IOAM-related IPPM WG Drafts

draft-ietf-ippm-ioam-ipv6-options
draft-ietf-ippm-ioam-flags
draft-ietf-ippm-ioam-direct-export

IETF 109, IPPM
November 2020

In-situ OAM IPv6 Options

draft-ietf-ippm-ioam-ipv6-options

IETF 109, IPPM
November 2020

draft-ietf-ippm-ioam-ipv6-options
Updates since IETF 108

- -02 -> -03
  - Implement the guidance from the WG chairs:
    Merge in draft-ioametal-ippm-6man-ioam-ipv6-deployment-03 "as is", i.e. only editorial changes were made, like resolving references which would otherwise have been circular.
  - Implement the result of discussion in the last WG meeting:
    Removed the paragraph that started with "In order for IOAM to work in IPv6 networks..." which included a set of original deployment considerations which are updated, refined and further detailed with the content from draft-ioametal-ippm-6man-ioam-ipv6-deployment-03

draft-ietf-ippm-ioam-ipv6-options
Updates since IETF 108; Next Steps

- -03 -> -04
  - Editorial updates (Thanks Tommy Pauly!)

- Next steps
  - Address Issue #197 (IPv6 draft should reduce author list): Suggestion from chair (Tommy): "I'd strongly suggest going down the same route we did for the IOAM data draft, which was to have an editor model with all authors listed out separately"
    -> *Suggestion for Editors*: Shwetha Bhandari, Frank Brockners
  - WGLC

In-situ OAM Flags

draft-ietf-ippm-ioam-flags-03

Tal Mizrahi, Frank Brockners, Shwetha Bhandari, Ramesh Sivakolundu, Carlos Pignataro, Aviv Kfir, Barak Gafni, Mickey Spiegel, Jennifer Lemon

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Status of this Draft

- Version 02 addresses the loopback-on-the-reverse-path open issue.

- Highlights of the solution:

  - When an IOAM packet is looped back it has its loopback flag turned off.

  - On the reverse path IOAM transit nodes continue to push IOAM data.

  - At the edge of the IOAM domain the IOAM encapsulating node detects a looped-back-packet by comparing the Node ID of the first hop to its own Node ID.

Next Steps

- Open issues have been resolved.

- The authors believe the draft is ready for WG last call.

In-situ OAM Direct Exporting

draft-ietf-ippm-ioam-direct-export-02

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Frank Brockners, Shwetha Bhandari, Ramesh Sivakolundu, Tal Mizrahi

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Status of this Draft

- This draft is the product of a design team that worked on combining two documents (PBT-I and immediate exporting).

- Open issues:
  - Definition of fields already specified in draft-ietf-ippm-ioam-data-10 (for other IOAM Option-Types)
    - DEX Hop Count field (-> Trace Option-Type: Hop_lim)
    - DEX Sequence number (-> E2E Option-Type: Sequence number)
  - Direct Exporting option length.

- Changes in version 02:
  - Discussion about Hop Count was moved to an appendix.

Open Issue – Hop Count

- Question: should the DEX option include an explicit Hop Count field, or is the Hop_Lim/Node_ID data field sufficient?

- <u>No Hop Count</u>:
  - Using existing functionality: Hop_Lim/Node_ID data field can be used, copied from the TTL/Hop Limit from the lower layer, and included in the exported packet.
  - The DEX option does not need to be modified by transit switches.

- <u>Explicit Hop Count</u>:
  - The lower layer TTL may not be accurate, e.g., L2 or hierarchical VPN.
  - Allows to detect IOAM-capable node that fails to export packets.

- Version 02:
  - The DEX option does not include a Hop Count field.
  - Discussion in an appendix.

Open Issue – DEX Option Length

- The DEX option hast wo optional fields: Sequence Number, Flow ID.
  Two possible lengths: 8 octets / 16 octets.
  The length is known from lower layer header.

- What happens if we want to add another field in the future?

- Solution 1:
  - Use reserved flags for indicating whether the Sequence Number and Flow ID are present.
  - No need to rely on length from lower layer header.

- Solution 2:
  - Define a constant DEX option length (8 octets) without optional fields.