

# IS-IS Path Control and Reservation at L2

draft-farkas-isis-pcr-00

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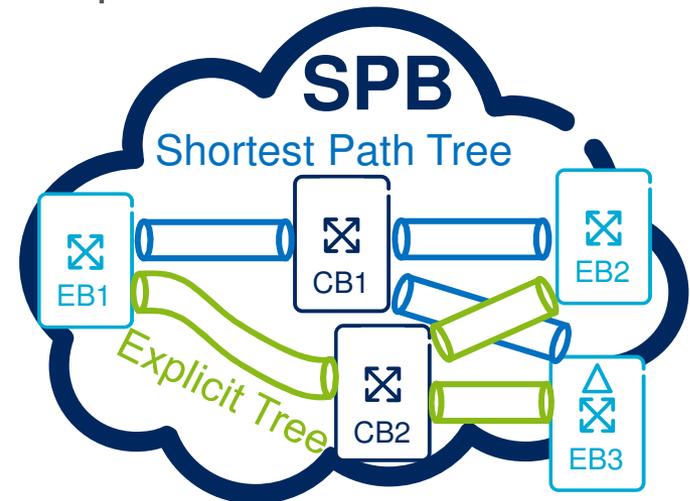
# Background: Shortest Path Bridging (SPB)

- › SPB is an add-on to IS-IS for the control of Layer 2 networks
  - A few sub-TLVs
  - No change to the IS-IS protocol
- › Specifications
  - RFC 6329 specifies the SPB sub-TLVs
  - IEEE 802.1aq specifies SPB operation details
- › SPB establishes Shortest Path Trees (SPTs) in order to provide the connectivity for unicast and multicast traffic within a Layer 2 domain

# Scope of draft-farkas-isis-pcr-00 and P802.1Qca

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



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

# Explicit Trees

- › L2 multicast trees that each node participates, e.g. for BUM
- › An Explicit Tree (ET) is either strict or loose
- › Strict tree
  - specifies all bridges and links it comprises
  - each hop is a strict hop
- › Loose tree
  - only specifies the bridges that have special role
    - › traffic end point
    - › root
    - › leaf
    - › bridge to be avoided
  - no path or path segment specified
  - each hop is a loose hop

# sub-TLVs

- › Existing sub-TLVs are reused as much as possible
    - 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
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- › New sub-TLVs are conveyed by MT Capability sub-TLV
    - Topology sub-TLV
      - › Hop sub-TLV
      - › Bandwidth Constraint sub-TLV
      - › Bandwidth Assignment sub-TLV
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# Summary

- › Enhance SPB with control of Explicit Trees, i.e. beyond SPTs
- › No change or impact on IETF protocols
- › IS-IS is used as by SPB
- › Embedded to existing TLVs and algorithms
  - Reuse of sub-TLVs specified by RFC 6329
  - Maximally Redundant Trees for Fast Reroute
- › Very few new sub-TLVs by draft-farkas-isis-pcr-00
- › Operation details by IEEE 802.1Qca