RFC 6831 - The Locator/ID Separation Protocol (LISP) for Multicast Environments
  • Defines how to run overlay multicast on underlay native multicast
  • How LISP uses PIM to build underlay distribution trees
  • Introduces overlay state (EID, G) for the map-cache which maps to (RLOC, G)

RFC 8378 - Signal-Free Locator/ID Separation Protocol (LISP) Multicast
  • Defines how to run overlay multicast on BOTH unicast and multicast underlays
  • Designs how to use the LISP mapping system to achieve this
  • Introduces an RLOC-set that may contain both unicast and multicast RLOC addresses for both IPv4 and IPv6 address families
• This draft formalizes terminology for 2-tuple multicast state for both the overlay and underlay.

• Overlay state - (S-EID, G-EID), where:
  • S-EID is the source sending multicast packets
  • G-EID is the group address S-EID is sending to
  • The underlay knows nothing about these addresses (they are EIDs)
  • S-EID and G-EID can be registered as prefixes in the mapping system and used as specific addresses in data packet headers

• RLOC notation - (S-RLOC, U-RLOC) and (S-RLOC, G-RLOC), where:
  • S-RLOC is the encapsulating LISP ITR/RTR routeable address
  • U-RLOC is the outer header destination address (non-multicast underlay)
  • G-RLOC is the outer header destination address (multicast underlay)
  • S-RLOC, U-RLOC, and G-RLOC are specific addresses used in data packet headers
This draft specifies how G-EIDs map to G-RLOCs, 2 approaches for xTRs to agree on same G-RLOC

**Hash Based**

- G-EID input to sha256() to produce G-RLOC
- ETR does hash when processing IGMP/MLD reports or PIM-Join messages for G-EID
- So all ETRs use the same G-RLOC when joining to the underlay multicast protocol

**Mapping System Based**

- Gives more control to multicast underlay provider
- Provider registers distinguished name “group-224.1.1.1” where G-EID 224.1.1.1 maps to G-RLOC 225.1.1.1
- ETRs registers (S-EID, 224.1.1.1) with G-RLOC 225.1.1.1 and joins 225.1.1.1 in the underlay multicast protocol
- ITRs/RTRs in either approach do mapping system lookup to determine RLOC-set for (S-EID, G-EID)
- Note the RLOC-set can contain a mix of U-RLOCs and G-RLOCs for same or different AFs
Draft Status

Appendix B. Document Change Log

B.1. Changes to draft-vda-lisp-group-mapping-01

* Submitted October 2023.

* Update document timer and references.

B.2. Changes to draft-vda-lisp-group-mapping-00

* Submitted April 2023.

* Completed adding details to compliment [RFC6831] and [RFC8378].

* Changed name to draft-vdas-lisp-group-mapping-00 from draft-vda-lisp-underlay-multicast-trees-00.

B.3. Changes to draft-vda-lisp-underlay-multicast-trees-00

* Initial posting December 2020. March 2023
Next Steps

- *cisco* and *lispers.net* have implementation plans

  - *cisco* plans to:
    - Integrate their LISP implementation into their PIM underlay multicast deployments

  - *lispers.net* plans to:
    - Implement GAAP ASM apps on the LISP overlay that map to a G-RLOC underlay
    - Mix of RLOC-sets so receivers on the underlay AND the overlay can interoperate

- Do not make draft WG document until there is implementation and spec update status