Export of Segment Routing IPv6 Information in IPFIX

draft-ietf-opsawg-ipfix-srv6-srh-02

Enabling insights in SRv6 forwarding plane
by adding Segment Routing dimensions

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SRv6 @ IPFIX

Draft Status

- Received comments from SPRING, OPSAWG and network vendors working on implementations and
- **Addressed all open issues.** Verified with IANA how to manage the srhFlagsIPv6 and srhSegmentEndpointBehavior registries. Outcome is to have a reference to the "Segment Routing Header" registry instead of listing the entries in the IPFIX registry.
- Expanded the terminology section to have a consolidated view on which terms are inherited from which RFC.
- Added "Segment Routing Policy" in the srhActiveSegmentIPv6Type registry.
- Added "Multiple Segment Routing Headers" in the "Operational Considerations" section.
- Corrected "Template Record and Data Set with SRH Section" example.

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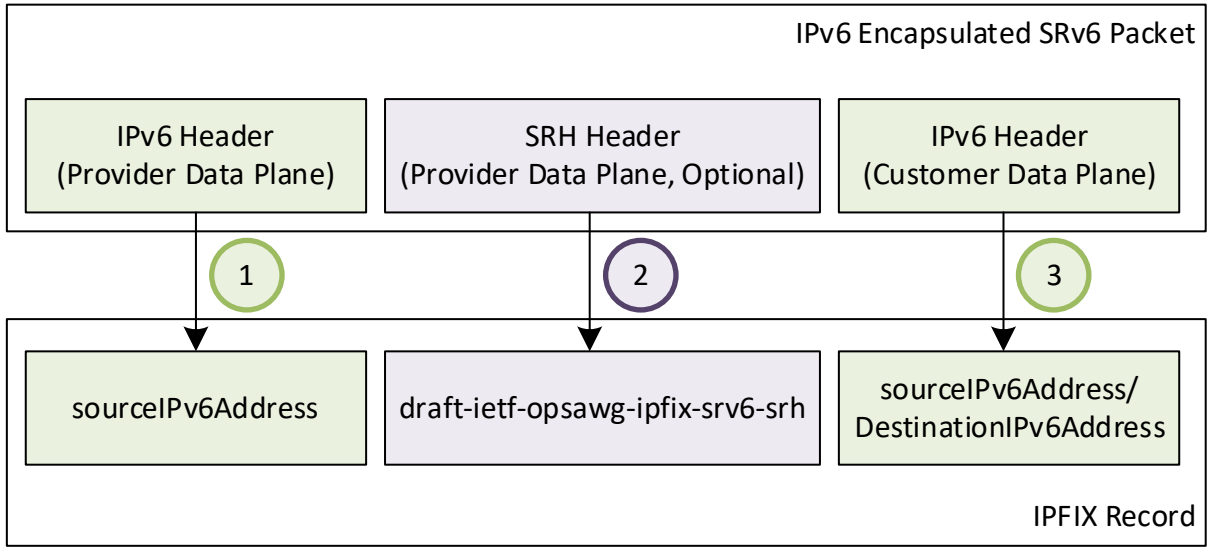
VPP implementation status – lab topology

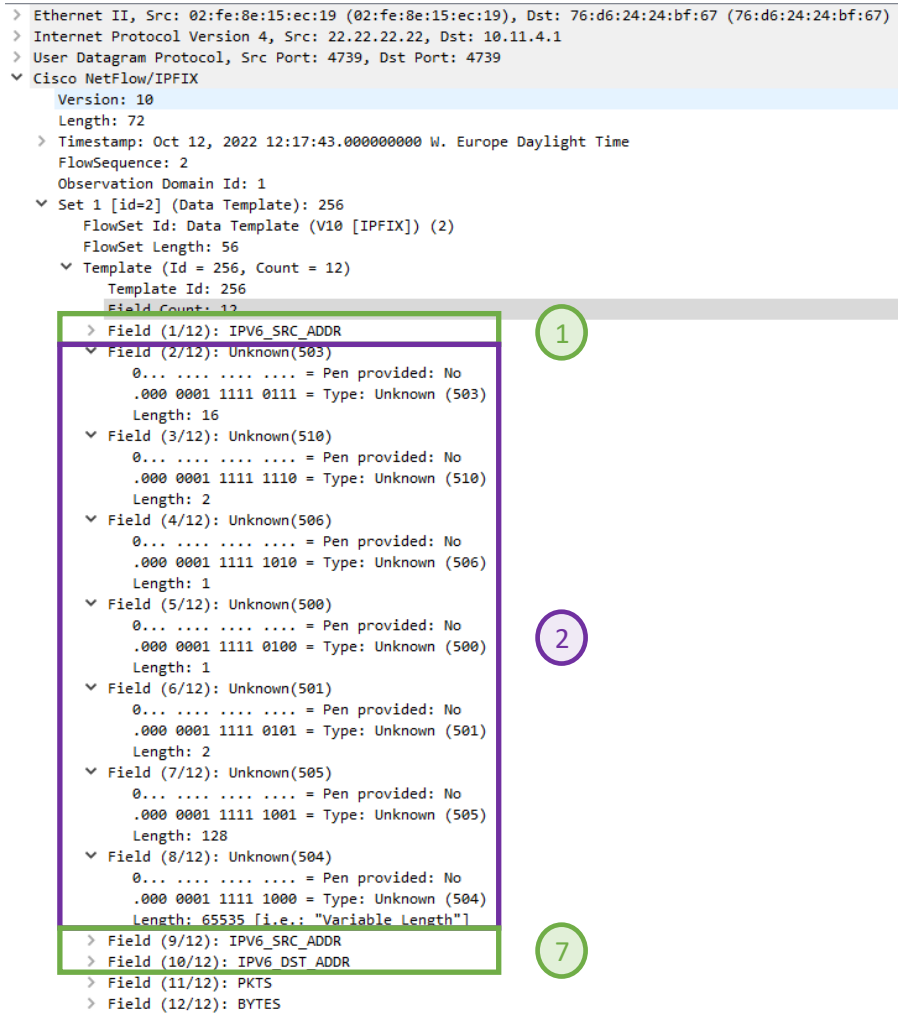
- Describe lab topology.
- Describe where source code is available. Current limitations and next steps.

SRv6 @ IPFIX

VPP implementation status – record order matters



- Shows an IPFIX data-template example for a IPv6 encapsulated SRv6 Packet. **IPFIX entity sourceIPv6Address appears twice.**
- **Order of the data records matter as described in Section 8 of [RFC7011].** Distinguishes between the tunneled Customer Data Plane and the Provider Data Plane.



SRv6 @ IPFIX

VPP implementation status – records exposed

(1) srhActiveSegmentIPv6

128-bit IPv6 address that represents the active SRv6 segment.

(2) srhSegmentEndpointBehavior

16-bit unsigned integer that represents a SRv6 Endpoint behavior as per Section 4 of [RFC8986].

(3) srhSegmentIPv6sLeft

8-bit unsigned integer defining the number of route segments remaining to reach the end of the segment list.

(4) srhFlagsIPv6

8-bit flags defined in the SRH.

(5) srhTagIPv6

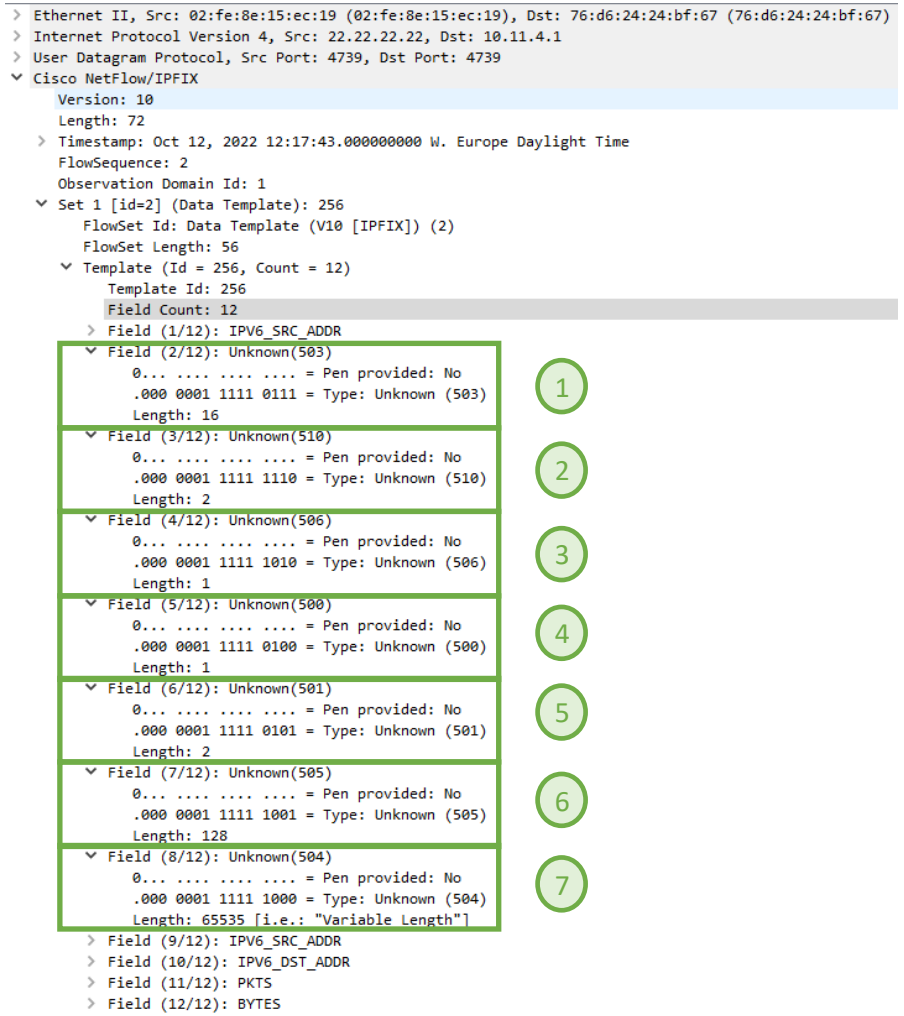
16-bit tag field defined in the SRH that marks a packet as part of a class or group of packets sharing the same set of properties.

(6) srhSegmentIPv6ListSection

Exposes the SRH Segment List as defined in section 2 of [RFC8754] as series of n octets.

(7) srhSegmentIPv6BasicList

Ordered basicList [RFC6313] of zero or more 128-bit IPv6 addresses in the SRH that represents the SRv6 segment list. The Segment List is encoded starting from the active segment of the SR Policy.



SRv6 @ IPFIX

Huawei VRP implementation status – lab topology

- Describe lab topology.
- Describe where source code is available. Current limitations and next steps.

SRv6 @ IPFIX

Huawei VRP implementation status – records exposed

(1) srhActiveSegmentIPv6

128-bit IPv6 address that represents the active SRv6 segment.

(2) srhSegmentIPv6sLeft

8-bit unsigned integer defining the number of route segments remaining to reach the end of the segment list.

(3) srhFlagsIPv6

8-bit flags defined in the SRH.

(4) srhTagIPv6

16-bit tag field defined in the SRH that marks a packet as part of a class or group of packets sharing the same set of properties.

(5) srhSegmentIPv6ListSection

Exposes the SRH Segment List as defined in section 2 of [RFC8754] as series of n octets.

According to A.1.2. Template Record and Data Set with Segment List Section

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Huawei VRP implementation status – options exposed

(1) srhSegmentIPv6

128-bit IPv6 address that represents a SRv6 segment.

(2) srhSegmentLocatorLength

8-bit The number of significant bits. Together with srhSegmentIPv6 it enables the calculation of the SRv6 Locator.

(3) srhSegmentEndpointBehavior

16-bit unsigned integer that represents a SRv6 Endpoint behavior as per Section 4 of [RFC8986].

According to A.2. Options Template Record and Data Set for SRv6 Segment End Point behavior and Locator Length

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Next Steps

- **Missing SRv6 data-plane visibility is a recognized problem.**
- **Open-source running code published.**
- **First commercial vendor implementations will be public end of Q1 and Q3 2023.**
- The authors would like to ask the OPSAWG working group **wherever it beliefs that the document is in stable state to request early code point allocation at IANA** or not.

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