PCEP Extension for Stateful Inter-Domain Tunnels

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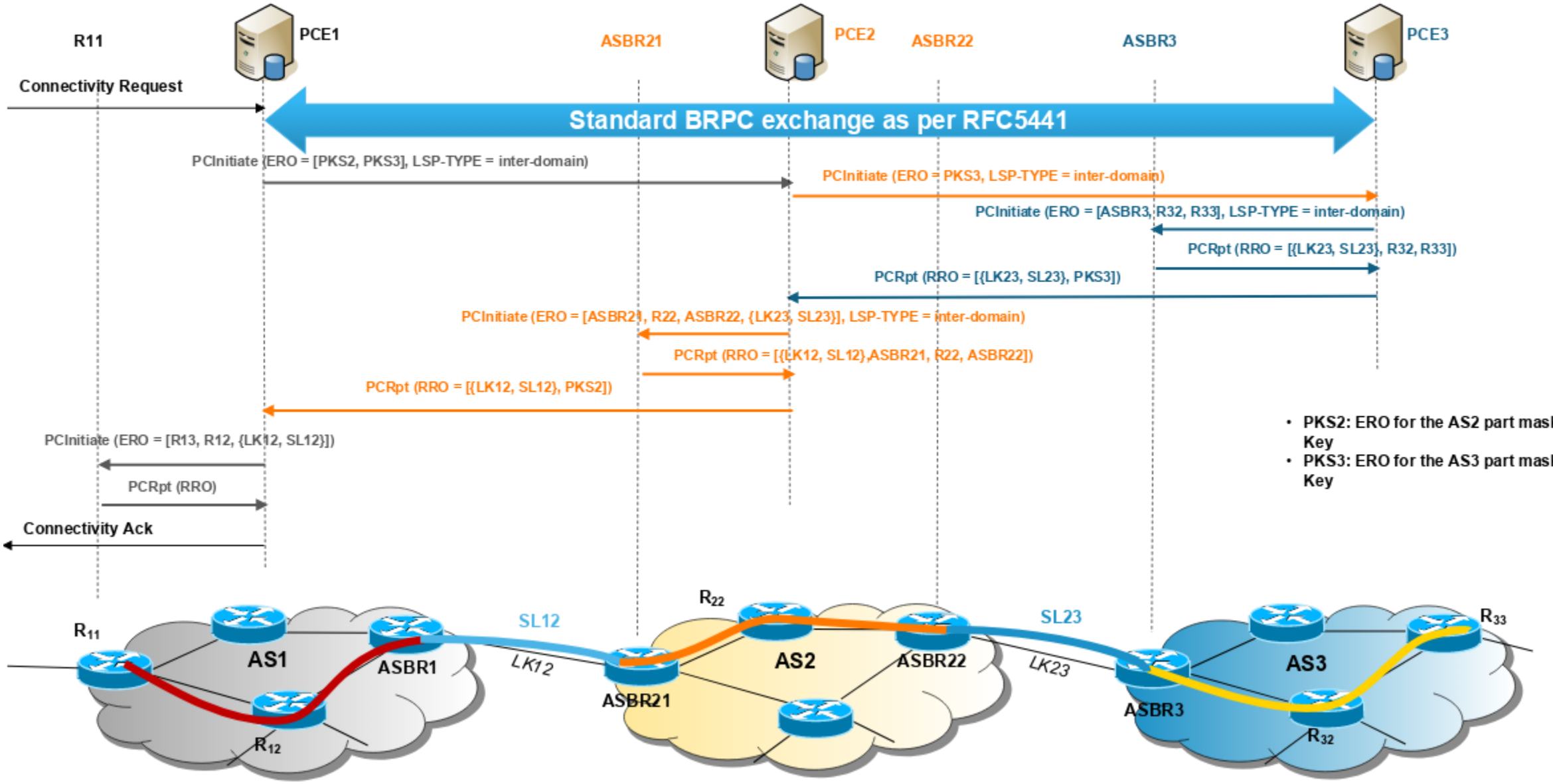
draft-ietf-pce-stateful-interdomain-04

Update since previous versions

- Version 00:
  - Working Group adoption based on draft-dugeon-pce-stateful-interdomain-04.txt
- Version 01:
  - Take into account comments received during the WG call adoption
    - Except the comment about the implementation option
- Version 02:
  - Endorse Binding SID to transport Stitching Label within PCEP message
- Version 03:
  - Simple refresh
- Version 04:
  - Add new use cases (VPN & Intent-Based Networking)
  - Specify how PCE could modify their local path and enforce QoS

Stitching Label in action

- SL12: Stitching Label used by ASBR21 to identify the traffic coming from ASBR1 that stich the 2 tunnels
- SL23: Stitching Label used by ASBR3 to identify the traffic coming from ASBR22 that stich the 2 tunnels



- PKS2: ERO for the AS2 part mask with Path Key
- PKS3: ERO for the AS3 part mask with Path Key

Implementation requirements

- The stitching label principle requires at least a certain number of modifications in the current PCEP version
  - A new PCE Capability to announce the inter-domain behavior
  - A new PCE Association Group to associate the local paths identifier to the inter-domain identifier
  - A new PCEP Errors message to manage the Stitching Label exchange
  - A new flag for the TE-PATH-BINDING Object to convey the Stitching Label

Conclusion

- Propose to extend BSID and Association Group to inter-domain
  - To exchange Stitching Label between PCEs and PCE / PCCs
  - To automatically stich / nest local LSP tunnel to form inter-domain LSP tunnel

- Applicability
  - Inter-domain LSP tunnels setup by RSVP-TE and/or Segment Routing
  - Allow stitching of Segment Routing paths and RSVP-TE LSP tunnels
  - Targeted use cases
    - inter-domain VPN,
    - Data Centre interconnection,
    - 5G Slicing,
    - Intent-Based Networking …