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D. Lewis
Cisco
J. Lemon
Broadcom
P. Agarwal
Innovium
L. Kreeger

P. Quinn
M. Smith
N. Yadav
F. Maino, Ed.
Cisco
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LISP Generic Protocol Extension
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Abstract

This draft describes extending the Locator/ID Separation Protocol (LISP), via changes to the LISP header, to support multi-protocol encapsulation.

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[1.](#) Introduction

LISP, as defined in [[RFC6830](#)] and extended in [[I-D.ietf-lisp-rfc6830bis](#)], defines an encapsulation format that carries IPv4 or IPv6 (henceforth referred to as IP) packets in a LISP header and outer UDP/IP transport.

The LISP header does not specify the protocol being encapsulated and therefore is currently limited to encapsulating only IP packet payloads. Other protocols, most notably VXLAN [[RFC7348](#)] (which defines a similar header format to LISP), are used to encapsulate L2 protocols such as Ethernet.

This document defines an extension for the LISP header, as defined in [[I-D.ietf-lisp-rfc6830bis](#)], to indicate the inner protocol, enabling the encapsulation of Ethernet, IP or any other desired protocol all the while ensuring compatibility with existing LISP deployments.

A flag in the LISP header, called the P-bit, is used to signal the presence of the 8-bit Next Protocol field. The Next Protocol field,

LISP-GPE Header

4. Backward Compatibility

LISP-GPE uses the same UDP destination port (4341) allocated to LISP.

A LISP-GPE router MUST not encapsulate non-IP packets to a LISP router. A method for determining the capabilities of a LISP router (GPE or "legacy") is out of the scope of this draft.

When encapsulating IP packets to a LISP "legacy" router the P bit MUST be set to 0.

4.1. Type of Service

When a LISP-GPE router performs Ethernet encapsulation, the inner 802.1Q [IEEE8021Q] priority code point (PCP) field MAY be mapped from the encapsulated frame to the Type of Service field in the outer IPv4 header, or in the case of IPv6 the 'Traffic Class' field.

4.2. VLAN Identifier (VID)

When a LISP-GPE router performs Ethernet encapsulation, the inner header 802.1Q [IEEE8021Q] VLAN Identifier (VID) MAY be mapped to, or used to determine the LISP Instance ID field.

5. IANA Considerations

IANA is requested to set up a registry of LISP-GPE "Next Protocol". These are 8-bit values. Next Protocol values in the table below are defined in this draft. New values are assigned via Standards Action [RFC5226].

Next Protocol	Description	Reference
0	Reserved	This Document
1	IPv4	This Document
2	IPv6	This Document
3	Ethernet	This Document
4	NSH	This Document
5	Reserved	
6	GBP	This Document
7	Reserved	
8..255	Unassigned	

6. Security Considerations

LISP-GPE security considerations are similar to the LISP security considerations documented at length in [I-D.ietf-lisp-rfc6830bis]. With LISP-GPE, issues such as dataplane spoofing, flooding, and traffic redirection may depend on the particular protocol payload encapsulated.

7. Acknowledgements

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Authors' Addresses

Darrel Lewis
Cisco Systems

Email: darlewis@cisco.com

John Lemon
Broadcom
3151 Zanker Road
San Jose, CA 95134
USA

Email: john.lemon@broadcom.com

Puneet Agarwal
Innovium
USA

Email: puneet@acm.org

Larry Kreeger
USA

Email: lkreeger@gmail.com

Paul Quinn
Cisco Systems

Email: pquinn@cisco.com

Michael Smith
Cisco Systems

Email: michsmit@cisco.com

Navindra Yadav
Cisco Systems

Email: nyadav@cisco.com

Fabio Maino (editor)
Cisco Systems
San Jose, CA 95134
USA

Email: fmaino@cisco.com

