Export of MPLS Network Action (MNA) Information in IPFIX

draft-liu-opsawg-ipfix-mpls-mna

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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 from an exporter to a collector.

- Information Element(IE): a description of an attribute that may appear in an IPFIX Record

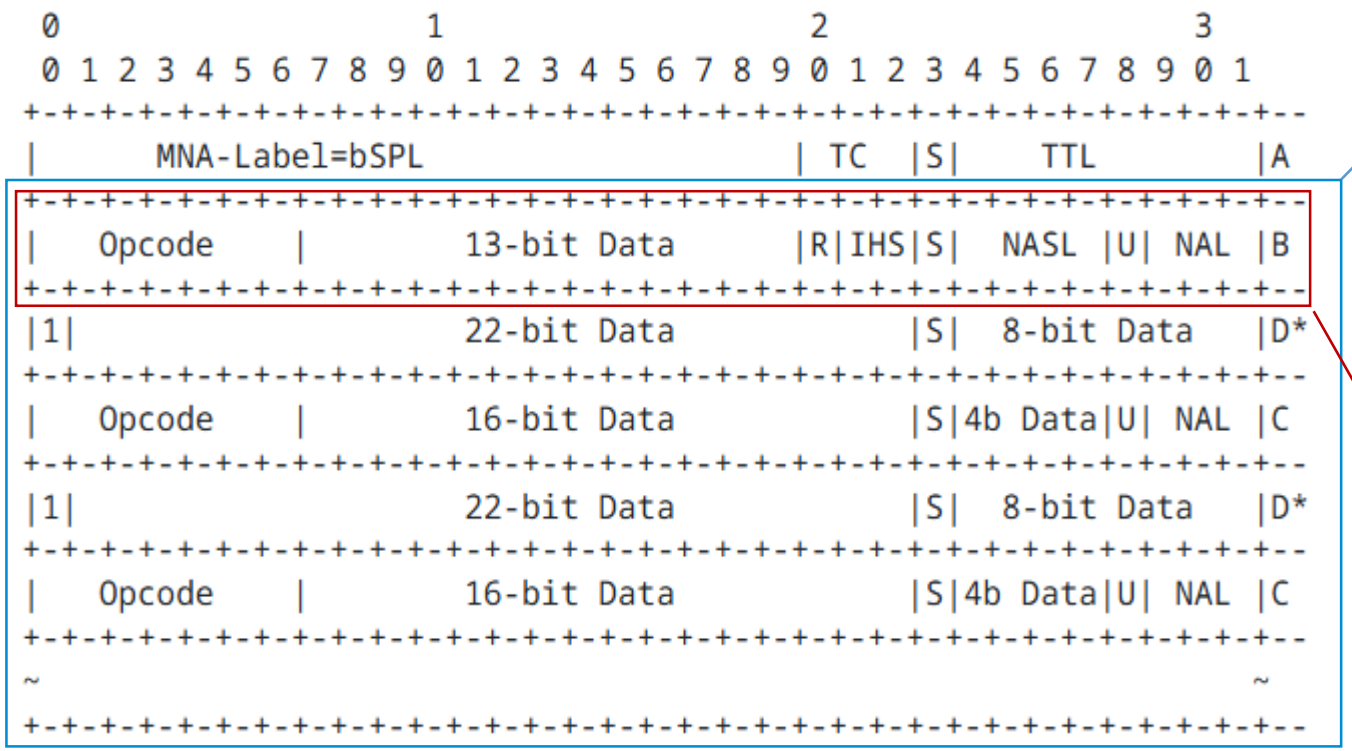
➢ Existing IPFIX IEs for fields carried in the MPLS label stack and pos stack

- mplsTopLabelStackSection/mplsLabelStackSection2/mplsLabelStackSection3/...(IE 70-IE 79) : The Label, Exp, and S fields(no TTL) from the corresponding LSE in the label stack.
- mplsLabelStackSection(IE 316): a series of n octets from the MPLS label stack of a sampled packet, starting sectionOffset(IE 409) octets into the MPLS label stack
- mplsPayloadPacketSection(IE 317): a series of n octets from the MPLS payload of a sampled packet, starting sectionOffset(IE 409) octets into the MPLS payload

➢ If the MPLS MNA information of the packet needs to be reported via IPFIX:
mplsLabelStackSection(IE 316) and mplsPayloadPacketSection(IE 317) are not the best choice

- additional procedures are required at the network analyzer to parse IE to see if there's any MNA information carried in it and what's the detailed MNA information
- bring extra complexity in the network analyzer
- bigger IPFIX message size

New IPFIX IEs for In-Stack MNAs



Legend: * Format-D LSE presence indicated by NAL greater than one

Figure 1: An MNA Sub-Stack Encoding Example

The MNA Sub-Stack MUST begin with a Format A LSE(i.e.,bSPL)
The second LSE in a NAS MUST be a Format B LSE.
Optional one or more Format C and Format D.

➢ IE mplsMnaSubStack:

- The MNA Sub-Stack in the MPLS label stack with the MNA Sub-Stack Indicator excluded
- variable length

➢ IE mplsMnaLseFormatB:

- The LSE Format B carried in the MPLS Network Action Sub-Stack(NAS)
- 4 octets

New IPFIX IEs for Post-Stack MNAs

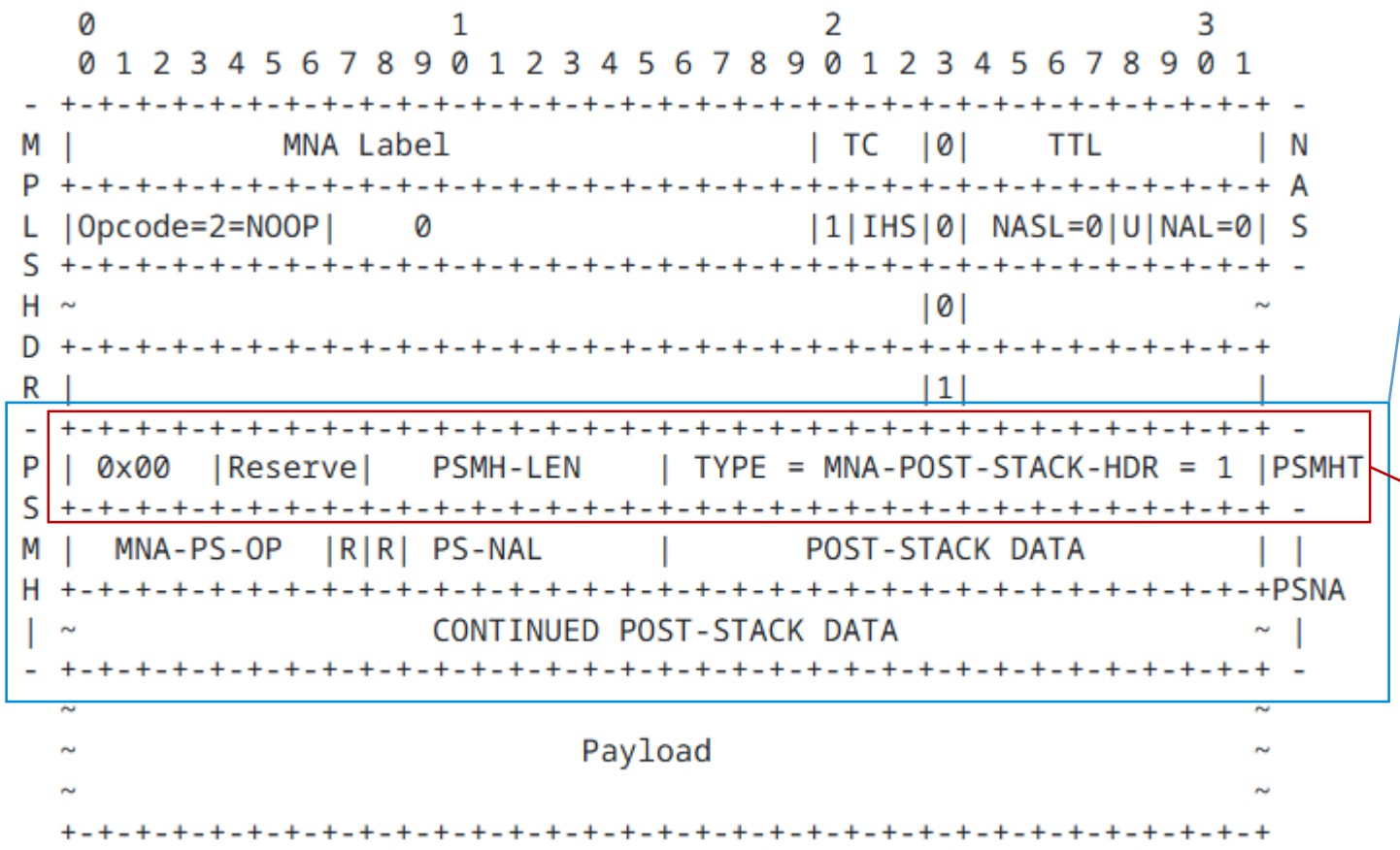


Figure 4: Example MPLS Packet with Post-Stack MPLS Header for MNA

➢ IE mnaPostStackMplsHeaderSection:

- carries the whole Post-Stack MPLS Header
- variable length

➢ IE mnaPostStackMplsHeaderType

- carries the Post-Stack MPLS Header Type
- 4 octets

PSMH: Post-Stack MPLS Header. This includes the Post-Stack MPLS header type (PSMHT) and Post-Stack network actions (PSNA).
PSMHT: Post-Stack MPLS Header Type. The top-header for all the Post-Stack Network Actions.

Next Steps

- Welcome feedback and comments!
  - Are the IEs defined properly?

Thank You !