LISP Data and Control Plane Discussion
(RFC6830bis and RFC 6833bis)

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Scope & Context

The LISP WG is chartered to continue work on the LISP base protocol and produce standard-track documents. In order to produce a coherent set of documents, the first (and high priority) work item of the LISP Working Group is to develop a standard-track solution based on the completed Experimental RFCs and the experience gained from early deployments. This work will include reviewing the existing set of Experimental RFCs and doing the necessary enhancements to support a base set of standards track RFCs. The group will review the current set of Working Group documents to identify potential standards-track documents and do the necessary enhancements to support standards-track.
Scope & Context

• Apr 2017 Submit a LISP unicast data-plane specification (6830bis) document to the IESG for consideration as Proposed Standard

• Jul 2017 Submit a LISP control-plane specification (6833bis) document to the IESG for consideration as Proposed Standard
In this presentation:

• Review the contents of RFC6830 (LISP) and RFC6833 (LISP Map-Server Interface)
• Trigger discussion on the Table of Contents of the LISP (RFC6830bis) and LISP Control-Plane (RFC6833bis) specs
• Rationale: Mostly an editorial work, include fixes and lessons learnt from experimentation
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- Split 6830bis and 6833bis
- Requires further discussion
LISP (Data-Plane) (RFC6830bis) Table of Contents
“Locator/ID Separation Protocol”.

1. Introduction
Remove description of the scalability of the BGP DFZ, describe the LISP protocol as an overlay solution.
Indicate early in the document that many different data-planes can use the control-plane interface.
Add reference to RFC7215 (deployment considerations)
Considerations for network management tools exist so the LISP protocol suite can be operationally managed. These mechanisms can be found in [LISP-MIB] and [RFC6835].

2. Requirements Notation

3. Definition of Terms
Add RTRs
4. Basic Overview

Mention RTRs and point to the right spec.

4.1. Packet Flow Sequence

Mention that the ITR checks its Map-Cache to obtain the RLOCs. If not RLOC, then triggers a mapping retrieval. A way to do so is 33bis.
5. LISP Encapsulation Details

Add how a source-port of 4341 may need to be used for NAT-traversal when doing encapsulation. Make reference that work in progress for NAT-traversal. But do not reference NAT-traversal Internet Draft.

5.1. LISP IPv4-in-IPv4 Header Format

5.2. LISP IPv6-in-IPv6 Header Format

5.3. Tunnel Header Field Descriptions
6. LISP Map-Cache

Specify the Map-Cache, describe (not specify) how RFC6830bis interacts with RFC6833bis.

7. Dealing with Large Encapsulated Packets

Fix Joel comment in MTU Handling section.

7.1. A Stateless Solution to MTU Handling

7.2. A Stateful Solution to MTU Handling
8. Using Virtualization and Segmentation with LISP
Indicate how the instance-ID is 32 bits in control-plane and 24-bits in the data-plane akin to what was put in the LISP-DDT spec.

9. Routing Locator Selection

10. Routing Locator Reachability
Fix the text regarding the ‘R’ bit. Having a route to a locator does not mean that the locator is up. The current text states otherwise.
Specify the Echo Nonce Algorithm
RLOC-Probing (requires further discussion)
11. Routing Locator Hashing

12. Changing the Contents of EID-to-RLOC Mappings
   Database Map-Versioning

13. Traceroute Considerations

14. Mobility Considerations
   14.1. Site Mobility
   14.2. Slow Endpoint Mobility
   14.3. Fast Endpoint Mobility
   14.4. Fast Network Mobility
   14.5. LISP Mobile Node Mobility

Keep it temporarily, WG has to be aware that the text will move to a different place.
11. - Routing Locator Hashing

12. Traceroute Considerations

12.1. IPv6 Traceroute

12.2. IPv4 Traceroute

12.3. Traceroute Using Mixed Locators

13. Mobility Considerations

Requires further discussion
14. Security Considerations
Add reference to lisp-threats
Add reference to lisp-crypto
Add reference to LISP-SEC

15. IANA Considerations
15.2. LISP Address Type Codes
15.3. LISP UDP Port Numbers

16. References
16.1. Normative References
16.2. Informative References
LISP Control-Plane (RFC6833bis)
Table of Contents
RFC6833bis – LISP Table of Contents (1)

Change name “LISP Map-Server Interface” to “LISP Control-Plane” and make abstract reflect this.

1. Introduction
Indicate early in the document that many different data-planes can use the control-plane interface.

2. Definition of Terms

3. Basic Overview

Indicate there may be nodes in the mapping system that are not MRs or MSs, that is a ALT-node or a DDT-node.
4. EID-to-RLOC Mapping

4.1. LISP IPv4 and IPv6 Control-Plane Packet Formats

4.1.1. LISP Packet Type Allocations

4.1.2. Map-Request Message Format

Document these new first longword bits in the Map-Request header:

```
+----------------------------------+
| Type=1 | A|M|P|S|p|s|m| Reserved | L|D| IRC | Record Count |
+----------------------------------+
```
4.1.3. EID-to-RLOC UDP Map-Request Message
4.1.4. Map-Reply Message Format
4.1.5. EID-to-RLOC UDP Map-Reply Message
4.1.6. Map-Register Message Format

Document these new first longword bits in the Map-Register header:

```
+-----------------------------------------------+-----------------------------+
| Type=3 | P | S | I |        Reserved       | Record Count |
| F | T | a | m | M |                             |
+-----------------------------------------------+-----------------------------+
```
4.1.7. Map-Notify Message Format
Indicate Map-Notify-Ack messages exist for Map-Notify reliability.

4.1.8. Map-Referral Message Format
Add Map-Referral to control-plane codepoints since this is document will refer to DDT.

4.1.8. Encapsulated Control Message Format
Document these new first longword bits in the ECM header:

```
+-----------------------------------------------+
|Type=8 |S|D|E|M|            Reserved                           |
+-----------------------------------------------+
```

5. Changing the Contents of EID-to-RLOC Mappings

5.1. Clock Sweep

(Requires further discussion)

5.2. SMR

6. Interactions with Other LISP Components

6.1. ITR EID-to-RLOC Mapping Resolution

6.2. EID-Prefix Configuration and ETR Registration

6.3. Map-Server Processing

6.4. Map-Resolver Processing

Include LISP-DDT and concept of Map-Resolvers have a referral-cache.

6.4.1. Anycast Map-Resolver Operation

6. Security Considerations

Reference lisp-threats

7. References

7.1. Normative References

7.2. Informative References