DetNet Data Plane Encapsulation – Recent updates and plan

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Updates from -02 to -03 (since interim 3)

• Addition of the text contribution from Balazs
  • 5.2. DetNet domain specific considerations
    • 5.2.1. DetNet Bridging Service
      • I.e. L2VPN type of solution
    • 5.2.2. DetNet Routing Service
      • MPLS PSN and IP PSN type solutions
  • 5.3. DetNet Inter-Working Function (DN-IWF)
    • 5.3.1. Networks with multiple technology segments
    • 5.3.2. DN-IWF related considerations

• Addition of the text contribution from Jouni
  • 5.2.2.3. Simplified IP Service
Updates from -03 to -04

• Addition of the text contribution from Jouni:
  • Removal of “native IPv6” DetNet data plane solution.
  • More clarifications to simplified IP service.
  • Added reference to previous draft version that discussed IP PSN and MPLS over IP (RFC4023 and 7510) in PWE context.

• A bit of history:
  • A wide range of data plane options were collected and analyzed:
  • Selection was made based on the analysis (in previous step)
  • Initial preference was towards unified DetNet Service Layer (using PWE constructs), which was documented in https://tools.ietf.org/html/draft-ietf-detnet-dp-sol-00. It had both MPLS over IP and MPLS transports in PWE context.
  • The unified approach has been argued to be removed claiming no existing support for IP PWE.
  • => Therefore, we ended up defining alternative IP solution
Routing service encapsulations listed in draft

The Service Layer shims Could be the same
Consensus from interims

• Add the “simplified IP data plane service” with 6-tuple “flow identification” (i.e. 5-tuple + DSCP)
• Underlying link/sub network responsible for DetNet functions
• An IP packet 6-tuple is matched at each hop and mapped to an appropriate DetNet capable link/sub network and its “DetNet params”
• Pros: Simple and does not require anything from the application IP..
• Cons: Packet duplication and packet elimination service layer function is per segment.. End-2-end would require L4/app protocol modifications..
What next?

• Split the document to
  • MPLS-based data plane
  • Simplified IP data plane

• Input from other contributors (there’s goods new text around..)
• Work on missing things on both.. A lot of those.
• Consider dividing “MPLS-based” to MPLS PSN and IP PSN?