实验1：STUB 区域实验解析

实验需求：

1）完成OSPF 的基础配置

2）在R5上模拟出EIGRP 网络

3）R5上将50网络带入OSPF

4）要求区域1 配置为STUB区域，对比先后路由变化

步骤1：完成OSPF 的基础配置

R5

en

conf t

int fa 0/1

ip add 15.15.15.5 255.255.255.0

no sh

!

router ospf 1

router-id 0.0.0.5

net 15.15.15.5 0.0.0.0 a 2

redistribute eigrp 1 subnets

!

int lo 0

ip add 50.1.1.1 255.255.255.0

no sh

!

router eigrp 1

no auto

net 50.0.0.0

!

end

R1

en

conf t

int fa0/1

ip add 15.15.15.1 255.255.255.0

no sh

!

int fa0/0

ip add 123.123.123.1 255.255.255.0

no sh

!

router ospf 1

router-id 0.0.0.1

net 15.15.15.1 0.0.0.0 a 2

net 123.123.123.1 0.0.0.0 a 0

!

end

R2

en

conf t

int lo 0

ip add 20.1.1.1 255.255.255.0

no sh

!

int fa 0/0

ip add 123.123.123.2 255.255.255.0

no sh

!

router ospf 1

router-id 0.0.0.2

net 0.0.0.0 0.0.0.0 a 0

!

end

R3

en

conf t

int lo 0

ip add 30.1.1.1 255.255.255.0

no sh

!

int fa0/0

ip add 123.123.123.3 255.255.255.0

no sh

int fa0/1

ip add 34.34.34.3 255.255.255.0

no sh

!

router ospf 1

router-id 0.0.0.3

net 123.123.123.3 0.0.0.0 a 0

net 34.34.34.3 0.0.0.0 a 1

net 30.1.1.1 0.0.0.0 a 1

!

end

R4

en

conf t

int fa0/1

ip add 34.34.34.4 255.255.255.0

no sh

!

router ospf 1

router-id 0.0.0.4

net 34.34.34.4 0.0.0.0 a 1

!

end

此时完成如上配置后，R4 上将会看到区域内路由，区域间路由，外部路由，现象如下：

R4#show ip route ospf

50.0.0.0/24 is subnetted, 1 subnets

**O E2 50.1.1.0 [110/20] via 34.34.34.3, 00:00:09, FastEthernet0/1**

20.0.0.0/32 is subnetted, 1 subnets

**O IA 20.1.1.1 [110/21] via 34.34.34.3, 00:00:09, FastEthernet0/1**

123.0.0.0/24 is subnetted, 1 subnets

O IA 123.123.123.0 [110/20] via 34.34.34.3, 00:00:09, FastEthernet0/1

30.0.0.0/32 is subnetted, 1 subnets

**O 30.1.1.1 [110/11] via 34.34.34.3, 00:00:09, FastEthernet0/1**

15.0.0.0/24 is subnetted, 1 subnets

O IA 15.15.15.0 [110/30] via 34.34.34.3, 00:00:09, FastEthernet0/1

步骤2：将AREA 1 配置为STUB

该区域ABR 上请完成如下配置：

R3

router ospf 1

area 1 stub

区域内所有路由器请完成如下配置：

R4

router ospf 1

area 1 stub

此时完成如上配置后，R4 应该无法学习外部路由，但是可以通过缺省路由及ABR 抵达，现象如下：

R4#show ip route ospf

20.0.0.0/32 is subnetted, 1 subnets

O IA 20.1.1.1 [110/21] via 34.34.34.3, 00:00:39, FastEthernet0/1

123.0.0.0/24 is subnetted, 1 subnets

O IA 123.123.123.0 [110/20] via 34.34.34.3, 00:00:39, FastEthernet0/1

30.0.0.0/32 is subnetted, 1 subnets

O 30.1.1.1 [110/11] via 34.34.34.3, 00:00:39, FastEthernet0/1

15.0.0.0/24 is subnetted, 1 subnets

O IA 15.15.15.0 [110/30] via 34.34.34.3, 00:00:39, FastEthernet0/1

**O\*IA 0.0.0.0/0 [110/11] via 34.34.34.3, 00:00:39, FastEthernet0/1**

R4#

！！补充

1）完成T-STUB 实验

ABR 上添加关键字 no-summary

R3

router ospf 1

area 1 stub no-summary

实验2：NSSA 及T-NSSA 的解析实验

实验步骤：在R2 上模拟出22网络，并且宣告进RIPV2，将RIPV2 带入OSPF

R2

int lo 1

ip add 22.22.22.22 255.255.255.0

no sh

!

router rip

ver 2

no auto

net 22.0.0.0

!

router ospf 1

redistribute rip subnets

此时完成如上配置后，R5 可以学习外部路由，区域内路由，区域间路由，并且可以共享外部路由，现象如下：

R5#show ip route ospf

34.0.0.0/24 is subnetted, 1 subnets

O IA 34.34.34.0 [110/30] via 15.15.15.1, 00:11:20, FastEthernet0/1

20.0.0.0/32 is subnetted, 1 subnets

O IA 20.1.1.1 [110/21] via 15.15.15.1, 00:11:20, FastEthernet0/1

22.0.0.0/24 is subnetted, 1 subnets

**O E2 22.22.22.0 [110/20] via 15.15.15.1, 00:00:39, FastEthernet0/1**

123.0.0.0/24 is subnetted, 1 subnets

O IA 123.123.123.0 [110/20] via 15.15.15.1, 00:11:53, FastEthernet0/1

30.0.0.0/32 is subnetted, 1 subnets

O IA 30.1.1.1 [110/21] via 15.15.15.1, 00:11:20, FastEthernet0/1

R5#

关注R2 ，也会学习50网络，现象如下：

R2#show ip route ospf

34.0.0.0/24 is subnetted, 1 subnets

O IA 34.34.34.0 [110/20] via 123.123.123.3, 00:01:34, FastEthernet0/0

50.0.0.0/24 is subnetted, 1 subnets

**O E2 50.1.1.0 [110/20] via 123.123.123.1, 00:01:34, FastEthernet0/0**

30.0.0.0/32 is subnetted, 1 subnets

O IA 30.1.1.1 [110/11] via 123.123.123.3, 00:01:34, FastEthernet0/0

15.0.0.0/24 is subnetted, 1 subnets

O IA 15.15.15.0 [110/20] via 123.123.123.1, 00:01:34, FastEthernet0/0

R2#

如上现象表明，AREA 2 学习了外部路由，又共享了外部路由

步骤2：将AREA 2 优化为NSSA

即将成为NSSA的区域ABR 完成如下配置

R1

router ospf 1

area 2 nssa default-information-originate

NSSA 区域内路由器配置如下命令

R5

router ospf 1

area 2 nssa

此时R5 是不学习外部路由，但可以通过缺省抵达

同时共享外部路由给OSPF，现象如下：

R5#show ip route ospf

34.0.0.0/24 is subnetted, 1 subnets

O IA 34.34.34.0 [110/30] via 15.15.15.1, 00:00:20, FastEthernet0/1

20.0.0.0/32 is subnetted, 1 subnets

O IA 20.1.1.1 [110/21] via 15.15.15.1, 00:00:20, FastEthernet0/1

123.0.0.0/24 is subnetted, 1 subnets

O IA 123.123.123.0 [110/20] via 15.15.15.1, 00:00:20, FastEthernet0/1

30.0.0.0/32 is subnetted, 1 subnets

O IA 30.1.1.1 [110/21] via 15.15.15.1, 00:00:20, FastEthernet0/1

**O\*N2 0.0.0.0/0 [110/1] via 15.15.15.1, 00:00:20, FastEthernet0/1**

R5#

如上现象说明NSSA 成功

！！补充

TNSSA配置

ABR 上部署如下命令

R1

router ospf 1

area 2 nssa no-summary

R5

router ospf 1

area 2 nssa

完成如上配置后，那么R5 就不该学习区域间路由，现象如下：

R5#show ip route ospf

O\*IA 0.0.0.0/0 [110/11] via 15.15.15.1, 00:00:27, FastEthernet0/1

R5#

那么如上现象表明实验完成