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             PCEP Extensions for sid verification for SR-MPLS
                draft-chen-pce-sr-mpls-sid-verification-01

Abstract

   This document updates [RFC8664] to clarify usage of "SID
   verification" bit signalled in Path Computation Element Protocol
   (PCEP), and this document proposes to define a new flag for
   indicating the headend is explicitly requested to verify SID(s) by
   the PCE.

Status of This Memo

   This Internet-Draft is submitted in full conformance with the
   provisions of BCP 78 and BCP 79.

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   time. It is inappropriate to use Internet-Drafts as reference
   material or to cite them other than as "work in progress."

   This Internet-Draft will expire on August 26, 2021.

Table of Contents

1. Introduction

[I-D.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 Path Computation Element
Communication Protocol (PCEP) that allow a stateful PCE to compute
and initiate Traffic-Engineering (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 updates [RFC8664] to clarify usage of "SID
verification" bit signalled in Path Computation Element Protocol
(PCEP), and this document proposes to define a new flag for
indicating the headend is explicitly requested to verify SID(s) by
the PCE.

2. Conventions used in this document

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT",
"SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this
document are to be interpreted as described in RFC2119.

3. **SID verification flag(V-Flag)**

3.1. **Extended V-Flag in SR-ERO Subobject**

   Section 4.3.1 in Path Computation Element Communication Protocol
   (PCEP) Extensions for Segment Routing [RFC8664] describes a new ERO
   subobject referred to as the "SR-ERO subobject" to carry a SID and/or
   NAI information. A new flag is proposed in this doucument in the SR-
   ERO Subobject for indicating the pcc is explicitly requested to
   verify SID(s) by the PCE.

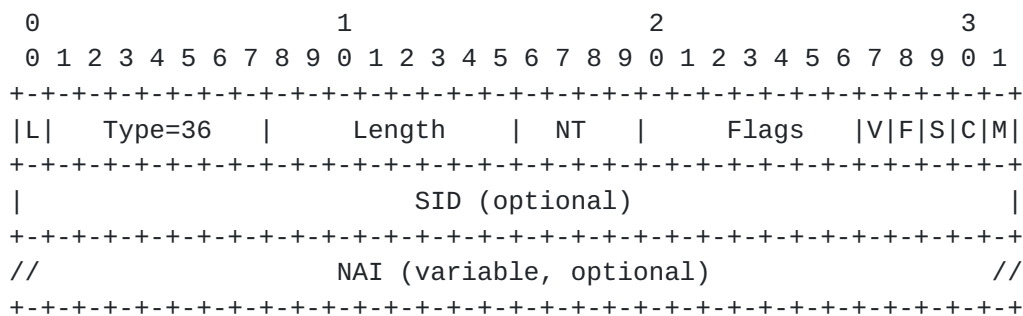   The format of the SR-ERO subobject as defined in [RFC8664] is:

```
 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)                 //
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

         Figure 1 SR-ERO Subobject Format of extended V-Flag

   V: When the V-Flag is set then PCC MUST consider the "SID
   verification" as described in Section 5.1 in
   [I-D.ietf-spring-segment-routing-policy] .

3.2. **Extended V-Flag 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.

4. **Security Considerations**

   TBD.

5. **IANA Considerations**

5.1. SR-ERO Subobject

   This document defines a new bit value in the sub-registry "SR-ERO
   Flag Field" in the "Path Computation Element Protocol (PCEP) Numbers"
   registry.

Bit	Name	Reference
7	SID verification(V)	This document

6. Normative references

   [I-D.ietf-spring-segment-routing-policy]
             Filsfils, C., Talaulikar, K., Voyer, D., Bogdanov, A., and
             P. Mattes, "Segment Routing Policy Architecture", draft-
             ietf-spring-segment-routing-policy-09 (work in progress),
             November 2020.

   [RFC8664] Sivabalan, S., Filsfils, C., Tantsura, J., Henderickx, W.,
             and J. Hardwick, "Path Computation Element Communication
             Protocol (PCEP) Extensions for Segment Routing", RFC 8664,
             DOI 10.17487/RFC8664, December 2019,
             <https://www.rfc-editor.org/info/rfc8664>.

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