

# PCEP Extensions for Associated Bidirectional Label Switched Paths (LSPs) with Stateful PCE

*draft-ietf-pce-association-bidir-05*

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# Agenda

- Requirements and Scope
- Double-sided Associated Bidirectional LSP
- Single-sided Associated Bidirectional LSP
- PCEP Object Definitions
- Next Steps

# Requirements and Scope

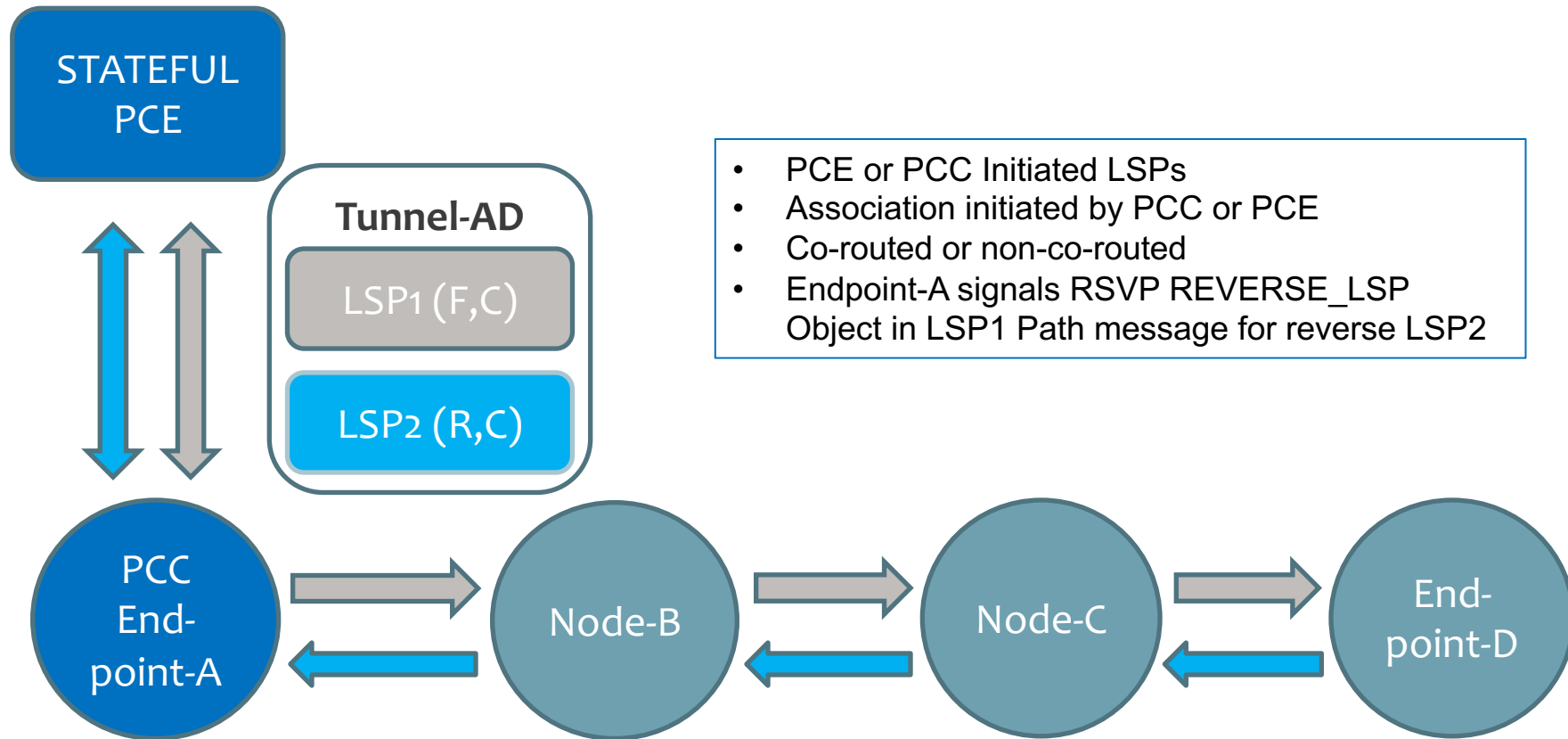
## Requirements:

- Packet transport networks deploying bidirectional RSVP LSPs
- Co-routed and non-co-routed forward and reverse RSVP LSPs

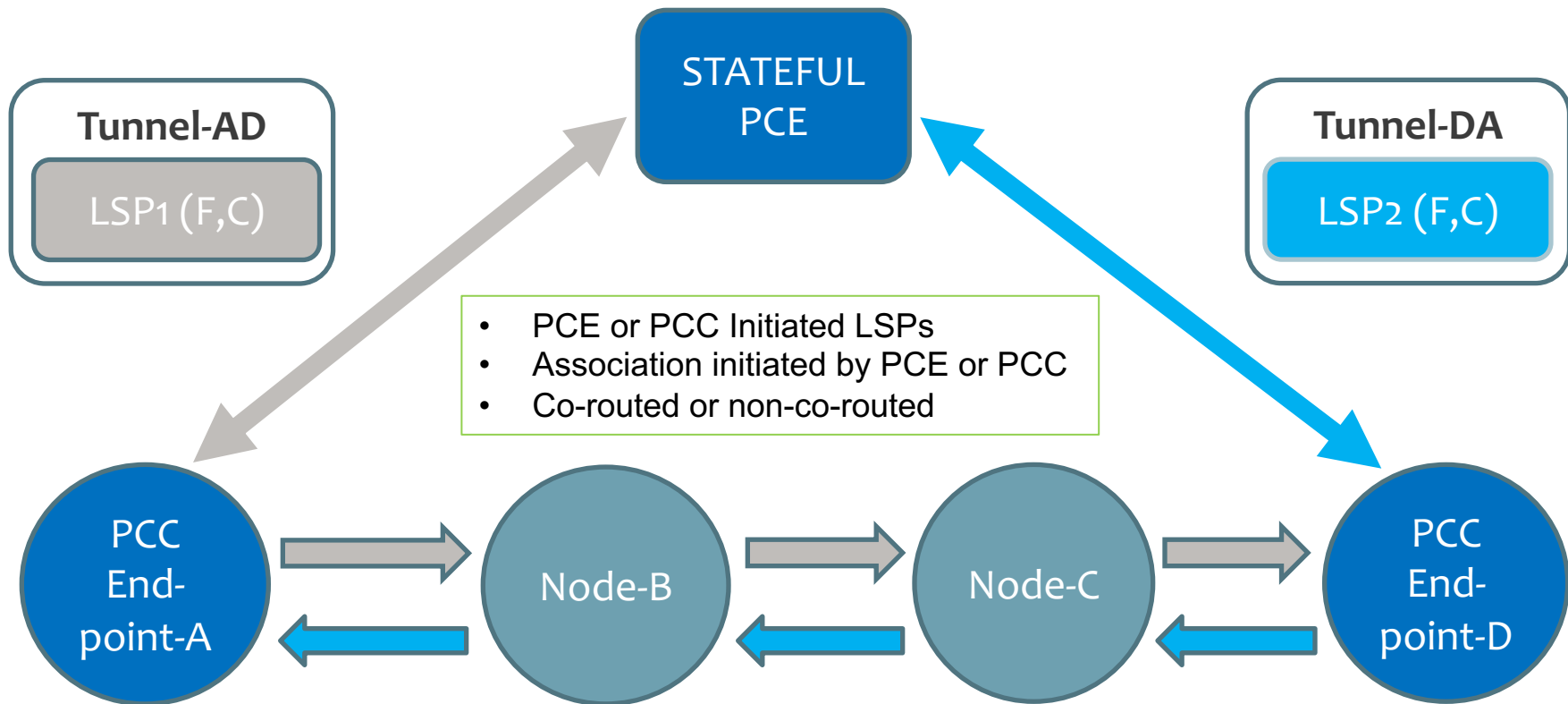
## Scope:

- Associated bidirectional RSVP LSPs
- PCE-Initiated LSPs
- PCC-Initiated LSPs
- Stateless PCE (e.g. for co-routed path computation requests)

# Single-sided Associated Bidirectional LSP



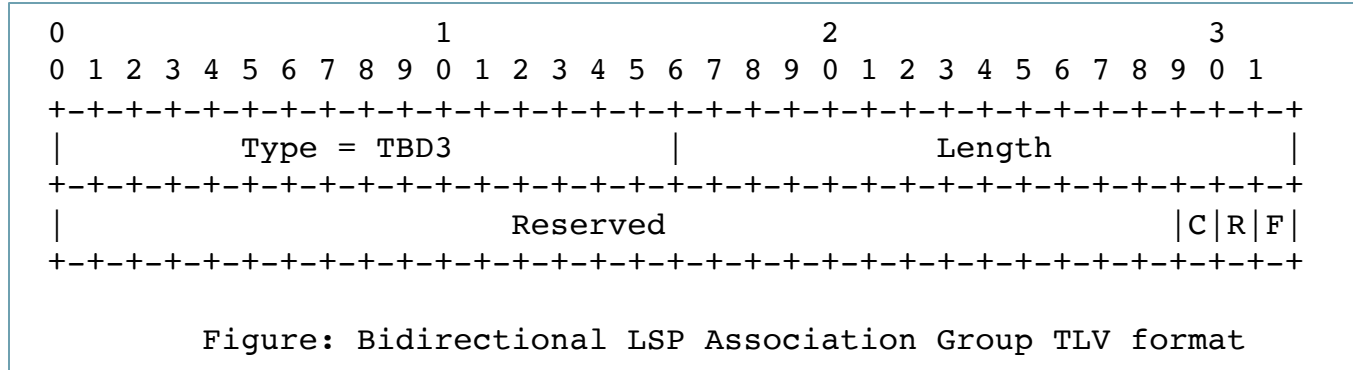
# Double-sided Associated Bidirectional LSP



# PCEP Association Object

- Association Type (TBD1) = Single-sided Bidirectional LSP Association Group
- Association Type (TBD2) = Double-sided Bidirectional LSP Association Group
- The Association ID, Association Source, Global Association Source and Extended Association ID in the Association Object of the bidirectional LSPs are populated using the procedures defined in [RFC7551].
- These Association Types are operator-configured associations.
  - Operator-configured Association Range TLV SHOULD NOT be sent, so that the entire range of association ID can be used.

# Bidirectional LSP Association Group TLV



- F (Forward LSP, 1 bit)
  - Indicates whether the LSP associated is the forward LSP of the bidirectional LSP.
- R (Reverse LSP, 1 bit)
  - Indicates whether the LSP associated is the reverse LSP of the bidirectional LSP.
- C (Co-routed LSP, 1 bit)
  - Indicates whether the associated bidirectional LSP is co-routed.

# Error Handling (PCErr Error-Type 26 - Association Error)

1. Both forward and reverse LSPs MUST belong to the same bidirectional TE tunnel [RFC3209].
  - Error-Value = Bidirectional LSP Association - Tunnel mismatch
2. LSP (forward or reverse) cannot be part of more than one Bidirectional LSP Association Group.
  - Error-Value = Bidirectional LSP Association - Group Mismatch
3. If a PCEP speaker receives a different PST value for Bidirectional LSP association group and it does not support.
  - Error-Value = Bidirectional LSP Association - Path Setup Type Not Supported



# Next Steps

- Welcome your review comments and suggestions
- Already in the WG LC Queue

Thank you.

# PCEP Extensions for Associated Bidirectional SR Paths

*draft-ietf-pce-sr-bidir-path-01*

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# Agenda

- Requirements and Scope
- Double-sided Associated Bidirectional **with Reverse** LSP
- PCEP Object Definitions
- Next Steps

# Requirements and Scope

## Requirements:

- Packet transport networks deploying bidirectional SR LSPs
- Co-routed and non-co-routed forward and reverse SR LSPs

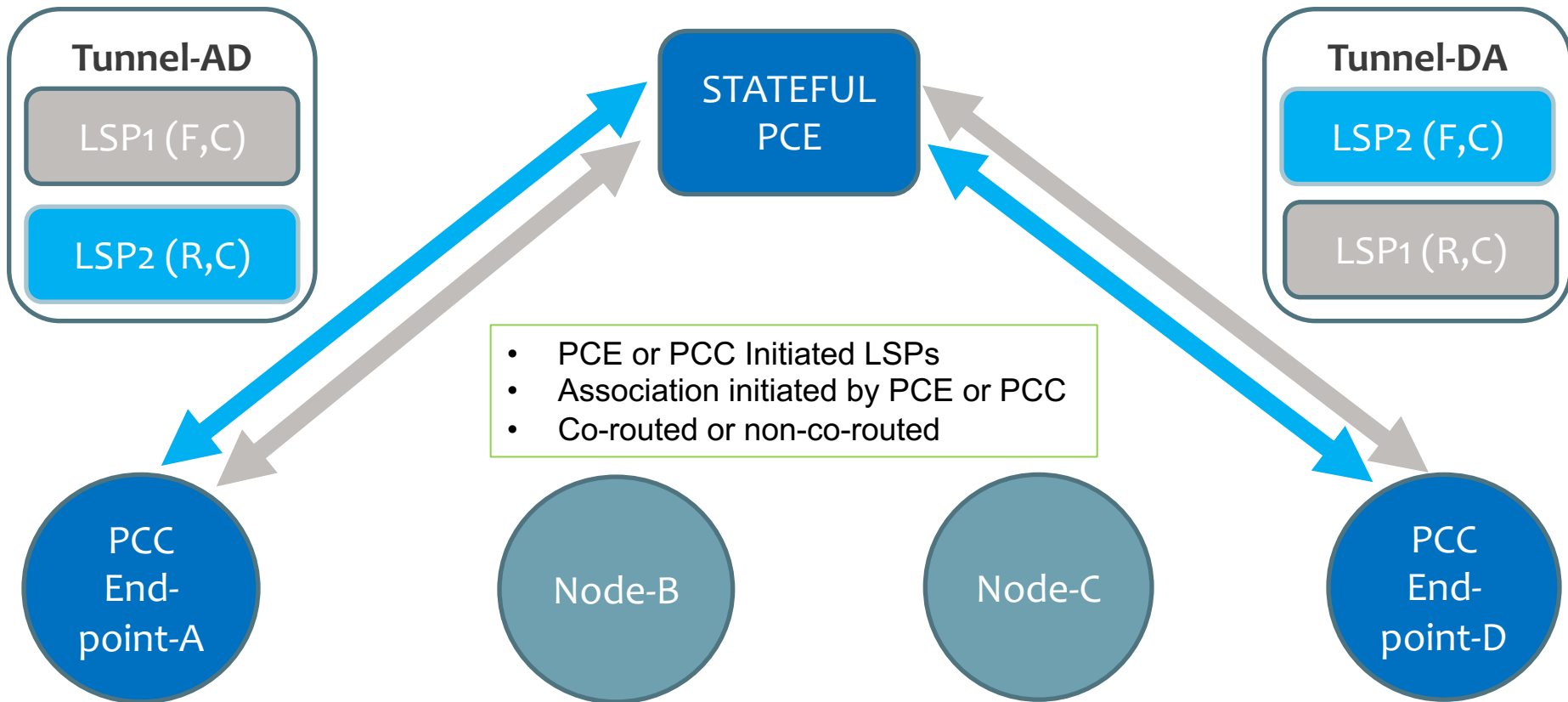
## Scope:

- Associated bidirectional SR LSPs
- PCE-Initiated LSPs
- PCC-Initiated LSPs
- Stateless PCE (e.g. for co-routed path computation requests)

## Not in Scope:

- **Associating bidirectional SR with RSVP LSPs**

# Double-sided Associated Bidirectional with Reverse LSP



# PCEP Association Object

- Association Type (TBD1) = Double-sided Bidirectional **with Reverse** LSP Association Group
- Populated using the same procedure as defined in [*draft-ietf-pce-association-bidir*]

# Error Handling (PCErr Error-Type 26 - Association Error)

- PCErr defined in [*draft-ietf-pce-association-bidir*] are applicable

## **Specifically – Keep the door open for future extensions for other PST**

- If a PCEP speaker receives a different Path Setup Type (PST) value for Bidirectional LSP association group and it does not support.
  - Error-Value = Bidirectional LSP Association - Path Setup Type Not Supported



# Next Steps

- Welcome your review comments and suggestions
- Queue for WG LC?

Thank you.