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LISP Generic Protocol Extension
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Abstract

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

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[1.](#) Introduction

LISP Data-Plane, as defined in 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 Data-Plane 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, when present, uses 8 bits of the field allocated to the echo-noncing and map-versioning features. The two features are still available, albeit with a reduced length of Nonce and Map-Version.

The next Section describes a method to determine the Data-Plane capabilities of a LISP ETR, based on the use of the "Multiple Data-

4.2. 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

4.3. 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 document. 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..255	Unassigned	

6. Security Considerations

LISP-GPE security considerations are similar to the LISP security considerations and mitigation techniques documented in [[RFC7835](#)].

With LISP-GPE, issues such as data-plane spoofing, flooding, and traffic redirection may depend on the particular protocol payload encapsulated.

7. Acknowledgements and Contributors

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This WG document originated as [draft-lewis-lisp-gpe](#); the following are its coauthors and contributors along with their respective affiliations at the time of WG adoption. The editor of this document

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