PCEP extensions for BIER-TE

draft-chen-pce-bier-10

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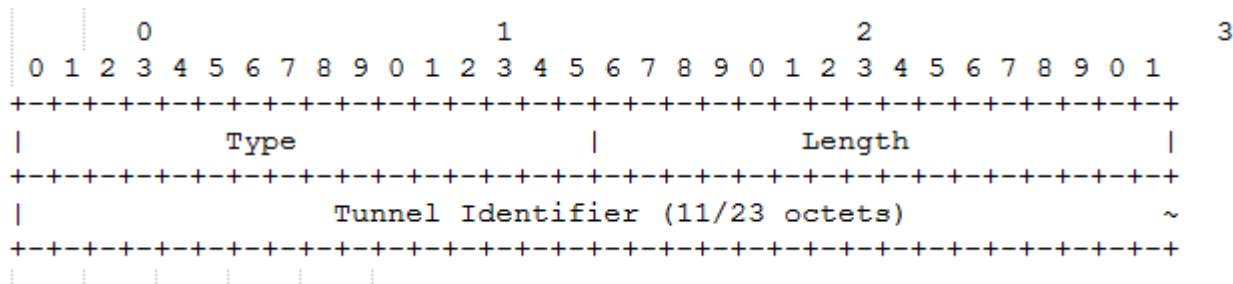PCE WG IETF-116 Meeting, March 2023

Introduction

- This document specifies extensions to the Path Computation Element Protocol (PCEP) that allow a stateful PCE to compute and initiate the path for the BIER-TE.

Extensions

- BIER Capability Advertisement.
  - Defines a new Path Setup Type (PST) for BIER-TE.
  - Defines the BIER-TE-PCE-CAPABILITY sub-TLV to exchange BIER-TE capability.
- The LSP Object
  - Defines the BIER-TE-IDENTIFIERS TLVs to identify the path.
- The SRP Object
  - Defines a new Path Setup Type (PST=TBD2) for BIER-TE.
- The END-POINTS Object
  - Reuses the P2MP END-POINTS object body for IPv4 and END-POINTS object body for IPv6 (Object-Type 4) which is defined in [RFC8306].
- Objective Functions
  - Defines a new Objective Function for path calculation.
- ERO Object
  - Defines an BIER-TE-ERO subobjects to carry a adjacencies BitStrings, BSL,subdomain and SI.
- RRO Object
  - Defines an BIER-TE-RRO subobjects to reports an BIER-TE to PCE .

Update

- Based on the comments from the IETF meeting:
  - Add the reference to RFC8623.
  - Add the use-case of objective function
  - Add the LSP Object

```
                  0                   1                   2                   3
  0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
 +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
 |            Type            |             Length              |
 +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
 |             Tunnel Identifier (11/23 octets)                 ~
 +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
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The relationship with other PCE BIER Drafts

- draft-chen-pce-bier
  - Specifies extensions to the Path Computation Element Protocol (PCEP) that allow a PCE to compute and initiate the path for the BIER-TE. This draft mainly focuses on the path calculation of BIER-TE and The controller distributes a BIER-TE path to the BFIR.
- draft-chen-pce-pcep-extension-pce-controller-bier
  - Focus on the central controller scenario , it specifies a new mechanism where PCE allocates the BIER information centrally and uses PCEP to distribute them to all nodes (include BFR, BFIR and BFER) .
- draft-chen-pce-controller-bier-te
  - Focus on the central controller scenario , it specifies a new mechanism where PCE allocates the BIER-TE information centrally and uses PCEP to distribute them to all nodes (include BFR, BFIR and BFER) .
- draft-li-pce-based-pce
  - It contains the extension of the PCE BIER.

Next Step

- Comments welcome.

- WG adoption ☺

Thanks!