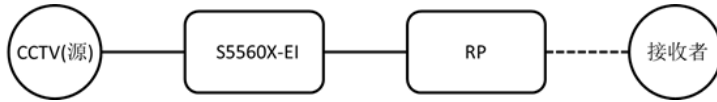


知 某局点S5560X-EI 无法建立组播表项问题案例

组播VLAN 张文宁 2020-04-13 发表

组网及说明

拓扑：如下图所示，S5560X-EI左侧三层虚接口起PIM SM跑三层组播，RP和接收者在右侧。



问题描述

问题：开局部署组播业务，发现S5560X-EI上没有组播源侧的（S，G）表项，无法上线业务。另外现场已部署了近300台和S5560X-EI同等位置的设备，业务均正常。

过程分析

分析：

查看表项，发现RP信息正常，但是确实没有组播（S,G）表项：

```
<ALTNPAL06SURVASW31>dis pim vpn-instance 13 rp-info
```

BSR RP information:

Scope: non-scoped

Group/MaskLen: 224.0.0.0/4

RP address	Priority	HoldTime	Uptime	Expires
10.110.5.3	140	180	6d:16h	00:02:43
10.110.5.4	160	180	6d:16h	00:02:43

```
<ALTNPAL06SURVASW31>dis pim vpn-instance 13 routing-table
```

Total 3 (*, G) entries; 1 (S, G) entries

```
(*, 239.128.66.23)
```

```
RP: 10.110.5.3
```

```
Protocol: pim-sm, Flag: WC
```

```
UpTime: 00:12:33
```

```
Upstream interface: Vlan-interface3017
```

```
Upstream neighbor: 10.110.6.157
```

```
RPF prime neighbor: 10.110.6.157
```

```
Downstream interface information:
```

```
Total number of downstream interfaces: 1
```

```
1: Vlan-interface3671
```

```
Protocol: igmp, UpTime: 00:12:33, Expires: -
```

检查配置发现连组播源侧接口绑定了VPN，虚接口正确启用了PIM SM，全局也使能了三层组播路由功能：

```
#
```

```
multicast routing
```

```
##
```

```
multicast routing vpn-instance 13
```

```
#
```

```
interface Vlan-interface3666
```

```
description ELV-L3A-Clinet1
```

```
ip binding vpn-instance 13
```

```
ip address 10.109.66.254 255.255.255.0
```

```
pim sm
```

```
igmp enable
```

```
#
```

怀疑组播报文没进来设备，或者设备没把报文上送CPU处理，但是抓包和查看接口流量类型可以确认有组播数据一直发给设备：

No.	Time	Source	Destination	Protocol	Length	Info
13	2020-02-19 10:57:13.787151	10.109.66.22	239.128.66.22	UDP	1474	34000 → 2226 Len=1432
14	2020-02-19 10:57:13.787176	10.109.66.22	239.128.66.22	UDP	1474	34000 → 2226 Len=1432
15	2020-02-19 10:57:13.787390	10.109.66.22	239.128.66.22	UDP	1474	34000 → 2226 Len=1432
16	2020-02-19 10:57:13.787597	10.109.66.22	239.128.66.22	UDP	1474	34000 → 2226 Len=1432
17	2020-02-19 10:57:13.787627	10.109.66.22	239.128.66.22	UDP	1474	34000 → 2226 Len=1432
18	2020-02-19 10:57:13.787955	10.109.66.22	239.128.66.22	UDP	1474	34000 → 2226 Len=1432
19	2020-02-19 10:57:13.787987	10.109.66.22	239.128.66.22	UDP	1474	34000 → 2226 Len=1432
20	2020-02-19 10:57:13.788103	10.109.66.22	239.128.66.22	UDP	426	34000 → 2226 Len=384
21	2020-02-19 10:57:13.806366	FujitsuU_fc:a7:89	Broadcast	ARP	60	Who has 10.109.47.185? Tell 10.109.47.245
22	2020-02-19 10:57:13.808485	10.109.66.23	239.128.66.23	UDP	79	34000 → 2230 Len=37
23	2020-02-19 10:57:13.808540	10.109.66.21	239.128.66.21	ENIP	79	34000 → 2222 Len=37[Malformed Packet]
24	2020-02-19 10:57:13.808776	10.109.66.23	239.128.66.23	UDP	1474	34000 → 2230 Len=1432
25	2020-02-19 10:57:13.809007	10.109.66.23	239.128.66.23	UDP	1474	34000 → 2230 Len=1432
26	2020-02-19 10:57:13.809959	10.109.66.21	239.128.66.21	ENIP	1474	34000 → 2222 Len=1432[Malformed Packet]

<ALTNPAL03AASW32>dis int GigabitEthernet 1/0/3

GigabitEthernet1/0/3

Current state: UP

Line protocol state: UP

IP packet frame type: Ethernet II, hardware address: 4ce9-e441-7840

Description: GigabitEthernet1/0/3 Interface

Bandwidth: 100000 kbps

Loopback is not set

Media type is twisted pair

Port hardware type is 1000_BASE_T

100Mbps-speed mode, full-duplex mode

Link speed type is autonegotiation, link duplex type is autonegotiation

Flow-control is not enabled

Maximum frame length: 10000

Allow jumbo frames to pass

Broadcast max-ratio: 100%

Multicast max-ratio: 100%

Unicast max-ratio: 100%

PVID: 3666

MDI type: Automdix

Port link-type: Access

Tagged VLANs: None

Untagged VLANs: 3666

Port priority: 0

Last link flapping: 19 hours 6 minutes 7 seconds

Last clearing of counters: Never

Peak input rate: 798232 bytes/sec, at 2013-01-08 18:11:39

Peak output rate: 8907637 bytes/sec, at 2013-02-20 21:19:22

Last 300 second input: 578 packets/sec 795200 bytes/sec 6%

Last 300 second output: 145 packets/sec 10225 bytes/sec 0%

Input (total): 2294378364 packets, 3231071335362 bytes

1656443292 unicasts, 46 broadcasts, 637935026 multicasts, 0 pauses

Input (normal): 2294378364 packets, - bytes

1656443292 unicasts, 46 broadcasts, 637935026 multicasts, 0 pauses

Input: 0 input errors, 0 runts, 0 giants, 0 throttles

0 CRC, 0 frame, - overruns, 0 aborts

- ignored, - parity errors

Output (total): 9942099630 packets, 11828137038671 bytes

864476789 unicasts, 4457196 broadcasts, 9073165645 multicasts, 0 pauses

Output (normal): 9942099630 packets, - bytes

864476789 unicasts, 4457196 broadcasts, 9073165645 multicasts, 0 pauses

Output: 0 output errors, - underruns, - buffer failures

0 aborts, 0 deferred, 0 collisions, 0 late collisions

0 lost carrier, - no carrier

于是进一步debug pim all, 发现没有任何打印, 可以明确报文没有上送cpu处理。

因此怀疑底层的组播缺省路由由出错导致, 拉上芯片厂家一起远程排查发现确实是软件问题。

定位结论:

驱动下发VPN内的default MC route未对routeType赋值, 采用了默认的ECMP类型 (ECMP index = 2, 一条path nexthop index=2, nh指向MLL复制组播数据到CPU, 这时default MC route是生效的), 在生成单播ECMP路由之后, index=2的ECMP被单播路由使用而重写为nnext hop=7696的单播nh (动作是route), 这之后由于ECMP 2的nexthop被改成单播nh, VPN下的default MC route不再能够traptocpu而失效, 这也是问题不是必现而需要触发单播ECMP之后而复现的原因。

根本修改在调用如下API的时候，将vrConfigPtr->defIpv4McRouteLttEntry->routeType正确赋值为CPSS_DXCH_IP_ROUTE_ENTRY_METHOD_REGULAR_E:

```
GT_STATUS cpssDxChIpLpmVirtualRouterAdd  
(  
    IN GT_U32                lpmDBId,  
    IN GT_U32                vrid,  
    IN CPSS_DXCH_IP_LPM_VR_CONFIG_STC *vrConfigPtr  
)
```

解决方法

解决方法:

- 1、修改寄存器表项规避。
- 2、出版本彻底解决。

附件下载: 某局点S5560X-EI 无法建立组播表项问题.doc