RMR using SPRING

draft-kompella-spring-rmr
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Rings

Rings are a simple topology — the goal is resilience. Many access networks are physically built as rings; they may become “meshy” later as “chords” are added.

RMR allows a ring to be defined simply, using the IGP for auto-discovery and for all nodes to agree on ring direction.

LSPs to each node are built in counterrotating pairs: CW and AC. If one path fails, the other is used for protection.

These LSPs are not configured. Signaling occurs automatically when the ring discovery is complete. This is being defined for RSVP-TE and LDP.
Creating LSP pairs with SPRING

This draft is about creating the counter-rotating LSP pairs using SPRING.

In the simple (naive?) case where all link metrics are the same, an LSP needs at most two node SIDs.

If link R2-R3 fails, R2 swaps the top label R4 with the AC LSP R2->R4 [R7, R4].

CW LSP R1->R4: [R4]
AC LSP R1->R4: [R6, R4]

CW LSP R2->R4: [R4]
AC LSP R2->R4: [R7, R4]
Case Needing 3 Node SIDs

AC LSP R1->R4: [R8, R7, R4]
Not sure what the upper bound is
Alternative Approach
(still in flight)

- Use a “flex-algo” type approach
- Not necessarily directly the flex-algo method (will chat with authors)
- A single SID will suffice in each direction independent of metrics; also sufficient for protection
- Each node announces (as sub-TLVs of the ring TLV) a CW node SID and an AC node SID
- Forwarding for these SIDs is to drop ...
- Until ring discovery is complete, whereupon forwarding is along the appropriate ring direction
- Open question: how to manage the SRGBs for these SIDs
Next Steps

- Need to put more details in the draft
- How to manage ring SRGBs
- How to install primary routes, protection routes
- When to withdraw forwarding when ring changes occur
- Please comment now, and/or send to the list