

Operations, Administration and Maintenance (OAM) features for DetNet draft-theoleyre-detnet-oam-support

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Structure

- Terminology
 - OAM methods – per RFC 7799 definitions
 - MEP and MIP – not often used at IETF but used by other SDOs (should we map them)
- Operation
- Administration
- Maintenance

Operation

Objective: keep the network up and running

- Information collection (passive measurement methods)
 - Examples: SNMP, YANG data model-based notifications, gRPC, etc.
 - Out-of-band or in-band relative to the monitored flow
- Continuity Check verifies the existence of a path to deliver a packet from A to B
 - Examples: ICMP Echo request/reply (ping), BFD
- Connectivity Verification verifies that packets from A and only A can reach B
 - Examples: RFC 6428 Proactive CV, CC, and RDI for MPLS-TP
- Route Tracing
 - Example: ICMP Echo request/reply (traceroute)
- Fault Detection and Localization
 - Combination of active OAM methods, i.e., BFD and network analytics
 - Defect localization and identification – active OAM (traceroute or interleaving test probes) and network analytics
- Active OAM – test packets **MUST** always be in-band with the monitored flow. Otherwise, OAM is useless.

Administration

- Objective: keeping track of resources and how they are used
- Collect and analyze network telemetry information, e.g., buffer occupancy, queuing delay, or residence time
- Additive metrics, e.g., queuing delay and residence time, collected per node/path segment are useful for evaluation of e2e performance to predict the worst-case scenario
- Averaged e2e metrics may be misleading

Maintenance

- Objective: facilitating upgrades and repairs
- Collect the telemetry information to enable the network state, condition evaluation by a controller/orchestrator
- Telemetry collection methods may have an impact on the network resources, e.g., available bandwidth
- Consider use of out-of-band telemetry collection methods

Next steps & Discussion

- draft-ietf-detnet-oam-mpls includes a section that lists common OAM requirements
 - Would this document be a more suitable place for the requirements?
- draft-ietf-detnet-ip-oam includes a section on the applicability of a hybrid OAM in DetNet
 - Would this draft be a better place for that material?
- Comments, suggestions, and contributed material are always welcome and much appreciated
- WG adoption?

Thank you