PCEP Extensions for sid verification for SR-MPLS

draft-chen-pce-sr-mpls-sid-verification-05

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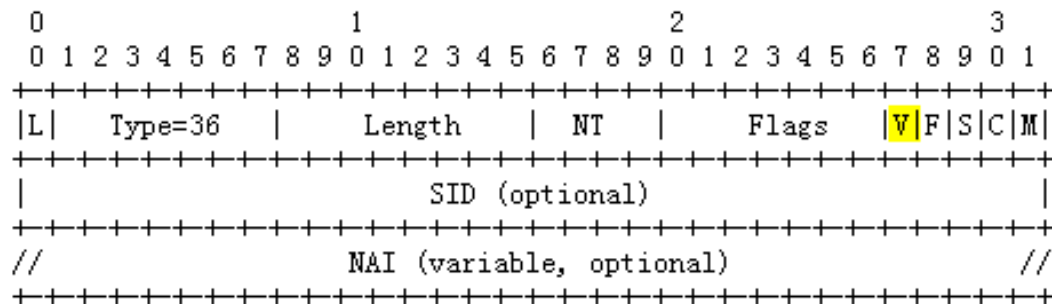PCE WG IETF-114 Meeting, July 2022

What's about the latest version?

- Use "V-Flag" instead of "Extended V-Flag".
- Remove figure 1 "The format of the SR-ERO sub-object".
- Add SID verification Processing.
- Use a "TBD" code point for V bit in IANA section.

Motivation

- draft-ietf-spring-segment-routing-policy describes the "SID verification" bit usage. SID verification is performed when the headend is explicitly requested to verify SID(s) by the controller via the signaling protocol used. Implementations MAY provide a local configuration option to enable verification on a global or per policy or per candidate path basis.

- RFC8664 specifies extensions to the PCEP that allow a stateful PCE to compute and initiate TE paths, as well as a Path Computation Client (PCC) to request a path subject to certain constraints and optimization criteria in SR networks.

- This document defines a new flag for indicating the headend is explicitly requested to verify SID(s) by the PCE.

SID verification flag(V-Flag)

- V-Flag is defined in SR-ERO Subobject for indicating the PCC is explicitly requested to verify SID(s) by the PCE.

```
 0                   1                   2                   3
 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|L|   Type=36    |     Length     |  NT   |      Flags    |V|F|S|C|M|
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                          SID (optional)                       |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
//                   NAI (variable, optional)                   //
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

- Extended V-Flag （TBD） in SR-RRO Subobject
  - The format of the SR-RRO subobject is the same as that of the SR-ERO subobject, but without the L-Flag, per RFC8664.
  - The V flag has no meaning in the SR-RRO and is ignored on receipt at the PCE.

SID verification Processing

- On receiving an SRv6-ERO with the V-flag is set, a PCC MUST verify SID(s) .

- If a PCC "Verification fails" for a SID, it MUST report this error by including the LSP-ERROR-CODE TLV with LSP error-value "SID Verification fails" in the LSP object in the PCRpt message to the PCE.

Next Step

- Comments welcome

- WG adoption ☺

Thanks!