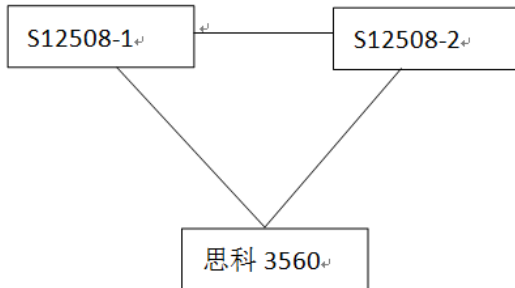


知 S12508与思科3750对接PVST典型组网配置案例

STP PVST 韦家宁 2020-05-24 发表

组网及说明

本案例使用S12508与思科3560对接PVST的典型组网配置案例，S12508-1为主根，同时也部署了VRRP，其中S12508-1为VRRP的master，S12508-2为VRRP的backup，为了进一步防止物理环路，因此在S12508与思科3560部署PVST。



S12508版本信息如下：

H3C Comware Platform Software
Comware Software, Version 5.20, Release 1828P05
Copyright (c) 2004-2014 Hangzhou H3C Tech. Co., Ltd. All rights reserved.
H3C S12508 uptime is 57 weeks, 5 days, 7 hours, 43 minutes
Last reboot reason : User reboot

思科3560版本信息如下：

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)

WAI-F7-XZC-1 uptime is 30 weeks, 6 days, 9 hours, 47 minutes
System returned to ROM by power-on
System restarted at 23:07:18 china Sun Oct 20 2019
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 FOC1442Z4FZ
Last reset from power-on
2 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 : B4:14:89:E7:D1:80
Motherboard assembly number : 73-10214-06
Power supply part number : 341-0107-01
Motherboard serial number : FOC14425UBW
Power supply serial number : AZS143501S4
Model revision number : F0
Motherboard revision number : A0

Model number : WS-C3560G-48TS-E
System serial number : FOC1442Z4FZ
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

S12508-1的MAC如下（使用lldp查看）：

Global LLDP local-information:

Chassis ID : 7425-8ade-a600

System name : Internet_S12508A

System description : H3C Comware software. H3C S12508 Product Version S12500-CMW520-R18 28P05. Copyright (c) 2004-2014 Hangzhou H3C Tech. Co., Ltd. All rights reserved.

System capabilities supported : Bridge,Router

System capabilities enabled : Bridge,Router

S12508-2的MAC如下（使用lldp查看）：

Global LLDP local-information:

Chassis ID : 70f9-6df4-8a00

System name : Internet_S12508B

System description : H3C Comware software. H3C S12508 Product Version S12500-CMW520-R18 28P05. Copyright (c) 2004-2014 Hangzhou H3C Tech. Co., Ltd. All rights reserved.

System capabilities supported : Bridge,Router

System capabilities enabled : Bridge,Router

S12508-1配置如下：

```
stp mode pvst
stp pathcost-standard dot1d-1998
stp vlan 1 4 13 16 19 28 37 64 to 65 72 110 to 112 root primary
stp vlan 120 to 121 131 140 to 141 150 to 151 160 to 161 170 to 171 180 to 181 190 to 191 200 to 201 210 to 211 root primary
stp vlan 220 to 221 311 to 316 330 to 331 400 411 to 422 root primary
stp enable
```

S12508-2配置如下：

```
stp mode pvst
stp instance 0 root secondary
stp pathcost-standard dot1d-1998
stp vlan 120 to 121 140 to 141 150 to 151 160 to 161 170 to 171 180 to 181 190 to 191 200 to 201 210 to 211 220 to 221 root secondary
stp vlan 311 to 316 330 to 331 411 to 422 root secondary
stp enable
```

思科3560配置如下：

查看S12508-1的STP根信息：

dis stp root

VLAN	Root Bridge ID	ExtPathCost	IntPathCost	Root Port
1	0.7425-8ade-a600	0	0	
4	0.7425-8ade-a600	0	0	
28	0.7425-8ade-a600	0	0	

37	0.7425-8ade-a600	0	0	
64	0.7425-8ade-a600	0	0	
65	0.7425-8ade-a600	0	0	
72	0.7425-8ade-a600	0	0	
110	0.7425-8ade-a600	0	0	
111	0.7425-8ade-a600	0	0	
112	0.7425-8ade-a600	0	0	
120	0.7425-8ade-a600	0	0	
121	0.7425-8ade-a600	0	0	
131	0.7425-8ade-a600	0	0	
140	0.7425-8ade-a600	0	0	
141	0.7425-8ade-a600	0	0	
150	0.7425-8ade-a600	0	0	
151	0.7425-8ade-a600	0	0	
160	0.7425-8ade-a600	0	0	
161	0.7425-8ade-a600	0	0	
170	0.7425-8ade-a600	0	0	
171	0.7425-8ade-a600	0	0	
180	0.7425-8ade-a600	0	0	
181	0.7425-8ade-a600	0	0	
190	0.7425-8ade-a600	0	0	
191	0.7425-8ade-a600	0	0	
200	0.7425-8ade-a600	0	0	
201	0.7425-8ade-a600	0	0	
210	0.7425-8ade-a600	0	0	
211	0.7425-8ade-a600	0	0	
220	0.7425-8ade-a600	0	0	
221	0.7425-8ade-a600	0	0	
311	0.7425-8ade-a600	0	0	
312	0.7425-8ade-a600	0	0	
313	0.7425-8ade-a600	0	0	
314	0.7425-8ade-a600	0	0	
315	0.7425-8ade-a600	0	0	
316	0.7425-8ade-a600	0	0	
330	0.7425-8ade-a600	0	0	
331	0.7425-8ade-a600	0	0	
400	0.7425-8ade-a600	0	0	
411	0.7425-8ade-a600	0	0	
412	0.7425-8ade-a600	0	0	
413	0.7425-8ade-a600	0	0	
414	0.7425-8ade-a600	0	0	
415	0.7425-8ade-a600	0	0	
416	0.7425-8ade-a600	0	0	
417	0.7425-8ade-a600	0	0	
418	0.7425-8ade-a600	0	0	
419	0.7425-8ade-a600	0	0	
420	0.7425-8ade-a600	0	0	
421	0.7425-8ade-a600	0	0	
422	0.7425-8ade-a600	0	0	
555	32768.7425-8ade-a600	0	0	
901	32768.7425-8ade-a600	0	0	
902	32768.7425-8ade-a600	0	0	
998	32768.70f9-6df4-8a00	0	2	Bridge-Aggregation1
999	32768.7425-8ade-a600	0	0	

查看S12508-2的STP根信息:

dis stp root

VLAN	Root Bridge ID	ExtPathCost	IntPathCost	Root Port
1	0.7425-8ade-a600	0	2	Bridge-Aggregation1
4	0.7425-8ade-a600	0	2	Bridge-Aggregation1
28	0.7425-8ade-a600	0	2	Bridge-Aggregation1
37	0.7425-8ade-a600	0	2	Bridge-Aggregation1
64	0.7425-8ade-a600	0	2	Bridge-Aggregation1

```

65 0.7425-8ade-a600 0 2 Bridge-Aggregation1
72 0.7425-8ade-a600 0 2 Bridge-Aggregation1
110 0.7425-8ade-a600 0 2 Bridge-Aggregation1
111 0.7425-8ade-a600 0 2 Bridge-Aggregation1
112 0.7425-8ade-a600 0 2 Bridge-Aggregation1
120 0.7425-8ade-a600 0 2 Bridge-Aggregation1
121 0.7425-8ade-a600 0 2 Bridge-Aggregation1
140 0.7425-8ade-a600 0 2 Bridge-Aggregation1
141 0.7425-8ade-a600 0 2 Bridge-Aggregation1
150 0.7425-8ade-a600 0 2 Bridge-Aggregation1
151 0.7425-8ade-a600 0 2 Bridge-Aggregation1
160 0.7425-8ade-a600 0 2 Bridge-Aggregation1
161 0.7425-8ade-a600 0 2 Bridge-Aggregation1
170 0.7425-8ade-a600 0 2 Bridge-Aggregation1
171 0.7425-8ade-a600 0 2 Bridge-Aggregation1
180 0.7425-8ade-a600 0 2 Bridge-Aggregation1
181 0.7425-8ade-a600 0 2 Bridge-Aggregation1
190 0.7425-8ade-a600 0 2 Bridge-Aggregation1
191 0.7425-8ade-a600 0 2 Bridge-Aggregation1
200 0.7425-8ade-a600 0 2 Bridge-Aggregation1
201 0.7425-8ade-a600 0 2 Bridge-Aggregation1
210 0.7425-8ade-a600 0 2 Bridge-Aggregation1
211 0.7425-8ade-a600 0 2 Bridge-Aggregation1
220 0.7425-8ade-a600 0 2 Bridge-Aggregation1
221 0.7425-8ade-a600 0 2 Bridge-Aggregation1
311 0.7425-8ade-a600 0 2 Bridge-Aggregation1
312 0.7425-8ade-a600 0 2 Bridge-Aggregation1
313 0.7425-8ade-a600 0 2 Bridge-Aggregation1
314 0.7425-8ade-a600 0 2 Bridge-Aggregation1
315 0.7425-8ade-a600 0 2 Bridge-Aggregation1
316 0.7425-8ade-a600 0 2 Bridge-Aggregation1
330 0.7425-8ade-a600 0 2 Bridge-Aggregation1
331 0.7425-8ade-a600 0 2 Bridge-Aggregation1
400 0.7425-8ade-a600 0 2 Bridge-Aggregation1
411 0.7425-8ade-a600 0 2 Bridge-Aggregation1
412 0.7425-8ade-a600 0 2 Bridge-Aggregation1
413 0.7425-8ade-a600 0 2 Bridge-Aggregation1
414 0.7425-8ade-a600 0 2 Bridge-Aggregation1
415 0.7425-8ade-a600 0 2 Bridge-Aggregation1
416 0.7425-8ade-a600 0 2 Bridge-Aggregation1
417 0.7425-8ade-a600 0 2 Bridge-Aggregation1
418 0.7425-8ade-a600 0 2 Bridge-Aggregation1
419 0.7425-8ade-a600 0 2 Bridge-Aggregation1
420 0.7425-8ade-a600 0 2 Bridge-Aggregation1
421 0.7425-8ade-a600 0 2 Bridge-Aggregation1
422 0.7425-8ade-a600 0 2 Bridge-Aggregation1
555 32768.70f9-6df4-8a00 0 0
900 32768.70f9-6df4-8a00 0 0
903 32768.70f9-6df4-8a00 0 0
998 32768.70f9-6df4-8a00 0 0

```

查看思科3560的STP根信息：

```
sh spanning-tree root
```

Vlan	Root ID	Root Cost	Root Time	Root Age	Root Dly	Root Port
VLAN0064	64 7425.8ade.a600	4	2	20	15	Gi0/48
VLAN0170	170 7425.8ade.a600	4	2	20	15	Gi0/48
VLAN0400	400 7425.8ade.a600	4	2	20	15	Gi0/48

查看思科3560 STP端口状态信息：

```
sh spanning-tree detail active
```

VLAN0064 is executing the ieee compatible Spanning Tree protocol
Bridge Identifier has priority 32768, sysid 64, address b414.89e7.d180
Configured hello time 2, max age 20, forward delay 15
Current root has priority 64, address 7425.8ade.a600
Root port is 48 (GigabitEthernet0/48), cost of root path is 4
Topology change flag not set, detected flag not set
Number of topology changes 82 last change occurred 2w1d ago
from GigabitEthernet0/47
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 46 (GigabitEthernet0/46) of VLAN0064 is forwarding
Port path cost 4, Port priority 128, Port Identifier 128.46.
Designated root has priority 64, address 7425.8ade.a600
Designated bridge has priority 32832, address b414.89e7.d180
Designated port id is 128.46, designated path cost 4
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 5251132, received 428

Port 47 (GigabitEthernet0/47) of VLAN0064 is blocking
Port path cost 4, Port priority 128, Port Identifier 128.47.
Designated root has priority 64, address 7425.8ade.a600
Designated bridge has priority 32832, address 70f9.6df4.8a00
Designated port id is 128.115, designated path cost 2
Timers: message age 2, forward delay 0, hold 0
Number of transitions to forwarding state: 13
Link type is point-to-point by default
BPDU: sent 1250, received 7696996

Port 48 (GigabitEthernet0/48) of VLAN0064 is forwarding
Port path cost 4, Port priority 128, Port Identifier 128.48.
Designated root has priority 64, address 7425.8ade.a600
Designated bridge has priority 64, address 7425.8ade.a600
Designated port id is 128.115, designated path cost 0
Timers: message age 3, forward delay 0, hold 0
Number of transitions to forwarding state: 7
Link type is point-to-point by default
BPDU: sent 278, received 1624711

VLAN0170 is executing the ieee compatible Spanning Tree protocol
Bridge Identifier has priority 32768, sysid 170, address b414.89e7.d180
Configured hello time 2, max age 20, forward delay 15
Current root has priority 170, address 7425.8ade.a600
Root port is 48 (GigabitEthernet0/48), cost of root path is 4
Topology change flag not set, detected flag not set
Number of topology changes 5566 last change occurred 16:28:31 ago
from GigabitEthernet0/46
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 16 (GigabitEthernet0/16) of VLAN0170 is forwarding
Port path cost 4, Port priority 128, Port Identifier 128.16.
Designated root has priority 170, address 7425.8ade.a600
Designated bridge has priority 32938, address b414.89e7.d180
Designated port id is 128.16, designated path cost 4
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 257292, received 0

Port 32 (GigabitEthernet0/32) of VLAN0170 is forwarding
Port path cost 19, Port priority 128, Port Identifier 128.32.
Designated root has priority 170, address 7425.8ade.a600
Designated bridge has priority 32938, address b414.89e7.d180
Designated port id is 128.32, designated path cost 4
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 1492843, received 0

Port 46 (GigabitEthernet0/46) of VLAN0170 is forwarding
Port path cost 4, Port priority 128, Port Identifier 128.46.
Designated root has priority 170, address 7425.8ade.a600
Designated bridge has priority 32938, address b414.89e7.d180
Designated port id is 128.46, designated path cost 4
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 4708774, received 5847

Port 47 (GigabitEthernet0/47) of VLAN0170 is blocking
Port path cost 4, Port priority 128, Port Identifier 128.47.
Designated root has priority 170, address 7425.8ade.a600
Designated bridge has priority 4266, address 70f9.6df4.8a00
Designated port id is 128.115, designated path cost 2
Timers: message age 2, forward delay 0, hold 0
Number of transitions to forwarding state: 4
Link type is point-to-point by default
BPDU: sent 7225, received 6590908

Port 48 (GigabitEthernet0/48) of VLAN0170 is forwarding
Port path cost 4, Port priority 128, Port Identifier 128.48.
Designated root has priority 170, address 7425.8ade.a600
Designated bridge has priority 170, address 7425.8ade.a600
Designated port id is 128.115, designated path cost 0
Timers: message age 1, forward delay 0, hold 0
Number of transitions to forwarding state: 7
Link type is point-to-point by default
BPDU: sent 2182, received 1590312

VLAN0400 is executing the ieee compatible Spanning Tree protocol
Bridge Identifier has priority 32768, sysid 400, address b414.89e7.d180
Configured hello time 2, max age 20, forward delay 15
Current root has priority 400, address 7425.8ade.a600
Root port is 48 (GigabitEthernet0/48), cost of root path is 4
Topology change flag not set, detected flag not set
Number of topology changes 79 last change occurred 2w1d ago
from GigabitEthernet0/47
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 46 (GigabitEthernet0/46) of VLAN0400 is forwarding
Port path cost 4, Port priority 128, Port Identifier 128.46.
Designated root has priority 400, address 7425.8ade.a600
Designated bridge has priority 33168, address b414.89e7.d180
Designated port id is 128.46, designated path cost 4
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 4707169, received 423

Port 47 (GigabitEthernet0/47) of VLAN0400 is blocking
Port path cost 4, Port priority 128, Port Identifier 128.47.
Designated root has priority 400, address 7425.8ade.a600
Designated bridge has priority 33168, address 70f9.6df4.8a00
Designated port id is 128.115, designated path cost 2
Timers: message age 2, forward delay 0, hold 0
Number of transitions to forwarding state: 10
Link type is point-to-point by default
BPDU: sent 1214, received 6602570

Port 48 (GigabitEthernet0/48) of VLAN0400 is forwarding
Port path cost 4, Port priority 128, Port Identifier 128.48.
Designated root has priority 400, address 7425.8ade.a600
Designated bridge has priority 400, address 7425.8ade.a600
Designated port id is 128.115, designated path cost 0
Timers: message age 1, forward delay 0, hold 0
Number of transitions to forwarding state: 8
Link type is point-to-point by default
BPDU: sent 262, received 1601135

至此，S12508与思科3560 PVST对接的典型组网配置案例已完成！

配置关键点