S6X00系列交换机OSPF路由引入配置方法（命令行版）

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组网及说明

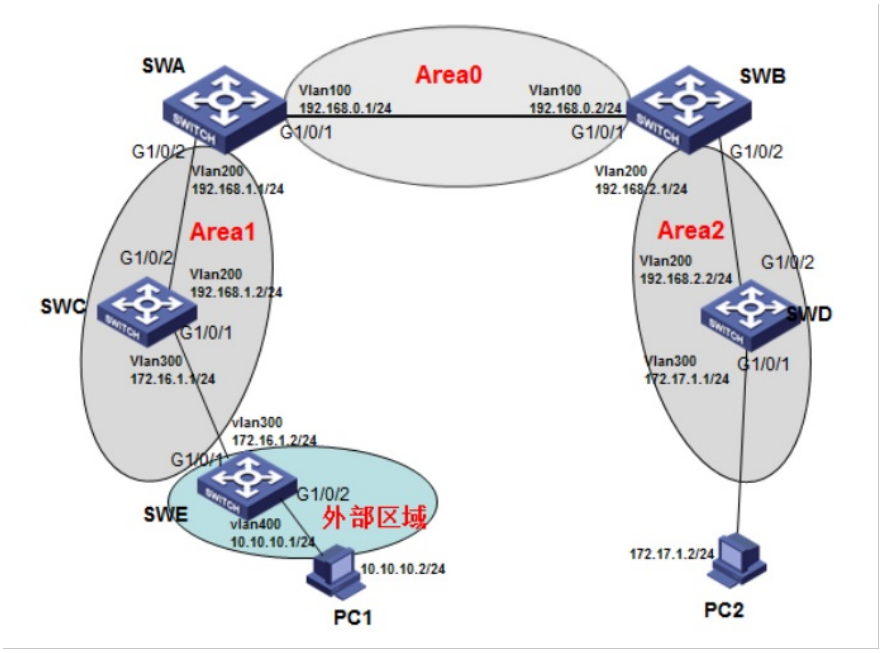
1.1适用产品系列

本案例适用于如S6300-52QF、S6520X-30QC-HI、S6800-54QT、S6820-4C S6900-2F等S6X00系列的交换机。

1.2配置需求

SWA、SWB、SWC、SWD运行OSPF。SWC、SWE和SWG运行静态路，并将整个自治系统划分为3个区域。其中Switch A和Switch B作为ABR来转发区域之间的路由。Switch C上配置为ASBR引入外部路由（静态路由），且路由信息可正确的在AS内传播。

2 组网图



配置步骤

3.1 SWA配置

#创建vlan100和vlan200，并把G1/0/1口加入vlan100、1/0/2口加入vlan200，并且配置vlan100和vlan200 的虚接口地址

<SWA>system-view

System View: return to User View with Ctrl+Z.

[SWA]vlan 100

[SWA-vlan100]port GigabitEthernet 1/0/1

[SWA-vlan100]quit

[SWA]vlan 200

[SWA-vlan200]port GigabitEthernet 1/0/2

[SWA-vlan200]quit

[SWA]interface vlan 100

[SWA-Vlan-interface100]ip address 192.168.0.1 255.255.255.0

[SWA-Vlan-interface100]quit

[SWA]interface vlan 200

[SWA-Vlan-interface200]ip address 192.168.1.1 255.255.255.0

[SWA-Vlan-interface200]quit

#启动ospf协议，并设置路由器的router id

[SWA]ospf 1 router-id 192.168.1.1

#配置区域0并且发布网段

[SWA-ospf-1]area 0

[SWA-ospf-1-area-0.0.0.0]network 192.168.0.0 0.0.0.255

[SWA-ospf-1-area-0.0.0.0]quit

#配置区域1并且发布网段

[SWA-ospf-1]area 1

[SWA-ospf-1-area-0.0.0.1]network 192.168.1.0 0.0.0.255

[SWA-ospf-1-area-0.0.0.1]quit

[SWA-ospf-1]quit
#保存配置
[SWA]save force
3.2 SWB配置
#创建vlan100和vlan200，并把G1/0/1口加入vlan100、1/0/2口加入vlan200 ，并且配置vlan100和vlan2
00 的虚接口地址
<SWB>system-view
System View: return to User View with Ctrl+Z.
[SWB]vlan 100
[SWB-vlan100]port GigabitEthernet 1/0/1
[SWB-vlan100]quit
[SWB]vlan 200
[SWB-vlan200]port GigabitEthernet 1/0/2
[SWB-vlan200]quit
[SWB]interface vlan 100
[SWB-Vlan-interface100]ip address 192.168.0.2 255.255.255.0
[SWB-Vlan-interface100]quit
[SWB]interface vlan 200
[SWB-Vlan-interface200]ip address 192.168.2.1 255.255.255.0
[SWB-Vlan-interface200]quit
#启动ospf协议，并设置路由器的router id
[SWB]ospf 1 router-id 192.168.2.1
#配置区域0并且发布网段
[SWB-ospf-1]area 0
[SWB-ospf-1-area-0.0.0.0]network 192.168.0.0 0.0.0.255
[SWB-ospf-1-area-0.0.0.0]quit
#配置区域2并且发布网段
[SWB-ospf-1]area 2
[SWB-ospf-1-area-0.0.0.2]network 192.168.2.0 0.0.0.255
[SWB-ospf-1-area-0.0.0.2]quit
[SWB-ospf-1]quit
#保存配置
[SWB]save force
3.3 SWC配置
#创建vlan200和vlan300，并把G1/0/1口加入vlan300、1/0/2口加入vlan200 ，并且配置vlan300和vlan2
00 的虚接口地址
<SWC>system-view
System View: return to User View with Ctrl+Z.
[SWC]vlan 300
[SWC-vlan300]port GigabitEthernet 1/0/1
[SWC-vlan300]quit
[SWC]vlan 200
[SWC-vlan200]port GigabitEthernet 1/0/2
[SWC-vlan200]quit
[SWC]interface vlan 300
[SWC-Vlan-interface300]ip address 172.16.1.1 255.255.255.0
[SWC-Vlan-interface300]quit
[SWC]interface vlan 200
[SWC-Vlan-interface200]ip address 192.168.1.2 255.255.255.0
[SWC-Vlan-interface200]quit
#配置到10.10.10.0网段的静态路由，下一跳指向172.16.1.2
[SWC]ip route-static 10.10.10.0 24 172.16.1.2
#启动ospf协议，并设置路由器的router id
[SWC]ospf 1 router-id 192.168.1.2
#配置区域1并且发布网段
[SWC-ospf-1]area 1
[SWC-ospf-1-area-0.0.0.1]network 192.168.1.0 0.0.0.255
[SWC-ospf-1-area-0.0.0.1]network 172.16.1.0 0.0.0.255
[SWC-ospf-1-area-0.0.0.1]quit
#在ospf中引入静态路由
[SWC-ospf-1]import-route static
[SWC-ospf-1]quit
#保存配置
[SWC]save force

3.4 SWD配置

#创建vlan200和vlan300，并把G1/0/1口加入vlan300、1/0/2口加入vlan200 ，并且配置vlan300和vlan200 的虚接口地址

```
<SWD>system-view
System View: return to User View with Ctrl+Z.
[SWD]vlan 300
[SWD-vlan300]port GigabitEthernet 1/0/1
[SWD-vlan300]quit
[SWD]vlan 200
[SWD-vlan200]port GigabitEthernet 1/0/2
[SWD-vlan200]quit
[SWD]interface vlan 300
[SWD-Vlan-interface300]ip address 172.17.1.1 255.255.255.0
[SWD-Vlan-interface300]quit
[SWD]interface vlan 200
[SWD-Vlan-interface200]ip address 192.168.2.2 255.255.255.0
[SWD-Vlan-interface200]quit
```

#启动ospf协议，并设置路由器的router id

```
[SWD]ospf 1 router-id 192.168.2.2
```

#配置区域1并且发布网段

```
[SWD-ospf-1]area 2
[SWD-ospf-1-area-0.0.0.2]network 192.168.2.0 0.0.0.255
[SWD-ospf-1-area-0.0.0.2]network 172.17.1.0 0.0.0.255
[SWD-ospf-1-area-0.0.0.2]quit
[SWD-ospf-1]quit
```

#保存配置

```
[SWD]save force
```

3.5 SWE配置

#创建vlan300和vlan400，并把G1/0/1口加入vlan300、1/0/2口加入vlan400 ，并且配置vlan300和vlan400 的虚接口地址

```
<SWE>system-view
System View: return to User View with Ctrl+Z.
[SWE]vlan 300
[SWE-vlan300]port GigabitEthernet 1/0/1
[SWE-vlan300]quit
[SWE]vlan 400
[SWE-vlan400]port GigabitEthernet 1/0/2
[SWE-vlan400]quit
[SWE]interface vlan 300
[SWE-Vlan-interface300]ip address 172.16.1.2 255.255.255.0
[SWE-Vlan-interface300]quit
[SWE]interface vlan 400
[SWE-Vlan-interface400]ip address 10.10.10.1 255.255.255.0
[SWE-Vlan-interface400]quit
```

#配置默认路由指向172.16.1.1

```
[SWE]ip route-static 0.0.0.0 0 172.16.1.1
[SWE]save force
```

3.6 验证配置

#查看Switch A的路由表信息，有到172.16.1.0、172.17.1.0、192.168.2.0的路由以及学习到外部引入的静态路由

```
<SWA>display ip routing-table
Destinations : 20       Routes : 20
Destination/Mask   Proto   Pre Cost        NextHop         Interface
0.0.0.0/32         Direct  0   0           127.0.0.1       InLoop0
10.10.10.0/24      O_ASE2  150 1           192.168.1.2     Vlan200
127.0.0.0/8        Direct  0   0           127.0.0.1       InLoop0
127.0.0.0/32       Direct  0   0           127.0.0.1       InLoop0
127.0.0.1/32       Direct  0   0           127.0.0.1       InLoop0
127.255.255.255/32 Direct  0   0           127.0.0.1       InLoop0
172.16.1.0/24      O_INTRA 10  2           192.168.1.2     Vlan200
172.17.1.0/24      O_INTER 10  3           192.168.0.2     Vlan100
192.168.0.0/24     Direct  0   0           192.168.0.1     Vlan100
192.168.0.0/32     Direct  0   0           192.168.0.1     Vlan100
```

192.168.0.1/32 Direct 0 0 127.0.0.1 InLoop0
192.168.0.255/32 Direct 0 0 192.168.0.1 Vlan100
192.168.1.0/24 Direct 0 0 192.168.1.1 Vlan200
192.168.1.0/32 Direct 0 0 192.168.1.1 Vlan200
192.168.1.1/32 Direct 0 0 127.0.0.1 InLoop0
192.168.1.255/32 Direct 0 0 192.168.1.1 Vlan200
192.168.2.0/24 O_INTER 10 2 192.168.0.2 Vlan100
224.0.0.0/4 Direct 0 0 0.0.0.0 NULL0
224.0.0.0/24 Direct 0 0 0.0.0.0 NULL0
255.255.255.255/32 Direct 0 0 127.0.0.1 InLoop0
PC1 ping PC2 正常通信
C:\Users\mfw2656>ping 172.17.1.2
Ping 172.17.1.2 (172.17.1.2): 56 data bytes, press CTRL_C to break
56 bytes from 172.17.1.2: icmp_seq=0 ttl=254 time=8.000 ms
56 bytes from 172.17.1.2: icmp_seq=1 ttl=254 time=2.000 ms
56 bytes from 172.17.1.2: icmp_seq=2 ttl=254 time=3.000 ms
56 bytes from 172.17.1.2: icmp_seq=3 ttl=254 time=3.000 ms
172.17.1.2的 Ping 统计信息:
数据包: 已发送 = 4，已接收 = 4，丢失 = 0 (0% 丢失)，
返行程的估计时间(以毫秒为单位):
最短 = 2ms，最长 = 3ms，平均 = 2ms

配置关键点