LISP Generic Protocol Extension (LISP-GPE)

draft-lewis-lisp-gpe

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Why LISP-GPE

- RFC6830 relies on the inspection of the first byte of the inner header to indicate the inner header's IP version

- Use cases for both DC host mobility and L2 VPNs require encapsulation of Ethernet

- Desire of the authors to promote experimentation with LISP in these use cases

LISP-GPE

- Define lower 16 bits in first word of LISP header as protocol type
- **Define Protocol bit (P bit)**
  - P=0: payload MUST conform to RFC6830 as currently defined (i.e. IP[4,6])
  - P=1: Indicates presence of protocol type field
- When P bit is set, N, E and V bits must be Zero

```
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|N|L|E|V|I|P|R|R|   Reserved    |Nonce/Map Version/Protocol Type|
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|              Instance ID / Locator-Status-Bits                |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

Trade Offs

- The P bit comes at the expense of two features: Nonce, Map Versioning and Echo-Nonceing

Summary

- Enables operators/experimenters to use LISP for all protocols

- Compatible with draft-quinn-vxlan-gpe → see presentation at NVO3 WG

- Working with authors of draft-yong-l3vpn-nvgre-vxlan-encap to align on common format