Update on

draft-ietf-rtgwg-segment-routing-ti-lfa
draft-ietf-rtgwg-bgp-pic
draft-bashandy-rtgwg-segment-routing-uloop

Ahmed Bashandy

On behalf of the authors

Brief Memory Refresh

- draft-ietf-rtgwg-segment-routing-ti-lfa
  - Leverages SR to provide local protection of traffic against unplanned failures of a link, a node, or SRLG
- draft-ietf-rtgwg-bgp-pic
  - Proposes organizing forwarding data structure in a hierarchical and shared manner so that traffic can be re-routed to ECMP or pre-calculated backup path in a timeframe that does not depend on the number of prefixes.
- draft-bashandy-rtgwg-segment-routing-uloop
  - Leveraging the SR to avoid micro-loops during network reconvergence

Update on
draft-ietf-rtgwg-segment-routing-ti-lfa

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draft-ietf-rtgwg-segment-routing-ti-lfa

- Two DISCUSS points
- First DISCUSS point: the use of "**SHOULD**"
  - "**SHOULD**" is used **five** times
  - Murray and John want to have justification for every SHOULD
  - There are many RFCs that do not provide explanation or justification for "SHOULD"
  - E.g. RFC7490 and RFC7916 (used as reference in the draft)
- Second Discuss point: The use of word "**key**"
  - Used **one time** only
  - John Scudder interprets "**key**" as "MUST" or "Mandatory" .

draft-ietf-rtgwg-segment-routing-ti-lfa The SHOULD problem

6.2 FRR path using a PQ node

When a remote node R is in P(S,X) and Q(D,x) and on the post-convergence path, the repair list **SHOULD** be made of a single node segment to R and the outgoing interface **SHOULD** be set to the outgoing interface used to reach R.

…..can be changed to

When a remote node R is in P(S,X) and Q(D,x) and on the post-convergence path, the repair list can be made of a single node segment to R and the outgoing interface set to the outgoing interface used to reach R, thereby minimizing the size of the repair-list while keeping the repair path on the post-convergence path.

draft-ietf-rtgwg-segment-routing-ti-lfa The SHOULD problem

6.3 FRR path using a P node and Q node that are adjacent

When a node P is in P(S,X) and a node Q is in Q(D,x) and both are on the post-convergence path and both are adjacent to each other, the repair list **SHOULD** be made of two segments: A node segment to P (to be processed first), followed by an adjacency segment from P to Q.

…..can be changed to

When a node P is in P(S,X) and a node Q is in Q(D,x) and both are on the post-convergence path and both are adjacent to each other, the repair list size can be minimized while keeping the repair path on the post-convergence path by constructing it from two segments: A node segment to P (to be processed first), followed by an adjacency segment from P to Q.

draft-ietf-rtgwg-segment-routing-ti-lfa The SHOULD problem

9. TI-LFA and SR algorithms

An implementation MAY support TI-LFA to protect Node-SIDs associated to a FlexAlgo. In such a case, rather than computing the expected post-convergence path based on the regular SPF, an implementation **SHOULD** use the constrained SPF algorithm bound to the FlexAlgo (using the Flex Algo Definition) instead of the regular Dijkstra in all the SPF/rSPF computations that are occurring during the TI-LFA computation. This includes the computation of the P-Space and Q-Space as well as the post-convergence path. An implementation MUST only use Node-SIDs bound to the FlexAlgo and/or Adj-SIDs that are unprotected or, in case of SRv6, adj-SIDs that are bound to the FlexAlgo to build the repair list.

…..can be changed to

An implementation MAY support TI-LFA to protect Node-SIDs associated to a FlexAlgo. In such a case, rather than computing the expected post-convergence path based on the regular SPF, an implementation **MAY** use the constrained SPF algorithm bound to the FlexAlgo (using the Flex Algo Definition) instead of the regular Dijkstra in all the SPF/rSPF computations that are occurring during the TI-LFA computation. This includes the computation of the P-Space and Q-Space as well as the post-convergence path. If an implementation uses the constrained SPF algorithm bound to the FlexAlgo, then the implementation MUST only use Node-SIDs bound to the FlexAlgo and/or Adj-SIDs that are unprotected or, in case of SRv6, adj-SIDs that are bound to the FlexAlgo to build the repair list.

draft-ietf-rtgwg-segment-routing-ti-lfa The "***KEY***" problem

- "**Key**" Used **once**

  A **key** aspect of TI-LFA is the FRR path selection approach establishing protection over the expected post-convergence paths from the point of local repair, reducing the operational need to control the tie-breaks among various FRR options.

- John Scudder interprets "**key**" as "MUST" or "Mandatory"*
- The document explicitly mentions multiple times that post-convergence path is not mandatory.

Update on
draft-ietf-rtgwg-bgp-pic

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draft-ietf-rtgwg-bgp-pic

- The main contention point is the opinion by the AD that the terms have to be ***consistent*** with BGP (RFC4271)
- All terms are unambiguously defined
- Terms describe functionality that is used in a different functional unit on a routing system
- Draft clearly mentions that it describes forwarding plane behavior and organization NOT a protocol behavior
- The term "***consistent with***" is not well defined
  - How can one *objectively* measure "***consistent with***"
  - "***consistent with***" can be very subjective
  - Even if we agree on the definition of "***consistent with***", BGP and BGP-PIC describe two different ideas that are implemented in two different places on routers and switches
- *I move to closing this "**consistent with**" discussion*

Update on
draft-bashandy-rtgwg-segment-routing-uloop

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Bruno Decraene (Bell Canada)
Pierre Francois (INSA Lyon),

Status

- Will be addressed after closing the other two drafts

Thank you!