PCEP extensions for BIER

draft-chen-pce-bier-05

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Introduction

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

• BIER Capability Advertisement.
  – Defines a new Path Setup Type (PST) for BIER.
  – Defines the BIER-TE-PCE-CAPABILITY sub-TLV to exchange BIER capability.

• The SRP Object
  – Defines a new Path Setup Type (PST=TBD2) for BIER-TE.

• END-POINTS Object, two options:
  – Reuses the P2MP END-POINTS object body for IPv4 and END-POINTS object body for IPv6 (Object-Type 4) which is defined in [RFC8306].
  – Defines a new BIER END-POINT Object to carry the BFR-ids informations.

• ERO Object
  – Defines an BIER-ERO subobjects to carry a adjacencies BitStrings, BSL,sub domain and SI.
BIER Capability Advertisement

• For exchanging BIER capability, a new Path Setup Type (PST) and BIER-TE-PCE-CAPABILITY sub-TLV are required:
  – PST = TBD2: Path is setup using BIER Traffic Engineering technique.
  – BIER-TE-PCE-CAPABILITY sub-TLV
The RP/SRP Object

• In order to setup an BIER-TE, a new PATH-SETUP-TYPE TLV MUST be contained in RP/SRP object.
  – PST = TBD2: Path is setup using BIER Traffic Engineering technique.
END-POINTS Object

- For specifying the BIER information of the path for which a path computation is requested, END-POINTS object is required, there are two options:
  - Reuses the P2MP END-POINTS object body for IPv4 and END-POINTS object body for IPv6 (Object-Type 4) which is defined in [RFC8306].
  - Optionally, Defines a new BIER END-POINT Object for BFR-id, the format is as follows:
ERO Object

• For carrying BIER-TE explicit paths, a new BIER-ERO subobject is required:

- BS Length: the maximum length of the BitString is 5, it indicates the length of BitString is 1024.
- The maximum value of BS Length is limited to the 1024 bits, in case the BIER-ERO Subobject is too long.
Next Step

• Comments welcome.

Thanks!