IS-IS Path Control and Reservation at L2
draft-farkas-isis-pcr-02

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Recap
Scope of draft-farkas-isis-pcr and 802.1Qca

› Provide IS-IS control beyond Shortest Path Trees (SPTs) for Shortest Path Bridging (SPB) networks

  – Augmenting SPB with non-shortest path capabilities

  – Small diameter and infrequent use case

  – Extensions to RFC 6329 and IEEE 802.1aq

› Exception traffic steering

  – SPT of Edge Bridge (EB) 1 is via Core Bridge (CB) 1

  – Explicit Tree (ET) of EB 1 is via CB 2

    › ET: pruned L2 multicast trees, e.g. for BUM

› No protocol changes, only a couple of new sub-TLVs and reuse of existing ones as much as possible
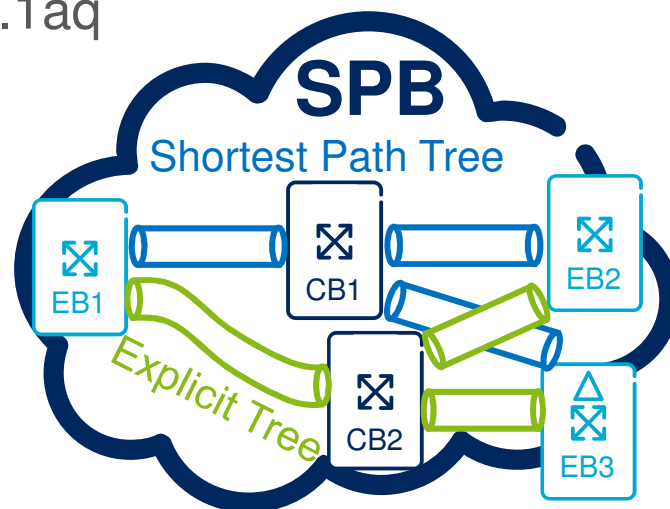
Status

› 802.1Qca is just entering Sponsor Ballot, which is the last IEEE ballot level
  - this is expected to complete after one iteration in mid-July 2015
  - normative references include:
    › draft-ietf-isis-te-metric-extensions
    › draft-ietf-rtgwg-mrt-frr-algorithm
  - final approval also requires IS-IS TLV codepoints
› draft-farkas-isis-pcr-02
  - in-sync with 802.1Qca D1.4 (= D2.0)
  - further updates based on the received comments

Updates in draft-farkas-isis-pcr-02

› draft-farkas-isis-pcr has been evolving with 802.1Qca

- Final synchronization with 802.1Qca D1.4
- Lose Tree and Loose Tree Set ECT Algorithms updated
- Topology sub-TLV updated
- Bandwidth Assignment sub-TLV updated
- Timestamp sub-TLV added

› Further updates

- Symmetric paths
  › Maximum link metric
  › Use of default (LowPathID) tie-breaking of RFC 6329 for equal cost shortest paths when required
- Maximally Redundant Trees (MRT)
  › Clarifications
  › Description of multi-block GADAG added

sub-TLVs

› Existing sub-TLVs from RFC 6329 are reused
- SPB Link Metric sub-TLV
- SPB Base VLAN-Identifiers sub-TLV
- MT Capability sub-TLV
  › SPB Instance sub-TLV
  › SPBV MAC address sub-TLV
  › SPBM Service Identifier and Unicast Address sub-TLV

RFC 6329

› New sub-TLVs are conveyed by MT Capability sub-TLV
- Topology sub-TLV
  › Hop sub-TLV
  › Bandwidth Constraint sub-TLV
  › Bandwidth Assignment sub-TLV
  › Timestamp sub-TLV

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Summary

› IS-IS PCR enhances SPB with control of Explicit Trees
  – It extends the existing usage standardized by SPB

› Leverages existing TLVs and algorithms
  – Reuse of sub-TLVs specified by RFC 6329
  – Maximally Redundant Trees for Fast Reroute

› Very few new sub-TLVs

› No change or impact on IETF protocols

› *802.1Qca is under final review*

› **draft-farkas-isis-pcr – next steps**
  – Adoption as WG document
  – Early allocation of IANA codepoints