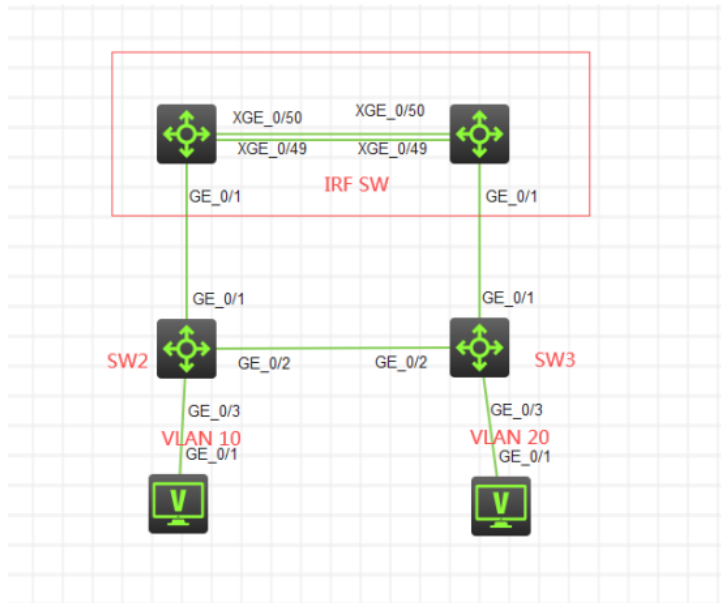


知 S5820 STP配置案例1 (IRF组网模式下的接入设备采用STP COST) 及切换演练

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组网及说明



本案例采用H3C HCL模拟器来模拟STP的部署，在网络拓扑图中已经明确标识了具体的设备和VLAN划分，其中SW部署IRF模式，SW2和SW3为接入交换机，为了实现链路冗余，将SW2和SW3连接起来，接着使用STP COST来指定端口的开销来实现链路的“主备”，在该网络拓扑中，SW2和SW3互联的端口都配置STP COST为100，这样不仅能避免环路，还能实现链路冗余。

配置步骤

1、部署SW的IRF:

1号设备IRF部署:

```
sys
System View: return to User View with Ctrl+Z.
[H3C]irf member 1 renumber 1
Renumbering the member ID may result in configuration change or loss. Continue?[Y/N]:y
[H3C]int range ten 1/0/49 to ten 1/0/50
[H3C-if-range]shutdown
[H3C-if-range]quit
[H3C]irf-port 1/1
[H3C-irf-port1/1]port group interface Ten-GigabitEthernet 1/0/49
[H3C-irf-port1/1]port group interface Ten-GigabitEthernet 1/0/50
[H3C-irf-port1/1]quit
[H3C]int range ten 1/0/49 to ten 1/0/50
[H3C-if-range]undo shutdown
[H3C-if-range]quit
[H3C]irf-port-configuration active
[H3C]%Oct 24 10:07:34:375 2020 H3C STM/6/STM_LINK_UP: IRF port 1 came up.

[H3C]save
The current configuration will be written to the device. Are you sure? [Y/N]:y
Please input the file name(*.cfg)[flash:/startup.cfg]
(To leave the existing filename unchanged, press the enter key):
Validating file. Please wait...
Saved the current configuration to mainboard device successfully.
```

2号设备IRF部署:

```
[H3C]irf member 1 renumber 2
Renumbering the member ID may result in configuration change or loss. Continue?[Y/N]:y
[H3C]int range ten 1/0/49 to ten 1/0/50
```

```

[H3C-if-range]shutdown
[H3C-if-range]quit
[H3C]jrf-port 1/2
[H3C-irf-port1/2]port group interface Ten-GigabitEthernet 1/0/49
[H3C-irf-port1/2]port group interface Ten-GigabitEthernet 1/0/50
[H3C-irf-port1/2]quit
[H3C]int range ten 1/0/49 to ten 1/0/50
[H3C-if-range]undo shutdown
[H3C-if-range]quit
[H3C]save
The current configuration will be written to the device. Are you sure? [Y/N]:y
Please input the file name(*.cfg)[flash:/startup.cfg]
(To leave the existing filename unchanged, press the enter key):
Validating file. Please wait...
Saved the current configuration to mainboard device successfully.
[H3C]jrf-port-configuration active
[H3C]Oct 24 10:10:59:609 2020 H3C STM/6/STM_LINK_UP: IRF port 2 came up.

```

```

[H3C]save
The current configuration will be written to the device. Are you sure? [Y/N]:y
Please input the file name(*.cfg)[flash:/startup.cfg]
(To leave the existing filename unchanged, press the enter key):
flash:/startup.cfg exists, overwrite? [Y/N]:y
Validating file. Please wait...
Saved the current configuration to mainboard device successfully.

```

重启部署了IRF的两台设备。

IRF部署已完成：

```

<H3C>dis irf
MemberID   Role    Priority CPU-Mac      Description
*+1        Master  1       8852-017f-0104 ---
 2         Standby 1       8852-0895-0204 ---
-----
* indicates the device is the master.
+ indicates the device through which the user logs in.

The bridge MAC of the IRF is: 8852-017f-0100
Auto upgrade      : yes
Mac persistent    : 6 min
Domain ID         : 0
<H3C>Oct 24 10:13:06:226 2020 H3C SHELL/5/SHELL_LOGIN: Console logged in f

```

```

<H3C>dis irf
MemberID   Role    Priority CPU-Mac      Description
*+1        Master  1       8852-017f-0104 ---
+2         Standby 1       8852-0895-0204 ---
-----
* indicates the device is the master.
+ indicates the device through which the user logs in.

The bridge MAC of the IRF is: 8852-017f-0100
Auto upgrade      : yes
Mac persistent    : 6 min
Domain ID         : 0
<H3C>

```

1、配置SW的VLAN及STP

```

sys
System View: return to User View with Ctrl+Z.
[H3C]sysname SW
[SW]vlan 10
[SW-vlan10]quit
[SW]vlan 20
[SW-vlan20]quit
[SW]int range gi 1/0/1 gi 2/0/1
[SW-if-range]port link-type trunk
[SW-if-range]undo port trunk permit vlan 1
[SW-if-range]port trunk permit vlan 10 20
[SW-if-range]quit
[SW-if-range]quit

```

```
[SW]int vlan 10
[SW-Vlan-interface10]ip address 192.168.10.1 24
[SW-Vlan-interface10]quit
[SW]int vlan 20
[SW-Vlan-interface20]ip address 192.168.20.1 24
[SW-Vlan-interface20]quit
```

```
[SW]stp global enable
[SW]stp mode stp
[SW]stp priority 0
```

SW2配置:

```
sys
System View: return to User View with Ctrl+Z.
[H3C]sysname SW2
[SW2]vlan 10
[SW2-vlan10]quit
[SW2]vlan 20
[SW2-vlan20]quit
[SW2]int range gi 1/0/1 to gi 1/0/2
[SW2-if-range]port link-type trunk
[SW2-if-range]undo port trunk permit vlan 1
[SW2-if-range]port trunk permit vlan 10 20
[SW2-if-range]quit
[SW2]int gi 1/0/3
[SW2-GigabitEthernet1/0/3]port link-type access
[SW2-GigabitEthernet1/0/3]port access vlan 10
[SW2-GigabitEthernet1/0/3]stp edged-port
Edge port should only be connected to terminal. It will cause temporary loops if port
GigabitEthernet1/0/3 is connected to bridges. Please use it carefully.
[SW2-GigabitEthernet1/0/3]quit

[SW2]stp global enable
[SW2]stp mode stp
[SW2]int gi 1/0/2
[SW2-GigabitEthernet1/0/2]stp cost 100
[SW2-GigabitEthernet1/0/2]quit
```

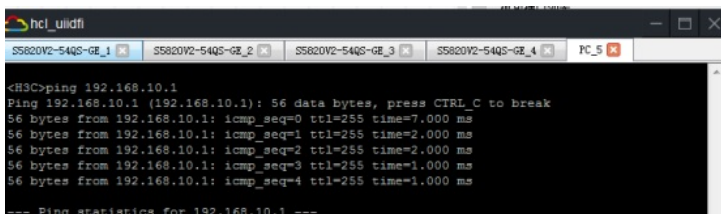
SW3配置:

```
sys
System View: return to User View with Ctrl+Z.
[H3C]sysname SW3
[SW3]vlan 10
[SW3-vlan10]quit
[SW3]vlan 20
[SW3-vlan20]quit
[SW3]int range gi 1/0/1 to gi 1/0/2
[SW3-if-range]port link-type trunk
[SW3-if-range]undo port trunk permit vlan 1
[SW3-if-range]port trunk permit vlan 10 20
[SW3-if-range]quit
[SW3]int gi 1/0/3
[SW3-GigabitEthernet1/0/3]port link-type access
[SW3-GigabitEthernet1/0/3]port access vlan 20
[SW3-GigabitEthernet1/0/3]stp edged-port
Edge port should only be connected to terminal. It will cause temporary loops if port
GigabitEthernet1/0/3 is connected to bridges. Please use it carefully.
[SW3-GigabitEthernet1/0/3]quit

[SW3]stp global enable
[SW3]stp mode stp
```

```
[SW3]int gi 1/0/2
[SW3-GigabitEthernet1/0/2]stp cost 100
[SW3-GigabitEthernet1/0/2]quit
```

填写PC的IP, 并测试PING网关:

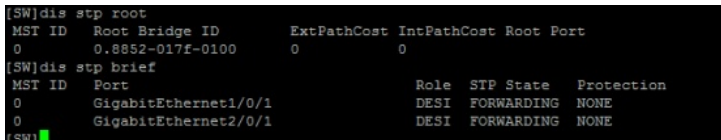


配置关键点

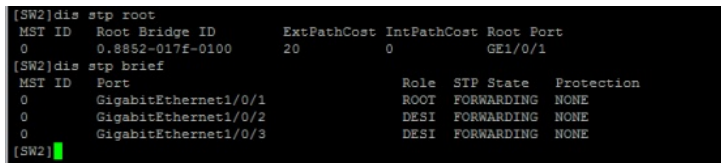
切换演练开始:

在网络正常时的STP根桥和STP端口的状态如下:

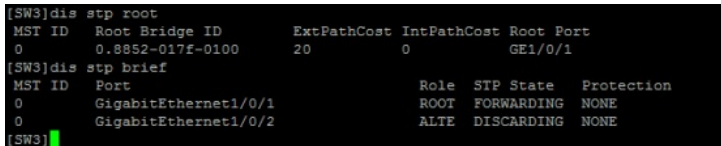
SW:



SW2:



SW3:



根据SW3反馈的STP端口状态, G1/0/1为根端口, G1/0/2被阻塞掉了。

在网络正常时, 根桥稳定, 各端口都在正常的状态内, 仅SW3的G1/0/2端口被阻塞, 因此没有成环。

切换演练:

断开SW的gi 1/0/1端口, 并查看STP的状态和STP端口状态:


```
[SW2]dis stp root
MST ID   Root Bridge ID   ExtPathCost IntPathCost Root Port
0        0.8852-017f-0100  20          0          GE1/0/1
[SW2]dis stp brief
MST ID   Port                Role STP State Protection
0        GigabitEthernet1/0/1  ROOT FORWARDING NONE
0        GigabitEthernet1/0/2  DESI FORWARDING NONE
0        GigabitEthernet1/0/3  DESI FORWARDING NONE
[SW2]
```

根据SW2反馈的情况来看，GI 1/0/2端口没有变动，因为SW2直连到SW

SW3:

根据SW3反馈的情况来看，GI 1/0/2端口已切换到根端口。

```
[SW3]dis stp root
MST ID   Root Bridge ID   ExtPathCost IntPathCost Root Port
0        0.8852-017f-0100  120         0          GE1/0/2
[SW3]dis stp brief
MST ID   Port                Role STP State Protection
0        GigabitEthernet1/0/2  ROOT FORWARDING NONE
[SW3]
```

恢复网络，重新开启SW的GI 2/0/1端口:

```
[SW-GigabitEthernet2/0/1]undo shutdown
[SW-GigabitEthernet2/0/1]#Oct 24 20:15:47:193 2020 SW IFNET/3/PHY_UPDOWN: Physical state of the interface GigabitEthernet2/0/1 changed to up.
#Oct 24 20:15:47:194 2020 SW IFNET/5/LINK_UPDOWN: Line protocol state on the interface GigabitEthernet2/0/1 changed to up.
#Oct 24 20:15:47:710 2020 SW LLDP/6/LLDP_CREATE_NEIGHBOR: -Slot=2; Nearest bridge agent neighbor created on port GigabitEthernet2/0/1 (IfIndex 130), neighbor's chassis ID is 8852-1997-0400, port ID is GigabitEthernet1/0/1.
[SW-GigabitEthernet2/0/1]
```

再次分别查看SW、SW2、SW3的状态，已正常切换回来:

```
[SW-GigabitEthernet2/0/1]dis stp root
MST ID   Root Bridge ID   ExtPathCost IntPathCost Root Port
0        0.8852-017f-0100  0          0
[SW-GigabitEthernet2/0/1]dis stp brief
MST ID   Port                Role STP State Protection
0        GigabitEthernet1/0/1  DESI FORWARDING NONE
0        GigabitEthernet2/0/1  DESI FORWARDING NONE
[SW-GigabitEthernet2/0/1]
```

```
[SW2]dis stp root
MST ID   Root Bridge ID   ExtPathCost IntPathCost Root Port
0        0.8852-017f-0100  20          0          GE1/0/1
[SW2]dis stp brief
MST ID   Port                Role STP State Protection
0        GigabitEthernet1/0/1  ROOT FORWARDING NONE
0        GigabitEthernet1/0/2  DESI FORWARDING NONE
0        GigabitEthernet1/0/3  DESI FORWARDING NONE
[SW2]
```

```
[SW3]dis stp root
MST ID   Root Bridge ID   ExtPathCost IntPathCost Root Port
0        0.8852-017f-0100  20          0          GE1/0/1
[SW3]dis stp brief
MST ID   Port                Role STP State Protection
0        GigabitEthernet1/0/1  ROOT FORWARDING NONE
0        GigabitEthernet1/0/2  ALTE DISCARDING NONE
[SW3]
```

至此，S5820 STP典型组网配置案例1及切换演练已完成!