Advertise SRv6 Locator Information by IPv6 Neighbor Discovery

draft-gong-spring-nd-advertise-srv6-locator-01

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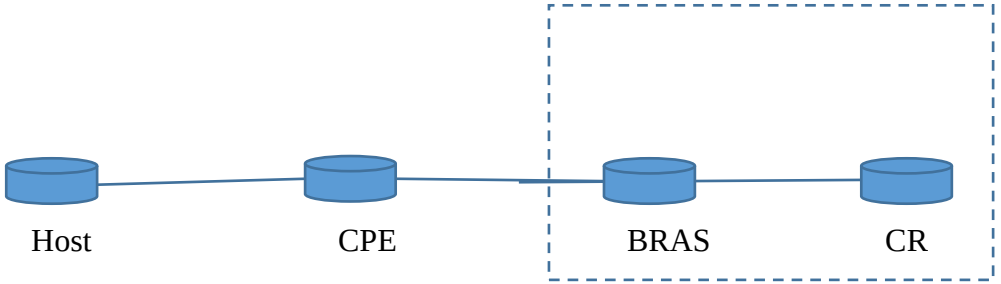
Problem

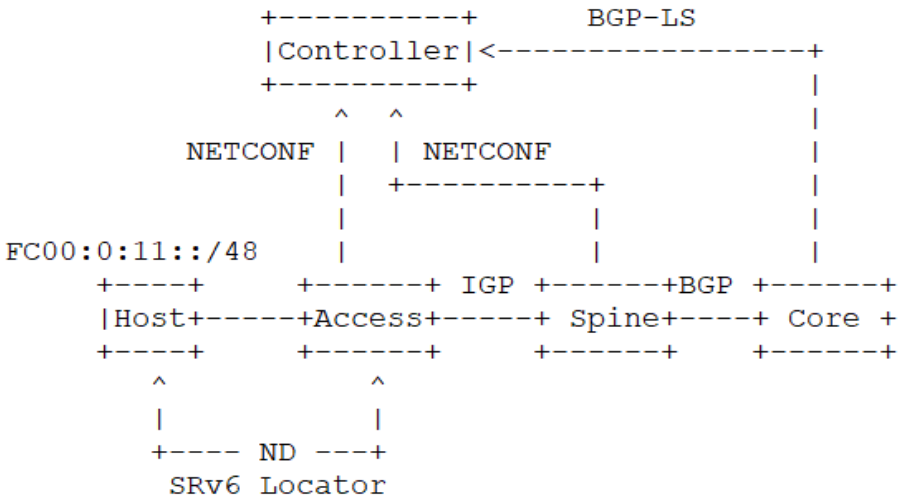
Scenario 1:
SRv6 Locator info is exchanged via IGP (Access-Spin) and BGP (Spin-Core). Hosts lack support for complex routing protocols, preventing automatic SRv6 Locator transmission, complicating SRv6 deployment.

Scenario 2:
CPEs lack IGP support, blocking SRv6 Locator route advertisement. SIDs are manually configured, and routes are statically distributed.



Solution

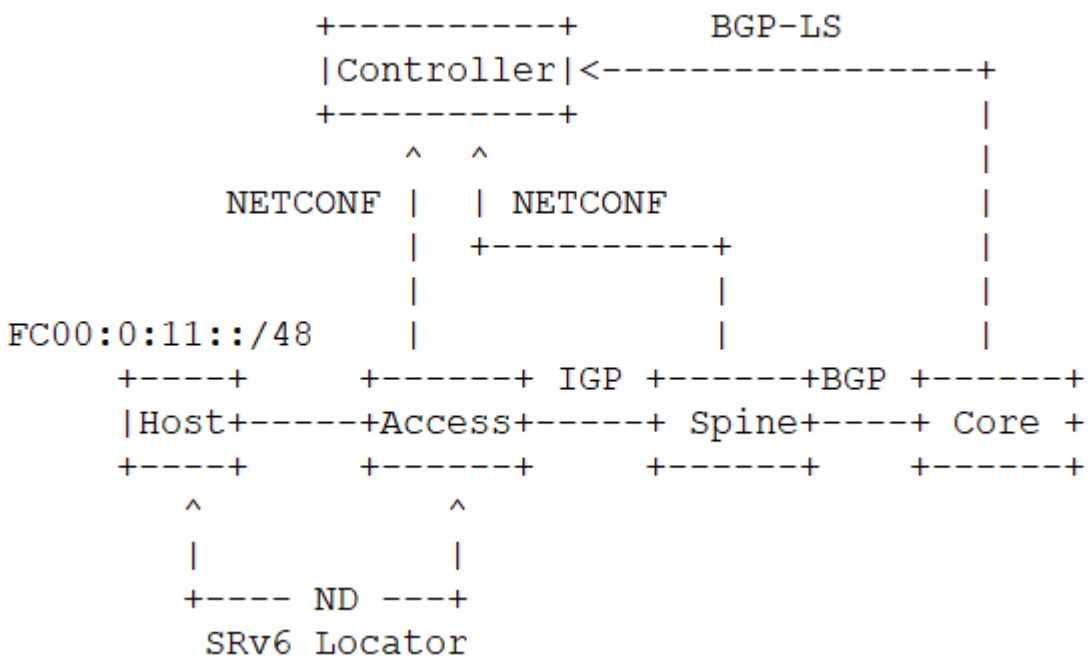
SRv6 Locator Exchange via IPv6 ND:
Extend IPv6 ND NS/NA packets to carry SRv6 Locator info.
SRv6 endpoints advertise and retrieve locator info from neighbors.
Simplifies SRv6 deployment.
Locator Advertisement:
Hosts and access devices exchange locators via IPv6 ND NS/NA.
Domain-wide advertisement via IGP.
Controller collects info via NETCONF or BGP-LS.



Process

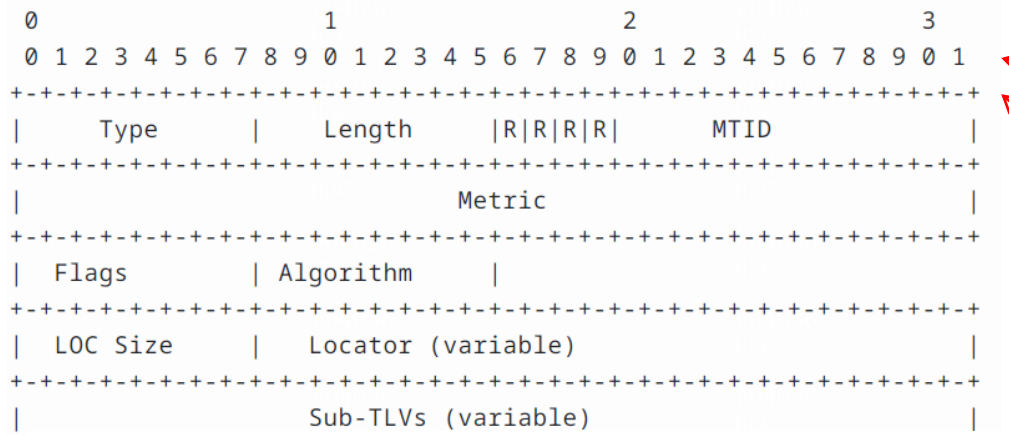
1) Manually configure SRv6 Locator on the host.
2) Host advertises SRv6 Locator (e.g., FC00:0:11::/48) and capability via IPv6 NS/NA packets.
3) Access device learns SRv6 Locator via ND packets.
4) Access re-advertises SRv6 Locator to Spine via IGP.
5) Spine learns SRv6 Locator through IGP.
6) Spine sends SRv6 Locator to Core via BGP.

The controller obtains all the Locator information and capability information, so that it can program SRv6 paths correctly.



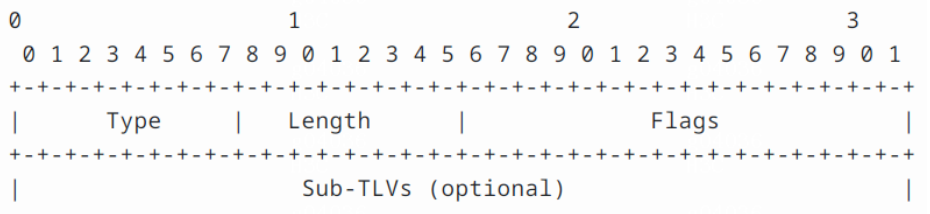
ND Extend for SRv6 Locator

Source SRv6 Locator Information Option



+ contains Sub-TLVs such as SRv6 End SID Sub-TLV.

Source SRv6 Capability Option



contains Sub-TLVs such as MSD sub-TLV

Neighbor Solicitation (NS) Message:
- Type
- Code
- Target Address
- Options
  - SRv6 Locator
  - SRv6 Capability

Neighbor Advertisement (NA) Message:
- Type
- Code
- Flags
- Target Address
- Options
  - SRv6 Locator
  - SRv6 Capability

Next Steps

- Any questions or comments are welcome.

Thanks