Configuring the STP ( Spanning-Tree Protocol)

A computer diagram of a computer network

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I have created a lab like this so it’s going to be easier to configure.

First, we need to check the current STP Topology

We need to find Root Bridge

I will use the command:

#show spanning-tree (I do this in all switches to find out which one is the root bridge)

A screenshot of a computer program

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As the above result , the Root ID itself said that “This Bridge is the root”

So Switch 2 is the root bridge and therefore all the port should be designated. However , since this is a stp topology so there are alternative routes to make sure broadcast storm not happening , I also need to know which link to link part is designated and non designated port

Have a look at the above topology to understand what I am doing

Now I check on switch2 ‘s f0/2

I used same command:

SW4# show spanning-tree

A computer screen shot of a computer

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Now I see that the interface fa0/2 is blocked (sts BLK)

This tells me that one the other side on the link must be designated

And then I did the same to the link between SW1 and SW3

SW3 has the same Port ID but Lower Bridge ID so the port become designated and the other side is blocked

Now the topology is like This

A diagram of a computer network

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D is Designated Port

R is Root Port

N is Non-designated or Blocking

Now I have 2 VLAN 1 and VLAN 2

Configure SW1 as the primary root for VLAN1 and the secondary root for VLAN2.

Configure SW2 as the primary root for VLAN2 and the secondary root for VLAN1.

SW1

I will use command:

#conf t (configuration terminal to enter global mode)

#spanning-tree vlan 1 root primary

#spanning-tree vlan 2 root secondary

SW2

#spanning-tree vlan 2 root primary

#spanning-tree vlan 1 root secondary

This will change the topology or how frame routes on each vlan

Now I look at sw4

A screenshot of a computer program

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As I noticed , in vlan 1 the fa 0/2 is now root port and fa0/1 is now blocking state which is opposite to above situation

Now I try to change the cost of this fa0/2 to 100 and see what happen , and I guess the root port now change again

A screenshot of a computer program

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As I see, I change the cost of f0/2 on vlan 1 to 100 and now the fa0/1 is the root port because the cost path is lower compared to fa0/2

Now I try to increase the VLAN 1 port priority of SW1’s f0/1 to 240 and im think does SW3 select different root port , I think it shouldn’t because the port priority is the last tie breaker , since bridge ID of Sw3 is lower than Sw1 , it shouldn’t changes the root port

Sw1

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Sw3  
A list of numbers and letters

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As I can see Fa0/1 is still the root port

Finally I configure port fast and bpdu guard on switch to make the the connection speed up (ignore the listening and learning states)

I will go to SW3 and SW4 which connect to end host .I will use command on global mode.

I can either use

#spanning-tree portfast default (on global mode to turn on portfast on every ports that connect to endhost)

Or in this case

#interface f0/3

# spanning-tree portfast

To enable BPDU guard the procedure is the same

#spanning -tree bpduguard default

Or in this case

#int f0/3

#spanning-tree bpduguard enable