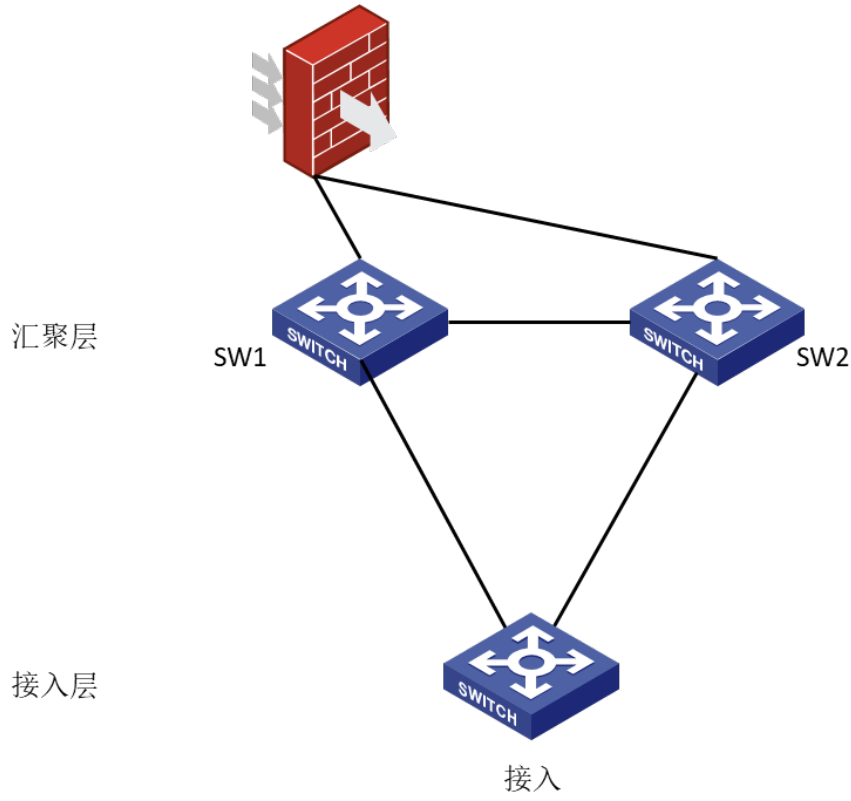


某局点 S7500E STP不定时出现dispute问题分析报告

STP 张文宁 2022-01-16 发表

组网及说明

如下图交换机均是单台运行，均开启了STP



问题描述

SW1设备是根桥优先级4096，SW2是备份根桥优先级8192，两台设备聚合组bridge-agg1互联。日志中LU_DS01设备的bridge-agg01接口收到次优bpdu后，网管就告警有接入交换机脱管。近期没有过组网变动和配置变更

LU_DS01的日志，最近经常不定时出现dispute日志：

```
%Jan 11 17:49:21:245 2022 XJBT1_LU_DS_01 SHELL/6/SHELL_CMD: -Line=vty0-IPAddr=10.144.16.133-User=daiwenli; Command is dis lldp neighbor-information list
%Jan 11 17:49:29:289 2022 XJBT1_LU_DS_01 STP/4/STP_DISPUTE: Instance 0's port Bridge-Aggregation1 received an inferior BPDU from a designated port which is in forwarding or learning state.
%Jan 11 17:49:29:539 2022 XJBT1_LU_DS_01 STP/6/STP_NOTIFIED_TC: -Slot=4; Instance 0's port GigabitEthernet4/0/6 was notified a topology change.
%Jan 11 17:49:59:899 2022 XJBT1_LU_DS_01 STP/6/STP_NOTIFIED_TC: Instance 0's port Bridge-Aggregation1 was notified a topology change.
%Jan 11 17:51:33:865 2022 XJBT1_LU_DS_01 SSSH/6/SSHS_DISCONNECT: SSH user daiwenli (IP: 10.144.16.133) disconnected from the server.
%Jan 11 17:51:34:846 2022 XJBT1_LU_DS_01 SHELL/5/SHELL_LOGOUT: daiwenli logged out from 10.144.16.133.
%Jan 11 18:26:34:287 2022 XJBT1_LU_DS_01 STP/4/STP_DISPUTE: Instance 0's port Bridge-Aggregation1 received an inferior BPDU from a designated port which is in forwarding or learning state.
```

相应地LU_DS02的日志，显示是因为超时，自己成为根，然后才发出bpdu报文导致01设备dispute的：

```
%Jan 11 17:48:30:725 2022 XJBT1_LU_DS_02 SHELL/6/SHELL_CMD: -Line=vty0-IPAddr=10.144.16.133-User=daiwenli; Command is dis link-aggregation verbose Bridge-Aggregation 1
%Jan 11 17:49:29:283 2022 XJBT1_LU_DS_02 STP/5/STP_BPDU_RECEIVE_EXPIRY: Instance 0's port Bridge-Aggregation1 received no BPDU within the rcvdInfoWhile interval. Information of the port aged out.
%Jan 11 17:49:29:485 2022 XJBT1_LU_DS_02 STP/6/STP_NOTIFIED_TC: Instance 0's port Bridge-Aggregation1 was notified a topology change.
%Jan 11 17:49:31:784 2022 XJBT1_LU_DS_02 STP/6/STP_NOTIFIED_TC: Instance 0's port Bridge-Aggregation1 was notified a topology change.
%Jan 11 17:49:44:142 2022 XJBT1_LU_DS_02 SHELL/6/SHELL_CMD: -Line=vty0-IPAddr=10.144.16.133-User=daiwenli; Command is dis logbuffer reverse
%Jan 11 17:50:00:434 2022 XJBT1_LU_DS_02 STP/6/STP_DETECTED_TC: -Slot=4; Instance 0's port GigabitEthernet4/0/5 detected a topology change.
%Jan 11 17:50:08:333 2022 XJBT1_LU_DS_02 SHELL/6/SHELL_CMD: -Line=vty0-IPAddr=10.144.16.133-User=daiwenli; Command is dis lldp neighbor-information list
%Jan 11 17:51:33:865 2022 XJBT1_LU_DS_02 SSSH/6/SSHS_DISCONNECT: SSH user daiwenli (IP: 10.144.16.133) disconnected from the server.
%Jan 11 17:51:34:882 2022 XJBT1_LU_DS_02 SHELL/5/SHELL_LOGOUT: daiwenli logged out from 10.144.16.133.
%Jan 11 18:26:34:283 2022 XJBT1_LU_DS_02 STP/5/STP_BPDU_RECEIVE_EXPIRY: Instance 0's port Bridge-Aggregation1 received no BPDU within the rcvdInfoWhile interval. Information of the port aged out.
%Jan 11 18:26:34:514 2022 XJBT1_LU_DS_02 STP/6/STP_NOTIFIED_TC: Instance 0's port Bridge-Aggregation1 was notified a topology change.
```

过程分析

因为两台设备直连，没有链路质量问题，综上两台设备的日志，怀疑是设备偶尔无法处理STP BPDU报文或者自己无法发出STP BPDU报文，导致设备打印超时，或者dispute。

于是进一步去查看两台设备上送cpu报文情况，发现主设备存在大量的vrrp报文中送（超阈值），cpu存在繁忙的情况：

```
ID Type          RcvPps Rcv_All  DisPkt_All Pps  Dyn Swi Hash ACLmax
4 VRRP          302     704490299 4819646 300 S  On  SMAC 8
```

从debug打印看，是收到自己发出去的vrrp报文，通过流统计看到是防火墙回弹的：

```
[XJBT1_LU_DS_01-probe]dis qos policy interface inbound
```

```
Interface: GigabitEthernet3/0/11
```

```
Direction: Inbound
```

```
Policy: vrrp-deny
```

```
Classifier: vrrp-deny
```

```
Operator: AND
```

```
Rule(s) :
```

```
If-match acl 3600
```

```
Behavior: vrrp-deny
```

```
Accounting enable:
```

```
0 (Packets)
```

```
Interface: GigabitEthernet3/0/12
```

```
Direction: Inbound
```

```
Policy: vrrp-deny
```

```
Classifier: vrrp-deny
```

```
Operator: AND
```

```
Rule(s) :
```

```
If-match acl 3600
```

```
Behavior: vrrp-deny
```

```
Accounting enable:
```

```
23548 (Packets)
```

走读版本代码，确认老版本存在cpu调度优化不足问题，当大量协议报文中送cpu的时候，可能会导致其它协议报文无法及时处理，出现超时的情况。与现场情况吻合。

解决方法

- 1.排除FW回弹问题规避。
- 2.升级R7596P10软件版本优化CPU版本调度解决。

