

# PCEP for Enhanced DetNet

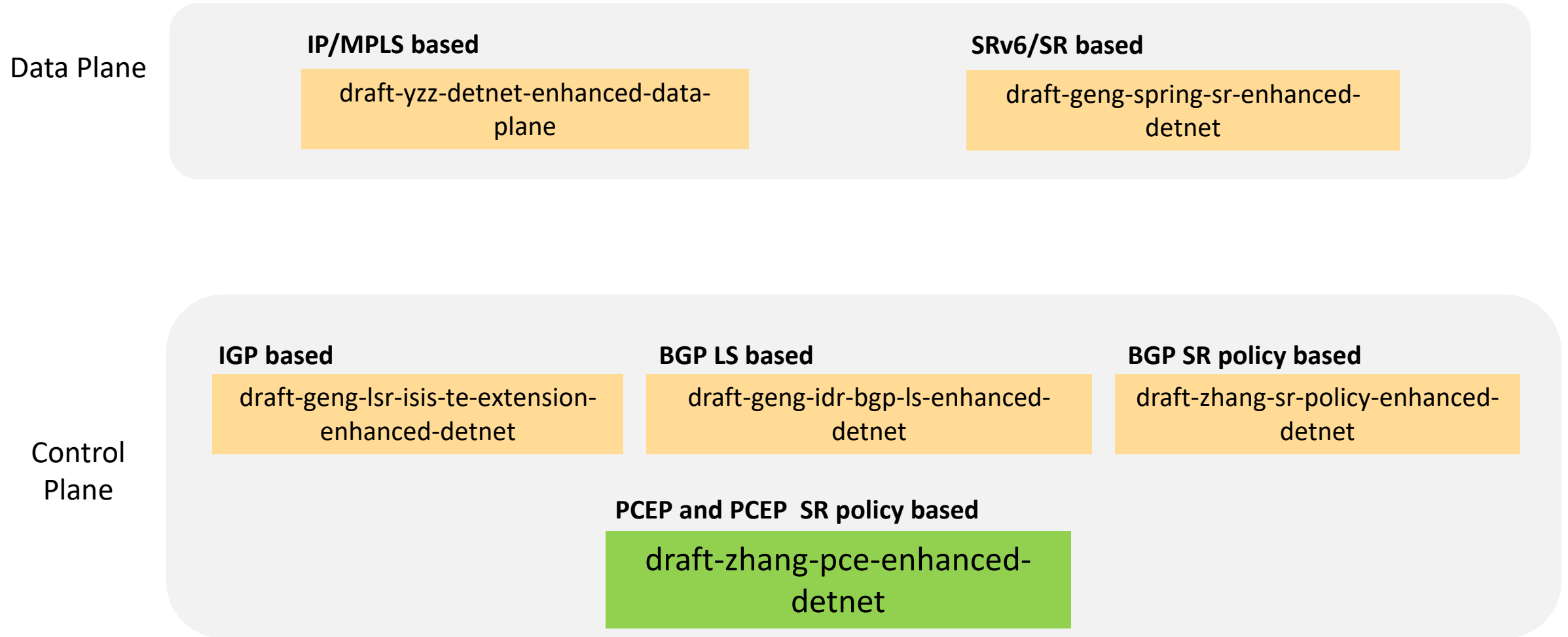
*draft-zhang-pce-enhanced-detnet-00*

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# Background

- The Deterministic Networking architecture is described in RFC8655
  - It provides the capability to carry specified data flows with extremely low data loss rates and bounded end-to-end latency within a network domain.
- Path computation element protocol is described in RFC5440
  - It describes how to communicate between a Path Computation Client (PCC) and a Path Computation Element (PCE), or between two PCEs.
  - Defines the interaction and data format of path calculation requests and path computation replies between PCC and PCE.
- The enhanced DetNet data plane is described in draft-yzz-detnet-enhanced-data-plane
  - It introduces the Bounded Latency Information to facilitate DetNet transit nodes to guarantee the bounded latency transmission in data plane.
- The segment routing for enhanced DetNet is described in draft-geng-spring-sr-enhanced-detnet
  - defines how to leverage Segment Routing(SR) and Segment Routing over IPv6 (SRv6) to implement bounded latency.
- This documents describes the PCEP extensions for bounded latency path computation.
  - Introduces how to transmit bounded latency information between PCC and PCE to guarantee the bounded latency transmission in control plane.

# Overview of the Related Drafts



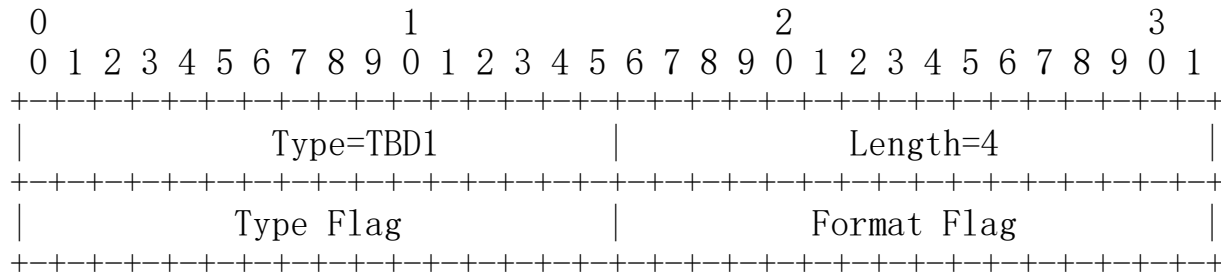
# Extensions in this document

- Extensions Summary
  - Open Object
    - Bounded Latency Capability TLV. Newly defined for PCC and PCE to negotiate the capability of bounded latency.
  - RP Object
    - BLI type TLV. Newly defined to specify the type and format of the BLI that PCC desires.
  - Traffic Model Object
    - Newly defined to describe the features of the DetNet flow for which the path is to be calculated.
  - BLI Object
    - Newly defined to indicate the bounded latency information of the candidate path.
    - BLI list TLV, used in the case when all of the nodes in the ERO desire different BLI values.
    - Shared BLI TLV, used in the case when all of the nodes in the ERO desire the same BLI value.
  - SR Policy for BLI
    - Support for SR policy to carry BLI list TLV and shared BLI TLV with the candidate path.

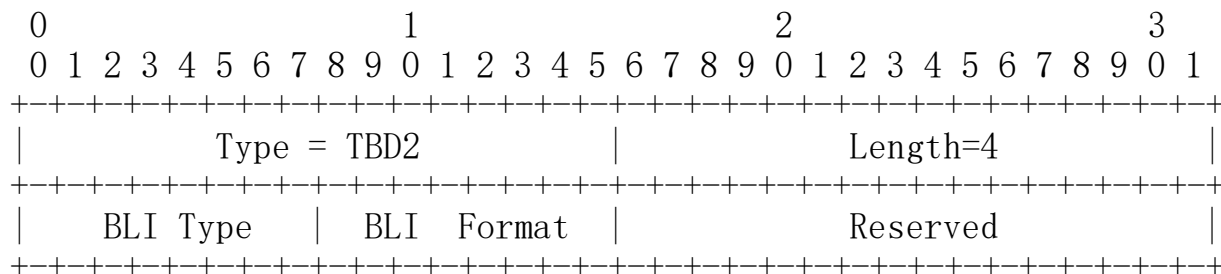
# Extensions in this document

- Objects & TLVs

- Bounded latency capability TLV , used to advertise the support of bounded latency features in Open object.

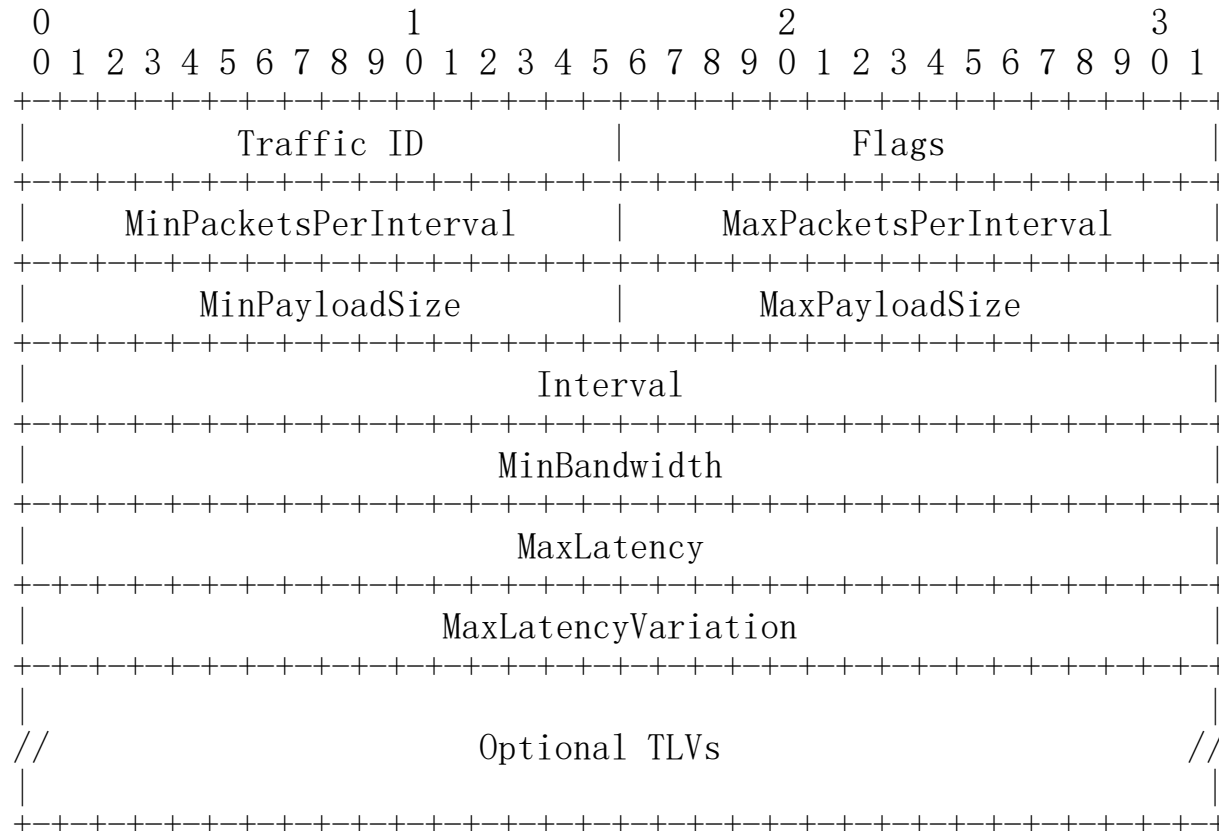


- BLI type TLV, may appear in RP object to specify the type and format of the BLI that PCC desires.



# Extensions in this document

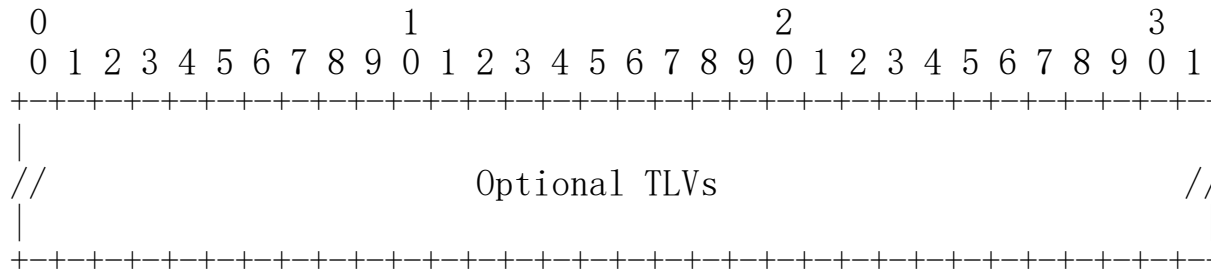
- Objects & TLVs
  - Traffic model object, may appear in the PCReq message to describe the DetNet traffic features for the bounded-latency path computation.



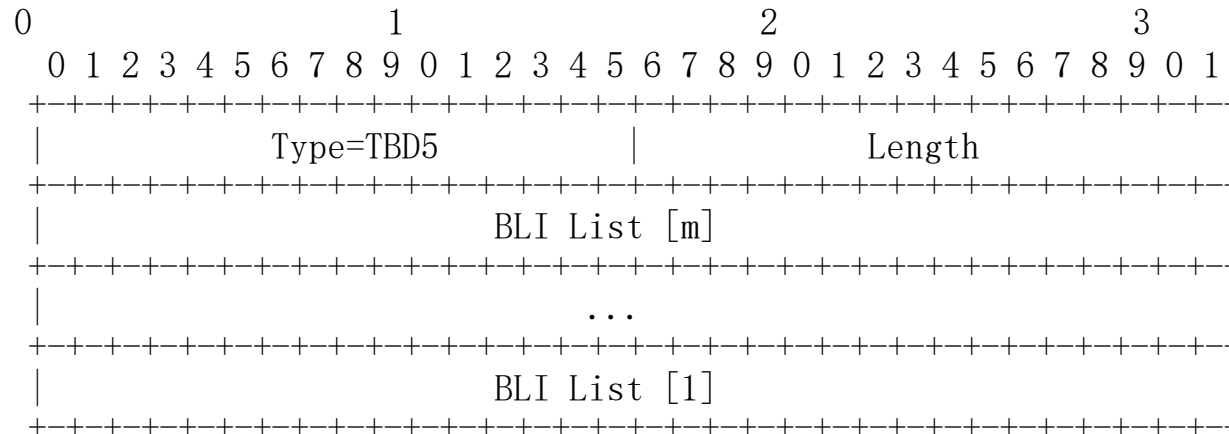
# Extensions in this document

- Objects & TLVs

- BLI object, may appear in the PCRep message to indicate the requirement and resource allocation for the bounded latency path.



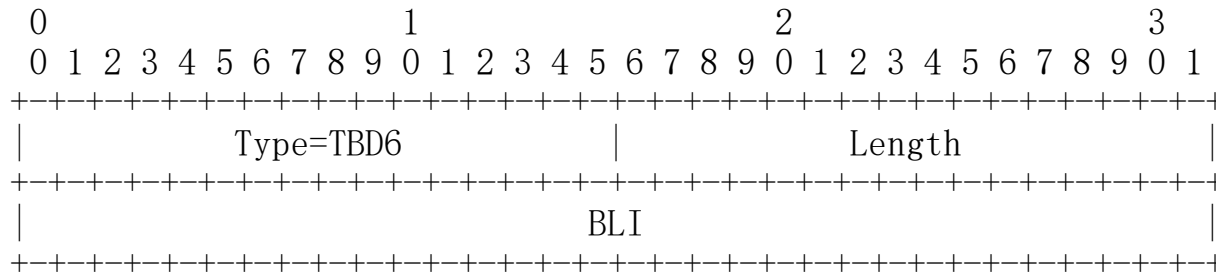
- BLI list TLV, may appear in the BLI object to describe the bounded latency information for each node in the explicit route object.



# Extensions in this document

- Objects & TLVs

- Shared BLI TLV, may appear in the BLI object to describe the bounded latency information for all of the nodes in the explicit route object.



- SR Policy for BLI

- If all of the nodes/adjacencies in the explicit path indicated by the segment list request different BLI to guarantee bounded latency, a BLI list TLV is need to be carried with SR Policy.
- When all of the nodes/adjacencies in the explicit path indicated by the segment list request BLI to guarantee bounded latency with the same BLI value, a Shared BLI TLV is need to be carried with SR Policy.



# Next Steps

- Discussion on mailing list
- Keep align with progress in DetNet

Thank You