

# Extensions to Path Computation Element Communication Protocol (PCEP) for Hierarchical Path Computation Elements (PCE)

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F. Zhang (Huawei)

Q. Zhao (Huawei)

O. González de Dios (Telefonica I+D)

R. Casellas (CTTC)

D. King (Old Dog Consulting)

# Differences from -02

- Restructuration and rewriting of document.
- Editorial changes:
  - Section on Extensions.
    - Component (e.g. Open Object).
    - Protocol Structure (encoding, Flags, TLVs)
    - Procedure (specific to this component).
  - Section on H-PCE procedures (general for H-PCE).
  - Section on Error Handling
- Scope of document revisited.
- Functions out of scope removed.
- NO-PATH new reasons added.

# Scope of the document

- The scope of the extensions has been clarified.
- Functions out of scope of the document:
  - Finding end point addresses;
  - Parent Traffic Engineering Database (TED) methods;
  - Domain connectivity;
- All extensions aimed at implementing those functions have been removed from this document.
  - Inter-domain Node TLV, Inter-domain Link TLV, Reachability TLV, Destination Domain Query.

# H-PCE procedures

- Two H-PCE procedures are defined in the document:
  - OPEN Procedure between Child PCE and Parent PCE
  - Procedure to obtain Domain Sequence

# New NO-PATH reasons

- NO-PATH object can be used to communicate the reason(s) for not being able to find a multi-domain path or domain sequence
- Three new bit flags are defined to be carried in the Flags field in the NO-PATH-VECTOR TLV carried in the NO-PATH Object:
  - Destination domain unknown
  - Un-responsive child PCE(s)
  - No available resources in one or more domain(s)

# OPEN points

- OF/Metrics
  - Need to qualify what applies to end-to-end segment
  - Additional OF codes needed?
- Error codes and handling
  - Additional information (e.g. non-responding PCE)?
- Management, Policy & Security

# Next Steps

- Receive feedback!
- This solution document could be adopted as WG document for a solution of the framework document.