

PCEP Extension for DetNet Bounded Latency

draft-xiong-pce-detnet-bounded-latency-04

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Updates from last versions

- Presented at IETF#114 and #116 and comments at meetings and on the mailing list are appreciated from :
 - Dhruv Dhody / Andrew Stone/Lou Berger/Janos Farkas
- Updates from version -00
 - Align with the DetNet enhancement requirements in [draft-ietf-detnet-scaling-requirements] section 4.2 and the terminology such as Deterministic Latency Information.
 - Align with the DetNet control plane in [draft-ietf-detnet-controller-plane-framework], the path information should be distributed.
 - Clarification for PCE to get bounded latency capabilities by underlying IGP extensions including IS-IS and OSPF.
 - Change the extensions from Deterministic Path Object to Deterministic Path ERO Subobject as suggested.

PCEP Extensions

- METRIC Object
- End-to-End Bounded Latency Metric
 - This document proposes the End-to-End Bound Latency metric. A PCC MAY use the End-to-End Bounded Latency metric in a PCReq message to request a deterministic path to meet the end-to-end latency constraint.
- End-to-End Bounded Jitter Metric
 - This document proposes the End-to-end Bounded Jitter metric. A PCC MAY use the End-to-End Bounded Jitter metric in a PCReq message to request a deterministic path to meet the end-to-end delay variation constraint.
- LSP-EXTENDED-FLAG TLV in LSP Object defined in RFC9357
 - * T=TBD1: End-to-End Bounded Latency Metric.
 - * The value of End-to-End Bounded Latency Metric is the encoding in units of microseconds with 32 bits.
 - * The B bit MUST be set to suggest a maximum bound for the end-to-end latency of deterministic path. The end-to-end latency must be less than or equal to the value.
 - * T=TBD2: End-to-End Bounded Jitter Metric.
 - * The value of End-to-End Bounded Jitter Metric is the encoding in units of microseconds with 32 bits.
 - * The B bit MUST be set to suggest a maximum bound for the end-to-end jitter of deterministic path. The end-to-end jitter must be less than or equal to the value.
 - D (Request for Deterministic Path) : If the bit is set to 1, it indicates that the PCC requests PCE to compute the deterministic path. A PCE would also set this bit to 1 to indicate that the deterministic path is included by PCE and encoded in the PCRep, PCUpd or PCInitiate message.

PCEP Extensions

- **Deterministic Path subobject**
 - This document defines Deterministic Path ERO subobject (DP-ERO) distribute the deterministic path information through DetNet networks.
 - Deterministic Latency Information is optional and variable.
- **Deadline Information**
 - it is optional and indicates the deadline or budget delay for a node to forward a flow.
- **Cycle Information**
 - it is optional and indicates the profile and/or the cycle number for a node to forward a flow.
- **Timeslot Information**
 - it is optional and indicates the timeslot number for a node to forward a flow.

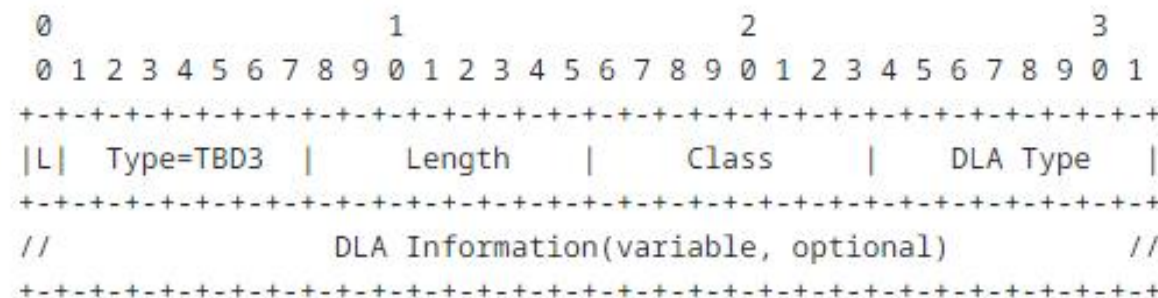
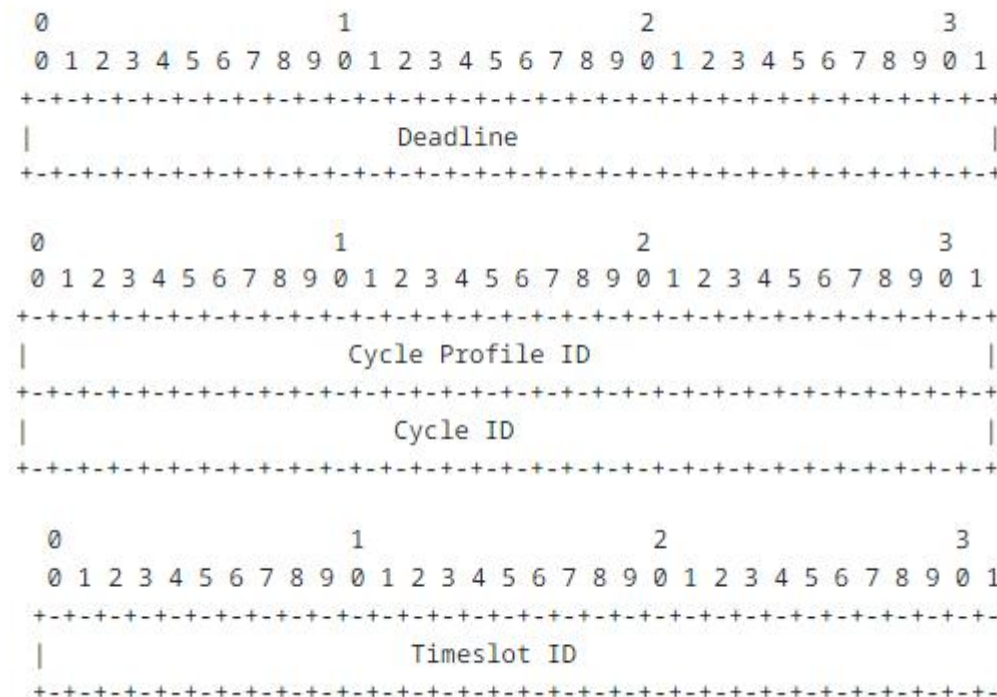


Figure 1: DP-ERO Subobject Format



Next Step

- Comments and suggestions are very welcome!
- Ask adoption!Thanks!