RBS (Recursive BitString Structure) for Multicast Source Routing over IPv6

draft-xu-msr6-rbs-00

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6MAN WG, 03/23/2022
Overview

Native IPv6 solution for P2MP (multicast) services
Stateless = source-routed, extending SRv6 architecture (terminology/functionality)
Target “solution” WG: PIM – responsible for P2MP (agreement with SPRING)
But needs new HBH EH (P2MP equivalent for SRH) → 6man

Proposed RBS header vs. SRH / RFC8754 (unicast)

*Draft does not currently cover all aspects*

SRH: Extension header carries segment-path. But compression work: 8 years later (now)
RBS: Extension header carries segment-tree. Very well (!) compressed
Segment-by-Segment forwarding by IPv6-Dest: Same
Segment-by-Segment “extraction” of next-segment: “logically” Same
  BUT: in RBS, each segment may replicate: e.g.: extract N > 1 next-hop segments
Egress (optional) TLV: Should be shared with SRH (TBD)
How it works (high level)

**Compressed Tree “Address” at A**
Describes whole tree!!
Rtr A examines its adjacency bits
Sees two bits are set. Creates two packet copies
For each, packet copy needs to adjust address

**Needed Compressed Tree “Address” at B**
**Needed Compressed Tree “Address” at C**

Per-hop “rewrite” operation options:

A) rewrite compressed tree to only sub-tree
   *Unclear if shortening EH is allowed*
B) Adjust “Segment Offset” equivalent
C) adjust “Segment Offset / Length”
   *More compact compression than B)*
Next steps / IETF process

Assuming there is SRv6 community that wants this (and vote to adopt)

How to adopt the work between “use-case WGs” (SPRING/PIM) and 6MAN
What to do so this will be easier / faster / Better 2^{nd} time around than with SRH ?

Would we need an additional “arch” document in PIM ?
Similar to RFC 8986/SRv6 ?
Assume the EH spec would go to 6MAN
Can we bake extensibility / modification by “use-case” WG
better/easier into EH specification than with RFC8754 ?
E.g.: Have multiple multicast-tree address compression option ?
E.g.: Define permissible per-segment modifications
   (shorten, rewrite one/two fields , rewrite more ?)
The End

Please come to PIM-WG, Thursday 14:30 – 16:30 Park Suite 3
If you are interested in this