

DetNet Related Routing Header

draft-pb-6man-deterministic-crh-01
draft-p-6man-deterministic-eh-01

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problem statement and the solution

- Problem statement:

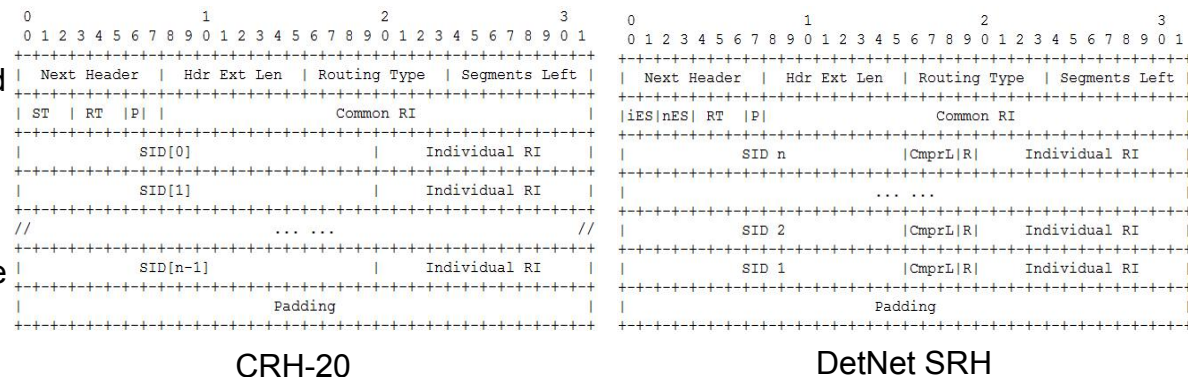
- DetNet path is usually an **explicit routing**, and **different hops may use different scheduling parameters** (such as different slot-id, delay level, worst-case latency per-hop by net-calc, etc) to archive DetNet QoS.
- **Core stateless**, i.e., the scheduling state is carried in the packet, without relying on maintaining the flow state on the node, is an important principle of DetNet EDP (enhanced data plane) for meeting large scaling requirements.

- Solution

- Define two Routing Headers (**CRH-20, DetNet SRH**), to **carry scheduling parameters per compact segment** for the DetNet explicit routing case.
 - CRH-20 is a variant of CRH (RFC9631), each segment contains a topology instruction (short index with 20 bits) and individual scheduling resource indication (12 bits).
 - DetNet SRH is a variant of RPL SRH (RFC6554), each segment contains a topology instruction (differential address pieces with 16, 20, or 32 bits) and individual scheduling resource indication (12 bits).

Main design considerations:

- Decouple the scheduling metadata and topology instruction (such as MPLS Label, SID) to save topology instructions and the related signaling advertisement.
- Never rely on dynamic FIB state for the purpose of queue scheduling and segment compression knowledge to ensure packet self-consistent.



Next step

- Any questions/comments ?

Thank you!