In-situ OAM (IOAM) in Geneve

draft-brockners-ippm-ioam-geneve-01
draft-weis-ippm-ioam-eth-00

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IETF 103; November, 2018
In-situ OAM in a nutshell

- Gather telemetry and OAM information along the path **within** the data packet, (hence “in-situ OAM”) as part of an existing/additional header
  - No extra probe-traffic (as with ping, trace, ..)
  - “Hybrid, Type-1 OAM” per RFC 7799

- Generic, Transport independent data-fields for IOAM
  - Scope: Per-hop, specific-hops only, end-to-end
  - Data fields include: Node IDs, interface IDs, timestamps, sequence numbers, ...

- Encapsulation
  - IOAM data fields can be embedded into a variety of transports, including: IPv6, SRv6, NSH, GRE, Geneve, VXLAN-GPE ...

- **Base IOAM document in IPPM**
IOAM data fields encap in Geneve: (draft-brockners-ippm-ioam-geneve-01)

Leverage Geneve’s ability to carry TLVs in the Geneve header.

Geneve header

Geneve tunnel option

Option Class and Type specify which data field resides in the option.
Alternate option: Carry IOAM data fields in sequence with Geneve header  
(draft-weis-ippm-ioam-eth-00)

Leverage the fact that Geneve uses Ethertype as Protocol Type and use Ethernet Encapsulation for In-situ OAM Data

<table>
<thead>
<tr>
<th></th>
<th>Protocol Type = &lt;TBD_IOAM&gt;</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IOAM-Type</td>
<td>IOAM HDR len</td>
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<tr>
<td></td>
<td>IOAM Option and Data Space</td>
<td></td>
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<td></td>
<td>Inner header + Payload + Padding (L2/L3/ESP/...)</td>
<td></td>
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</tbody>
</table>

Geneve header

Protocol Type = TBD_IOAM points to IOAM data fields that follow Geneve header
Status and next steps

- IOAM encapsulations into protocols
  - draft-ietf-sfc-ioam-nsh
  - draft-brockners-ippm-ioam-vxlan-gpe-01
  - draft-ioametal-ippm-6man-ioam-ipv6-options
  - draft-ali-spring-ioam-srv6-00
  - draft-gandhi-spring-ioam-sr-mpls-00
  - draft-weis-ippm-ioam-eth
  - … more to come…

- Feedback from NVO3 WG appreciated (work to be progressed in lock-step with IPPM WG)