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.
- Multiple 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