OAM for Deterministic Networks with MPLS Data Plane

draft-ietf-detnet-mpls-oam

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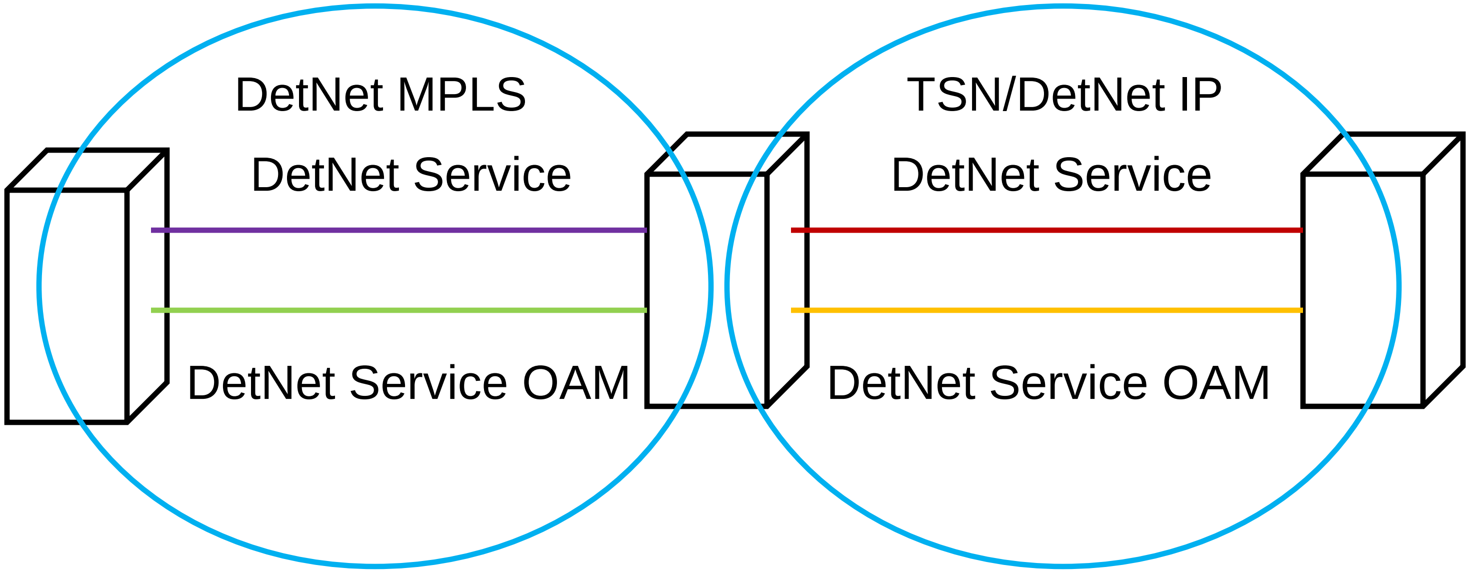
Update

- DetNet MPLS OAM interworking using peering and tunneling models:
  - TSN
  - DetNet IP
- Security considerations

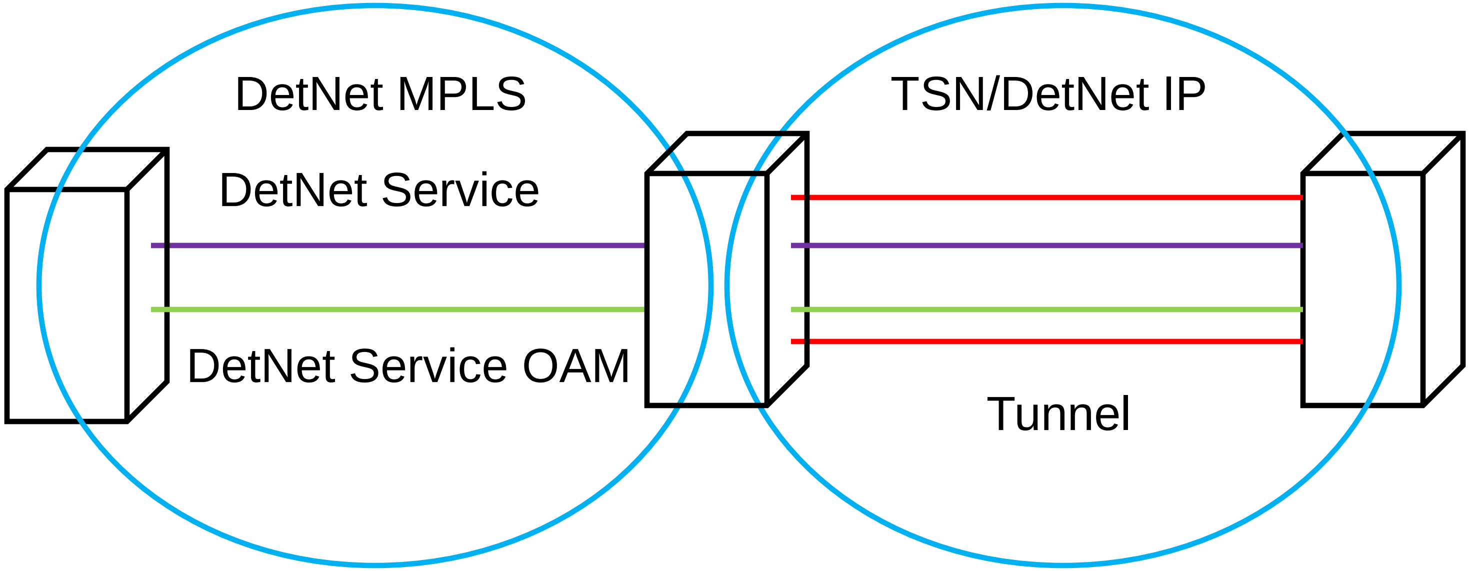
Peering OAM Models

In the peering model, a network domain is monitored by a dedicated OAM domain. The information about defects detected in one domain can be mapped into another domain. As a result, a remote node will be notified of a defect that affects e2e service.



Tunneling OAM Model

In the tunneling model, e2e monitoring of a service achieved by using one set of OAM protocols (FM and PM OAM). At the ingress, OAM test packets are mapped into the same tunnel as the monitored flow. Localization of defects in the tunneling domain is more challenging comparing to the peering model.



DetNet MPLS to TSN

RFC 7023 specified the mapping of defect states between Ethernet Attachment Circuits and associated Ethernet PWs that are part of an end-to-end emulated Ethernet service. DetNet MPLS MUST support RFC 7023.

Another approach is to use Section 6.8.17 of RFC 5880 and use concatenated OAM spans to provide e2e defect detection

Performance measurement must be performed in each OAM domain. To properly monitor e2e performance, each domain must be assigned credit/limit or metrics should be additive.

Tunneling is another model of the OAM interworking.

DetNet MPLS to DetNet IP

- Interworking between active OAM segments in DetNet MPLS and DetNet IP domains can also be realized using either the peering or the tunneling model.
- Using the same protocol, e.g., BFD, over both segments, simplifies the mapping of errors in the peering model.
- To provide the performance monitoring over a DetNet IP domain STAMP [RFC8762] and its extensions [I-D.ietf-ippm-stamp-option-tlv] can be used.

DetNet MPLS OAM Security

- Security considerations discussed in DetNet specifications: [RFC8655], [I-D.ietf-detnet-security], [I-D.ietf-detnet-mpls] are applicable to this document.
- Security concerns and issues related to MPLS OAM tools like LSP Ping [RFC8029], BFD over PW [RFC5885] also apply to this specification.

Next steps

- Your comments, suggestions, questions always welcome and greatly appreciated