

MPLS NETWORK ACTION (MNA) SUB-STACK SOLUTION (DRAFT-IETF-MPLS-MNA-HDR-07)

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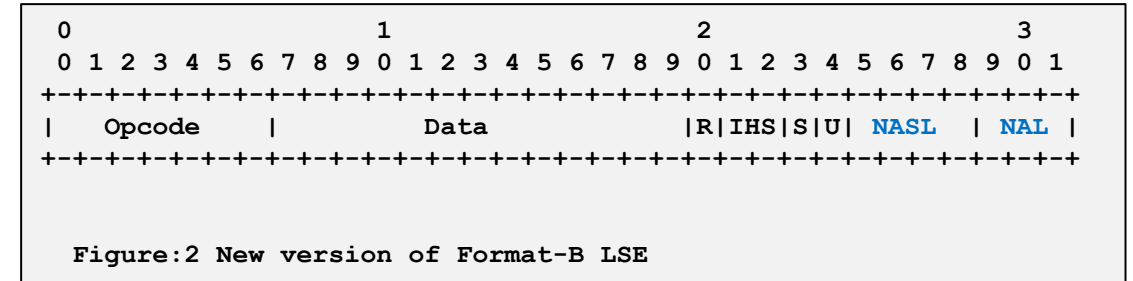
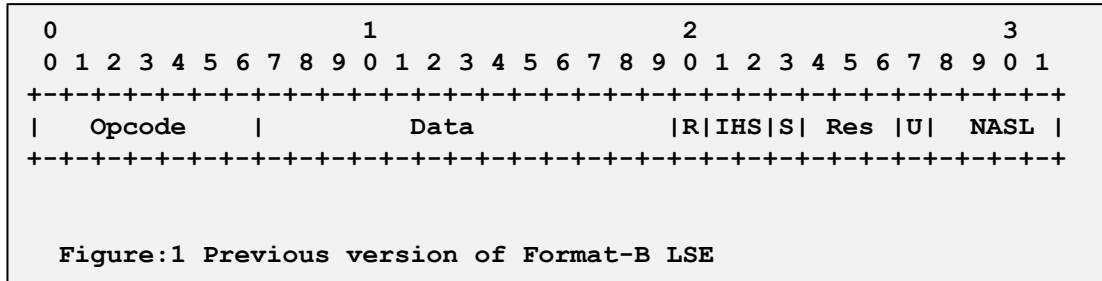
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IETF-120, MPLS WG

REVIEW COMMENTS RECEIVED DURING WG LC

1. Extend Format-B LSE to carry Additional Data
2. Update Format-C LSE to carry U bit
3. Define No-Operation Opcode
4. Implementation Status
5. Editorial Changes
6. Pending Comments
7. Next Steps

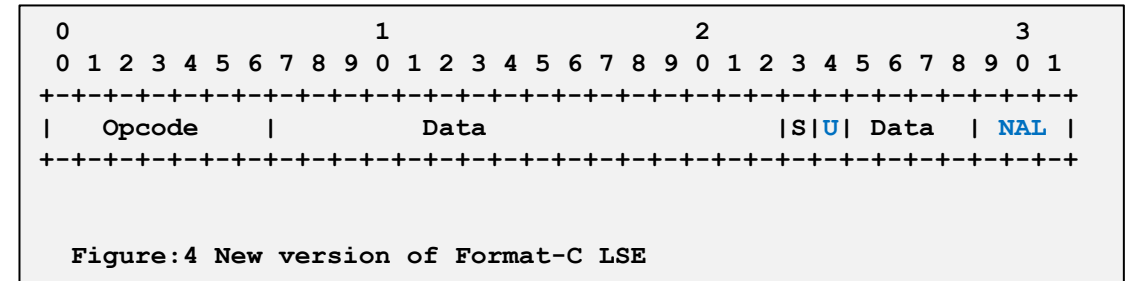
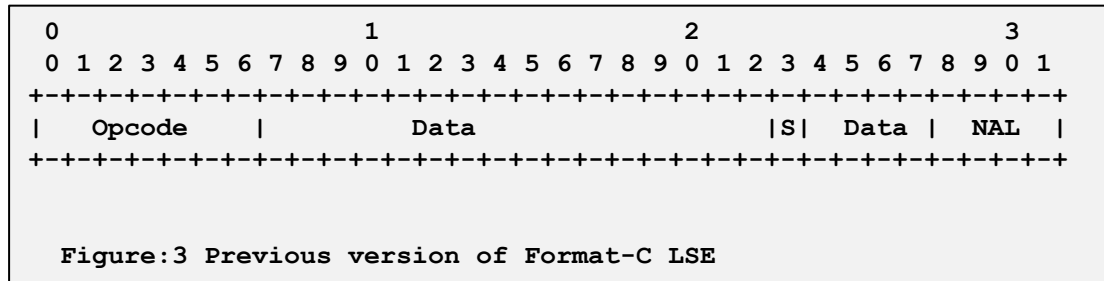
EXTENDED FORMAT-B LSE TO CARRY ADDITIONAL DATA



Changes

- Added 3-bit Network Action Length (**NAL**) field to extend Format-B LSE to carry additional data
- Adjusted the existing Network Action Sub-Stack (**NASL**) field to align the Format-B's NAL field with the NAL field of the Format-C LSE

UPDATED FORMAT-C LSE TO CARRY U BIT



Changes

- U bit: Unknown network action handling
- Added a U bit in Format-C LSE
- Reduced the NAL field from 4 bits to 3 bits

DEFINE NO-OPERATION OPCODE 2 (FORMAT B LSE)

Purpose

- This reserved opcode does not perform any Network Action and **MUST** be skipped
- Cleaner approach than using Flag-Based NAI Opcode with zeros in Data field

ADDED IMPLEMENTATION STATUS

University of Tuebingen Implementation

The solution defined in this document has been implemented using P4 pipeline. The implementation code could be found at:

- <https://github.com/uni-tue-kn/P4-MNA>

PENDING COMMENTS - SHARING DATA BETWEEN NETWORK ACTIONS

In Section 3.

OLD

This document describes how network actions and their optional ancillary data are encoded as part of an NAS as a stack of LSEs.

NEW

This document describes how network actions and their optional ancillary data are encoded as part of an NAS as a stack of LSEs. [Mechanisms that allow sharing of ancillary data AD between multiple network actions encoded in the same NAS can be described in other documents and do not rely on any explicit provision in the encodings described in this document.](#)

END

NEXT STEPS

- Welcome WG review comments and suggestions on the updates
- Early Allocation of MNA Label bSPL
- Complete WG Last Call

THANK YOU!

ABBREVIATIONS

Abbreviations	Meaning
AD	Ancillary Data
BOS	Bottom of Stack
bSPL	Base Special Purpose Label
DEX	Direct Export
E2E	Edge-To-Edge
HBH	Hop By Hop
I2E	Ingress-To-Egress
IHS	Ingress-To-Egress, Hop-By-Hop or Select Processing Scope
IOAM	In Situ OAM
ISD	In-Stack Data
MNA	MPLS Network Action
MSD	Maximum Stack Depth
NAI	Network Action Indicator
NAI-OP	Network Action Indicator Opcode
NAS	Network Action Sub-Stack
POT	Proof of Transit
PSD	Post-Stack Data
PSNA	Post-Stack Network Action
RLD	Readable Label Depth