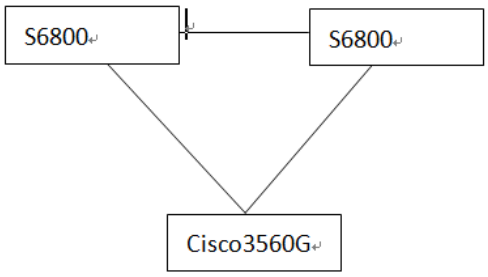
S6800与思科3560对接PVST典型组网配置案例

STP 产品特性 韦家宁 2020-04-16 发表

组网及说明

本案例使用S6800与思科3560G对接PVST的典型组网配置案例，其中S6800为主根，同时也部署了IRF、与思科3560G部署了链路聚合，为了进一步防止物理环路，因此在S6800与思科3560G部署PVST。



S6800版本信息如下：

```
<6800>dis version
H3C Comware Software, Version 7.1.045, Release 2418P05
Copyright (c) 2004-2015 Hangzhou H3C Tech. Co., Ltd. All rights reserved.
H3C S6800-4C uptime is 234 weeks, 1 day, 5 hours, 28 minutes
Last reboot reason : USER reboot

Boot image: flash:/s6800-cmw710-boot-r2418p05.bin
Boot image version: 7.1.045, Release 2418P05
  Compiled Jun 09 2015 12:06:42
System image: flash:/s6800-cmw710-system-r2418p05.bin
System image version: 7.1.045, Release 2418P05
  Compiled Jun 09 2015 12:06:42


Slot 1:
Uptime is 26 weeks,0 days,8 hours,29 minutes
S6800-4C with 2 Processors
BOARD TYPE:         S6800-4C
DRAM:               4096M bytes
FLASH:              1024M bytes
PCB 1 Version:      VER.A
PCB 2 Version:      VER.A
Bootrom Version:    214
CPLD 1 Version:     002
CPLD 2 Version:     003
Release Version:    H3C S6800-4C-2418P05
Patch Version :     None
Reboot Cause :      UserReboot
[SubSlot 0] Main Board
[SubSlot 1] 24*SFP Plus(MacSec) + 2*QSFP Plus
[SubSlot 2] 24*SFP Plus(MacSec) + 2*QSFP Plus

Slot 2:
Uptime is 26 weeks,0 days,8 hours,15 minutes
S6800-4C with 2 Processors
BOARD TYPE:         S6800-4C
DRAM:               4096M bytes
FLASH:              1024M bytes
PCB 1 Version:      VER.A
PCB 2 Version:      VER.A
Bootrom Version:    214
```

CPLD 1 Version: 002
CPLD 2 Version: 003
Release Version: H3C S6800-4C-2418P05
Patch Version : None
Reboot Cause : UserReboot
[SubSlot 0] Main Board
[SubSlot 1] 24*SFP Plus(MacSec) + 2*QSFP Plus
[SubSlot 2] 24*SFP Plus(MacSec) + 2*QSFP Plus
<6800>

思科3560G版本信息如下:
sh version
Cisco IOS Software, C3560 Software (C3560-IPSERVICES-M), Version 12.2(35)SE5, RELEASE SOFTWARE (fc1)
Copyright (c) 1986-2007 by Cisco Systems, Inc.
Compiled Thu 19-Jul-07 18:15 by nachen
Image text-base: 0x00003000, data-base: 0x01300000

ROM: Bootstrap program is C3560 boot loader
BOOTLDR: C3560 Boot Loader (C3560-HBOOT-M) Version 12.2(25r)SEE4, RELEASE SOFTWARE (fc1)

JMTJ-K-1 uptime is 2 years, 12 weeks, 4 days, 8 hours, 53 minutes
System returned to ROM by power-on
System restarted at 01:32:29 UTC Fri Jan 19 2018
System image file is "flash:c3560-ipservices-mz.122-35.SE5/c3560-ipservices-mz.122-35.SE5.bin"

cisco WS-C3560G-48TS (PowerPC405) processor (revision F0) with 122880K/8184K bytes of memory.
Processor board ID FOC1442Z4EH
Last reset from power-on
3 Virtual Ethernet interfaces
52 Gigabit Ethernet interfaces
The password-recovery mechanism is enabled.

512K bytes of flash-simulated non-volatile configuration memory.
Base ethernet MAC Address : EC:C8:82:39:BD:80
Motherboard assembly number : 73-10214-06
Power supply part number : 341-0107-01
Motherboard serial number : FOC1442737L
Power supply serial number : AZS143501Q2
Model revision number : F0
Motherboard revision number : A0
Model number : WS-C3560G-48TS-E
System serial number : FOC1442Z4EH
Top Assembly Part Number : 800-27479-03
Top Assembly Revision Number : A0
Version ID : V05
CLEI Code Number : COMBG10BRA
Hardware Board Revision Number : 0x09

Switch	Ports	Model	SW Version	SW Image
* 1	52	WS-C3560G-48TS	12.2(35)SE5	C3560-IPSERVICES-M

Configuration register is 0xF

配置步骤

S6800的MAC如下（使用lldp查看）：
<6800>dis lldp local-information
Global LLDP local-information:
 Chassis ID : 741f-4a92-a2e7

System name : 6800
System description : H3C Comware Platform Software, Software Version 7.1.045,
Release 2418P05
H3C S6800-4C
Copyright (c) 2004-2015 Hangzhou H3C Tech. Co., Ltd. All
rights reserved.
System capabilities supported : Bridge, Router, Customer Bridge, Service Bridge
System capabilities enabled : Bridge, Router, Customer Bridge

S6800配置如下:

```
stp instance 0 root primary
stp vlan 4 to 5 7 12 400 root primary
stp mode pvst
stp global enable
```

思科3560的配置如下:

```
spanning-tree mode pvst
```

查看S6800的STP根信息:

```
<6800>dis stp root
 VLAN ID  Root Bridge ID        ExtPathCost IntPathCost Root Port
 1        32768.741f-4a92-a2e7  0           0
 4        0.741f-4a92-a2e7      0           0
 5        0.741f-4a92-a2e7      0           0
 7        0.741f-4a92-a2e7      0           0
 12       0.741f-4a92-a2e7      0           0
 196      32768.741f-4a92-a2e7  0           0
 400      0.741f-4a92-a2e7      0           0
 555      32768.741f-4a92-a2e7  0           0
```

查看思科3560的STP信息:

```
show spanning-tree root
```

Vlan	Root ID	Root Cost	Hello Time	Max Age	Fwd Dly	Root Port
VLAN0004	4 741f.4a92.a2e7	3	2	20	15	Po1
VLAN0005	5 741f.4a92.a2e7	3	2	20	15	Po1
VLAN0012	12 741f.4a92.a2e7	3	2	20	15	Po1
VLAN0400	400 741f.4a92.a2e7	3	2	20	15	Po1

查看S6800的STP端口状态:

```
<6800>dis stp brief
 VLAN ID  Port                      Role  STP State   Protection
 4        Bridge-Aggregation7       DESI  FORWARDING  NONE
 4        Bridge-Aggregation8       DESI  FORWARDING  NONE
 4        Bridge-Aggregation9       DESI  FORWARDING  NONE
 4        Bridge-Aggregation10      DESI  FORWARDING  NONE
 4        Bridge-Aggregation11      DESI  FORWARDING  NONE
 4        Bridge-Aggregation12      DESI  FORWARDING  NONE
 4        Bridge-Aggregation13      DESI  FORWARDING  NONE
 4        Bridge-Aggregation14      DESI  FORWARDING  NONE
 4        Bridge-Aggregation15      DESI  FORWARDING  NONE
 4        Bridge-Aggregation16      DESI  FORWARDING  NONE
 4        Bridge-Aggregation18      DESI  FORWARDING  NONE
 5        Bridge-Aggregation7       DESI  FORWARDING  NONE
 5        Bridge-Aggregation8       DESI  FORWARDING  NONE
 5        Bridge-Aggregation9       DESI  FORWARDING  NONE
 5        Bridge-Aggregation10      DESI  FORWARDING  NONE
 5        Bridge-Aggregation11      DESI  FORWARDING  NONE
 5        Bridge-Aggregation12      DESI  FORWARDING  NONE
 5        Bridge-Aggregation13      DESI  FORWARDING  NONE
 5        Bridge-Aggregation14      DESI  FORWARDING  NONE
 5        Bridge-Aggregation15      DESI  FORWARDING  NONE
```

```
5       Bridge-Aggregation16            DESI  FORWARDING  NONE
5       Bridge-Aggregation18            DESI  FORWARDING  NONE
7       Bridge-Aggregation7             DESI  FORWARDING  NONE
7       Bridge-Aggregation8             DESI  FORWARDING  NONE
7       Bridge-Aggregation9             DESI  FORWARDING  NONE
7       Bridge-Aggregation14            DESI  FORWARDING  NONE
7       Bridge-Aggregation15            DESI  FORWARDING  NONE
7       Bridge-Aggregation18            DESI  FORWARDING  NONE
12      Bridge-Aggregation7             DESI  FORWARDING  NONE
12      Bridge-Aggregation8             DESI  FORWARDING  NONE
12      Bridge-Aggregation9             DESI  FORWARDING  NONE
12      Bridge-Aggregation10            DESI  FORWARDING  NONE
12      Bridge-Aggregation11            DESI  FORWARDING  NONE
12      Bridge-Aggregation12            DESI  FORWARDING  NONE
12      Bridge-Aggregation13            DESI  FORWARDING  NONE
12      Bridge-Aggregation14            DESI  FORWARDING  NONE
12      Bridge-Aggregation15            DESI  FORWARDING  NONE
12      Bridge-Aggregation16            DESI  FORWARDING  NONE
12      Bridge-Aggregation18            DESI  FORWARDING  NONE
12      Ten-GigabitEthernet1/1/12       DESI  FORWARDING  NONE
196     Bridge-Aggregation7             DESI  FORWARDING  NONE
196     Bridge-Aggregation8             DESI  FORWARDING  NONE
196     Bridge-Aggregation9             DESI  FORWARDING  NONE
196     Bridge-Aggregation18            DESI  FORWARDING  NONE
400     Bridge-Aggregation7             DESI  FORWARDING  NONE
400     Bridge-Aggregation8             DESI  FORWARDING  NONE
400     Bridge-Aggregation9             DESI  FORWARDING  NONE
400     Bridge-Aggregation10            DESI  FORWARDING  NONE
400     Bridge-Aggregation11            DESI  FORWARDING  NONE
400     Bridge-Aggregation12            DESI  FORWARDING  NONE
400     Bridge-Aggregation13            DESI  FORWARDING  NONE
400     Bridge-Aggregation14            DESI  FORWARDING  NONE
400     Bridge-Aggregation15            DESI  FORWARDING  NONE
400     Bridge-Aggregation16            DESI  FORWARDING  NONE
400     Bridge-Aggregation18            DESI  FORWARDING  NONE
555     Bridge-Aggregation7             DESI  FORWARDING  NONE
555     Bridge-Aggregation8             DESI  FORWARDING  NONE
555     Bridge-Aggregation9             DESI  FORWARDING  NONE
555     Bridge-Aggregation18            DESI  FORWARDING  NONE
555     Ten-GigabitEthernet1/1/17       DESI  FORWARDING  NONE
555     Ten-GigabitEthernet1/1/18       DESI  FORWARDING  NONE
555     Ten-GigabitEthernet2/1/17       DESI  FORWARDING  NONE
555     Ten-GigabitEthernet2/1/18       DESI  FORWARDING  NONE
<6800>
```

查看思科3560的STP端口状态：

```
show spanning-tree detail active

 VLAN0004 is executing the ieee compatible Spanning Tree protocol
  Bridge Identifier has priority 32768, sysid 4, address ecc8.8239.bd80
  Configured hello time 2, max age 20, forward delay 15
  Current root has priority 4, address 741f.4a92.a2e7
  Root port is 56 (Port-channel1), cost of root path is 3
  Topology change flag not set, detected flag not set
  Number of topology changes 7 last change occurred 1d10h ago
  Times:  hold 1, topology change 35, notification 2
          hello 2, max age 20, forward delay 15
  Timers: hello 0, topology change 0, notification 0, aging 300

 Port 56 (Port-channel1) of VLAN0004 is forwarding
    Port path cost 3, Port priority 128, Port Identifier 128.56.
    Designated root has priority 4, address 741f.4a92.a2e7
    Designated bridge has priority 4, address 741f.4a92.a2e7
    Designated port id is 128.526, designated path cost 0
```

Timers: message age 1, forward delay 0, hold 0
Number of transitions to forwarding state: 1
Link type is point-to-point by default
BPDU: sent 16, received 14183861

VLAN0005 is executing the ieee compatible Spanning Tree protocol
Bridge Identifier has priority 32768, sysid 5, address ecc8.8239.bd80
Configured hello time 2, max age 20, forward delay 15
Current root has priority 5, address 741f.4a92.a2e7
Root port is 56 (Port-channel1), cost of root path is 3
Topology change flag not set, detected flag not set
Number of topology changes 105 last change occurred 1d10h ago
Times: hold 1, topology change 35, notification 2
hello 2, max age 20, forward delay 15
Timers: hello 0, topology change 0, notification 0, aging 300

Port 1 (GigabitEthernet0/1) of VLAN0005 is forwarding
Port path cost 4, Port priority 128, Port Identifier 128.1.
Designated root has priority 5, address 741f.4a92.a2e7
Designated bridge has priority 32773, address ecc8.8239.bd80
Designated port id is 128.1, designated path cost 3
Timers: message age 0, forward delay 0, hold 0
Number of transitions to forwarding state: 1
Link type is point-to-point by default
BPDU: sent 27441037, received 0

Port 29 (GigabitEthernet0/29) of VLAN0005 is forwarding
Port path cost 4, Port priority 128, Port Identifier 128.29.
Designated root has priority 5, address 741f.4a92.a2e7
Designated bridge has priority 32773, address ecc8.8239.bd80
Designated port id is 128.29, designated path cost 3
Timers: message age 0, forward delay 0, hold 0
Number of transitions to forwarding state: 1
Link type is point-to-point by default
BPDU: sent 27448522, received 0

Port 56 (Port-channel1) of VLAN0005 is forwarding
Port path cost 3, Port priority 128, Port Identifier 128.56.
Designated root has priority 5, address 741f.4a92.a2e7
Designated bridge has priority 5, address 741f.4a92.a2e7
Designated port id is 128.526, designated path cost 0
Timers: message age 1, forward delay 0, hold 0
Number of transitions to forwarding state: 1
Link type is point-to-point by default
BPDU: sent 24, received 13552850

VLAN0012 is executing the ieee compatible Spanning Tree protocol
Bridge Identifier has priority 32768, sysid 12, address ecc8.8239.bd80
Configured hello time 2, max age 20, forward delay 15
Current root has priority 12, address 741f.4a92.a2e7
Root port is 56 (Port-channel1), cost of root path is 3
Topology change flag not set, detected flag not set
Number of topology changes 0 last change occurred 1d09h ago
Times: hold 1, topology change 35, notification 2
hello 2, max age 20, forward delay 15
Timers: hello 0, topology change 0, notification 0, aging 300

Port 56 (Port-channel1) of VLAN0012 is forwarding
Port path cost 3, Port priority 128, Port Identifier 128.56.
Designated root has priority 12, address 741f.4a92.a2e7
Designated bridge has priority 12, address 741f.4a92.a2e7
Designated port id is 128.526, designated path cost 0

Timers: message age 2, forward delay 0, hold 0
Number of transitions to forwarding state: 1
Link type is point-to-point by default
BPDU: sent 1, received 59911

VLAN0400 is executing the ieee compatible Spanning Tree protocol
Bridge Identifier has priority 32768, sysid 400, address ecc8.8239.bd80
Configured hello time 2, max age 20, forward delay 15
Current root has priority 400, address 741f.4a92.a2e7
Root port is 56 (Port-channel1), cost of root path is 3
Topology change flag not set, detected flag not set
Number of topology changes 18 last change occurred 1d10h ago
Times: hold 1, topology change 35, notification 2
hello 2, max age 20, forward delay 15
Timers: hello 0, topology change 0, notification 0, aging 300

Port 56 (Port-channel1) of VLAN0400 is forwarding
Port path cost 3, Port priority 128, Port Identifier 128.56.
Designated root has priority 400, address 741f.4a92.a2e7
Designated bridge has priority 400, address 741f.4a92.a2e7
Designated port id is 128.526, designated path cost 0
Timers: message age 1, forward delay 0, hold 0
Number of transitions to forwarding state: 1
Link type is point-to-point by default
BPDU: sent 199, received 13456980

至此，S6800与思科3560对接PVST典型组网配置案例已完成!

配置关键点