

DetNet IP Encapsulation

draft-malis-detnet-ip-dp-00

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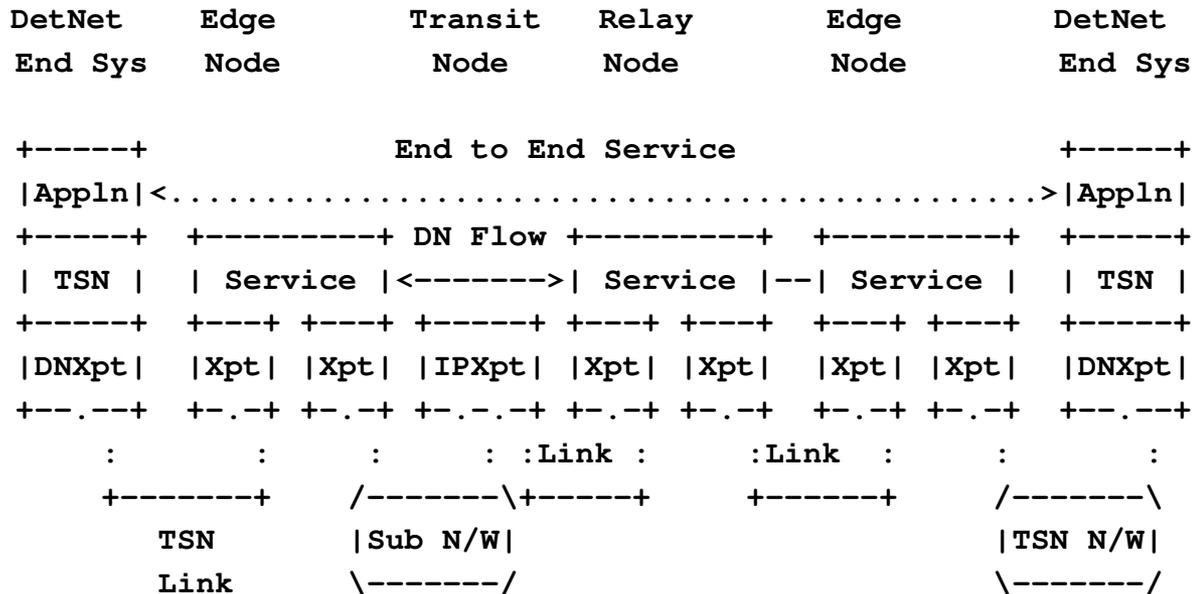
IETF 101, London, 23 March 2018

DetNet Encapsulation for IP

- Derivative work from draft-ietf-detnet-dp-sol
 - Uses same terminology, abbreviations, etc.
- Aimed to augment or replace the current text in sections 5.2.2, 7, and 8.7
 - Encapsulation for DetNet packets when carried over an IP-based DetNet infrastructure
 - NOT just an encapsulation for IP over DetNet (although it that is one of multiple use cases)
- Whether published as a stand-alone document or remerged into draft-ietf-detnet-dp-sol is up to the WG to decide
 - The co-authors are fine either way

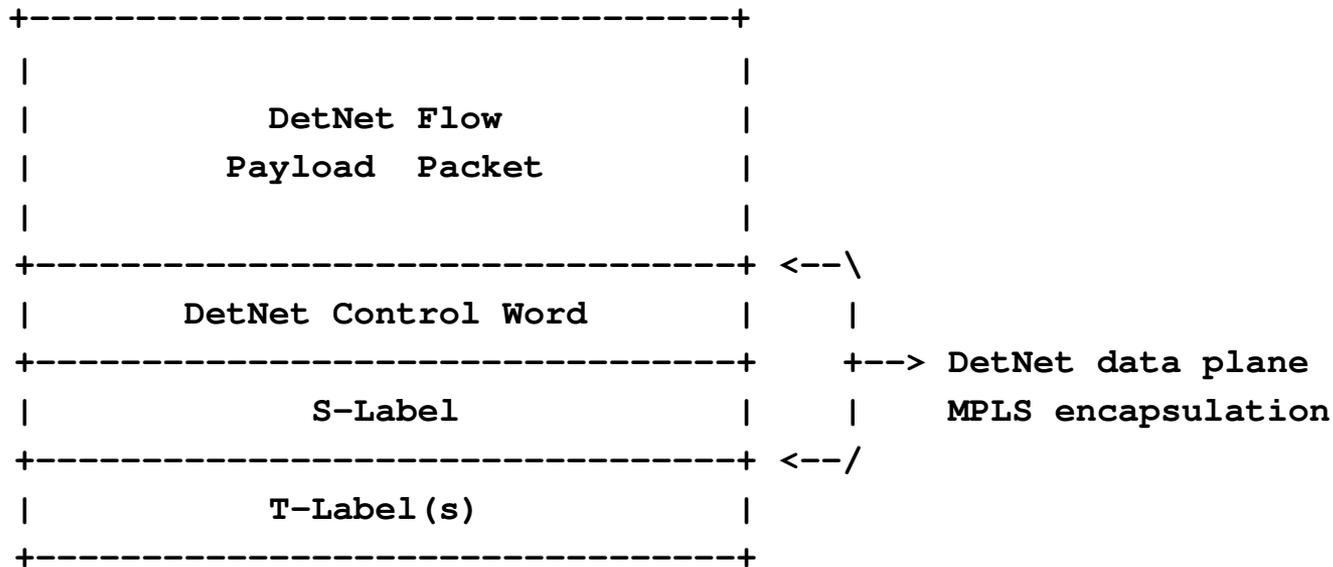
Simplified DetNet Model

- Based on the “simplified DetNet model” discussed during the DetNet Interim Meeting held on 14 February 2018
- End Systems are NOT DetNet aware, no DetNet header, typically send IP packets or non-IP application frames over Ethernet over an Ethernet TSN link or Ethernet TSN network to an Edge Node, which adds the DetNet encapsulation
- In this diagram, Edge Nodes and Relay Nodes are DetNet aware, End Systems and Transit Nodes are not
- Edge nodes are similar to PE routers for pseudowires or MPLS VPNs



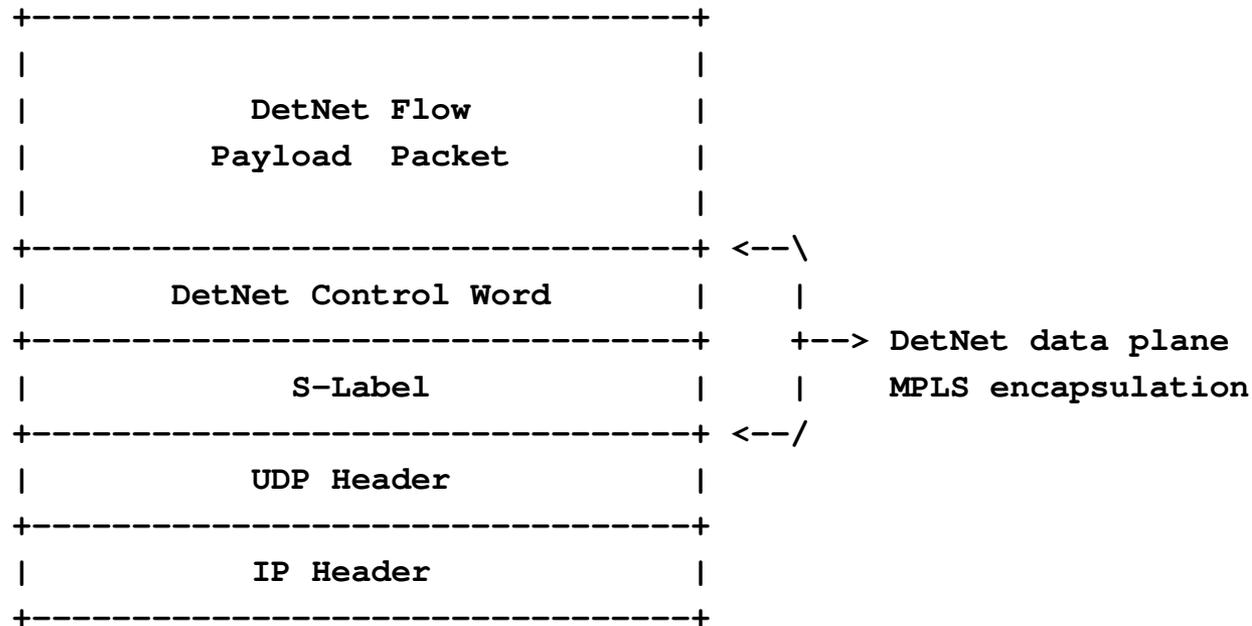
Take Advantage of MPLS Encapsulation

- To transport DetNet over IP, the following are required:
 - Method to identify DetNet flows
 - Method to carry DetNet sequence number
 - Both are available in the DetNet MPLS encapsulation
 - Control Word contains SN, S-Label identifies flows



IP Encapsulation

- For transport over IP, the T-Label(s) from previous slide are replaced by UDP and IP
 - UDP header is as defined by section 3 of RFC 7510
- Encapsulation is added and removed in Edge Nodes



Notes on the Encapsulation

- This encapsulation works equally well with IPv4 and IPv6
- Works with MPLS-based Segment Routing as specified in draft-ietf-spring-segment-routing-mpls
 - In this case, the T-Labels on slide 4 are retained and at each segment endpoint, the top T-Label is popped and mapped to a corresponding UDP/IP tunnel

Next Steps

- Merge back into draft-ietf-detnet-dp-sol or continue as a separate draft, as the WG prefers
 - If the latter, adopt as a WG draft