实验3-1 配置STP

学习目标

* 掌握启用和禁用STP的方法
* 掌握修改交换机STP模式的方法
* 掌握修改桥优先级，控制根桥选举的方法
* 掌握修改端口优先级，控制根端口和指定端口选举的方法
* 掌握修改端口开销，控制根端口和指定端口选举的方法
* 掌握边缘端口的配置方法

## **拓扑图**

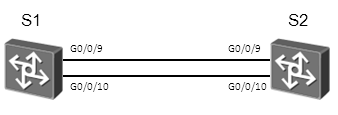


图3.1 配置STP实验拓扑图

## **场景**

您是公司的网络管理员，为了避免网络中的环路问题，需要在网络中的交换机上配置STP。本实验中，您还需要通过修改桥优先级来控制STP的根桥选举，并通过配置STP的一些特性来加快STP的收敛速度。

操作步骤

1. 配置STP并验证

为了保证实验结果的准确性，必须先关闭无关的端口。

配置STP之前，先关闭S1上的G0/0/1、G0/0/2、G0/0/3、G0/0/13、G0/0/14端口，S2的G0/0/1、G0/0/2、G0/0/3、G0/0/6、G0/0/7端口，S3上的E0/0/1、E0/0/7、E0/0/13端口，S4上的E0/0/1、E0/0/6、E0/0/14端口。确保设备以空配置启动。如果STP被禁用，则执行stp enable命令启用STP。

<Quidway>system-view

Enter system view, return user view with Ctrl+Z.

[Quidway]sysname S1

[S1]interface GigabitEthernet 0/0/1

[S1-GigabitEthernet0/0/1]shutdown

[S1-GigabitEthernet0/0/1]quit

[S1]interface GigabitEthernet 0/0/2

[S1-GigabitEthernet0/0/2]shutdown

[S1-GigabitEthernet0/0/2]quit

[S1]interface GigabitEthernet 0/0/3

[S1-GigabitEthernet0/0/3]shutdown

[S1-GigabitEthernet0/0/3]quit

[S1]interface GigabitEthernet 0/0/13

[S1-GigabitEthernet0/0/13]shutdown

[S1-GigabitEthernet0/0/13]quit

[S1]interface GigabitEthernet 0/0/14

[S1-GigabitEthernet0/0/14]shutdown

[S1-GigabitEthernet0/0/14]quit

<Quidway>system-view

Enter system view, return user view with Ctrl+Z.

[Quidway]sysname S2

[S2]interface GigabitEthernet 0/0/1

[S2-GigabitEthernet0/0/1]shutdown

[S2-GigabitEthernet0/0/1]quit

[S2]interface GigabitEthernet 0/0/2

[S2-GigabitEthernet0/0/2]shutdown

[S2-GigabitEthernet0/0/2]quit

[S2]interface GigabitEthernet 0/0/3

[S2-GigabitEthernet0/0/3]shutdown

[S2-GigabitEthernet0/0/3]quit

[S2]interface GigabitEthernet 0/0/6

[S2-GigabitEthernet0/0/6]shutdown

[S2-GigabitEthernet0/0/6]quit

[S2]interface GigabitEthernet 0/0/7

[S2-GigabitEthernet0/0/7]shutdown

[S2-GigabitEthernet0/0/7]quit

<Quidway>system-view

Enter system view, return user view with Ctrl+Z.

[Quidway]sysname S3

[S3]interface Ethernet 0/0/1

[S3-Ethernet0/0/1]shutdown

[S3-Ethernet0/0/1]quit

[S3]interface Ethernet 0/0/13

[S3-Ethernet0/0/13]shutdown

[S3-Ethernet0/0/13]quit

[S3]interface Ethernet 0/0/7

[S3-Ethernet0/0/7]shutdown

<Quidway>system-view

Enter system view, return user view with Ctrl+Z.

[Quidway]sysname S4

[S4]inter Ethernet 0/0/1

[S4-Ethernet0/0/1]shutdown

[S4-Ethernet0/0/1]quit

[S4]inter Ethernet 0/0/14

[S4-Ethernet0/0/14]shutdown

[S4-Ethernet0/0/14]quit

[S4]interface Ethernet 0/0/6

[S4-Ethernet0/0/6]shutdown

本实验中，S1和S2之间有两条链路。在S1和S2上启用STP，并把S1配置为根桥。

[S1]stp mode stp

Info: This operation may take a few seconds. Please wait for a moment...done.

[S1]stp root primary

[S2]stp mode stp

Info: This operation may take a few seconds. Please wait for a moment...done.

[S2]stp root secondary

执行**display stp brief**命令查看STP信息。

<S1>display stp brief

MSTID Port Role STP State Protection

0 GigabitEthernet0/0/9 DESI FORWARDING NONE

0 GigabitEthernet0/0/10 DESI FORWARDING NONE

<S2>display stp brief

MSTID Port Role STP State Protection

0 GigabitEthernet0/0/9 ROOT FORWARDING NONE

0 GigabitEthernet0/0/10 ALTE DISCARDING NONE

执行**display stp interface**命令查看端口的STP状态。

<S1>display stp interface GigabitEthernet 0/0/10

-------[CIST Global Info][Mode STP]-------

CIST Bridge :0 .d0d0-4ba6-aab0

Config Times :Hello 2s MaxAge 20s FwDly 15s MaxHop 20

Active Times :Hello 2s MaxAge 20s FwDly 15s MaxHop 20

CIST Root/ERPC :0 .d0d0-4ba6-aab0 / 0 (This bridge is the root)

CIST RegRoot/IRPC :0 .d0d0-4ba6-aab0 / 0

CIST RootPortId :0.0

BPDU-Protection :Disabled

CIST Root Type :Primary root

TC or TCN received :11

TC count per hello :0

STP Converge Mode :Normal

Share region-configuration :Enabled

Time since last TC :0 days 1h:43m:55s

Number of TC :29

Last TC occurred :GigabitEthernet0/0/9

----[Port10(GigabitEthernet0/0/10)][FORWARDING]----

Port Protocol :Enabled

Port Role :Designated Port

Port Priority :128

Port Cost(Dot1T ) :Config=auto / Active=20000

Designated Bridge/Port :0.d0d0-4ba6-aab0 / 128.10

Port Edged :Config=default / Active=disabled

Point-to-point :Config=auto / Active=true

Transit Limit :6 packets/s

Protection Type :None

Port STP Mode :STP

Port Protocol Type :Config=auto / Active=dot1s

BPDU Encapsulation :Config=stp / Active=stp

PortTimes :Hello 2s MaxAge 20s FwDly 15s RemHop 20

TC or TCN send :52

TC or TCN received :0

BPDU Sent :3189

TCN: 0, Config: 3189, RST: 0, MST: 0

BPDU Received :5

TCN: 0, Config: 5, RST: 0, MST: 0

Last forwarding time: 2016/11/21 14:55:11 UTC

<S2>display stp interface GigabitEthernet 0/0/10

-------[CIST Global Info][Mode STP]-------

CIST Bridge :4096 .d0d0-4ba6-ac20

Config Times :Hello 2s MaxAge 20s FwDly 15s MaxHop 20

Active Times :Hello 2s MaxAge 20s FwDly 15s MaxHop 20

CIST Root/ERPC :0 .d0d0-4ba6-aab0 / 20000

CIST RegRoot/IRPC :4096 .d0d0-4ba6-ac20 / 0

CIST RootPortId :128.9 (GigabitEthernet0/0/9)

BPDU-Protection :Disabled

CIST Root Type :Secondary root

TC or TCN received :122

TC count per hello :0

STP Converge Mode :Normal

Share region-configuration :Enabled

Time since last TC :0 days 1h:50m:0s

Number of TC :17

Last TC occurred :GigabitEthernet0/0/9

----[Port10(GigabitEthernet0/0/10)][DISCARDING]----

Port Protocol :Enabled

Port Role :Alternate Port

Port Priority :128

Port Cost(Dot1T ) :Config=auto / Active=20000

Designated Bridge/Port :0.d0d0-4ba6-aab0 / 128.10

Port Edged :Config=default / Active=disabled

Point-to-point :Config=auto / Active=true

Transit Limit :6 packets/s

Protection Type :None

Port STP Mode :STP

Port Protocol Type :Config=auto / Active=dot1s

BPDU Encapsulation :Config=stp / Active=stp

PortTimes :Hello 2s MaxAge 20s FwDly 15s RemHop 0

TC or TCN send :0

TC or TCN received :18

BPDU Sent :2

TCN: 0, Config: 2, RST: 0, MST: 0

BPDU Received :3317

TCN: 0, Config: 3317, RST: 0, MST: 0

1. 控制根桥选举

执行**display stp**命令查看根桥信息。根桥设备的CIST Bridge与CIST Root/ERPC字段取值相同。

<S1>display stp

-------[CIST Global Info][Mode STP]-------

CIST Bridge :0 .d0d0-4ba6-aab0

Config Times :Hello 2s MaxAge 20s FwDly 15s MaxHop 20

Active Times :Hello 2s MaxAge 20s FwDly 15s MaxHop 20

CIST Root/ERPC :0 .d0d0-4ba6-aab0 / 0 (This bridge is the root)

CIST RegRoot/IRPC :0 .d0d0-4ba6-aab0 / 0

CIST RootPortId :0.0

BPDU-Protection :Disabled

CIST Root Type :Primary root

TC or TCN received :11

TC count per hello :0

STP Converge Mode :Normal

Share region-configuration :Enabled

Time since last TC :0 days 2h:32m:25s

……output omit……

<S2>display stp

-------[CIST Global Info][Mode STP]-------

CIST Bridge :4096 .d0d0-4ba6-ac20

Config Times :Hello 2s MaxAge 20s FwDly 15s MaxHop 20

Active Times :Hello 2s MaxAge 20s FwDly 15s MaxHop 20

CIST Root/ERPC :0 .d0d0-4ba6-aab0 / 20000

CIST RegRoot/IRPC :4096 .d0d0-4ba6-ac20 / 0

CIST RootPortId :128.9 (GigabitEthernet0/0/9)

BPDU-Protection :Disabled

CIST Root Type :Secondary root

TC or TCN received :122

TC count per hello :0

STP Converge Mode :Normal

Share region-configuration :Enabled

Time since last TC :0 days 2h:35m:57s

……output omit……

通过配置优先级，使S2为根桥，S1为备份根桥。桥优先级取值越小，则优先级越高。把S1和S2的优先级分别设置为8192和4096。

[S1]undo stp root

[S1]stp priority 8192

[S2]undo stp root

[S2]stp priority 4096

执行**display stp**命令查看新的根桥信息。

<S1>display stp

-------[CIST Global Info][Mode STP]-------

CIST Bridge :8192 .d0d0-4ba6-aab0

Config Times :Hello 2s MaxAge 20s FwDly 15s MaxHop 20

Active Times :Hello 2s MaxAge 20s FwDly 15s MaxHop 20

CIST Root/ERPC :4096 .d0d0-4ba6-ac20 / 20000

CIST RegRoot/IRPC :8192 .d0d0-4ba6-aab0 / 0

CIST RootPortId :128.9 (GigabitEthernet0/0/9)

BPDU-Protection :Disabled

TC or TCN received :47

TC count per hello :0

STP Converge Mode :Normal

Share region-configuration :Enabled

Time since last TC :0 days 0h:6m:55s

……output omit……

<S2>display stp

-------[CIST Global Info][Mode STP]-------

CIST Bridge :4096 .d0d0-4ba6-ac20

Config Times :Hello 2s MaxAge 20s FwDly 15s MaxHop 20

Active Times :Hello 2s MaxAge 20s FwDly 15s MaxHop 20

CIST Root/ERPC :4096 .d0d0-4ba6-ac20 / 0 (This bridge is the root)

CIST RegRoot/IRPC :4096 .d0d0-4ba6-ac20 / 0

CIST RootPortId :0.0

BPDU-Protection :Disabled

TC or TCN received :135

TC count per hello :0

STP Converge Mode :Normal

Share region-configuration :Enabled

Time since last TC :0 days 0h:8m:4s

……output omit……

由上述回显信息中的灰色部分可以看出，S2已经变成新的根桥。

关闭S2的G0/0/9和G0/0/10端口，从而隔离S1与S2，模拟S2发生故障。

[S2]interface GigabitEthernet 0/0/9

[S2-GigabitEthernet0/0/9]shutdown

[S2-GigabitEthernet0/0/9]quit

[S2]interface GigabitEthernet 0/0/10

[S2-GigabitEthernet0/0/10]shutdown

<S1>display stp

-------[CIST Global Info][Mode STP]-------

CIST Bridge :8192 .d0d0-4ba6-aab0

Config Times :Hello 2s MaxAge 20s FwDly 15s MaxHop 20

Active Times :Hello 2s MaxAge 20s FwDly 15s MaxHop 20

CIST Root/ERPC :8192 .d0d0-4ba6-aab0 / 0 (This bridge is the root)

CIST RegRoot/IRPC :8192 .d0d0-4ba6-aab0 / 0

CIST RootPortId :0.0

BPDU-Protection :Disabled

TC or TCN received :174

TC count per hello :0

STP Converge Mode :Normal

Share region-configuration :Enabled

Time since last TC :0 days 0h:12m:51s

……output omit……

在上述回显信息中，灰色部分表明当S2故障时，S1变成根桥，然后开启S2之前关闭的接口。

[S2]interface GigabitEthernet 0/0/9

[S2-GigabitEthernet0/0/9]undo shutdown

[S2-GigabitEthernet0/0/9]quit

[S2]interface GigabitEthernet 0/0/10

[S2-GigabitEthernet0/0/10]undo shutdown

<S1>display stp

-------[CIST Global Info][Mode STP]-------

CIST Bridge :8192 .d0d0-4ba6-aab0

Config Times :Hello 2s MaxAge 20s FwDly 15s MaxHop 20

Active Times :Hello 2s MaxAge 20s FwDly 15s MaxHop 20

CIST Root/ERPC :4096 .d0d0-4ba6-ac20 / 20000

CIST RegRoot/IRPC :8192 .d0d0-4ba6-aab0 / 0

CIST RootPortId :128.34 (GigabitEthernet0/0/9)

BPDU-Protection :Disabled

TC or TCN received :195

TC count per hello :1

STP Converge Mode :Normal

Share region-configuration :Enabled

Time since last TC :0 days 0h:2m:59s

……output omit……

<S2>display stp

-------[CIST Global Info][Mode STP]-------

CIST Bridge :4096 .d0d0-4ba6-ac20

Config Times :Hello 2s MaxAge 20s FwDly 15s MaxHop 20

Active Times :Hello 2s MaxAge 20s FwDly 15s MaxHop 20

CIST Root/ERPC :4096 .d0d0-4ba6-ac20 / 0 (This bridge is the root)

CIST RegRoot/IRPC :4096 .d0d0-4ba6-ac20 / 0

CIST RootPortId :0.0

BPDU-Protection :Disabled

TC or TCN received :146

TC count per hello :0

STP Converge Mode :Normal

Share region-configuration :Enabled

Time since last TC :0 days 0h:2m:20s

……output omit……

在上述回显信息中，灰色部分表明S2已经恢复正常，重新变成根桥。

1. 控制根端口选举

在S1上执行**display stp brief**命令查看端口角色。

<S1>display stp brief

MSTID Port Role STP State Protection

0 GigabitEthernet0/0/9 ROOT FORWARDING NONE

0 GigabitEthernet0/0/10 ALTE DISCARDING NONE

上述回显信息表明G0/0/9是根端口，G0/0/10是Alternate端口。通过修改端口优先级，使G0/0/10成为根端口，G0/0/9成为Alternate端口。

修改S2上G0/0/9和G0/0/10端口的优先级。

缺省情况下端口优先级为128。端口优先级取值越大，则优先级越低。在S2上，修改G0/0/9的端口优先级值为32，G0/0/10的端口优先级值为16。因此，S1上的G0/0/10端口优先级值大于S2的G0/0/10端口优先级，成为根端口。

[S2]interface GigabitEthernet 0/0/9

[S2-GigabitEthernet0/0/9]stp port priority 32

[S2-GigabitEthernet0/0/9]quit

[S2]interface GigabitEthernet 0/0/10

[S2-GigabitEthernet0/0/10]stp port priority 16

提示：此处是修改S2的端口优先级，而不是修改S1的端口优先级。

<S2>display stp interface GigabitEthernet 0/0/9

-------[CIST Global Info][Mode STP]-------

CIST Bridge :4096 .d0d0-4ba6-ac20

Config Times :Hello 2s MaxAge 20s FwDly 15s MaxHop 20

Active Times :Hello 2s MaxAge 20s FwDly 15s MaxHop 20

CIST Root/ERPC :4096 .d0d0-4ba6-ac20 / 0 (This bridge is the root)

CIST RegRoot/IRPC :4096 .d0d0-4ba6-ac20 / 0

CIST RootPortId :0.0

BPDU-Protection :Disabled

TC or TCN received :147

TC count per hello :0

STP Converge Mode :Normal

Share region-configuration :Enabled

Time since last TC :0 days 0h:7m:35s

Number of TC :41

Last TC occurred :GigabitEthernet0/0/10

----[Port34(GigabitEthernet0/0/9)][FORWARDING]----

Port Protocol :Enabled

Port Role :Designated Port

Port Priority :32

Port Cost(Dot1T ) :Config=auto / Active=20000

Designated Bridge/Port :4096.d0d0-4ba6-ac20 / 32.34

Port Edged :Config=default / Active=disabled

Point-to-point :Config=auto / Active=true

Transit Limit :6 packets/s

Protection Type :None

Port STP Mode :STP

Port Protocol Type :Config=auto / Active=dot1s

BPDU Encapsulation :Config=stp / Active=stp

PortTimes :Hello 2s MaxAge 20s FwDly 15s RemHop 20

TC or TCN send :35

TC or TCN received :2

BPDU Sent :1013

TCN: 0, Config: 1013, RST: 0, MST: 0

BPDU Received :2

TCN: 2, Config: 0, RST: 0, MST: 0

Last forwarding time: 2016/11/22 10:00:00 UTC

<S2>display stp interface GigabitEthernet 0/0/10

-------[CIST Global Info][Mode STP]-------

CIST Bridge :4096 .d0d0-4ba6-ac20

Config Times :Hello 2s MaxAge 20s FwDly 15s MaxHop 20

Active Times :Hello 2s MaxAge 20s FwDly 15s MaxHop 20

CIST Root/ERPC :4096 .d0d0-4ba6-ac20 / 0 (This bridge is the root)

CIST RegRootIRPC :4096 .d0d0-4ba6-ac20 / 0

CIST RootPortId :0.0

BPDU-Protection :Disabled

TC or TCN received :147

TC count per hello :0

STP Converge Mode :Normal

Share region-configuration :Enabled

Time since last TC :0 days 0h:8m:19s

Number of TC :41

Last TC occurred :GigabitEthernet0/0/10

----[Port35(GigabitEthernet0/0/10)][FORWARDING]----

Port Protocol :Enabled

Port Role :Designated Port

Port Priority :16

Port Cost(Dot1T ) :Config=auto / Active=20000

Designated Bridge/Port :4096.d0d0-4ba6-ac20 / 16.35

Port Edged :Config=default / Active=disabled

Point-to-point :Config=auto / Active=true

Transit Limit :6 packets/s

Protection Type :None

Port STP Mode :STP

Port Protocol Type :Config=auto / Active=dot1s

BPDU Encapsulation :Config=stp / Active=stp

PortTimes :Hello 2s MaxAge 20s FwDly 15s RemHop 20

TC or TCN send :35

TC or TCN received :1

BPDU Sent :1032

TCN: 0, Config: 1032, RST: 0, MST: 0

BPDU Received :2

TCN: 1, Config: 1, RST: 0, MST: 0

Last forwarding time: 2016/11/22 10:00:11 UTC

在S1上执行**display stp brief**命令查看端口角色。

<S1>display stp brief

MSTID Port Role STP State Protection

0 GigabitEthernet0/0/9 ALTE DISCARDING NONE

0 GigabitEthernet0/0/10 ROOT FORWARDING NONE

在上述回显信息中，灰色部分表明S1的G0/0/10端口是根端口，G0/0/9是Alternate端口。

关闭S1的GigabitEthernet 0/0/10端口，再查看端口角色。

[S1]interface GigabitEthernet 0/0/10

[S1-GigabitEthernet0/0/10]shutdown

<S1>display stp brief

MSTID Port Role STP State Protection

0 GigabitEthernet0/0/9 ROOT FORWARDING NONE

在上述回显信息中的灰色部分可以看出，S1的G0/0/9变成了根端口。在S2上恢复G0/0/9和G0/0/10端口的缺省优先级，并重新开启S1上关闭的端口。

[S2]interface GigabitEthernet 0/0/9

[S2-GigabitEthernet0/0/9]undo stp port priority

[S2-GigabitEthernet0/0/9]quit

[S2]interface GigabitEthernet 0/0/10

[S2-GigabitEthernet0/0/10]undo stp port priority

[S1]interface GigabitEthernet 0/0/10

[S1-GigabitEthernet0/0/10]undo shutdown

在S1上执行**display stp brief**命令和**display stp interface**命令查看端口角色。

<S1>display stp brief

MSTID Port Role STP State Protection

0 GigabitEthernet0/0/9 ROOT FORWARDING NONE

0 GigabitEthernet0/0/10 ALTE DISCARDING NONE

<S1>display stp interface GigabitEthernet 0/0/9

-------[CIST Global Info][Mode STP]-------

CIST Bridge :8192 .d0d0-4ba6-aab0

Config Times :Hello 2s MaxAge 20s FwDly 15s MaxHop 20

Active Times :Hello 2s MaxAge 20s FwDly 15s MaxHop 20

CIST Root/ERPC :4096 .d0d0-4ba6-ac20 / 20000

CIST RegRoot/IRPC :8192 .d0d0-4ba6-aab0 / 0

CIST RootPortId :128.34 (GigabitEthernet0/0/9)

BPDU-Protection :Disabled

TC or TCN received :314

TC count per hello :0

STP Converge Mode :Normal

Share region-configuration :Enabled

Time since last TC :0 days 0h:0m:37s

Number of TC :61

Last TC occurred :GigabitEthernet0/0/9

----[Port34(GigabitEthernet0/0/9)][FORWARDING]----

Port Protocol :Enabled

Port Role :Root Port

Port Priority :128

Port Cost(Dot1T ) :Config=auto / Active=20000

Designated Bridge/Port :4096.d0d0-4ba6-ac20 / 128.34

Port Edged :Config=default / Active=disabled

Point-to-point :Config=auto / Active=true

Transit Limit :6 packets/s

Protection Type :None

Port STP Mode :STP

Port Protocol Type :Config=auto / Active=dot1s

BPDU Encapsulation :Config=stp / Active=stp

PortTimes :Hello 2s MaxAge 20s FwDly 15s RemHop 0

TC or TCN send :37

TC or TCN received :70

BPDU Sent :122

TCN: 3, Config: 119, RST: 0, MST: 0

BPDU Received :1259

TCN: 0, Config: 1259, RST: 0, MST: 0

Last forwarding time: 2016/11/22 10:07:20 UTC

<S1>display stp interface GigabitEthernet 0/0/10

-------[CIST Global Info][Mode STP]-------

CIST Bridge :8192 .d0d0-4ba6-aab0

Config Times :Hello 2s MaxAge 20s FwDly 15s MaxHop 20

Active Times :Hello 2s MaxAge 20s FwDly 15s MaxHop 20

CIST Root/ERPC :4096 .d0d0-4ba6-ac20 / 20000

CIST RegRoot/IRPC :8192 .d0d0-4ba6-aab0 / 0

CIST RootPortId :128.34 (GigabitEthernet0/0/9)

BPDU-Protection :Disabled

TC or TCN received :314

TC count per hello :0

STP Converge Mode :Normal

Share region-configuration :Enabled

Time since last TC :0 days 0h:6m:25s

Number of TC :61

Last TC occurred :GigabitEthernet0/0/9

----[Port35(GigabitEthernet0/0/10)][DISCARDING]----

Port Protocol :Enabled

Port Role :Alternate Port

Port Priority :128

Port Cost(Dot1T ) :Config=auto / Active=20000

Designated Bridge/Port :4096.d0d0-4ba6-ac20 / 128.35

Port Edged :Config=default / Active=disabled

Point-to-point :Config=auto / Active=true

Transit Limit :6 packets/s

Protection Type :None

Port STP Mode :STP

Port Protocol Type :Config=auto / Active=dot1s

BPDU Encapsulation :Config=stp / Active=stp

PortTimes :Hello 2s MaxAge 20s FwDly 15s RemHop 0

TC or TCN send :0

TC or TCN received :17

BPDU Sent :2

TCN: 0, Config: 2, RST: 0, MST: 0

BPDU Received :209

TCN: 0, Config: 209, RST: 0, MST: 0

在上述回显信息中，灰色部分表明G0/0/9和G0/0/10的端口开销缺省情况下为20000。

修改S1上的G0/0/9端口开销值为200000。

[S1]interface GigabitEthernet 0/0/9

[S1-GigabitEthernet0/0/9]stp cost 200000

在S1上执行**display stp brief**命令和**display stp interface**命令查看端口角色。

<S1>display stp interface GigabitEthernet 0/0/9

-------[CIST Global Info][Mode STP]-------

CIST Bridge :8192 .d0d0-4ba6-aab0

Config Times :Hello 2s MaxAge 20s FwDly 15s MaxHop 20

Active Times :Hello 2s MaxAge 20s FwDly 15s MaxHop 20

CIST Root/ERPC :4096 .d0d0-4ba6-ac20 / 20000

CIST RegRoot/IRPC :8192 .d0d0-4ba6-aab0 / 0

CIST RootPortId :128.35 (GigabitEthernet0/0/10)

BPDU-Protection :Disabled

TC or TCN received :332

TC count per hello :1

STP Converge Mode :Normal

Share region-configuration :Enabled

Time since last TC :0 days 0h:9m:42s

Number of TC :61

Last TC occurred :GigabitEthernet0/0/9

----[Port34(GigabitEthernet0/0/9)][DISCARDING]----

Port Protocol :Enabled

Port Role :Alternate Port

Port Priority :128

Port Cost(Dot1T ) :Config=200000 / Active=200000

Designated Bridge/Port :4096.d0d0-4ba6-ac20 / 128.34

Port Edged :Config=default / Active=disabled

Point-to-point :Config=auto / Active=true

Transit Limit :6 packets/s

Protection Type :None

Port STP Mode :STP

Port Protocol Type :Config=auto / Active=dot1s

BPDU Encapsulation :Config=stp / Active=stp

PortTimes :Hello 2s MaxAge 20s FwDly 15s RemHop 0

TC or TCN send :37

TC or TCN received :80

BPDU Sent :122

TCN: 3, Config: 119, RST: 0, MST: 0

BPDU Received :1531

TCN: 0, Config: 1531, RST: 0, MST: 0

Last forwarding time: 2016/11/22 10:07:20 UTC

<S1>display stp brief

MSTID Port Role STP State Protection

0 GigabitEthernet0/0/9 ALTE DISCARDING NONE

0 GigabitEthernet0/0/10 ROOT FORWARDING NONE

此时，S1上的G0/0/10端口变为根端口。

配置文件

<S1>display current-configuration

#

!Software Version V200R008C00SPC500

sysname S1

#

stp mode stp

stp instance 0 priority 8192

#

interface GigabitEthernet0/0/1

shutdown

#

interface GigabitEthernet0/0/2

shutdown

#

interface GigabitEthernet0/0/3

shutdown

#

interface GigabitEthernet0/0/9

stp instance 0 cost 200000

#

interface GigabitEthernet0/0/10

#

interface GigabitEthernet0/0/13

shutdown

#

interface GigabitEthernet0/0/14

shutdown

#

user-interface con 0

user-interface vty 0 4

#

return

<S2>display current-configuration

#

!Software Version V200R008C00SPC500

sysname S2

#

stp mode stp

stp instance 0 priority 4096

#

interface GigabitEthernet0/0/1

shutdown

#

interface GigabitEthernet0/0/2

shutdown

#

interface GigabitEthernet0/0/3

shutdown

#

interface GigabitEthernet0/0/6

shutdown

#

interface GigabitEthernet0/0/7

shutdown

#

interface GigabitEthernet0/0/9

#

interface GigabitEthernet0/0/10

#

user-interface con 0

user-interface vty 0 4

#

return

<S3>display current-configuration

#

!Software Version V100R006C05

sysname S3

#

interface Ethernet0/0/1

shutdown

#

interface Ethernet0/0/13

shutdown

#

interface Ethernet0/0/7

shutdown

#

user-interface con 0

user-interface vty 0 4

#

return

<S4>display current-configuration

#

!Software Version V100R006C05

sysname S4

#

interface Ethernet0/0/14

shutdown

#

interface Ethernet0/0/1

shutdown

#

interface Ethernet0/0/6

shutdown

#

user-interface con 0

user-interface vty 0 4

#

return