Export of MPLS-SR Label Type Information in IPFIX

Enabling insights in MPLS-SR forwarding plane by adding Segment Routing dimensions
MPLS-SR @ IPFIX
Vendor Status

- MPLS-SR uses the existing MPLS data plane.

- Therefore, looking how IPFIX metrics are exposed at a current MPLS-SR vendor implementation we see not much of a difference to classical MPLS.

- Looking more deeply, we notice "not much" is pretty much what is missing.

- mplsTopLabelType is referencing LDP even though there isn't any LDP anymore. -> Funny
MPLS-SR @ IPFIX
IANA code points

• Looking at IANA makes it clear, there is NO mplsTopLabelType code point for BGP, IS-IS, OSPFv2 and OSPFv3 Segment Routing.
MPLS-SR @ IPFIX
IANA Reference vs. Requester

• Two IPFIX doctor reviews, revealed that requester column is hidden at IANA and content in reference column should be in requester column and vice versa.

• IANA and IE doctors confirmed that IE46 registry will be fixed soon so that new code points can be added with this draft.
Feedback collected from SPRING, MPLS, LSR and OPSAWG lists.

Called for adoption at IETF 108 OPSAWG. Piano feedback received with comment to review SrSidType and fix existing IE46 registry.

SrSidType removed from -05 version (backup slides) in favor of draft-ietf-spring-sr-yang-23#section-8.3

Two IE-DOCTOR reviews received and IE46 registry correction submitted to IANA and currently pending.

Presented at MPLS at IETF 109 and received positive feedback.

-> Call for adoption at OPSAWG at IETF 110 again
Backup
MPLS-SR @ IPFIX
RFC 8402, SID's, SID's

• Segment Routing is all about SID's.
• An Adjacency-SID can be used by TI-LFA or uLoop avoidance to use a different path to the Prefix SID than what the routing protocol calculated as best path.
• Where are the SID's in IPFIX? -> Nowhere!
Segment Routing adds the source routing paradigm to MPLS and enhances IGP routing protocol to carry label information.

Let's bring visibility into how Segment Routing applications change the MPLS forwarding plane.

"Show me all MPLS-SR controlled traffic where Adj-SID's were used, group by Label Stack, and show for each through which nodes and interfaces it was forwarded."

Fill the missing gaps at IPFIX:
  - Update `mplsTopLabelType`
  - Introduce `SrSidType`