

# LISP Multicast Overlay Group to Underlay RLOC Mappings

*draft-vdas-lisp-group-mapping-01*

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# Refresh on LISP Multicast

- **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

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- 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

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- 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