LISP-MN Multicast Demo

draft-ietf-lisp-mn-05

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What We Are Demoing

- LISP-MN on an iPhone
- RTRs deployed in GCP
- LISP-MN to LISP CN behind NATs
- All multicast sources and receivers on LISP overlay
Some Magic Sauce

- LISP-MN **is not** running a LISP control-plane
- LISP-MN map-cache configured with:
  
  \[ 0.0.0.0/0 \rightarrow \text{RTRs} \]

- RTRs configured to **glean** xTR mappings
- NAT-traversal logic occurs in data-plane
- An effort to implement an even **lighter-weight** xTR
  
  One that runs in a dash-cam perhaps
Some Multicast Magic

- LISP-MN as a Multicast Receiver
  - LISP-MN uses IGMP to join groups
  - LISP-MN encapsulates IGMP messages to RTRs
  - RTRs track group membership
  - RTRs replicate multicast packets to LISP-MN group members

- LISP-MN as a Multicast Source
  - LISP-MN send multicast packets like any other packet (to the RTRs)
  - RTRs replicate to CN and LISP-MN group members
  - LISP-MN maintains multicast session continuity
  - LISP-MN can roam across LTE and WiFi while sending/receiving multicast
Demo Topology

Internet Underlay

LISP Encap

25.25.25.25

multicast video source to 224.1.1.1 (using VLC)
multicast ping receiver joined to 224.2.2.2

LISP Encap

a-rtr1

13.13.13.13

multicast video receiver joined to 224.1.1.1
multicast ping source to 224.2.2.2

LISP Encap

g-rtr1


LISP Encap

a-rtr2

multicast ping receiver joined to 224.2.2.2

LISP Encap

a-rtr3


multicast ping receiver joined to 224.2.2.2
Live Video/Ping Demo

Observations

• Glean Latency **does not** exist as it does for unicast
  • For sender-only nodes, you don’t have to glean
  • For receiver nodes, gleaning happens when RTR processes IGMP report
• If members are spread across RTRs, LISP-MN needs to send to all RTRs
  • See LISP Replication Engineering (LISP-RE) Draft for other solutions
• By default, OOR hashes to one RTR
• An upstream RTR can replicate to downstream RTRs that have been IGMP reported to by different LISP-MNs:
Multicast Todo List

• LISP-MN must send periodic IGMP reports, or:
  • RTRs must send periodic IGMP queries
  • LISP-RE to spread load and reduce replication cost
  • IPv6 Multicast Support (with HER over IPv4 or IPv6)
LISP/AMT Interoperability

LISP source to 224.3.3.3

LISP Encap

13.13.13.13

Internet Underlay

LISP Encap

g-rtr1


LISP receiver(s) joined to 224.3.3.3

AMT Gateway

AMT Encap

AMT Gateways
(in unicast-only backbone)

AMT receiver(s) joined to 224.3.3.3
Questions/Reactions/Tomatoes?