Routing Area SPRING

IETF 110
March 2021

SPRING in 1 slide

- Source Packet Routing in NetworkinG (SPRING) Working Group is the home of Segment Routing (SR)

- Segment Routing Architecture
  - RFC 8402 July 2018

- Segment Routing for MPLS dataplane
  - RFC 8660 December 2019

- Segment Routing for IPv6 dataplane
  - IPv6 Segment Routing Header (SRH) RFC 8754 March 2020 *6MAN WG*
  - SRv6 Network Programming RFC 8986 February 2021

SR IPv6 dataplane with reduced header size

- SRv6 uses 128-bits addresses as Segment IDentifiers

- Many use cases require few segments, but when the number of segments is high, the IPv6 SRH header is large which involves hardware challenges and traffic overhead.

- Multiples solutions proposed (4-5) to "compress the header"

  - Really meaning using shorter Segment IDentifiers

  - Each solution defining extensions to be done in their related WG (6MAN, LSR, IDR, SPRING, PCE)

- Convergence could not "naturally" be achieved

  - Some different starting positions (e.g. SRv6 evolutions, SR-MPLS over IPv6, new IPv6 routing headers)

  - Strong positions

SRCOMP Design Team

- Created in June 2020. Tasked to

  - agree on a requirements proposal to the WG

  - a comparison document to be evaluated by the WG.

- Good involvement from the DT, although exceeding the planned time frame.

- @ IETF 110

  - Reporting to 6MAN & SPRING

  - draft-srcompdt-spring-compression-requirement-05 : published, presented, asked for adoption

  - draft-srcompdt-spring-compression-analysis-00 : published, presented. Very preliminary. "Rough plan" for complete analysis by late May.

SR policy architecture

- Significant part of the SR architecture

  - draft-ietf-spring-segment-routing-policy-09

- Referenced by 96 documents (37 normatively)

  - most notably by 10 IDR WG docs, 4 PCE WG docs, 2 MPLS WG, 2 TEAS WG docs

- Will be WG last called SOON

Inter-domains SLA/intent/color planes

- A domain may use multiple (IGP) planes to enforce multiple objectives

  - shortest cost, lowest delay, links > 100G, not routed via X...

  - using its local choice of solution. e.g. SR policies, SR FlexAlgo, RSVP-TE...

- Need to build coherent inter-domain SLA/intent/colors transport routes

- @ IETF 110: presentations in SPRING, IDR, BESS WGs

  - Set of documents: architecture & use cases, BGP extensions

  - Two solutions sets proposed.

  - e.g. Thursday in SPRING

    - Seamless SR Problem Statement, draft-hegde-spring-mpls-seamless-sr-05

    - BGP Color-Aware Routing Problem Statement, draft-dskc-bess-bgp-car-problem-statement-01