BFD Extension for DetNet
Remote Defect Indication (RDI)

Draft-huang-detnet-rdi-01

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Background

• DetNet provides **reliable** packet delivery service.

• **Strict QoS Requirements** of DetNet includes:
  • Deterministic bounded **end-to-end latency**.
  • Strict packet **loss ration**.
  • Bounded **out-of-order packet delivery**.

• DetNet OAM requires quick defect **detection** and **dissemination**.
  • Detection of violation.
  • Dissemination – Remote Defect Indication (RDI)

• Existing practice: Bidirectional Forwarding Detection (BFD)
  • Forwarding plane
  • Detect and report failures

**Not specific for DetNet-domain defects**
Looking at DetNet-Specific Defects

• Detection
  • [Out of scope]

• Dissemination/Notification/RDI
  • Latency: not defined
  • Out-of-order: not defined
  • Loss: insensitive as triggered by BFD

No EXPLICIT DetNet-specific defect indicators
Define Detnet-Specific Defect Indicators

• Ratio of out-of-order packets

• Packet latency

• Ratio of packet loss
RDI: BFD Extension

- BFD control packet
- "Diag" - diagnostic
  - 0-8 [RFC5880]
  - 9 [RFC6428]
  - 10-31 Reserved

BFD control packet format (RFC5880)
BFD Extension for RDI

- Append DetNet specific error codes

<table>
<thead>
<tr>
<th>Value</th>
<th>BFD Diagnostic Code Name</th>
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<tbody>
<tr>
<td>TBD1</td>
<td>Packet_Misorder_Ratio_Limit_Reached</td>
</tr>
<tr>
<td>TBD2</td>
<td>Packet_Latency_Limit_Reached</td>
</tr>
<tr>
<td>TBD3</td>
<td>Packet_Loss_Ratio_Limit_Reached</td>
</tr>
</tbody>
</table>
Encapsulation: IP/MPLS

IP Encapsulation:
- BFD Control Packet
- UDP Header
- IP Header
- Data-Link
- Physical

MPLS Encapsulation:
- BFD Control Packet
- DetNet Associated Channel Header
- S-Label
- [ F-Label(s) ]
- Data-Link
- Physical
Next Steps

• Collecting comments and improving the draft.
Thank you