Export of SRv6 Path Segment Identifier Information in IPFIX

draft-liu-opsawg-ipfix-path-segment

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Background and Motivation

- IPFIX: IP Flow Information Export protocol, serves as a means for transmitting Traffic Flow information over the network.
  - Information Element(IE): a description of an attribute that may appear in an IPFIX Record

- IPFIX for SRv6 [RFC9487]
  - New IPFIX IEs to identify a set of information related to SRv6, including most of the fields in SRH
  - 2 IEs for exporting the segment list in SRH, both encode the Segment List starting from Segment List[0]

- The whole segment list is not always the best key identifier, similar reasons as in [draft-ietf-spring-srv6-path-segment]
  - When there're many SIDs in the list, the size of IPFIX message would be large, inefficient to collect and analyze the flow records.
  - If different SRv6 policies use the same segment list for traffic steering, it is difficult to distinguish the traffic flow of different SRv6 policies.
  - An SRv6 path may not be identified by the segment list carried by the SRH in reduced mode, as the first SID is not present in the SRH.

IPFIX for SRv6 PSID

- SRv6 PSID [draft-ietf-spring-srv6-path-segment]
  - defined to identify an SRv6 path
  - encoded as the last entry in the segment list in SRH, with SRH.P-flag set

- IPFIX for SRv6 PSID ------> a new IE
  - **srhPSID:** the 128-bit IPv6 address that represents an SRv6 PSID
  - Flags: already defined in [RFC9487]

```
 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
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
| Next Header   |  Hdr Ext Len  | Routing Type  | Segments Left |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|  Last Entry   |     Flags     |              Tag              |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                                                               |
|            Segment List[0] (128 bits IPv6 address)            |
|                                                               |
|                                                               |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                                                               |
|                                                               |
                              ...
|                                                               |
|                                                               |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                                                               |
|          Segment List[n-1] (128 bits IPv6 address)            |
|                                                               |
|                                                               |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                                                               |
|        SRv6 PSID (Segment List[n],128 bits IPv6 value)        |
|                                                               |
|                                                               |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
//                                                             //
//         Optional Type Length Value objects (variable)       //
//                                                             //
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

- How to operate, following [draft-ietf-spring-srv6-path-segment]
  - In order to generate Flow Records with PSID included, the metering process needs to understand the P-flag.
  - Only when the P-flag is set, the metering process captures the last entry in the SRH to get the PSID.
  - The the analysis node SHOULD be aware of which SR path the PSID identifies

Next Steps

- Welcome feedback and comments!

Thank You !