - MAC/PHY Configuration/Status
> IEEE 802.3 - Power Via MDI
> IEEE 802.3 - Maximum Frame Size
> End of LLDPDU

e0 6d 65 6e 74 20 4c 50 0e 04 03 14 01 14 10 0c 05 ment LP- ....
f0 01 c0 a8 0f e6 02 00 00 08 8e 00 fe 09 00 80 c2 .....
00 07 01 00 00 00 00 fe 09 00 12 0f 01 03 6c c1 00 .....
10 1e fe 0c 00 12 0f 02 01 01 01 10 00 00 00 00 fe .....
20 06 00 12 0f 04 06 00 00 00 00 00 00 00 00 00 .....
```

V5 MSR发送的LLDP报文

```
> Capabilities
> IEEE 802.3 - MAC/PHY Configuration/Status
> IEEE 802.3 - Power Via MDI
> IEEE 802.3 - Link Aggregation
> IEEE 802.3 - Maximum Frame Size
> End of LLDPDU

d0 6f 75 20 48 33 43 20 54 65 63 68 6e 6f 6c 6f 67 ou H3C T echnolog
e0 69 65 73 20 43 6f 2e 2c 20 4c 74 64 2e 0d 0a 0e ies Co., Ltd...
f0 04 00 14 00 14 fe 09 00 12 0f 01 03 6c 03 00 1e .....
00 fe 07 00 12 0f 02 01 01 01 fe 09 00 12 0f 03 01 .....
10 00 00 00 00 fe 06 00 12 0f 04 05 dc 00 00 .....
```

发现V5设备lldp发送报文时默认携带的Link aggregation字段在dot3的tlv里面。而V7设备dot1的tlv里面。查询协议标准发现：802.1AB-2005和802.1AB-2009版本lldp协议中dot1和dot3的tlv有变化。802.1AB-2005标准lldp协议中Link aggregation 字段在dot3里面，而802.1AB-2009标准在dot1里面。华为设备端遵循的是2005版的协议，对2009版的协议兼容性不够，直接进行了丢弃，导致无法识别我司设备。

通过命令屏蔽了link aggregation 字段之后，邻居可以识别，却发现了另一个问题，显示信息如下：

```
dis lldp neighbor-information list
```

```
Chassis ID : * -- -- Nearest nontpmr bridge neighbor
```

```
# -- -- Nearest customer bridge neighbor
```

```
Default -- -- Nearest bridge neighbor
```

```
System Name      Local Interface  Chassis ID      Port ID
```

```
MSR5660          GE0/1           eeee-ffff-gggg  eeee-ffff-gggg
```

```
xxxxxxxxxxxxx GE0/2 hhhh-iiii-jjjj GigabitEthernet0/2
//port ID本应该显示对端的端口，MSR5660显示的却是MAC地址。
随后在V5和V7设备上：Debugging lldp all
发现V7与V5不同的是：V7建立是MED邻居：
*Oct 01 00:00:00:000 1949 AR3200 LLDP/7/Packet sent: -Slot=2;
Management address interface ID : Unknown
Management address OID : 0
Link aggregation supported : Yes
Link aggregation enabled : No
Aggregation port ID : 0
Auto-negotiation supported : Yes
Auto-negotiation enabled : Yes
OperMau : Speed(1000)/Duplex(Full)
Power port class : PSE
PSE power supported : No
PSE power enabled : No
PSE pairs control ability : No
Power pairs : Signal
Port power classification : Class 0
Power type : Type 2 PSE
Power source : Primary
Power priority : Unknown
PD requested power value : 0.0 w
PSE allocated power value : 0.0 w
Maximum frame size : 1536
Device class : Connectivity device
PoE PSE power source : Primary
Port PSE priority : Critical //表示建立的是Med邻居
而协议规定对于MED邻居，本地端口的PortID显示类型是mac地址，而非接口信息。
```

解决方法

1、在华三端接口配置：

```
undo lldp tlv-enable dot1-tlv link-aggregation
```

禁止发布的link-aggregation的dot1-tlv

2、在华为接口配置：

```
undo lldp tlv-enable med-tlv all
```

禁止发布的med-tlv

3、配置后问题解决：

```
dis lldp neighbor-information list
```

```
Chassis ID : * -- -- Nearest nontpmr bridge neighbor
```

```
# -- -- Nearest customer bridge neighbor
```

```
Default -- -- Nearest bridge neighbor
```

System Name	Local Interface	Chassis ID	Port ID
MSR5660	GE0/1	aaaa-bbbb-cccc	GigabitEthernet0/1
xxxxxxxxxxxxx	GE0/2	eeee-ffff-gggg	GigabitEthernet0/2