IPv6 Lab - IS-IS

Configuring IS-IS

Each team will need to configure IS-IS between the four routers in their AS. The core router should be straightforward to configure. It has one loopback interface, one interface connecting to the peering router, and one interface connecting to the border router. And even though we are using ethernet to connect the routers, these are only point-to-point links and IS-IS should be configured as such.

For the peering, access and border routers, IS-IS should only be activated on the internal interface, with the loopback marked as passive. Note we do not configure the interface pointing to outside of our network as we will be using *next-hop-self* for our iBGP sessions.

Here is a configuration example for the core router:

```
router isis asX0
 net 49.0001.1000.6800.X002.00
 is-type level-2-only
 metric-style wide
 set-overload-bit on-startup wait-for-bgp
 log-adjacency-changes all
 metric 100000
 passive-interface loopback0
!
 address-family ipv6
  multi-topology
  set-overload-bit on-startup wait-for-bgp
!
interface fastethernet 0/0
 description BackBone link to AX
 ip router isis asX0
 isis metric 2
 ipv6 router isis asX0
 isis ipv6 metric 2
!
interface gigabitethernet 1/0
 description BackBone link to BX
 ip router isis asX0
 isis metric 2
 ipv6 router isis asX0
 isis ipv6 metric 2
!
interface gigabitethernet 2/0
 description BackBone link to PX
 ip router isis asX0
 isis metric 2
 ipv6 router isis asX0
 isis ipv6 metric 2
```

```
!
```

For the routers with connections outside the local autonomous system, we have to be very careful not to enable IS-IS on those external links. Nor do we need to carry those external link addresses in IS-IS. So do not enable IS-IS on an interface unless the router at the other end of that link is part of your own autonomous system.

Once IS-IS is working inside your autonomous system, check that you can reach all other routers inside your AS. Easiest way to test this it to ping the IPv4 and IPv6 loopback addresses from each router. Does it all work? If not, what could be wrong?

IS-IS on Point-to-Point Ethernet Links

We need to modify IS-IS's behaviour on point-to-point broadcast media links, such as Ethernet, when there are only two devices on that media. If we declare such a situation to be point to point, then IS-IS does not try and determine a designated router; furthermore, there will be an improvement/simplification in SPF calculations and memory requirements on the router.

Those router teams which have IS-IS configured over an Ethernet interface should now convert IS-IS to point-to-point mode, for example:

```
interface fastethernet 0/0
  isis network point-to-point
```

The link is now treated like a point-to-point serial connection.

Ping Test

Check the routes via IS-IS. Make sure you can see all the networks within your AS. Ping all loopback interfaces within your AS. Use the "*show isis neighbor"* and *"show ip[v6] route"* commands. If you cannot see the other routers in your AS, you will not be able to bring up BGP in the next steps.

Telnet source address

Most Network Operators use the router Loopback address for administrative purposes as well as the anchor point for their network's iBGP sessions. In this step we will configure telnet so that it uses the loopback interface as the source address for all telnet packets (IPv4 and IPv6) originated by the router.

```
ip telnet source-interface loopback 0
```

To check that this has worked, telnet from your router to a neighbouring router and then enter the "who" command. You will see that you are logged in, and the source address will be displayed. For example, using telnet from C1 to B1 gives:

```
C1>who
    Line     User      Host(s)                Idle Location
*  2 vty 0   v6lab     idle                00:00:00 100.68.1.2
```

Save the configuration

Don’t forget to save the configuration to NVRAM!

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