

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:

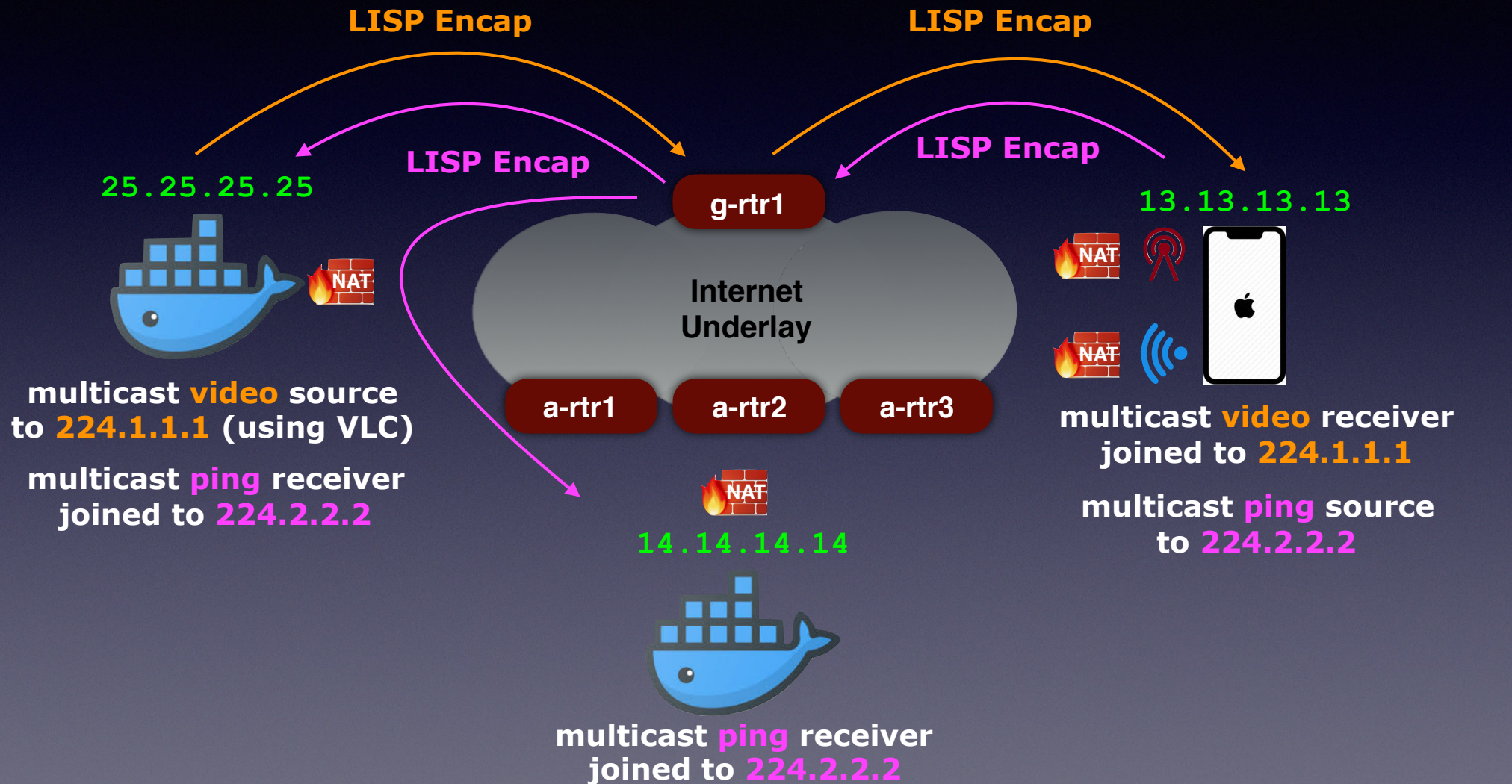
 0.0.0.0/0 -> RTRs
- RTRs configured to **glean** xTR mappings
- NAT-traversal logic occurs in data-plane
- An effort to implement an even **lighter-weight** xTR

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



The image shows a laptop screen with a Keynote presentation titled "Demo Topology". The presentation slide features a network diagram illustrating a LISP-based network topology. The central component is the "Internet Underlay", which contains three routers: "a-rtr1", "a-rtr2", and "a-rtr3".

On the left side of the diagram, a "multicast video source to 224.1.1.1 (using VLC)" and a "multicast ping receiver joined to 224.2.2.2" are connected to "a-rtr1". On the right side, a "multicast video receiver joined to 224.1.1.1" and a "multicast ping source to 224.2.2.2" are connected to "a-rtr3". A "multicast ping receiver joined to 224.3.3.3" is connected to "a-rtr2".

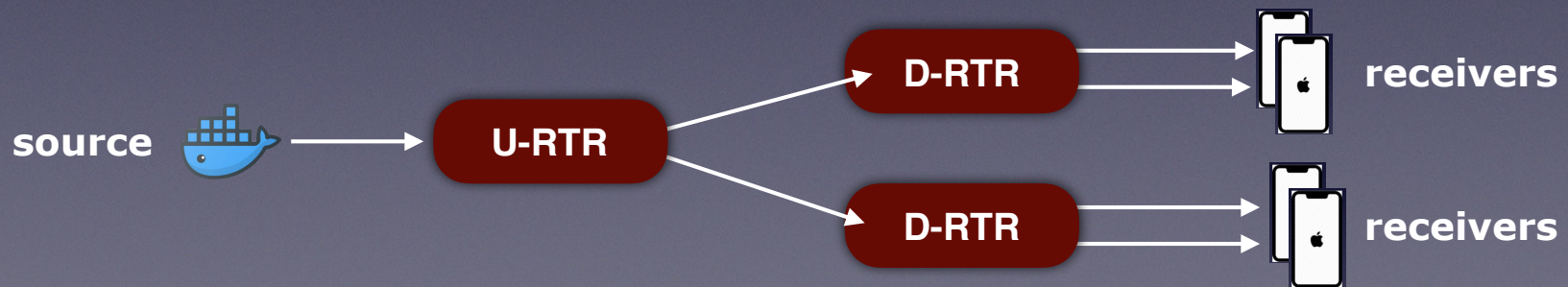
Arrows labeled "LISP Encap" indicate the encapsulation of traffic from the source and receiver pairs through the Internet Underlay. A "g-rtr1" router is also shown at the top, connected to the Internet Underlay. The background of the slide is dark with a blue ship icon.

The laptop's taskbar and a sidebar with a list of IP addresses are visible on the left. The sidebar contains a list of IP addresses, including "13.13.13.13", "172.17.0.2", "172.17.0.3", "172.17.0.4", "172.17.0.5", "172.17.0.6", "172.17.0.7", "172.17.0.8", "172.17.0.9", "172.17.0.10", "172.17.0.11", "172.17.0.12", "172.17.0.13", "172.17.0.14", "172.17.0.15", "172.17.0.16", "172.17.0.17", "172.17.0.18", "172.17.0.19", "172.17.0.20", "172.17.0.21", "172.17.0.22", "172.17.0.23", "172.17.0.24", "172.17.0.25", "172.17.0.26", "172.17.0.27", "172.17.0.28", "172.17.0.29", "172.17.0.30", "172.17.0.31", "172.17.0.32", "172.17.0.33", "172.17.0.34", "172.17.0.35", "172.17.0.36", "172.17.0.37", "172.17.0.38", "172.17.0.39", "172.17.0.40", "172.17.0.41", "172.17.0.42", "172.17.0.43", "172.17.0.44", "172.17.0.45", "172.17.0.46", "172.17.0.47", "172.17.0.48", "172.17.0.49", "172.17.0.50", "172.17.0.51", "172.17.0.52", "172.17.0.53", "172.17.0.54", "172.17.0.55", "172.17.0.56", "172.17.0.57", "172.17.0.58", "172.17.0.59", "172.17.0.60", "172.17.0.61", "172.17.0.62", "172.17.0.63", "172.17.0.64", "172.17.0.65", "172.17.0.66", "172.17.0.67", "172.17.0.68", "172.17.0.69", "172.17.0.70", "172.17.0.71", "172.17.0.72", "172.17.0.73", "172.17.0.74", "172.17.0.75", "172.17.0.76", "172.17.0.77", "172.17.0.78", "172.17.0.79", "172.17.0.80", "172.17.0.81", "172.17.0.82", "172.17.0.83", "172.17.0.84", "172.17.0.85", "172.17.0.86", "172.17.0.87", "172.17.0.88", "172.17.0.89", "172.17.0.90", "172.17.0.91", "172.17.0.92", "172.17.0.93", "172.17.0.94", "172.17.0.95", "172.17.0.96", "172.17.0.97", "172.17.0.98", "172.17.0.99", "172.17.0.100".

6

Observations

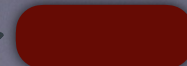
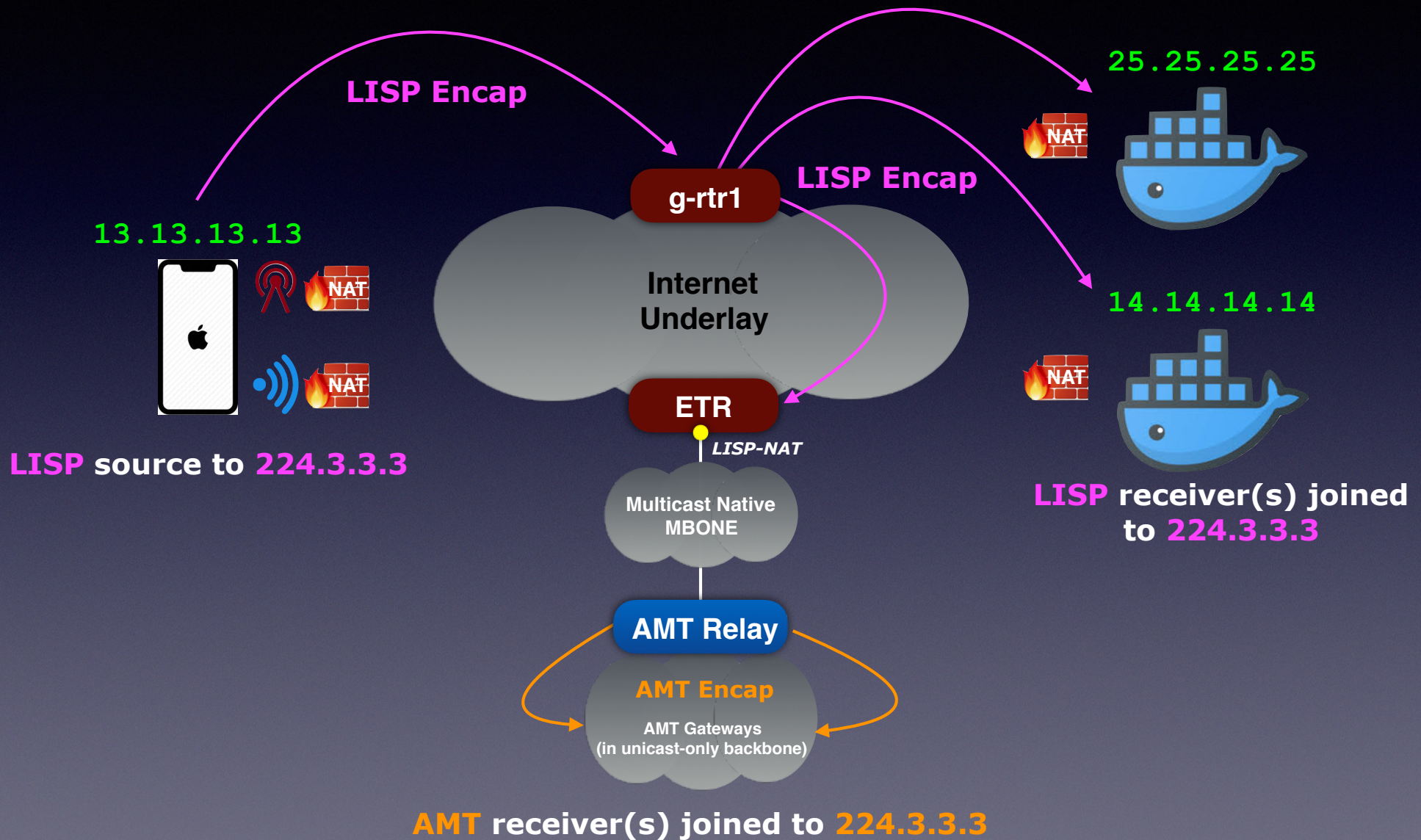
- Glean Latency **does not** exist as it does for unicast
 - For sender-only nodes, you don't have to glean
 - For receiver nodes, gleaning happens when RTR processes IGMP report
- If members are spread across RTRs, LISP-MN needs to send to all RTRs
 - See LISP Replication Engineering (LISP-RE) Draft 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



Questions/Reactions/Tomatoes?

