

Extending ICMPv6 for SRv6-SID-related Information Validation

draft-liu-6man-icmp-verification

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Background and Motivation

SRv6 SIDs can be related with extra information :

- VPN/EVPN Services
- SRv6 Endpoint Behaviors
- Flex Algorithms
- Service Functions
- ...

SR-MPLS/MPLS

LSP Ping: new info related with MPLS label/SID-->new FEC sub-TLV defined

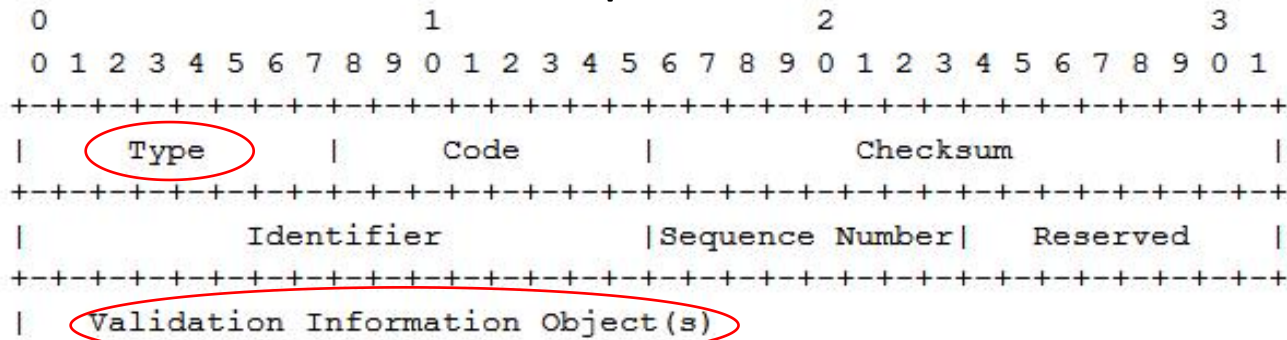
SRv6

No similar mechanism, only ping for dataplane connection validation.

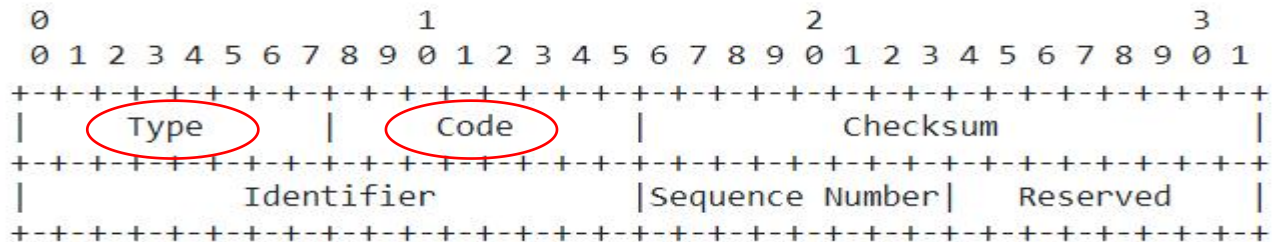
Taking examples from FEC validation in Ispping, this draft defines ICMPv6 messages to verify the data plane against the control plane for SRv6.

New ICMPv6 Messages

ICMPv6 Validation Request



ICMPv6 Validation Reply



Code:

(0) Validation passed

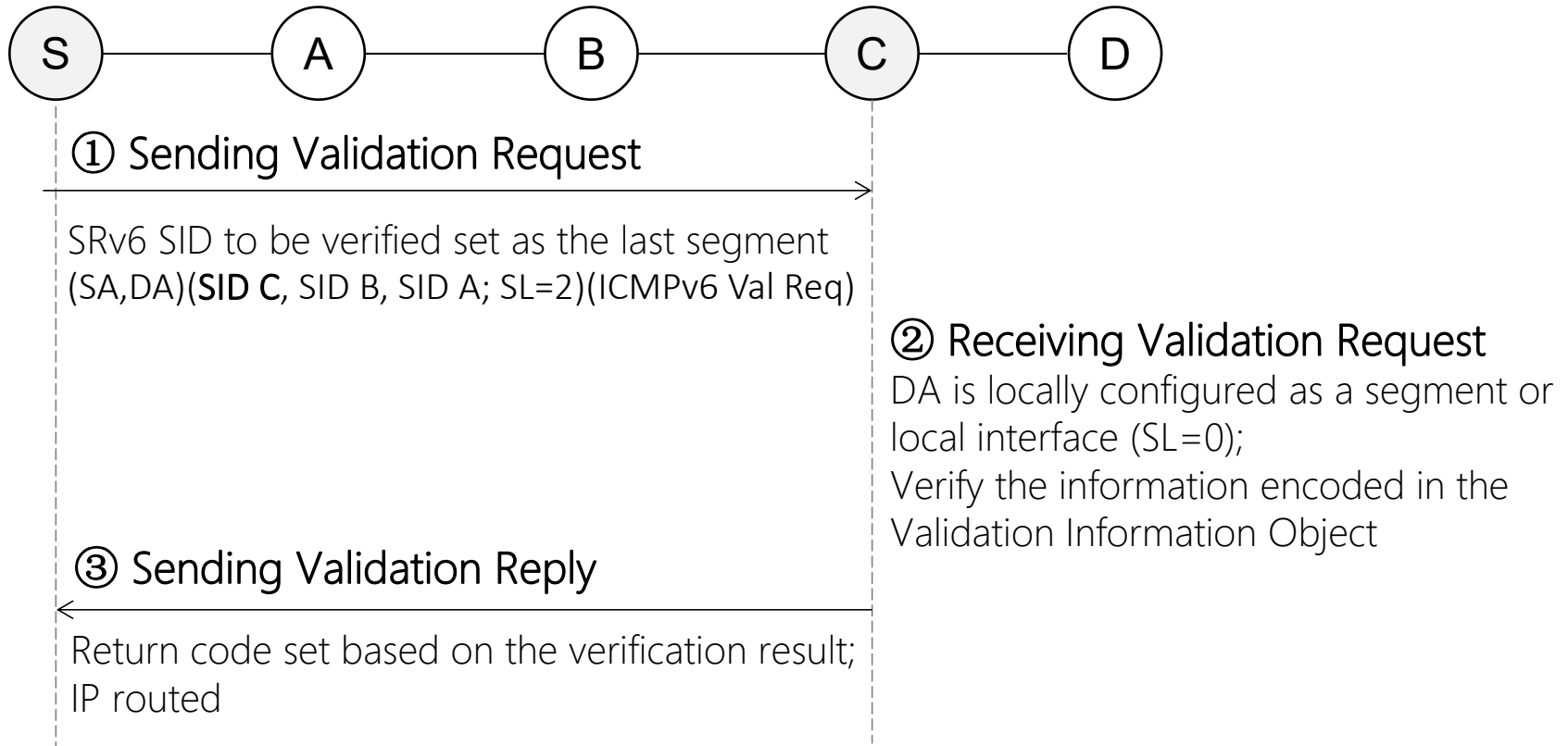
(1) Malformed request received

(2) One or more of the objects were not understood

(3) Information mismatch

Processing Procedures

Ping Mode



Comments/Discussions at IETF 118

- new type of FEC info---> new FEC sub-TLVs--> device upgrade needed
 - not very implementation friendly
 - introducing similar mechanisms in SRv6 leads to similar problems
- Ispping widely used but not FEC validation, requirement for validation not that strong
 - Is validation between the data plane against control plane required for troubleshooting in the real network, regardless of MPLS or SRv6 ?
- to get feedback/experience from MPLS

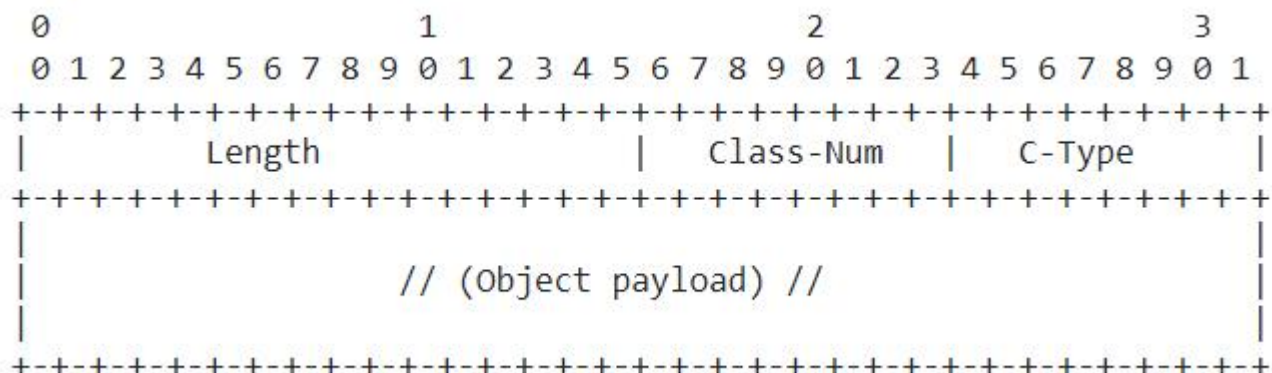
Next Steps

- Request feedback and comments from MPLS experts
- Seeking requirements from the network
- Welcome cooperation!

Thank You !

Backup Slides

Validation Information Object



a new ICMP Extension Object

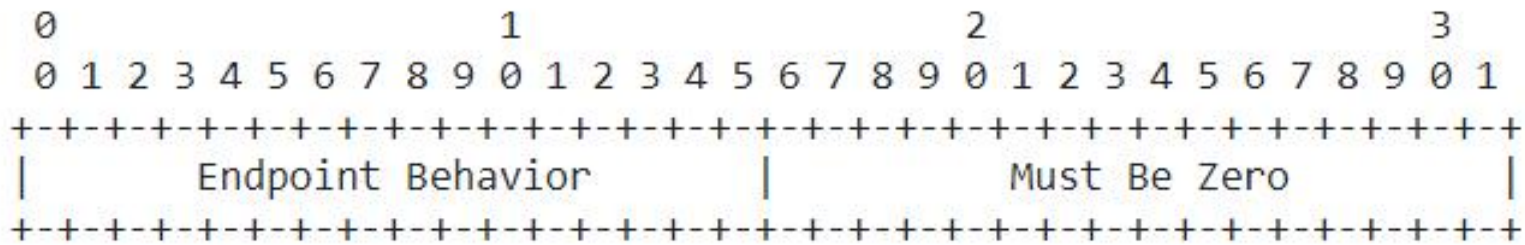
- Class-Num: TBA, indicates the Validation Information Object
- C-Type: indicates the type of the information that needs to be verified
- Object payload: C-Type-specific data

C-Type	Object Payload
1	Endpoint Behavior
2	IPv6 Prefix IGP Algorithm
3	SRv6 IGP-Adjacency Segment
4	VPN IPv4 Prefix
5	VPN IPv6 Prefix

Object Payload-1

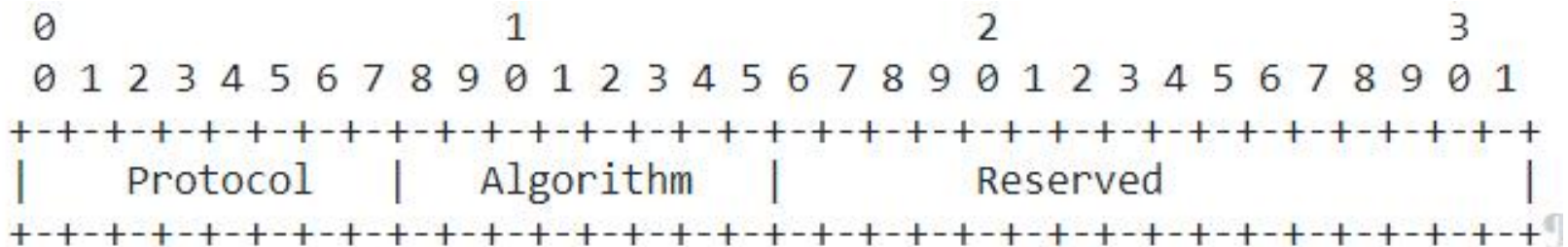
SRv6 Endpoint Behavior

RFC8986



IPv6 Prefix IGP Algorithm

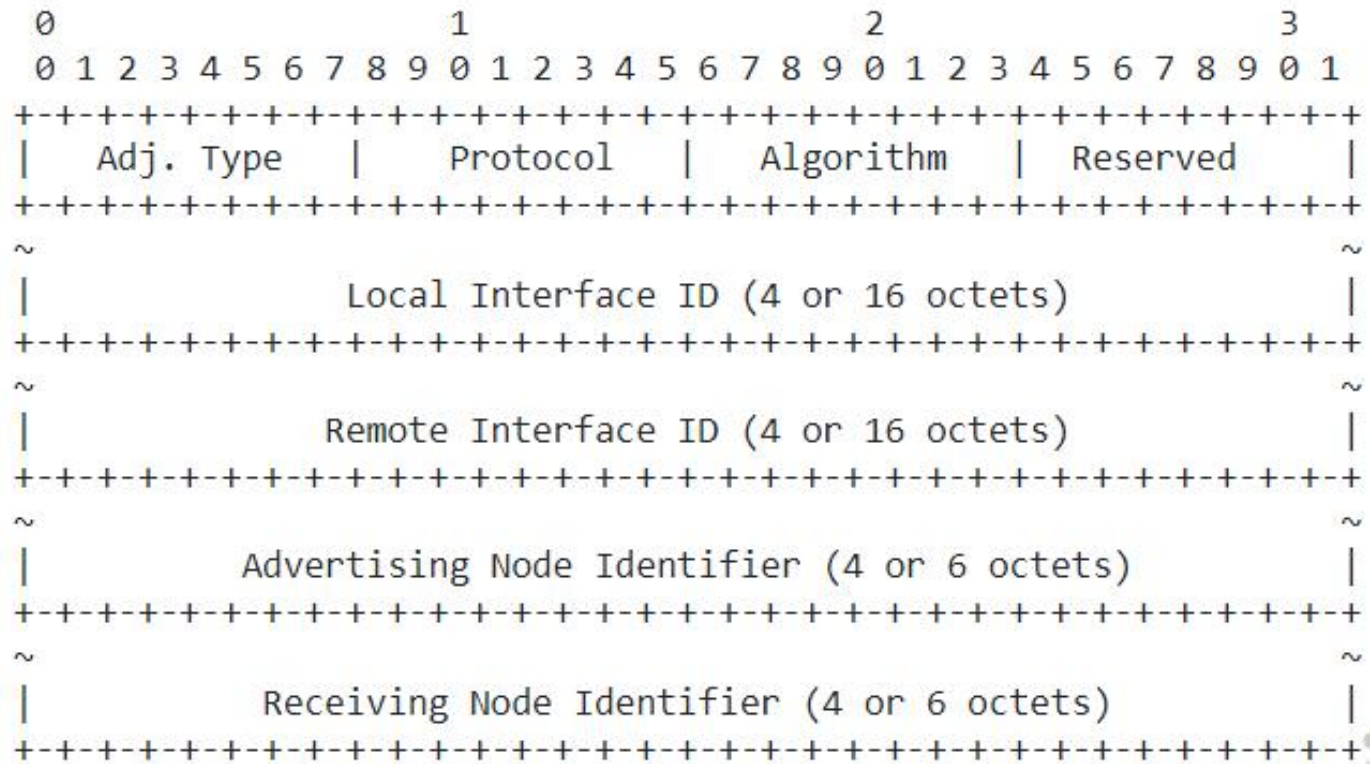
RFC9350



Object Payload-2

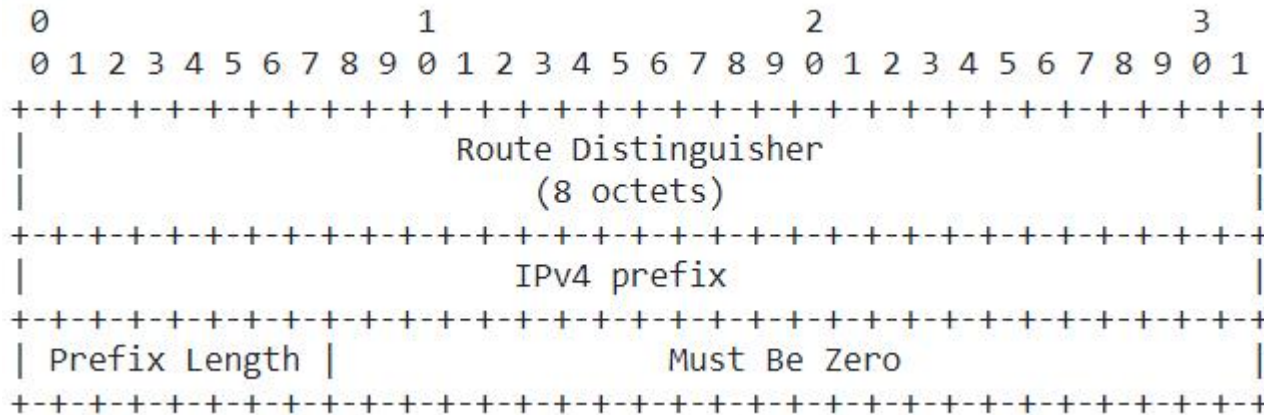
SRv6 IGP-Adjacency

RFC8402



Object Payload-3

VPN IPv4 Prefix



RFC9252

VPN IPv6 Prefix

