

# LISP-MN Multicast Demo

*draft-ietf-lisp-mn-05*

***IETF Singapore LISP WG & MBONED WG***

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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 -> 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

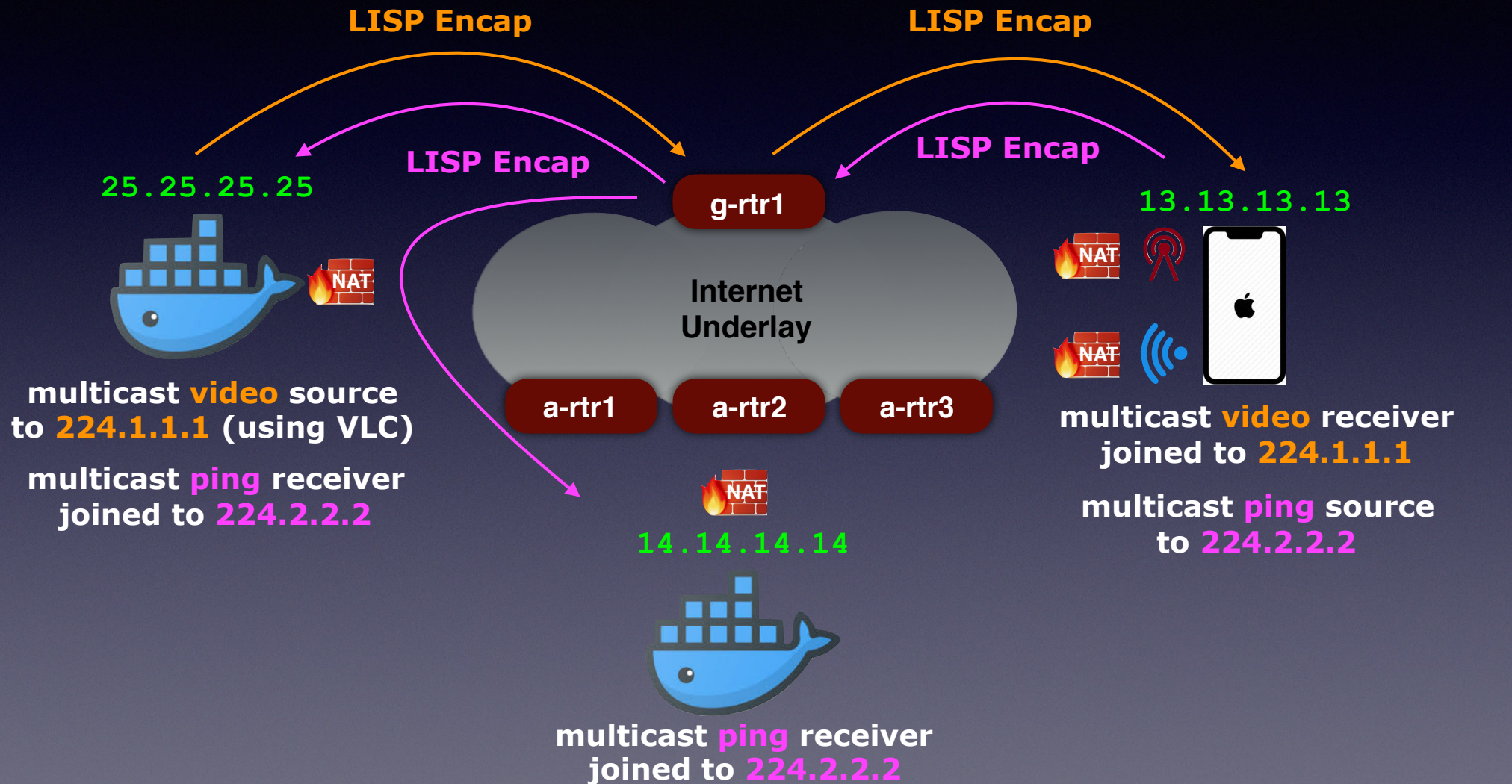


# Some Multicast Magic

- 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





# Live Video/Ping Demo

The image shows a laptop screen displaying a live demo of a network topology. The screen is divided into several sections:

- Keynote Presentation:** The main content is a slide titled "Demo Topology". It features a diagram of a network setup. At the center is a cloud labeled "Internet Underlay". Above it is a router labeled "g-rtr1". Below the cloud are three routers labeled "a-rtr1", "a-rtr2", and "a-rtr3". To the left of the cloud is a blue ship icon representing a "multicast video source to 224.1.1.1 (using VLC)" and a "multicast ping receiver joined to 224.2.2.2". To the right of the cloud is a smartphone icon representing a "multicast video receiver joined to 224.1.1.1" and a "multicast ping source to 224.2.2.2". Arrows labeled "LISP Encap" and "LISP Decap" show the flow of traffic between the source/receiver and the routers. A table at the bottom left of the slide lists "xTR Hostname" and "Translated Address".
- Terminal Window:** On the left side of the screen, a terminal window displays network traffic logs, including IP addresses and packet counts.
- Table:** A table titled "NAT-Traversal xTR Inform." is visible, showing the mapping between xTR Hostname and Translated Address.

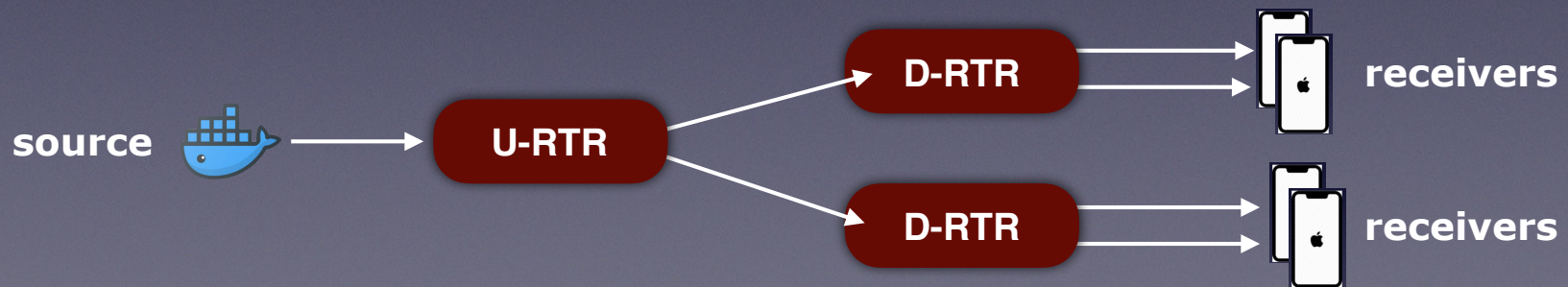
xTR Hostname	Translated Address
xtr2	35.202.144.92

<https://www.dropbox.com/s/kan6wijkvjk9khy/lisp-mn-multiicast-demo.MOV>



# 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 joined by different LISP-MNs:



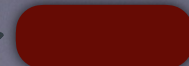
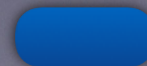
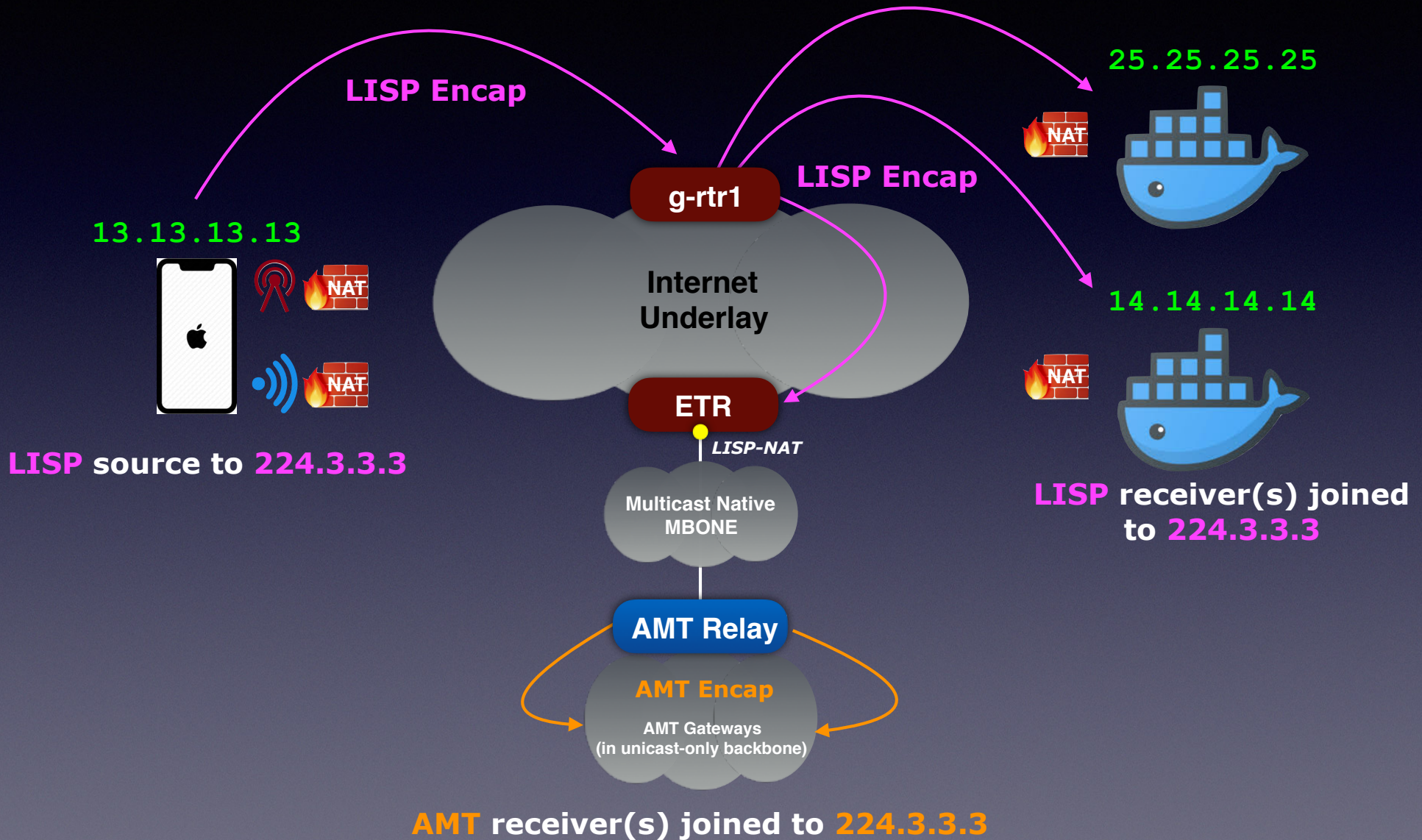


# Multicast Todo List

- 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





# Questions/Reactions/Tomatoes?

