

PCEP Extensions for SRv6

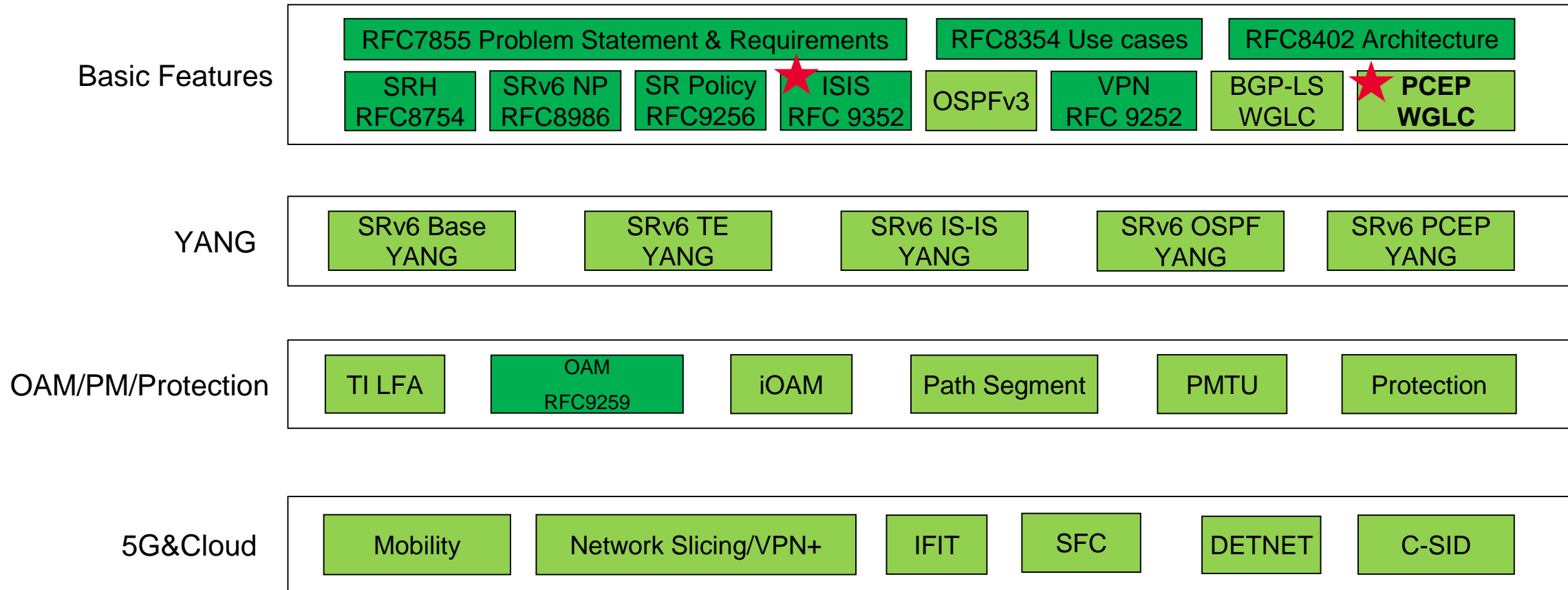
From
draft-ietf-pce-segment-routing-ipv6-15
to
draft-ietf-pce-segment-routing-ipv6-16

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IETF#116

SRv6 protocol extensions: Mature for deployment



New Milestone

All the SRv6 basic features have been stable and ready for wide deployment.

Current Situation: WGLC is closed, comments should be addressed

Path Computation Element Communication Protocol (PCEP) Extensions for Segment Routing leveraging the IPv6 dataplane

draft-ietf-pce-segment-routing-ipv6-16

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Document	Type	Active Internet-Draft (pce WG)
	Authors	Cheng Li ✉, Mahendra Singh Negi ✉, Siva Sivabalan ✉, Mike Koldychev ✉, Prejeeth Kaladharan ✉, Yongqing Zhu ✉
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	Additional resources	Mailing list discussion
Stream	WG state	Waiting for WG Chair Go-Ahead Revised I-D Needed - Issue raised by WGLC, Doc Shepherd Follow-up Underway
	On agenda	<input type="checkbox"/> pce at IETF-116

- The WGLC was started in February 13, 2023, and ended now.
- We have addressed the editorial comments received from Quan Xiong, Chongfeng Xie, Adrian Farrel, Ketan Talaulikar and others. Many thanks for your comments!

Thanks for the editorial comments.

Path Computation Element Communication Protocol (PCEP) Extensions for
Segment Routing leveraging the IPv6 dataplane

draft-ietf-pce-segment-routing-ipv6-15

Abstract

The Source Packet Routing in Networking (SPRING) architecture describes how Segment Routing (SR) can be used to steer packets through an IPv6 or MPLS network using the source routing paradigm. SR enables any head-end node to select any path without relying on a hop-by-hop signaling technique (e.g., LDP or RSVP-TE).

It depends only on "segments" that are advertised by Link-State IGPs. A Segment Routed Path can be derived from a variety of mechanisms, including an IGP Shortest Path Tree (SPT), explicit configuration, or a PCE.

Since SR can be applied to both MPLS and IPv6 forwarding plane, a PCE should be able to compute SR-Path for both MPLS and IPv6 forwarding plane. This document describes the extensions required for SR support for IPv6 data plane in Path Computation Element communication Protocol (PCEP). The PCEP extension and mechanism to support SR-MPLS is described in RFC 8664. This document extends it to support SRv6 (SR over IPv6).

Path Computation Element Communication Protocol (PCEP) Extensions for
Segment Routing leveraging the IPv6 dataplane

draft-ietf-pce-segment-routing-ipv6-16

Abstract

Segment Routing (SR) can be used to steer packets through an IPv6 or MPLS network using the source routing paradigm. SR enables any head-end node to select any path without relying on a hop-by-hop signaling technique (e.g., LDP or RSVP-TE).

A Segment Routed Path can be derived from a variety of mechanisms, including an IGP Shortest Path Tree (SPT), explicit configuration, or a PCE.

Since SR can be applied to both MPLS and IPv6 forwarding planes, a PCE should be able to compute SR-Path for both MPLS and IPv6 forwarding planes. The PCEP extension and mechanisms to support SR-MPLS are described in [RFC8664]. This document describes the extensions required for SR support for IPv6 data plane in the Path Computation Element communication Protocol (PCEP).

- Delete redundant text.
- Reorganize the text in introduction.
- Delete 'early allocation' text

Add IANA allocation for SID verification error

- Aligned with SR-MPLS, using LSP-ERROR-CODE defined in draft-chen-pce-sr-mpls-sid-verification.
- Move IANA allocation from draft-chen-pce-sr-mpls-sid-verification to this draft to avoid independence

* V: The "SID verification" bit usage is as per Section 5.1 of [RFC9256]. If a PCC "Verification fails" for a SID, it MUST report this error by including the LSP-ERROR-CODE TLV with LSP error-value "SID Verification fails" in the LSP object in the PCRpt message to the PCE.

9.3. LSP-ERROR-CODE TLV

This document defines a new value in the sub-registry "LSP-ERROR-CODE TLV Error Code Field" in the "Path Computation Element Protocol (PCEP) Numbers" registry.

Value	Meaning	Reference
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TBD2	SID Verification fails	This document

Next Step

- Address functional comments from Adrian and Ketan. Would like to hear wider discussion of these functional comments, since we are in WGLC stage.
- Move the draft to the next stage, accelerate for publication.

Thank you



For your long-term support