

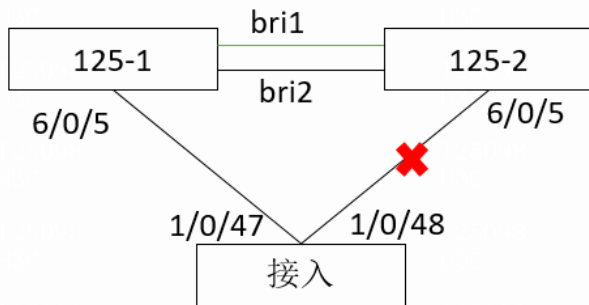
某局点MSTP+VRRP组网 修改STP实例后端口异常阻塞问题

STP VRRP 倪民 2022-12-02 发表

组网及说明

组网如下，两台S125设备作为汇聚，启用VRRP，BAGG1放通VLAN710（属于逃生用VLAN），默认属于instance0，BAGG2放通其他所有业务VLAN，划入instance1。

```
stp region-configuration
region-name SHDC-CX
revision-level 1
instance 1 vlan 5 to 45 55 74 to 82 86 90 94 98 102 138 to 142 194
instance 1 vlan 200 to 210 700 711 714 2221
active region-configuration
#
```



问题描述

现网需要新增业务VLAN，在S125-1设备启用VLAN110，并在区域内将VLAN110划入实例1后，所有业务中断。

```
stp region-configuration
region-name SHDC-CX
revision-level 1
instance 1 vlan 110
active region-configuration
```

过程分析

1、按照组网，最开始各个设备stp阻塞情况如下，接入设备实例1中连S125-2的1/0/48口被阻塞
S125-1设备

```
=====display stp brief=====
MST ID Port                Role STP State Protection
0 Bridge-Aggregation1      DESI FORWARDING NONE
0 Bridge-Aggregation2      DESI FORWARDING NONE
0 Ten-GigabitEthernet6/0/5 DESI FORWARDING NONE
1 Bridge-Aggregation2      DESI FORWARDING NONE
1 Ten-GigabitEthernet6/0/5 DESI FORWARDING NONE
```

S125-2设备

```
=====display stp brief=====
MST ID Port                Role STP State Protection
0 Bridge-Aggregation1      ROOT FORWARDING NONE
0 Bridge-Aggregation2      ALTE DISCARDING NONE
0 Ten-GigabitEthernet6/0/5 DESI FORWARDING NONE
1 Bridge-Aggregation2      ROOT FORWARDING NONE
1 Ten-GigabitEthernet6/0/5 DESI FORWARDING NONE
```

接入设备

```
=====display stp brief=====
MST ID Port                Role STP State Protection
0 Ten-GigabitEthernet1/0/47 ROOT FORWARDING NONE
0 Ten-GigabitEthernet1/0/48 ALTE DISCARDING NONE
1 Ten-GigabitEthernet1/0/47 ROOT FORWARDING NONE
1 Ten-GigabitEthernet1/0/48 ALTE DISCARDING NONE
```

2、现网新增VLAN110并划入实例1后，发现所有VRRP报文无法交互，两台设备双主

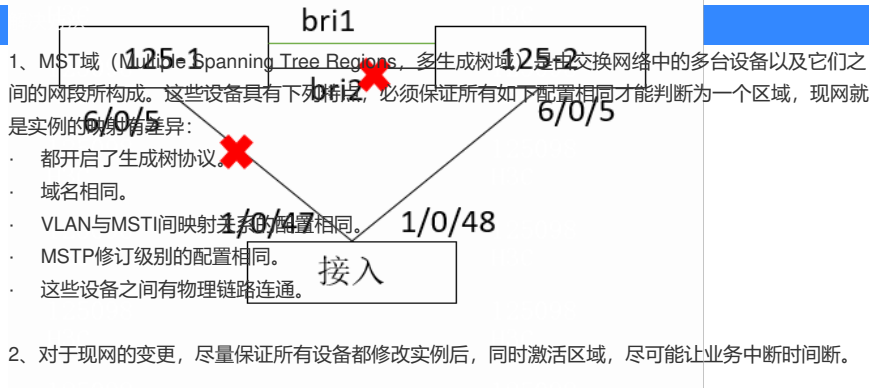
```
%Dec 2 10:26:17:249 2022 H3C VRRP4/6/VRRP_STATUS_CHANGE: The status of IPv4 virtual router 1 (configured on Vlan-interface194) changed from Backup to Master: Master-down-timer expired.
%Dec 2 10:26:17:249 2022 H3C VRRP4/6/VRRP_STATUS_CHANGE: The status of IPv4 virtual router 1 (configured on Vlan-interface700) changed from Backup to Master: Master-down-timer expired.
%Dec 2 10:26:17:249 2022 H3C VRRP4/6/VRRP_STATUS_CHANGE: The status of IPv4 virtual router 1 (configured on Vlan-interface711) changed from Backup to Master: Master-down-timer expired.
%Dec 2 10:26:17:249 2022 H3C VRRP4/6/VRRP_STATUS_CHANGE: The status of IPv4 virtual router 1 (configured on Vlan-interface2221) changed from Backup to Master: Master-down-timer expired.
```

3、查看stp状态发现，S125-2设备实例1中横连的BAGG2被阻塞

```
<S125-2>dis stp brief
MST ID Port                Role STP State Protection
0 Bridge-Aggregation1      ROOT FORWARDING NONE
0 Bridge-Aggregation2      ALTE DISCARDING NONE
0 Ten-GigabitEthernet6/0/5 DESI FORWARDING NONE
1 Bridge-Aggregation2      ALTE DISCARDING NONE
1 Ten-GigabitEthernet6/0/5 DESI FORWARDING NONE
```

4、接入设备上，连S125-1的接口被阻塞，连S125-2的接口放开

```
<H3C>dis stp brief
MST ID Port                Role STP State Protection
0 Ten-GigabitEthernet1/0/47 ALTE DISCARDING NONE
0 Ten-GigabitEthernet1/0/48 ROOT FORWARDING NONE
1 Ten-GigabitEthernet1/0/47 ALTE DISCARDING NONE
1 Ten-GigabitEthernet1/0/48 ROOT FORWARDING NONE
```



5. 在上面的情况下，两台S125的VRRP无法交互，产生双主。下面的业务只能从接入访问S125-2，但是S125-2上面的防火墙是备，无法转发流量，业务中断。

6. 对于这个问题，分析是新增VLAN110划入实例1后，导致S125-1和另外两台设备的stp区域配置不一致，所以相当于划分成了两个stp区域，需要进行MSTP多域的计算。

7. 区域1内只有S125-1设备自己，三个接口都是和区域2互联的接口，需要计算CST。区域2内，S125-2和接入之间计算MSTI0 (IST) 和MSTI1，S125-2作为区域2的根，所以6/0/5口和1/0/48口都是转发状态，分别是指定和根端口。

8. 接下来则是区域间的CST计算 (CST的计算是不考虑实例的)，全局的总根是S125-1设备，所以S125-1设备上BAGG1、2和6/0/5口都是指定接口，并转发。

而区域2的三个接口则需要进行选择，其中BAGG1作为master接口，BAGG2和1/0/47口则被阻塞，由于是CST没有实例的概念，所有导致BAGG2和1/0/47口实例0和1都被阻塞。

