LISP EID Mobility

LISP Working Group - Berlin IETF
July 2016

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Agenda

- Why LISP Solves the Mobility Problem
- There are Two Forms of Separation
- Handoffs with Near-0 Packet Loss
- Should we do a 1 slide/minute LISP Overview?
Really Only 3 Ways

- Host Routes
- Notion of Home
- Locator/ID Separation
Host Routes

- A non-starter
  - You want to move fast and talk to anyone
  - You can’t send routes around the entire Internet fast enough
  - There will simply be too much state
  - There will be policy restrictions in accepting host routes
  - Multi-homing causes even more state!
Notion of Home

- If you are moving around, there is no home location
- Why are we trying to force a “home subnet”
- Conventional wisdom says triangle routing is not going to work
- How does multi-homing work when you have multiple homes?
- You roam to a high bandwidth location but your home location is slow!
Locator/ID Separation

- Is the only solution where you keep the moving entity’s address fixed (an EID)

- And the location changes when you “(re)attach” to the network (an RLOC)

- The moving entity has a **single** address (an EID)

- The EID can be multi-homed (with an RLOC-set)

- You will always get shortest paths to RLOCs and the routing system does not know anything about EIDs (a feature)
2 Forms of Separation

• The EID and RLOC-set are co-located in same moving entity

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• The EID is the moving entity and the RLOC is a stationary network node

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LISP Mobile Node
EID Mobility

EID 2001:5::1

LTE Provider 1.0.0.0/8
RLOC 1.1.1.1

WiFi Provider 2.0.0.0/8
RLOC 2.2.2.2
An EID is assigned to:

- Mobile Device
- Roaming Service or Application
- VM or Container

An RLOC is assigned to:

- Base-Station (eNodeB, WiFi AP, RSU, etc)
- Top-of-Rack Switch in Data Center
- Edge Router in Data Center
- CPE Router in Branch Office
- Virtual Router close to the Application
• EID is discovered dynamically by LISP xTR(s)

• Registers EID-to-RLOC-set to LISP Mapping Database

• Informs encapsulators to get new mapping
LISP Predictive RLOCs

• If you know what direction you are going …
  • You can “make-before-break”
  • Encapsulate to all the future RLOCs in a directional path
  • Later stop encapsulating to the past RLOCs
  • The RLOC that has EID attached delivers packet
  • Near Zero Packet Loss

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Questions/Comments/Tomatoes?
Backup Slide
(for discussion)