Jitter Reduction Mechanism for DetNet

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Problem

- Scheduling and traffic admission control at domain boundaries may cause jitter.
- The jitter generated by queuing and forwarding mechanisms in the DetNet domain.
- Flow aggregation generates jitter.

- The jitter in multiple domains is added together while App-flows span multiple deterministic network domains.
- The delay in different paths of service protection cause jitter in end-to-end services.
Virtual Clock Reference Plane (VCRP): Provides a time synchronization reference for the clock used for DetNet data plane [DDP] timing.
Proposal Description

The compensation delay of path1 is:

\[ \text{CompD}_1 = (\text{PthRefD} - \text{FixD}_1) - (T'1_1 + T'2_1 + T'3_1); \]

The compensation delay of path2 is:

\[ \text{CompD}_2 = (\text{PthRefD} - \text{FixD}_2) - (T'1_2 + T'2_2 + T'3_2). \]

Where PthRefD is the reference delay, FixD_1 is the fixed transmission delay of path1, mainly the transmission delay of the line in the path, and path2 is similar. Before deploying deterministic business transmission sessions, (PthRefD-FixD_1) and (PthRefD-FixD_2) need to be obtained.

B3 is COMPENSATION NODE
Benefits

• Time synchronization is required within each DetNet domain, not between DetNet domains.

• Ingress and egress NODE collect the actual transmission delay in each domain.

• Compensate the transmission delay at the COMPENSATION NODE connected to the Listener.
Next step

- Feedback / collaboration highly welcome!

Thank you!