上交的文件名：批号+组号+学号

vlan的配置

两层交换机

Switch>en

Switch#conf t

Enter configuration commands, one per line. End with CNTL/Z.

Switch(config)#vlan 10

Switch(config-vlan)#exit

Switch(config)#vlan 20

Switch(config-vlan)#exit

Switch(config)#int fa 0/3

Switch(config-if)#sw acc vlan 10

Switch(config-if)#exit

Switch(config)#int fa 0/4

Switch(config-if)#sw acc vlan 20

Switch(config-if)#exit

Switch(config)#int rang fa 0/1-2

Switch(config-if-range)#sw mode trunk

Switch(config-if-range)#exit

三层交换机

Switch#conf t

Enter configuration commands, one per line. End with CNTL/Z.

Switch(config)#vlan 10

Switch(config-vlan)#exit

Switch(config)#vlan 20

Switch(config-vlan)#exit

Muti sw0：

Switch(config)#int g 1/0/4

Switch(config-if)#sw acc vlan 10

Muti sw1：

Switch(config)#int g 1/0/4

Switch(config-if)#sw acc vlan 20

在设置三层交换机的中继端口时，必须加上需要的协议，这是因为三层交换机有两个协议，一个是*ISL（cisco私有协议），*另一个是 *802.1Q。*

Switch(config)#int g 1/0/1

Switch(config-if)#sw tr en d

Switch(config-if)#sw mode tr

Switch(config-if)#exit

Switch(config)#int rang g 1/0/2-3

Switch(config-if-range)#sw tr en d

Switch(config-if-range)#sw mode tr

设置端口聚合并加入到聚合端口中：

Switch(config-if-range)#channel-group 1 mode on

思科把端口聚合叫以太通道

可以设置以太通道的流量平衡

Switch(config)#port-channel load ?

dst-ip Dst IP Addr

dst-mac Dst Mac Addr

src-dst-ip Src XOR Dst IP Addr

src-dst-mac Src XOR Dst Mac Addr

src-ip Src IP Addr

src-mac Src Mac Addr

生成树的配置

sw 0 和 muti sw 1：

Switch(config)#spanning-tree mode rapid-pvst

muti sw 0：

Switch(config)#spanning-tree mode rapid-pvst

设置优先级，使得此交换机在vlan 10为根交换机

Switch(config)#spanning-tree vlan 10 priority 4096

查看生成树

muti sw 0：

Switch#sh spanning-tree

VLAN0010

Spanning tree enabled protocol rstp

Root ID Priority 4106

Address 0001.63D1.C370

This bridge is the root

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 4106 (priority 4096 sys-id-ext 10)

Address 0001.63D1.C370

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Aging Time 20

Interface Role Sts Cost Prio.Nbr Type

---------------- ---- --- --------- -------- --------------------------------

Gi1/0/4 Desg FWD 19 128.4 P2p

Gi1/0/1 Desg FWD 19 128.1 P2p

Po1 Desg FWD 3 128.29 Shr

VLAN0020

Spanning tree enabled protocol rstp

Root ID Priority 4116

Address 000B.BE9E.8097

Cost 3

Port 29(Port-channel1)

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 32788 (priority 32768 sys-id-ext 20)

Address 0001.63D1.C370

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Aging Time 20

Interface Role Sts Cost Prio.Nbr Type

---------------- ---- --- --------- -------- --------------------------------

Gi1/0/1 Desg FWD 19 128.1 P2p

Po1 Root FWD 3 128.29 Shr

可以看出在vlan 10上，此交换机为根交换机，priority为4106（4096加上vlan的id 10）且所有端口为指定端口（包括聚合端口Po1）,vlan 20上不是根交换机

sw 0：

Switch#sh spanning-tree

VLAN0010

Spanning tree enabled protocol rstp

Root ID Priority 4106

Address 0001.63D1.C370

Cost 19

Port 1(FastEthernet0/1)

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 32778 (priority 32768 sys-id-ext 10)

Address 0006.2A05.AD99

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Aging Time 20

Interface Role Sts Cost Prio.Nbr Type

---------------- ---- --- --------- -------- --------------------------------

Fa0/2 Altn BLK 19 128.2 P2p

Fa0/3 Desg FWD 19 128.3 P2p

Fa0/1 Root FWD 19 128.1 P2p

VLAN0020

Spanning tree enabled protocol rstp

Root ID Priority 4116

Address 000B.BE9E.8097

Cost 19

Port 2(FastEthernet0/2)

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 32788 (priority 32768 sys-id-ext 20)

Address 0006.2A05.AD99

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Aging Time 20

Interface Role Sts Cost Prio.Nbr Type

---------------- ---- --- --------- -------- --------------------------------

Fa0/2 Root FWD 19 128.2 P2p

Fa0/4 Desg FWD 19 128.4 P2p

Fa0/1 Altn BLK 19 128.1 P2p在vlan 10上，此交换机为非根交换机，它的fa 0/1为根端口。fa 0/2为替换端口且阻塞。而在vlan 20上fa 0/2为根端口。fa 0/1为替换端口且阻塞

查看聚合端口

muti sw 0：

Switch#sh etherchannel summary

Flags: D - down P - in port-channel

I - stand-alone s - suspended

H - Hot-standby (LACP only)

R - Layer3 S - Layer2

U - in use f - failed to allocate aggregator

u - unsuitable for bundling

w - waiting to be aggregated

d - default port

Number of channel-groups in use: 1

Number of aggregators: 1

Group Port-channel Protocol Ports

1 Po1(SU) - Gig1/0/2(P) Gig1/0/3(P)

可以看出此交换机有一个聚合端口1，且包含两个物理端口g 1/0/2和g 1/0/3。