

# draft-ietf-detnet-dp-sol-00

## Issues

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# Issues

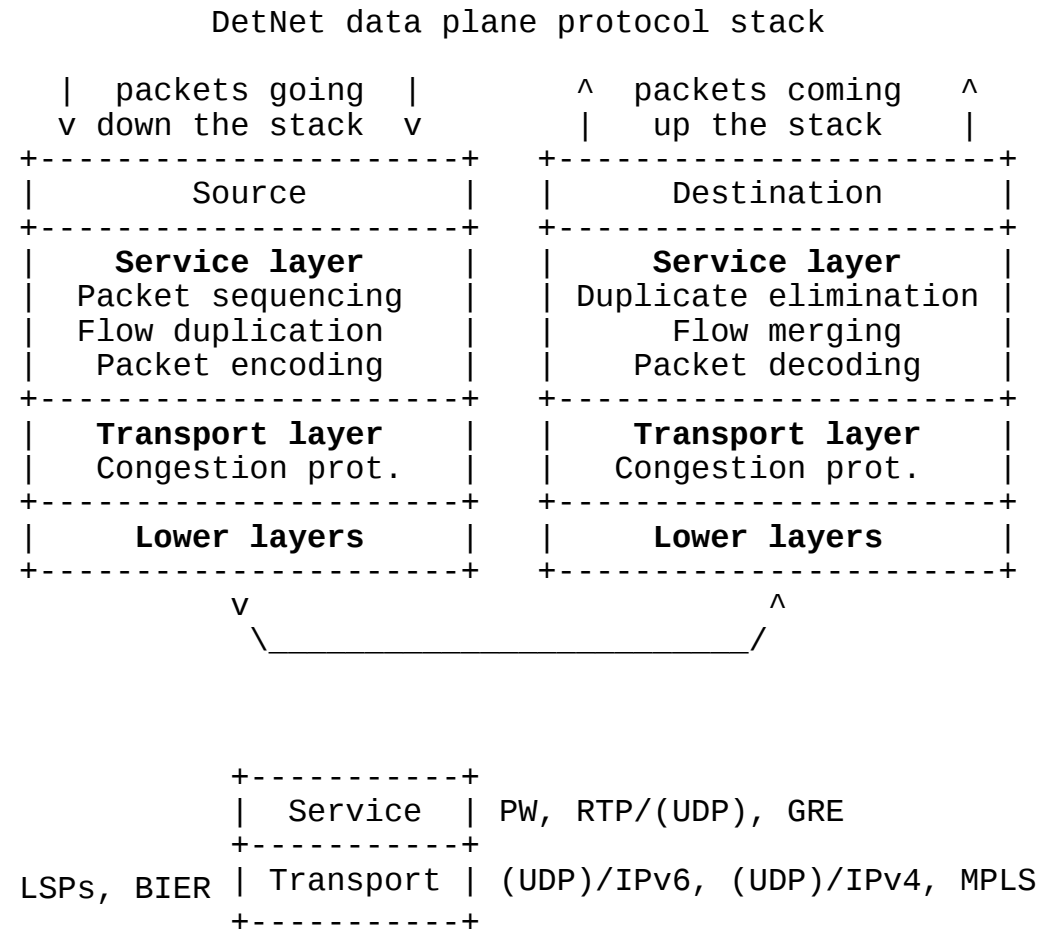
- 42 comments recorded in dp-sol-00.
- Other email discussions.
- We cannot go into every comment, here.
- Following concentrates on transport (PW/EVPN/DW) topics.
  - Comments #1,2, 3, 3.1, 4, 5, 7, 8, 9, 10, ..
- Questions for the WG to answer in blue.

# DetNet services from the Architecture I-D

- Zero congestion loss (congestion protection):
  - Resource reservation, explicit routes.
- Bounded latency and jitter:
  - Queuing, shaping, and scheduling algorithms, resource reservation, explicit routes.
- High delivery ratio (low loss probability):
  - Packet replication and elimination, also known as seamless redundancy, or 1+1 hitless protection.

# Layering from the Architecture I-D

- dp-sol includes two solutions:
  - IPv6 encapsulation, and
  - something similar to pseudowires (PWE).
- IPv6 encapsulation intended only for native IPv6 E2E DetNet Service (between end systems).
- PWE-based encapsulation intended mainly for Emulated TSN Service (island interconnect) but native E2E also possible.



# Dataplane discussion and decision points

- Two topics in this presentation:
  - Unified/separate DetNet Service layer on-wire format for IPv6 and MPLS PSN.
  - Which solution for “pseudowire-ish” PSN.

# Prologue to “unified service layer” solution

- dp-sol IPv6 and PWE-based data plane solutions are not aligned “on-wire” format wise, thus reusing pipeline logic is not obvious.
- Question #1: Should dp-sol aim for an unified “on-wire” format for the DetNet Service layer for both encapsulations or let them diverge as long as functions are the same?
- If the answer for Question #1 was “unified on-wire format” then Question #2: Should there be a separate draft describing the common Service layer?

# Choosing what goes to which draft

- Question #3: Should dp-sol be split into two drafts, describing the IPv6- and MPLS-based solutions, or keep both solutions a single draft?

# Prologue to “which pseudowire-ish PSN” solution

- Three ways to describe the “pseudowire-ish” solution are proposed:
  - Current dp-sol builds on RFC6073 Multi-Segment Pseudowires (MS-PW).
  - It could be based on RFC7432/8214 MPLS-Based Ethernet VPN (EVPN) using RFC4448 CW.
  - It could describe a brand-new construct, the “DetNet Wire” (DW).
- The drivers behind the original “pseudowire-ish approach” were:
  - RFC4385/4448 control word with a **S/N**.
  - RFC3985 Section 5.2.1.2 described handling of S/N (..not that it has been successful..)
  - RFC6073 MS-PW a close fit to DetNet relay concept.
  - Originally single “DetNet PW” was over RFC4023/7510 IP or RFC4385/6658 MPLS PSN.
- The question will formulate around which “pseudowire-ish” solution to choose.



# Issues driving MS-PW / EVPN / DW answer

- RFC4448 CW has an issue with the rotating S/N which skips over 0, because 0 means, “RFC3985 S/N algorithm is not used”. **dp-sol assumed 0 is part of the S/N.**
- Skipping over 0 is not done in three existing L2 technologies with which we wish to interwork, and dropping duplicates is not optional. **This also invalidates RFC4448 reusability** if interworking with existing solutions is desired .
- Question #4: Is “0 not part of the S/N” an issue we need to solve i.e., do we need to define a new CW with full  $2^n$  bits number space for S/N? Would a new CW be an issue for a PW and a EVPN?
- If the answer to Question #4 is “issue to solve” then Question #5: Does a new CW with “0 part of the S/N” implicitly mean we would define a “DetNet Wire”?

# Choosing the way forward with MPLS PSN

- dp-sol and EVPN reference to RFC4448 for their S/N solution. **With MPLS PSN the “on-wire” label stack+CW for dp-sol and EVPN are the same.** The pipeline does not really differ depending which approach we choose. This probably holds also for DW..
- Question #6: between dp-sol, EVPN and DW, which one is the preferred MPLS-based PSN baseline?
- If the answer for Question #6 was not “dp-sol” then Question #7: How is DetNet Relay node going to be modelled?

Thank you!