Edge Router Configuration

Edge\_Router>en

Edge\_Router#conf t

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

Edge\_Router(config)#ip route 0.0.0.0 0.0.0.0 s0/0/0

%Default route without gateway, if not a point-to-point interface, may impact performance

Edge\_Router(config)#show ip route

^

% Invalid input detected at '^' marker.

Edge\_Router(config)#exit

Edge\_Router#

%SYS-5-CONFIG\_I: Configured from console by console

show ip route

Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP

D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area

N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2

E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP

i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area

\* - candidate default, U - per-user static route, o - ODR

P - periodic downloaded static route

Gateway of last resort is 0.0.0.0 to network 0.0.0.0

10.0.0.0/8 is variably subnetted, 4 subnets, 2 masks

C 10.10.10.0/30 is directly connected, Serial0/0/0

L 10.10.10.2/32 is directly connected, Serial0/0/0

C 10.10.10.4/30 is directly connected, Serial0/0/1

L 10.10.10.6/32 is directly connected, Serial0/0/1

192.168.10.0/24 is variably subnetted, 2 subnets, 2 masks

C 192.168.10.0/24 is directly connected, GigabitEthernet0/0

L 192.168.10.1/32 is directly connected, GigabitEthernet0/0

192.168.11.0/24 is variably subnetted, 2 subnets, 2 masks

C 192.168.11.0/24 is directly connected, GigabitEthernet0/1

L 192.168.11.1/32 is directly connected, GigabitEthernet0/1

S\* 0.0.0.0/0 is directly connected, Serial0/0/0

C:\>tracert 198.0.0.10

Tracing route to 198.0.0.10 over a maximum of 30 hops:

1 0 ms 0 ms 0 ms 192.168.10.1

2 0 ms 1 ms 1 ms 10.10.10.1

3 \* 0 ms 1 ms 198.0.0.10

Trace complete.

**Step 2: Configure an IPv4 floating static route.**

**b. Configure a directly connected floating static default route with an administrative distance of 5. The route should point to ISP2.**

Edge\_Router>en

Edge\_Router#conf t

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

Edge\_Router(config)#ip route 0.0.0.0 0.0.0.0 s0/0/1 5

Edge\_Router(config)#

**Step 1: Configure an IPv6 floating static route. a. The IPv6 static default route to ISP1 is already configured. Configure an IPv6 floating static default route with an administrative distance of 5. The route should point to IPv6 address (2001:DB8:A:2::1) of ISP2.**

Edge\_Router>en

Edge\_Router#conf t

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

Edge\_Router(config)#ip route 0.0.0.0 0.0.0.0 s0/0/1 5

Edge\_Router(config)#ipv6 unicast?

unicast-routing

Edge\_Router(config)#ipv6 unicast-routing

Edge\_Router(config)#ipv6 route ::/0 2001:DB8:A:2::1 5

Edge\_Router(config)#

**b. View the running configuration to verify that the IPv6 floating static default route is now listed under the IPv6 static default route.**

Edge\_Router>en

Edge\_Router#show run

Building configuration...

Current configuration : 1200 bytes

!

version 15.1

no service timestamps log datetime msec

no service timestamps debug datetime msec

no service password-encryption

!

hostname Edge\_Router

!

!

!

!

!

!

!

!

ip cef

ipv6 unicast-routing

!

no ipv6 cef

--More--

**Part 2: Test Failover to the IPv4 Floating Static Route**

**a. On Edge\_Router, administratively disable the exit interface of the primary route.**

Edge\_Router>en

Edge\_Router#conf t

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

Edge\_Router(config)#int s0/0/0

Edge\_Router(config-if)#shutdown

Edge\_Router(config-if)#

%LINK-5-CHANGED: Interface Serial0/0/0, changed state to administratively down

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to down

**b. Verify that the IPv4 floating static route is now in the routing table.**

Edge\_Router#show ip route

Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP

D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area

N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2

E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP

i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area

\* - candidate default, U - per-user static route, o - ODR

P - periodic downloaded static route

Gateway of last resort is 0.0.0.0 to network 0.0.0.0

10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks

C 10.10.10.4/30 is directly connected, Serial0/0/1

L 10.10.10.6/32 is directly connected, Serial0/0/1

192.168.10.0/24 is variably subnetted, 2 subnets, 2 masks

C 192.168.10.0/24 is directly connected, GigabitEthernet0/0

L 192.168.10.1/32 is directly connected, GigabitEthernet0/0

192.168.11.0/24 is variably subnetted, 2 subnets, 2 masks

C 192.168.11.0/24 is directly connected, GigabitEthernet0/1

L 192.168.11.1/32 is directly connected, GigabitEthernet0/1

S\* 0.0.0.0/0 is directly connected, Serial0/0/1

**c. Trace the route from PC-A to the Web Server.**

**C:\>tracert 198.0.0.10**

**Tracing route to 198.0.0.10 over a maximum of 30 hops:**

**1 0 ms 0 ms 0 ms 192.168.10.1**

**2 1 ms 1 ms 1 ms 10.10.10.5**

**3 \* \* 1 ms 198.0.0.10**

**Trace complete.**

**The backup route works.**

**d. Restore connectivity to the primary route.**

Edge\_Router#en

Edge\_Router#conf t

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

Edge\_Router(config)#int s0/0/0

Edge\_Router(config-if)#no shut

Edge\_Router(config-if)#

%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up

**e. Trace the route from PC-A to the Web Server to verify that the primary route is restored.**

C:\>tracert 198.0.0.10

Tracing route to 198.0.0.10 over a maximum of 30 hops:

1 0 ms 0 ms 1 ms 192.168.10.1

2 1 ms 1 ms 1 ms 10.10.10.1

3 1 ms 2 ms 2 ms 198.0.0.10

Trace complete.

**Step 2: Test Failover to the IPv6 Floating Static Route.**

a. On Edge\_Router, administratively disable the exit interface of the primary route.

**Edge\_Router(config)#int s0/0/0**

**Edge\_Router(config-if)#shut**

**Edge\_Router(config-if)#**

**%LINK-5-CHANGED: Interface Serial0/0/0, changed state to administratively down**

**%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to down**

b. Verify that the IPv6 floating static route is now in the routing table.

Edge\_Router#show ipv6 route

IPv6 Routing Table - 8 entries

Codes: C - Connected, L - Local, S - Static, R - RIP, B - BGP

U - Per-user Static route, M - MIPv6

I1 - ISIS L1, I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary

ND - ND Default, NDp - ND Prefix, DCE - Destination, NDr - Redirect

O - OSPF intra, OI - OSPF inter, OE1 - OSPF ext 1, OE2 - OSPF ext 2

ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2

D - EIGRP, EX - EIGRP external

**S ::/0 [5/0]**

**via 2001:DB8:A:2::1**

C 2001:DB8:1:10::/64 [0/0]

via GigabitEthernet0/0, directly connected

L 2001:DB8:1:10::1/128 [0/0]

via GigabitEthernet0/0, receive

C 2001:DB8:1:11::/64 [0/0]

via GigabitEthernet0/1, directly connected

L 2001:DB8:1:11::1/128 [0/0]

via GigabitEthernet0/1, receive

C 2001:DB8:A:2::/64 [0/0]

via Serial0/0/1, directly connected

L 2001:DB8:A:2::2/128 [0/0]

via Serial0/0/1, receive

**c. Trace the route from PC-A to the Web Server.**

C:\>tracert 2001:db8:f:f::10

Tracing route to 2001:db8:f:f::10 over a maximum of 30 hops:

1 0 ms 0 ms 0 ms 2001:DB8:1:10::1

2 1 ms 0 ms 0 ms 2001:DB8:A:2::1

3 10 ms 10 ms 10 ms 2001:DB8:F:F::10

Trace complete.

The backup route works.

**d. Restore connectivity to the primary route.**

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

Edge\_Router(config)#int s0/0/0

Edge\_Router(config-if)#no shut

Edge\_Router(config-if)#

%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up

**e. Trace the route from PC-A to the Web Server to verify that the primary route is restored.**

C:\>tracert 2001:db8:f:f::10

Tracing route to 2001:db8:f:f::10 over a maximum of 30 hops:

1 0 ms 14 ms 0 ms 2001:DB8:1:10::1

2 1 ms 1 ms 0 ms 2001:DB8:A:1::1

3 1 ms 0 ms 0 ms 2001:DB8:F:F::10

Trace complete.

C:\>