

PCEP Extensions for DetNet Bounded Latency

draft-xiong-pce-detnet-bounded-latency-07/08

Quan Xiong(ZTE)

Peng Liu(China Mobile)

Rakesh Gandhi(Cisco)

Luis M. Contreras(Telefonica)

IETF 125 PCE, March-2026

Updates from last versions

- Presented at IETF#114, #116, #119, #121, #124 and comments at meetings and on the mailing list are appreciated from :
 - Janos Farkas/Dhruv Dhody/Andrew Stone/Lou Berger
- Rough consensus for version -06
 - D flag to indicate to compute the deterministic path
 - METRIC Object regarding bounded latency extensions including End-to-End Minimum Latency Metric, End-to-End Maximum Latency Metric and End-to-End Latency Variation Metric
 - Calculation of End-to-end Bounded Latency and Latency Variation
 - Definition of Deterministic Path ERO Subobject (DP-ERO) and Deterministic Path RRO Subobject (DP-RRO)
- Updates from version -06
 - **add the clarification on the encoding and operations of DP-ERO** subobject in section 4.3.
 - **update the encoding formats of DLI and define it as optional with variable length** and it must align with the DetNet queuing-metadata which will be discussed in IETF125 DetNet WG.

PCEP Operations

- Operations for DP-ERO Subobjects

- The DP-ERO subobjects can be carried along the path to indicate the deterministic path and bounded latency information **in a PCRep or PCInitiate or PCUpd message from a PCE to a PCC** .
- A DP-ERO subobject corresponds to be a preceding subobject **which can not be the first subobject**. When the D bit in LSP object is set to 1, a DP-ERO subobject MAY be **inserted directly after the existing identifying subobjects** such as ERO [RFC3209] , SR-ERO [RFC8664] and SRv6-ERO [RFC9603].
- The PCE will **select one DLI type from the seven categories and compute the deterministic path** with different DLI in each node along the path.
- Example : The SR-TE path is SID list A, B , C and the Deterministic path example is DLI type is 2 with the DLI list timeslot A, B and C:
 - SR ERO subobject (SID A) + DP-ERO subobject(DLI type = 2, DLI carry timeslot A) ->
 - SR ERO subobject (SID B) + DP-ERO subobject(DLI type = 2, DLI carry timeslot B) ->
 - SR ERO subobject (SID C) + DP-ERO subobject(DLI type = 2, DLI carry timeslot C)

Align with the DetNet progress

- The document aligns with the DetNet progress. The PCEP extensions for DetNet include :
 - **Metric Objects** (align with the DetNet QoS as per RFC8655) ,
 - **calculation method** (align with the timing model as per RFC9320 and draft-ietf-denet-dataplane-taxonomy),
 - **DP-ERO subobject DLI type** (align with the categories as per draft-ietf-denet-dataplane-taxonomy),
 - **DP-ERO subobject DLI encoding** (align with the 7 adopted queuing solutions in DetNet WG and the queuing metadata which did not reach consensus which will be discussed at IETF125 (e.g. ,draft-xiong-detnet-data-fields-edp).

Next Steps

- Is it feasible to define the DLI encoding format as an optional and variable-length, similar with the NAI (variable, optional) definition in [RFC8664]?
- Ask adoption after the rough consensus for queuing metadata in DetNet WG?
- Thanks!