IOAM Trace Option Extensions for Incorporating the Alternate-Marking Method

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Xiaoming He (China Telecom)

Xiao Min (ZTE Corp.)

Frank Brockners (Cisco)

Giuseppe Fioccola (Huawei)

Chongfeng Xie (China Telecom)

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Motivation , Objective and Solution

Motivation and Objective

- IOAM Trace Option [RFC9197]（passport mode） lack the ability in performance measurement such as packet loss.
- The IOAM and Alternate-Marking Method are both the On-Path hybrid measurement methods， and it is necessary to unify the packet encapsulation format to reduce the complexity of the forwarding chip.
- This draft intends to augment IOAM's capability in performance measurement aspects by incorporating the Alternate-Marking Method.

Solution

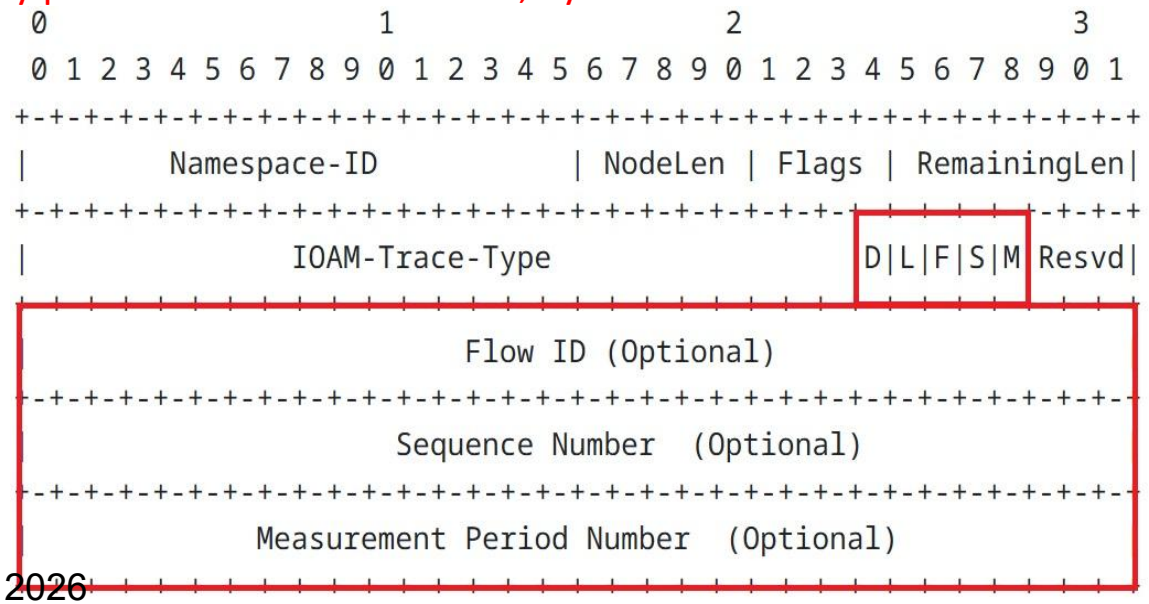
- Extend Trace Option by defining the most significant 5 bits of the Reserved field (D, L, F, S, M) and optional Flow ID, SN, and MPN field.
- Employ 32 bits for Flow ID, which may be devided into two sub-fields: NodeID (assigned globally) and FlowMonID （assigned locally）, so it may be deployed in distributed way in case of central controller unavaillable.
- Support the three IOAM operation modes: only IOAM trace monitoring; only performance measurement; hybrid.

Benefits

- Augment IOAM Trace Option's capabilities in performance measurement.
- Augment the Alternate-Marking Method in IPv6 (RFC9343) .
- Only unique packet header encapsulation format is used for both IOAM trace monitoring and performance measurement such as packet loss, latency and jitter, thus simplifing the complexity of forwarding chips.

IANA Consideration

– IOAM Option-Type: IOAM Extended Trace Option Type (TBA-type, suggested code point 6)



Next Steps

- Any comments or any suggestions are welcome
- Request for WG adoption call