Framework of Operations, Administration and Maintenance (OAM) features for DetNet
draft-ietf-detnet-oam-framework

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Updates

- Many thanks to Balázs Varga and Pascal Thubert for their comments and thought-inspiring discussions
- Bi-weekly calls discussing DetNet OAM – thanks to Janos for leading
- The most significant updates in sections:
  - Terminology
  - Role of OAM in DetNet – DetNet sub-layers
  - Information Collection – in-band methods to generate OAM information; in-band or out-of-band methods to collect OAM information
  - Fault Localization and Characterization
  - Requirements -

Terminology

- **DetNet OAM domain**: a DetNet network used by the monitored DetNet flow. A DetNet OAM domain (also referred to in this document as "OAM domain") may have MEPs on its edge and MIPs within.
- **DetNet OAM instance**: a function that monitors a DetNet flow for defects and/or measures its performance metrics. Within this document, a shorter version, OAM instance, is used interchangeably.
- **Maintenance End Point** (MEP): an OAM instance that is capable of generating OAM test packets in the particular sub-layer of the DetNet OAM domain.
- **In-band OAM** - an active OAM is considered in-band in the monitored DetNet OAM domain when it traverses the same set of links and interfaces receiving the same QoS and Packet Replication, Elimination, and Ordering Functions (PREOF) treatment as the monitored DetNet flow.
- **Out-of-band OAM** is an active OAM whose path through the DetNet domain is not topologically identical to the path of the monitored DetNet flow, or its test packets receive different QoS and/or PREOF treatment, or both.
- **On-path telemetry** can be realized as a hybrid OAM method. The origination of the telemetry information is inherently in-band as packets in a DetNet flow are used as triggers. Collection of the on-path telemetry information can be performed using in-band or out-of-band OAM methods.

OAM role in DetNet

- MEP selection and placement – DetNet sub-layers
- Re-use existing OAM tools – Echo Request/Reply
- Address DetNet-specific scenario – PREOF in DetNet service sub-layer

DetNet OAM requirements

- Clearer separation between uni-directional and bi-directional OAM methods. For example, for a bi-directional OAM in DetNet the downstream MUST be in-band while upstream OAM MAY be out-of-band.
- A new requirement on monitoring resources, e.g., buffer utilization, scheduler transmission calendar, allocated for the particular DetNet flow.

Next steps

- draft-varga-detnet-service-sub-layer-oam – an important element of the DetNet OAM
  - Include the requirements for the Service sub-layer OAM in the draft
  - Analyze the existing OAM to address the Service sub-layer OAM requirements – new work outside the scope of the draft
- Continue bi-weekly discussions on DetNet OAM and the framework draft in particular
- Your comments, suggestions are always welcome
- Once the draft is stable (merged and comments addressed) - WG LC (before the next IETF meeting)

Thank you