

Segment Routing with MPLS Data Plane Encapsulation for In-situ OAM Data

draft-gandhi-mpls-ioam-sr-00

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Agenda

- Requirements and Scope
- History of the Draft
- Updates Since IETF-104
- Summary
- Next Steps

Requirements and Scope

Requirements:

- Transport In-situ OAM (IOAM) data fields with SR-MPLS Encapsulation
 - OAM information (e.g. timestamps) carried by data traffic

Scope:

- Using data fields defined in *draft-ietf-ippm-ioam-data*, *draft-ioamteam-ippm-ioam-direct-export*, and *draft-ietf-ippm-ioam-flags*, etc.
- Edge-to-edge (E2E) IOAM
- Hop-by-hop (HbH) IOAM

History of the Draft

- Oct 2018
 - Draft was first published *draft-gandhi-spring-ioam-sr-mpls*
- Nov 2018 and March 2019
 - Draft was discussed in IPPM WG meetings
- July 2019
 - Presented revision-01 at IETF 105 Montreal in SPRING and MPLS WGs
- Oct 2019
 - Chairs agreed to progress the work in MPLS WG
 - Draft renamed to *draft-gandhi-mpls-ioam-sr*

Updates Since IETF-105 (Revision-01)

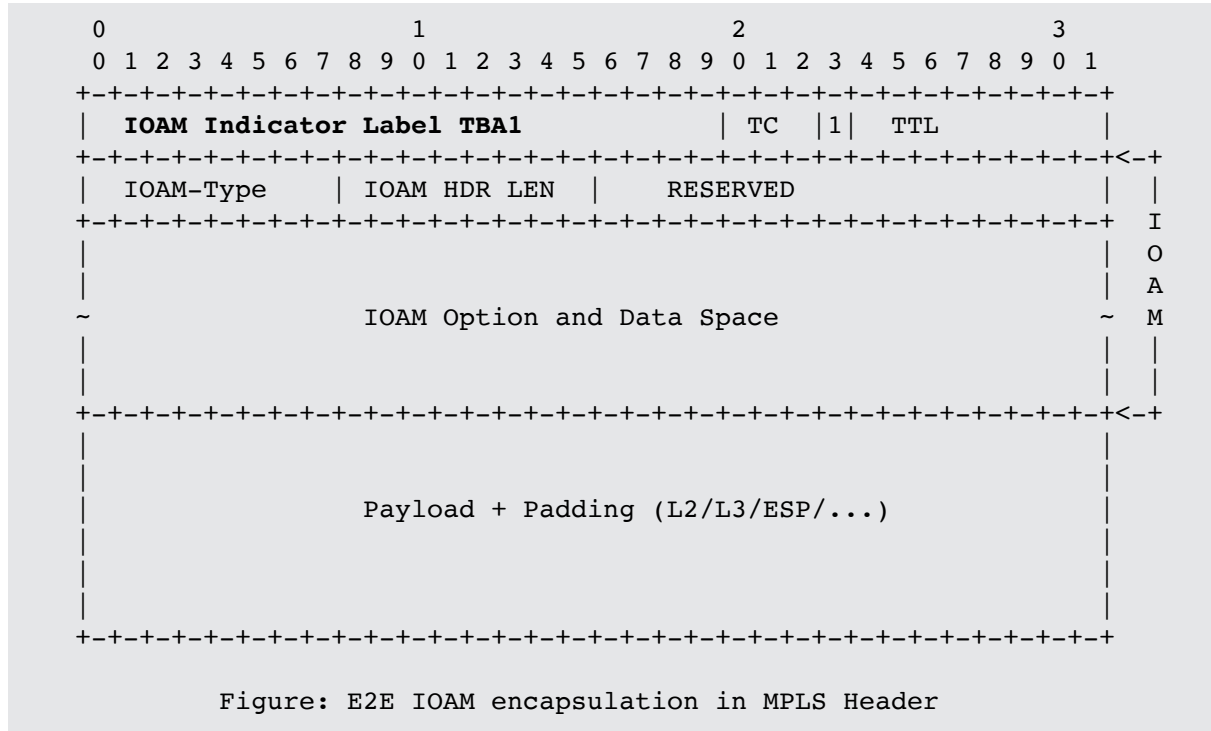
Updates:

- ✓ Added mechanisms to avoid incorrect IP header-based hashing
 - Uses flow-label based mechanisms
- ✓ Added example with Path Segment Identifier
- ✓ Various editorial changes to address review comments

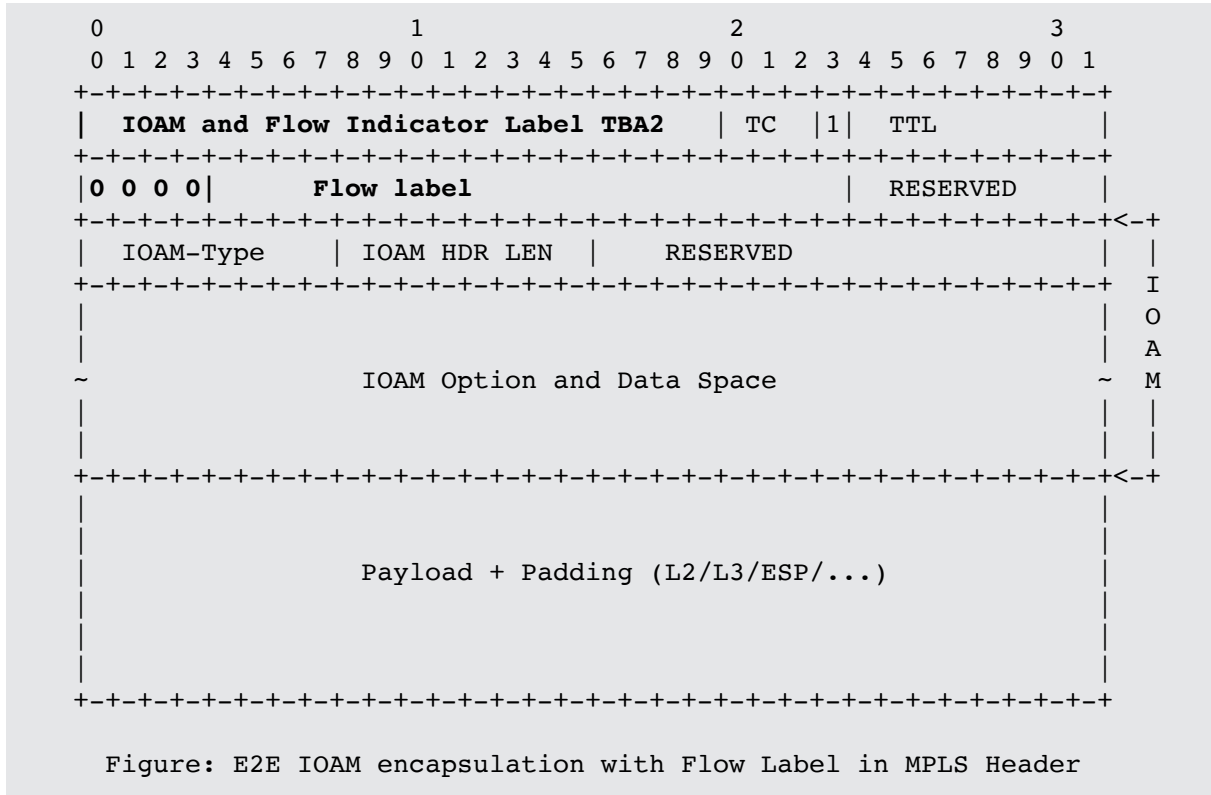
Open Items:

- Add procedure for hop-by-hop IOAM

E2E IOAM Data Field Encapsulation in MPLS Header



E2E IOAM Data Field Encapsulation with Flow Label in MPLS Header



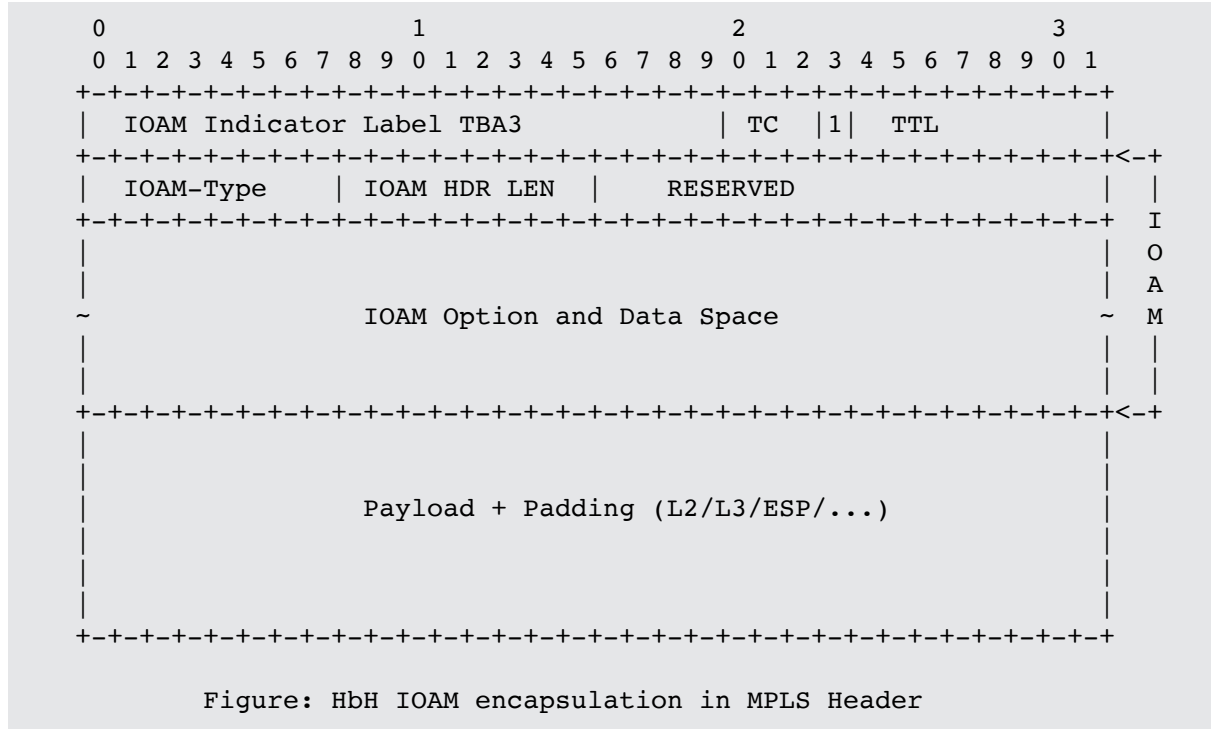
E2E IOAM Procedure

1. The encapsulating node inserts the IOAM Indicator Label and one or more IOAM data field(s) in the MPLS header.
2. The decapsulating node "forwards and punts the timestamped copy" of the data packet including IOAM data field(s).
 - The decapsulating node also pops the IOAM Indicator Label and the IOAM data field(s) from the MPLS header.

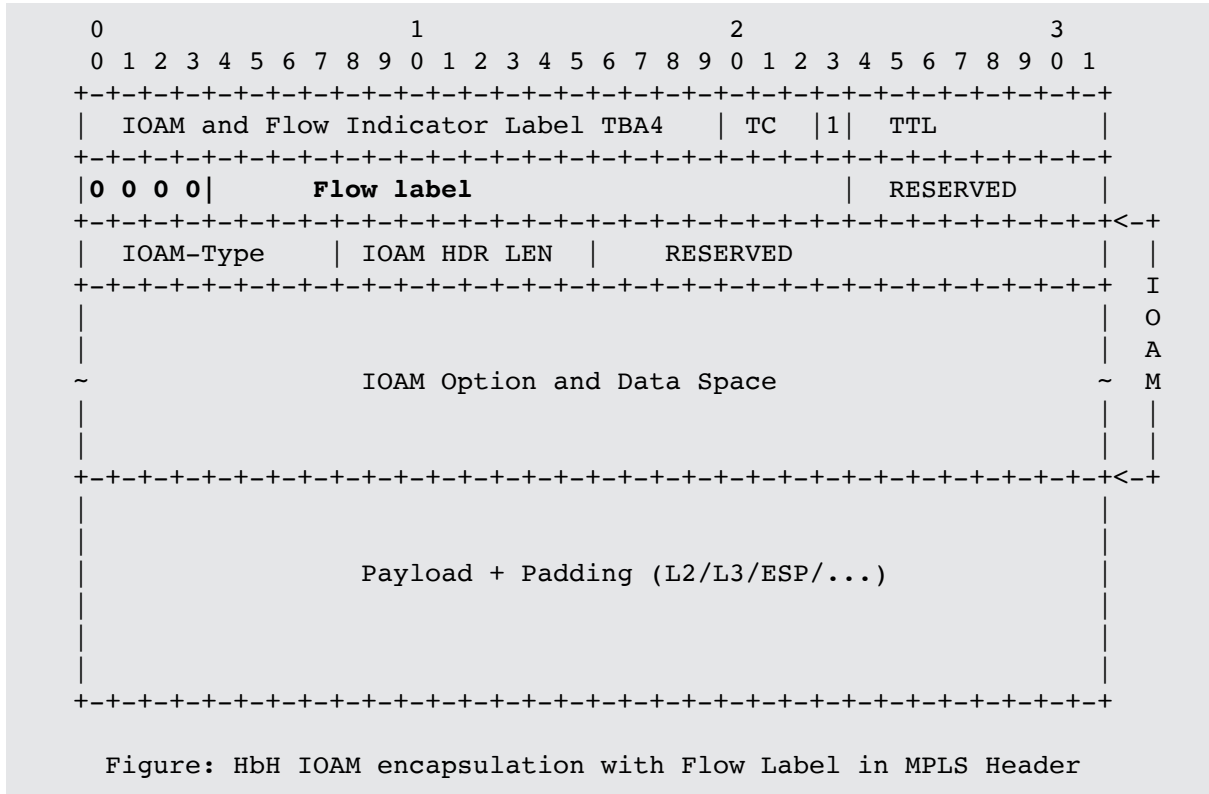
E2E Indicator Label Allocation Methods

1. Label assigned by IANA with values TBA1 and TBA2
 - From Extended Special Purpose Labels (eSPL) range
2. Global Label allocated by a controller
 - The controller provisions the label on both encapsulating and decapsulating nodes
3. Label allocated by the decapsulating node
 - Signaling mechanism used to convey the label to all encapsulating nodes

HbH IOAM Data Field Encapsulation in MPLS Header



HbH IOAM Data Field Encapsulation with Flow Label in MPLS Header



Next Steps

- Procedure for hop-by-hop IOAM
- Procedure for P2MP IOAM
- Welcome your comments and suggestions
- Draft to progress in MPLS WG
 - IANA code-points allocated by MPLS WG
 - Keep SPRING WG in the loop for SR aspects
 - Post draft updates to SPRING mailing list as well
 - Inform SPRING WG about the milestones (adoption, Last Call)
 - Inform IPPM WG about the milestones (adoption, Last Call) as IOAM base work is done in IPPM

Thank you