

某局点S6900F R2609版本加载H35补丁后BGP邻居异常问题

BGP

EVPN

内存

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组网及说明

现场S6900F设备，当前版本为R2609+H25补丁，准备卸载掉H25补丁后加载最新的H35补丁。

问题描述

现场卸载掉H25补丁，加载了H35补丁后，发现bgp邻居异常，并伴随着多条隧道down：

BGP.: 10.4.253.1 state has changed from ESTABLISHED to IDLE for TCP_Connection_Failed event received.

%Apr 27 01:50:48:734 2022 XAS23&24.PRI.LF-DSJYYPT IFNET/3/PHY_UPDOWN: Physical state on the interface Tunnel0 changed to down.

%Apr 27 01:50:48:734 2022 XAS23&24.PRI.LF-DSJYYPT IFNET/5/LINK_UPDOWN: Line protocol state on the interface Tunnel0 changed to down.

%Apr 27 01:50:48:964 2022 XAS23&24.PRI.LF-DSJYYPT IFNET/3/PHY_UPDOWN: Physical state on the interface Tunnel5 changed to down.

%Apr 27 01:50:48:965 2022 XAS23&24.PRI.LF-DSJYYPT IFNET/5/LINK_UPDOWN: Line protocol state on the interface Tunnel5 changed to down.

%Apr 27 01:50:49:137 2022 XAS23&24.PRI.LF-DSJYYPT IFNET/3/PHY_UPDOWN: Physical state on the interface Tunnel4 changed to down.

%Apr 27 01:50:49:138 2022 XAS23&24.PRI.LF-DSJYYPT IFNET/5/LINK_UPDOWN: Line protocol state on the interface Tunnel4 changed to down.

%Apr 27 01:50:49:299 2022 XAS23&24.PRI.LF-DSJYYPT IFNET/3/PHY_UPDOWN: Physical state on the interface Tunnel2 changed to down.

%Apr 27 01:50:49:299 2022 XAS23&24.PRI.LF-DSJYYPT IFNET/5/LINK_UPDOWN: Line protocol state on the interface Tunnel2 changed to down.

%Apr 27 01:50:49:501 2022 XAS23&24.PRI.LF-DSJYYPT IFNET/3/PHY_UPDOWN: Physical state on the interface Tunnel14 changed to down.

%Apr 27 01:50:49:502 2022 XAS23&24.PRI.LF-DSJYYPT IFNET/5/LINK_UPDOWN: Line protocol state on the interface Tunnel14 changed to down.

%Apr 27 01:50:49:650 2022 XAS23&24.PRI.LF-DSJYYPT IFNET/3/PHY_UPDOWN: Physical state on the interface Tunnel9 changed to down.

%Apr 27 01:50:49:650 2022 XAS23&24.PRI.LF-DSJYYPT IFNET/5/LINK_UPDOWN: Line protocol state on the interface Tunnel9 changed to down

过程分析

查看设备日志，发现在进行补丁升级操作之前设备上就有内存告警日志：

```
%@243209%Apr 27 00:35:21:386 2022 XAS23&24.PRI.LF-DSJYYPT DIAG/1/MEM_EXCEED_THR  
ESHOLD: Memory early-warning threshold has been exceeded.
```

Memory statistics are measured in KB:

```
      Total   Free   FreeRatio  
Mem:  2024320 332496 16%
```

之后先卸载H25补丁，后打H35补丁：

```
%@243229%Apr 27 01:14:51:651 2022 XAS23&24.PRI.LF-DSJYYPT SHELL/6/SHELL_CMD: -  
Line=vty7-IPAddr=192.168.100.3-User=dsj_mmu; Command is install deactivate patch  
flash:/S6900F-CMW710-SYSTEM-R2609H25.bin all %@243292%Apr 27 01:23:52:020 2022 XAS23  
&24.PRI.LF-DSJYYPT SHELL/6/SHELL_CMD: -Line=vty7-IPAddr=192.168.100.3-User=dsj_mmu; C  
ommand is install activate patch flash:/S6900F-CMW710-SYSTEM-R2609H35.bin all
```

从开始打H35补丁之后，内存就开始下降，触发了一级门限告警：

```
%@243305%Apr 27 01:28:03:680 2022 XAS23&24.PRI.LF-DSJYYPT DIAG/1/MEM_EXCEED_THR  
ESHOLD: Memory minor threshold has been exceeded.
```

Memory statistics are measured in KB:

```
      Total   Free   FreeRatio  
Mem:  2024320 260000 12%
```

随后内存持续下降：

```
%@243409%Apr 27 01:30:08:952 2022 XAS23&24.PRI.LF-DSJYYPT DIAG/1/MEM_EXCEED_THR  
ESHOLD: Memory minor threshold has been exceeded.
```

Memory statistics are measured in KB:

```
      Total   Free   FreeRatio  
Mem:  2024320 227360 11%
```

补丁结束之后，内存并未回升，内存下探到sever附近，导致bgp中断，相关隧道都down了；

再次收集设备内存，发现现设备的内存有大量cache段未释放，free/total 只有10%，但是freeratio计算有19%，cache段占用了有9%：

```
=====display memory=====
```

Memory statistics are measured in KB:

Slot 1:

```
      Total   Used   Free   Shared   Buffers   Cached   FreeRatio  
Mem:  2024320 1822480 201840    0      48  464640  19.6%  
-/+ Buffers/Cache: 1357792 666528  
Swap:    0      0      0
```

之后在此基础上，再次卸载了H35，加载H25：

```
%@243642%Apr 27 04:18:45:616 2022 XAS23&24.PRI.LF-DSJYYPT SHELL/6/SHELL_CMD: -  
Line=vty7-IPAddr=192.168.100.3-User=dsj_mmu; Command is install deactivate patch  
flash:/S6900F-CMW710-SYSTEM-R2609H35.bin all  
%@243725%Apr 27 04:23:48:917 2022 XAS23&24.PRI.LF-DSJYYPT SHELL/6/SHELL_CMD: -  
Line=vty7-IPAddr=192.168.100.3-User=dsj_mmu; Command is install activate patch flash:/S6900F-C  
MW710-SYSTEM-R2609H25.bin all
```

设备内存进一步下降至severe门限：

```
%@243765%Apr 27 04:26:12:411 2022 XAS23&24.PRI.LF-DSJYYPT DIAG/1/MEM_EXCEED_THR  
ESHOLD: Memory severe threshold has been exceeded.
```

Memory statistics are measured in KB:

```
      Total   Free   FreeRatio  
Mem:  2024320 139680 6%
```

随后触发缓存释放，内存逐渐恢复，bgp邻居正常建立

```
%@243766%Apr 27 04:26:18:234 2022 XAS23&24.PRI.LF-DSJYYPT DIAG/1/MEM_BELOW_THRE  
SHOLD: Memory usage has dropped below severe threshold.
```

```
%@243767%Apr 27 04:26:23:916 2022 XAS23&24.PRI.LF-DSJYYPT DIAG/1/MEM_BELOW_THRE  
SHOLD: Memory usage has dropped below minor threshold.
```

```
%@243768%Apr 27 04:26:33:752 2022 XAS23&24.PRI.LF-DSJYYPT BGP/5/BGP_STATE_CHANG  
ED: BGP.: 10.4.253.1 State is changed from OPENCONFIRM to ESTABLISHED.
```

查看恢复之后的cache段占用，比故障时少了140M 左右：

```
=====display memory=====
```

Memory statistics are measured in KB:

Slot 1:

```
      Total   Used   Free   Shared   Buffers   Cached   FreeRatio  
Mem:  2024320 1655424 368896    0      48  320288  20.7%
```

-/+ Buffers/Cache: 1335088 689232

Swap: 0 0 0

解决方法

对于6800及6900F等部分小内存设备，在加载补丁之前要保证设备剩余的free内存满足补丁安装书要求，以6900F的R2609H35补丁为例，对于内存有如下要求，若不满足安装要求，则需调整设备内存minor门限值符合补丁安装标准再进行操作，完成补丁安装操作后，按照当前的free内存调整门限，让设备触发一次minor门限，释放出多余的cache段内存。

热补丁文件名	强制安装	建议安装	限制安装	补丁安装内存容量要求	备注
S6900F-CMW710-SYSTEM-R2609H35.bin	√			240M +Minor threshold	Minor threshold 请从display memory-threshold命令中条目“Minor”中获取。

