LISP Mobile Node

draft-meyer-lisp-mn-00.txt

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Agenda

- User and Network Goals for LISP MN
- Overview of the Solution
- Control and Data Plane operation while Roaming
- Summary
- Draft Disposition
- Q&A

User Goals

- Allow a MN to roam while keeping TCP connections alive
- Allow a MN to talk to MN while roaming when either can be a client or server
  - or p2p or …
- Allow multi-homing on MN
  - MN can set ingress policies for reception of traffic
  - e.g., active-active with simultaneous v4 and v6 ingress flows
- Shortest path bidirectional traffic between MN and SN as well as between MN and MN
  - No triangle routing in data path

Network Goals

- No MN EID state in core
  - MN-based state only in Map-Server and ITRs (and PTRs) which are talking to MN
  - ➔ No /32 (/128) state in either the ALT or the DFZ control-planes

- Use existing LISP mapping system components as anchor points for LISP mobile nodes
  - In particular, the Map Server/Resolver infrastructure
  - Note that these components are **not** part of the data-plane

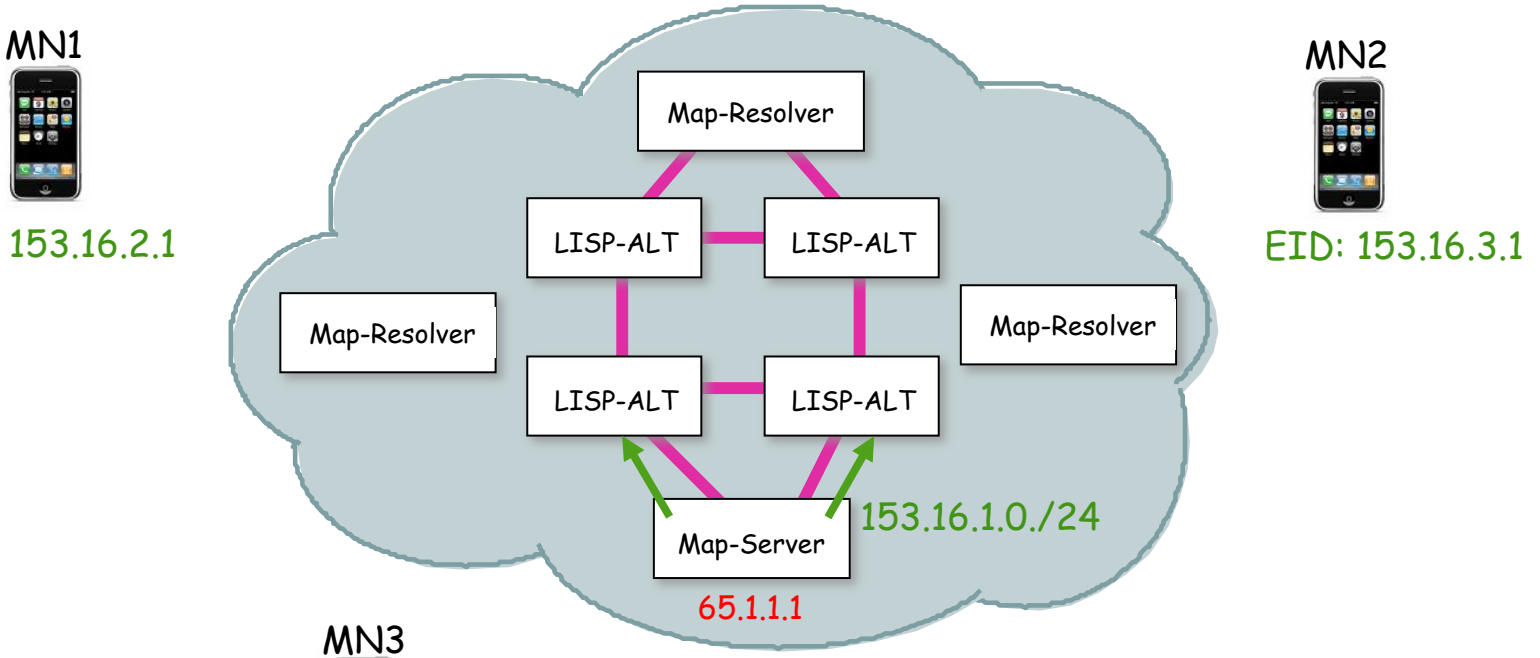
Solution Overview

- MN is a lightweight ITR and ETR for itself
- MN sends Map-Requests
- A MN *may* send Map-Replies
  - A MN can ask its Map-Server to "proxy Map-Reply" by setting the proxy-map-reply bit in its Map-Register messages
- All packets originated by MN are LISP encapsulated
  - Packets destined for non-LISP destinations are decapsulated by a Proxy ETR (PETR)

Solution Overview, cont.

- A MN **ALWAYS** Map-Registers with its provisioned Map-Server
  - That Map-Server is configured to advertise an aggregate covering the MN's EID into the ALT
  - This allows the ALT to scale in the presence of mobile nodes since mobile node specific state is not propagated into the ALT
- For existing cachers (ITRs or PTRs)
  - Cachers respect MN's (possibly lower) TTL
  - MN can SMR
  - MN can send Map-Request (with verifying Map-Request)

Roaming - Control Plane



Legend:

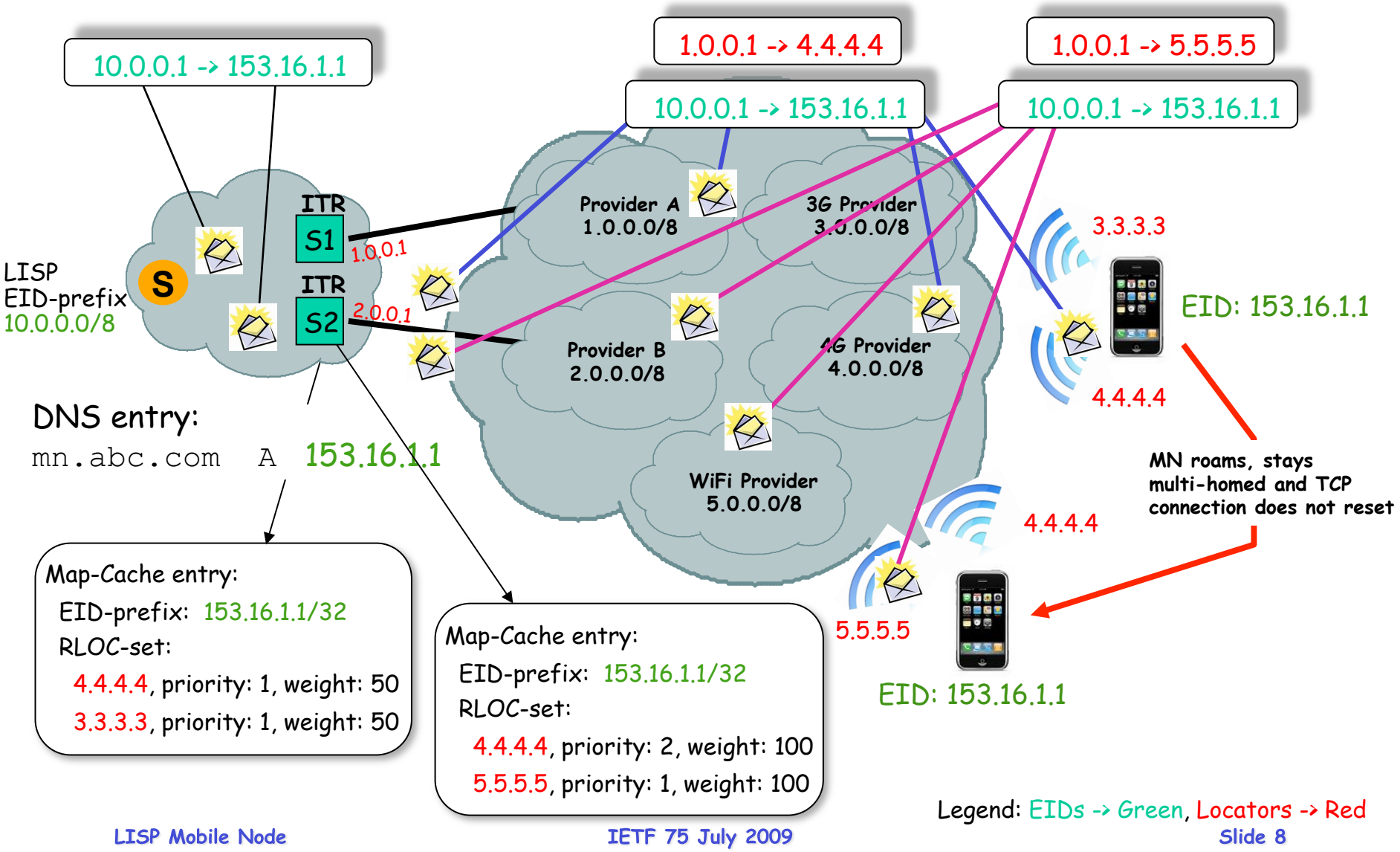
- EIDs -> Green, RLOCs -> Red
- 3G network -> 3.0.0.0/8
- 4G network -> 4.0.0.0/8
- BGP-over-GRE
- Map-Register
- BGP update

(1) No matter where MN3 roams, MN1 and MN2 can find it's locator by using the database mapping system.

(2) Only the Map-Server will store 153.16.1.1/32 state with the latest set of RLOCs.

(3) Data always travels on shortest path to and from MN.

Roaming - Data Plane



Summary

- Using the Map-Server/Map-Resolver service interface
  - We get scalable roaming with same LISP infrastructure used for multi-homing and route scaling
  - LISP sites talk to each other and MNs talk to each other over same infrastructure
- Anchor point architecture allows mobile nodes to be discovered in the control-plane
- Data-plane has no stretch and therefore no packet delivery latency
- Addressing scales routing because it maps to the physical topology

Working Group Document?

- Routing must scale to support the mobile node Internet
- LISP map-server and ALT infrastructure are mechanisms to do this for stationary sites which change addresses
- Same infrastructure used when mobile nodes change addresses
- Therefore LISP MN is within the charter of LISP WG

Q&A

Thanks!