Segment Routing IPv6

Authors and contributors:

Stefano Previdi (sprevidi@cisco.com)
Clarence Filsils (cfilsil@cisco.com)
Roberta Maglione (robmgl@cisco.com)
Eric Vyncke (evyncke@cisco.com)
Dave Barach (dbarach@cisco.com)
Mark Townsley (townsley@cisco.com)
Chris Martin (martinc@cisco.com)
Nagendra Kumar (naikumar@cisco.com)

Brian Field (Brian_Field@cable.comcast.com)
John Brzozowski (john_brzozowski@cable.comcast.com)
John Leddy (John_Leddy@cable.comcast.com)
Ida Leung (ida.Leung@rci.rogers.com)

Jen Linkova (furry@google.com)
Ebben Aries (exa@fb.com)
Tomoya Kosugi (kosugi.tomoya@lab.ntt.co.jp)

David Lebrun (david.lebrun@uclouvain.be)
Aloys Augustin (alloys.augustin@polytechnique.org)
Pierre Francois (pierre.francois@imdea.org)
James Connolly (jconnolly@libertyglobal.com)
Segment Routing Header

draft-previdi-6man-segment-routing-header

• Several Comments were received during the adoption call
• The document was re-structured in order to address the comments and improve readability
Main comments and resolution

1. **Comment:** Header insertion seen as problematic
   - **Resolution:** followed the suggestion of WG and introduced **Outer Encapsulation**
     - Clarified what SR domain is:
       - SP infrastructure (multiple networks, multiples ASes)
       - Overlay: set of nodes connected over one or more infrastructure (Section 2.2.2)

2. **Comment:** Security
   - **Resolution:** integrated `draft-vyncke-6man-segment-routing-security` which specifies HMAC
     - Introduced the outer encapsulation

3. **Comment:** References to SDN controller
   - **Resolution:** removed the text related to SDN controller
     - Out of scope of this document
4. **Comments**: MTU and ICMP errors handling
   - **Resolution**: the outer encapsulation allows to send icmp message to the ingress node.
     - Additional text similar to the one in RFC 6554 could also be added if the WG feels is needed:
       “To avoid fragmentation, it is desirable to employ MTU sizes that take into account the outer header (and its Segment Routing Header) which results in:
       . 1500 +
       . 40 (outer header) +
       . 8 (first 8 bytes of Segment Routing Header)
       . 16*MAX_SEGMENT (expected largest number of segments in the segment list)”

5. **Comment**: Some requests to clarify spring terminology
   - **Resolution**: detailed descriptions of spring building blocks are contained in draft-ietf-spring-segment-routing
Segment Routing Header

draft-previdi-6man-segment-routing-header

– Current version: 08
– Changes from 07
  • Integrated draft-vyncke-6man-segment-routing-security as the Security section of draft-previdi-6man-segment-routing-header
  • Definition of “Segment Routing domain”
    – SP infrastructure (multiple networks, multiples ASes)
    – Overlay: set of nodes connected over one or more infrastructure
  • Simplified structure of the document
    – Reduced introduction section
    – Illustration section
    – Segment Routing Identifier (SID): Node-SID / Adj-SID
    – Segment Routing Header format
    – Operations
    – Security (Integrated draft-vyncke-6man-segment-routing-security)
Segment Routing Domain

- Segment Routing Domain: SP infrastructure

- Packet is classified at ingress and an outer encapsulation is added
  - Including the SRH
- Packet travels in the SR domain with the SRH
- SRH is removed when outer encapsulation is removed at egress
Segment Routing Domain

- Segment Routing Domain: SR Overlay

- Packet is originated with a SRH
- Segment addresses are outside the domain of the network operator
- Segment addresses are part of the overlay
  - Packets travels across SP infrastructure with the SRH
  - No inspection of the SRH is done in the operator network (as per RFC2460)
  - Only the DA node inspects the extension header
Adoption?

• During IETF93 it has been suggested to merge
draft-previdi-6man-segment-routing-header and
draft-vyncke-6man-segment-routing-security
• A call for adoption has been issued after IETF93
• Multiple comments on the mailing list related to SRH insertion and SR
domain definition have been received and, hopefully, addressed in -08
version
• Authors would like to know if the call for adoption can be positively closed
Questions?

Thanks!