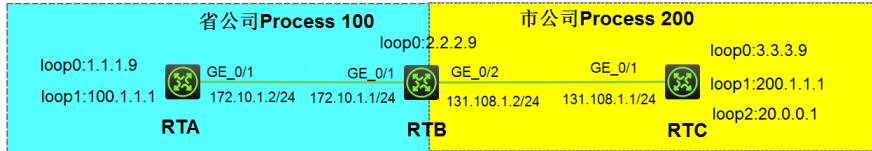


组网及说明

RTA与RTB在OSPF进程100中建立邻居关系，RTB与RTC在OSPF进程200中建立邻居关系。RTB建立两个进程将省公司和市公司相互隔离，RTB可以同时学习到省公司和市公司的路由，两个OSPF域可以独立进行规划，但RTA和RTC不能通过OSPF学习到对方的路由。

现在省公司和市公司有部分流量需要互通，就需要在ASBR设备（RTB）上将两个进程的路由进行互引，通过路由策略对省公司和市公司路由进行筛选和路由属性修改。



各设备loopback0地址用于建立OSPF邻居

RTA的loopback1模拟省公司业务，RTC的loopback1、loopback2模拟市公司业务

配置步骤

一、配置步骤

配置RTA：

```
#
ospf 100 router-id 1.1.1.9
area 0.0.0.0
network 100.1.1.1 0.0.0.0
network 172.10.1.0 0.0.0.255
#
interface LoopBack0
ip address 1.1.1.9 255.255.255.255
#
interface LoopBack1
ip address 100.1.1.1 255.255.255.255
#
interface GigabitEthernet0/1
port link-mode route
combo enable copper
ip address 172.10.1.2 255.255.255.0
```

配置RTB：

```
#
ospf 100 router-id 2.2.2.9
import-route ospf 200 route-policy 100ospf200 //只有匹配路由策略的路由才会引入，未匹配则
```

默认不引入

```
area 0.0.0.0
network 172.10.1.0 0.0.0.255
#
```

```
ospf 200 router-id 2.2.2.9
```

```
import-route ospf 100 //若市公司希望引入省公司所有的路由，则直接引入OSPF100
```

```
area 0.0.0.0
network 131.108.1.0 0.0.0.255
#
```

```
interface LoopBack0
ip address 2.2.2.9 255.255.255.255
#
```

```
interface GigabitEthernet0/1
port link-mode route
combo enable copper
ip address 172.10.1.1 255.255.255.0
#
```

```
interface GigabitEthernet0/2
port link-mode route
combo enable copper
ip address 131.108.1.2 255.255.255.0
```

```
#
route-policy 100ospf200 permit node 10
if-match ip address acl 2000
#
route-policy 100ospf200 permit node 20
if-match ip address prefix-list permit-a
#
ip prefix-list permit-a index 10 permit 200.1.1.1 32
#
acl advanced 2000
description 20.0.0.1_permit
rule 0 permit source 20.0.0.1 0
#
```

配置RTC:

```
#
ospf 200 router-id 3.3.3.9
area 0.0.0.0
network 20.0.0.1 0.0.0.0
network 131.108.1.0 0.0.0.255
network 200.1.1.1 0.0.0.0
#
interface LoopBack0
ip address 3.3.3.9 255.255.255.255
#
interface LoopBack1
ip address 200.1.1.1 255.255.255.255
#
interface LoopBack2
ip address 20.0.0.1 255.255.255.255
#
interface GigabitEthernet0/1
port link-mode route
combo enable copper
ip address 131.108.1.1 255.255.255.0
#
```

二、验证配置

在RTA上执行display ospf lsdb、display ip routing-table命令，RTA可以学习到RTC的loopback1、loopback2路由。

```
RTA>display ospf lsdb

      OSPF Process 100 with Router ID 1.1.1.9
      Link State Database

                Area: 0.0.0.0
Type  LinkState ID  AdvRouter  Age  Len  Sequence  Metric
Router  1.1.1.9        1.1.1.9    120  48  80000026  0
Router  2.2.2.9        2.2.2.9    118  36  80000024  0
Network 172.10.1.1      2.2.2.9    118  32  80000008  0

                AS External Database
Type  LinkState ID  AdvRouter  Age  Len  Sequence  Metric
External 20.0.0.1    2.2.2.9    496  36  80000002  1
External 200.1.1.1 2.2.2.9    1318 36  80000001  1
```

```
<RTA>display ip routing-table

Destinations : 14          Routes : 14

Destination/Mask    Proto    Pre  Cost           NextHop         Interface
0.0.0.0/32          Direct   0    0              127.0.0.1       InLoop0
1.1.1.9/32          Direct   0    0              127.0.0.1       InLoop0
20.0.0.1/32         O_ASE2   150  1              172.10.1.1      GE0/1
100.1.1.1/32        Direct   0    0              127.0.0.1       InLoop0
127.0.0.0/8         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
172.10.1.0/24       Direct   0    0              172.10.1.2      GE0/1
172.10.1.2/32       Direct   0    0              127.0.0.1       InLoop0
172.10.1.255/32     Direct   0    0              172.10.1.2      GE0/1
200.1.1.1/32        O_ASE2   150  1              172.10.1.1      GE0/1
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
```

在RTB上执行display ospf lsdb、display ip routing-table命令，RTB可以学习两个进程中发布的路由，以及两个进程互引，生成的五类LSA。

```
<RTB>display ospf lsdb

      OSPF Process 100 with Router ID 2.2.2.9
      Link State Database

      Area: 0.0.0.0
Type   LinkState ID   AdvRouter   Age  Len  Sequence  Metric
Router  1.1.1.9         1.1.1.9     192  48   80000026  0
Router  2.2.2.9         2.2.2.9     187  36   80000024  0
Network 172.10.1.1      2.2.2.9     187  32   80000008  0

      AS External Database
Type   LinkState ID   AdvRouter   Age  Len  Sequence  Metric
External 20.0.0.1       2.2.2.9     565  36   80000002  1
External 200.1.1.1    2.2.2.9     1387 36   80000001  1

      OSPF Process 200 with Router ID 2.2.2.9
      Link State Database

      Area: 0.0.0.0
Type   LinkState ID   AdvRouter   Age  Len  Sequence  Metric
Router  3.3.3.9         3.3.3.9     565  60   8000001D  0
Router  2.2.2.9         2.2.2.9     1569 36   8000001C  0
Network 131.108.1.2     2.2.2.9     1565 32   80000019  0

      AS External Database
Type   LinkState ID   AdvRouter   Age  Len  Sequence  Metric
External 100.1.1.1       2.2.2.9     185  36   80000006  1
```

```
<RTB>display ip routing-table

Destinations : 17          Routes : 17

Destination/Mask    Proto    Pre  Cost           NextHop         Interface
0.0.0.0/32          Direct   0    0              127.0.0.1       InLoop0
2.2.2.9/32          Direct   0    0              127.0.0.1       InLoop0
20.0.0.1/32         O_INTRA  10    1              131.108.1.1     GE0/2
100.1.1.1/32        O_INTRA  10    1              172.10.1.2      GE0/1
127.0.0.0/8         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
131.108.1.0/24       Direct   0    0              131.108.1.2     GE0/2
131.108.1.2/32       Direct   0    0              127.0.0.1       InLoop0
131.108.1.255/32     Direct   0    0              131.108.1.2     GE0/2
172.10.1.0/24       Direct   0    0              172.10.1.1      GE0/1
172.10.1.1/32       Direct   0    0              127.0.0.1       InLoop0
172.10.1.255/32     Direct   0    0              172.10.1.1      GE0/1
200.1.1.1/32        O_INTRA  10    1              131.108.1.1     GE0/2
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
```

在RTC上执行display ospf lsdb、display ip routing-table命令，RTC可以学习到RTA的loopback1路由。

```
<RTC>display ospf lsdb

      OSPF Process 200 with Router ID 3.3.3.9
      Link State Database

                Area: 0.0.0.0
Type      LinkState ID      AdvRouter      Age  Len  Sequence  Metric
Router    3.3.3.9           3.3.3.9        615  60   8000001D  0
Router    2.2.2.9           2.2.2.9        1621 36   8000001C  0
Network   131.108.1.2        2.2.2.9        1617 32   80000019  0

      AS External Database
Type      LinkState ID      AdvRouter      Age  Len  Sequence  Metric
External  100.1.1.1             2.2.2.9        237  36   80000006  1
```

```
<RTC>display ip routing-table

Destinations : 14          Routes : 14

Destination/Mask    Proto    Pre  Cost           NextHop         Interface
0.0.0.0/32          Direct   0    0              127.0.0.1       InLoop0
3.3.3.9/32           Direct   0    0              127.0.0.1       InLoop0
20.0.0.1/32          Direct   0    0              127.0.0.1       InLoop0
100.1.1.1/32         O_ASE2   150  1              131.108.1.2     GE0/1
127.0.0.0/8          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
131.108.1.0/24        Direct   0    0              131.108.1.1     GE0/1
131.108.1.1/32        Direct   0    0              127.0.0.1       InLoop0
131.108.1.255/32     Direct   0    0              131.108.1.1     GE0/1
200.1.1.1/32         Direct   0    0              127.0.0.1       InLoop0
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
```

三、效果测试

RTA业务地址正常访问RTC业务地址

```
<RTA>ping -a 100.1.1.1 20.0.0.1
Ping 20.0.0.1 (20.0.0.1) from 100.1.1.1: 56 data bytes, press CTRL+C to break
56 bytes from 20.0.0.1: icmp_seq=0 ttl=254 time=5.000 ms
56 bytes from 20.0.0.1: icmp_seq=1 ttl=254 time=2.000 ms
56 bytes from 20.0.0.1: icmp_seq=2 ttl=254 time=2.000 ms
56 bytes from 20.0.0.1: icmp_seq=3 ttl=254 time=2.000 ms
56 bytes from 20.0.0.1: icmp_seq=4 ttl=254 time=2.000 ms
```

```
<RTA>ping -a 100.1.1.1 200.1.1.1
Ping 200.1.1.1 (200.1.1.1) from 100.1.1.1: 56 data bytes, press CTRL+C to break
56 bytes from 200.1.1.1: icmp_seq=0 ttl=254 time=5.000 ms
56 bytes from 200.1.1.1: icmp_seq=1 ttl=254 time=2.000 ms
56 bytes from 200.1.1.1: icmp_seq=2 ttl=254 time=2.000 ms
56 bytes from 200.1.1.1: icmp_seq=3 ttl=254 time=2.000 ms
56 bytes from 200.1.1.1: icmp_seq=4 ttl=254 time=3.000 ms
```

配置关键点

测试时带loopback接口地址去ping。