RMR using SPRING

draft-kompella-spring-rmr

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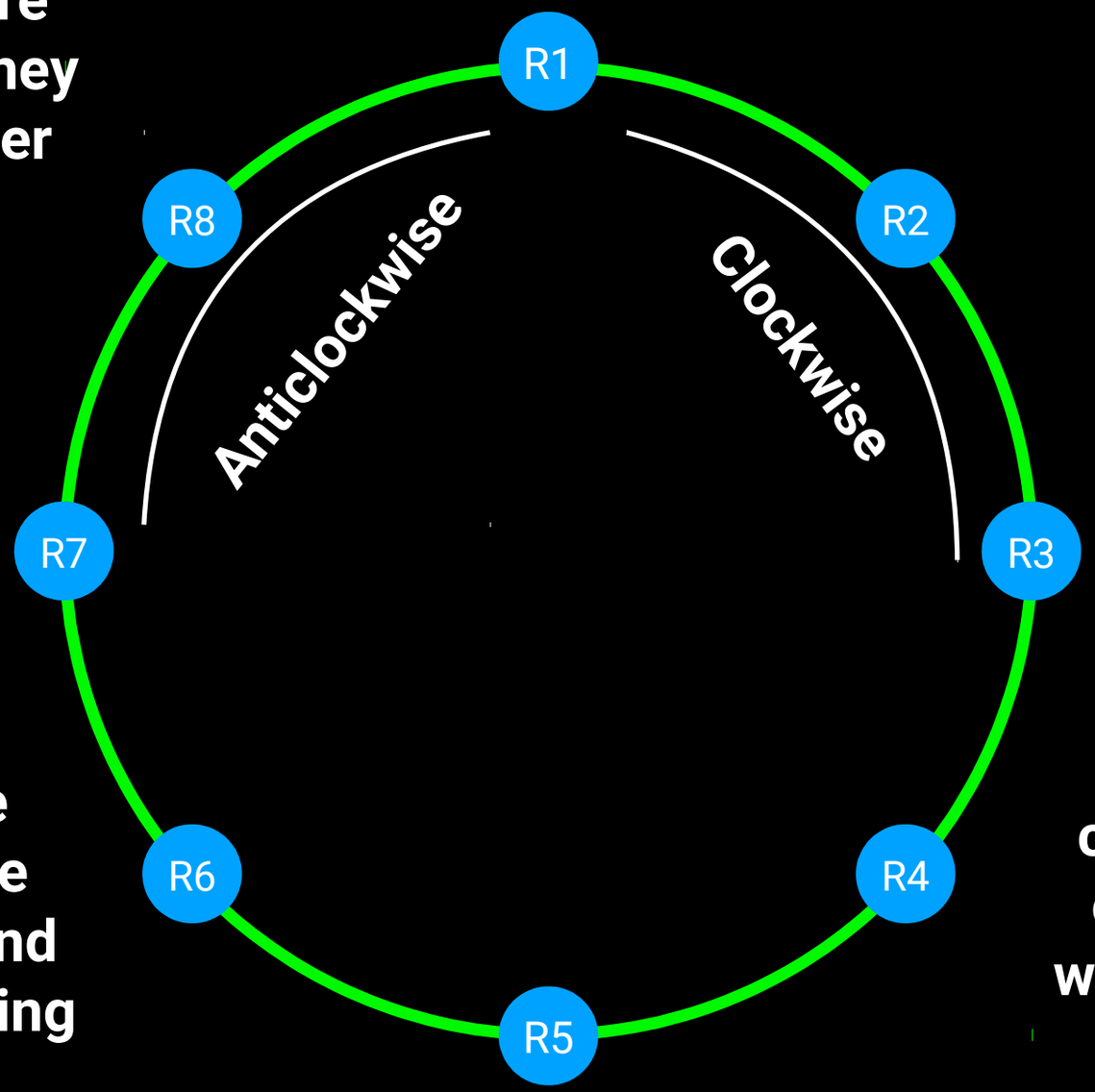
Rings

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.



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

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

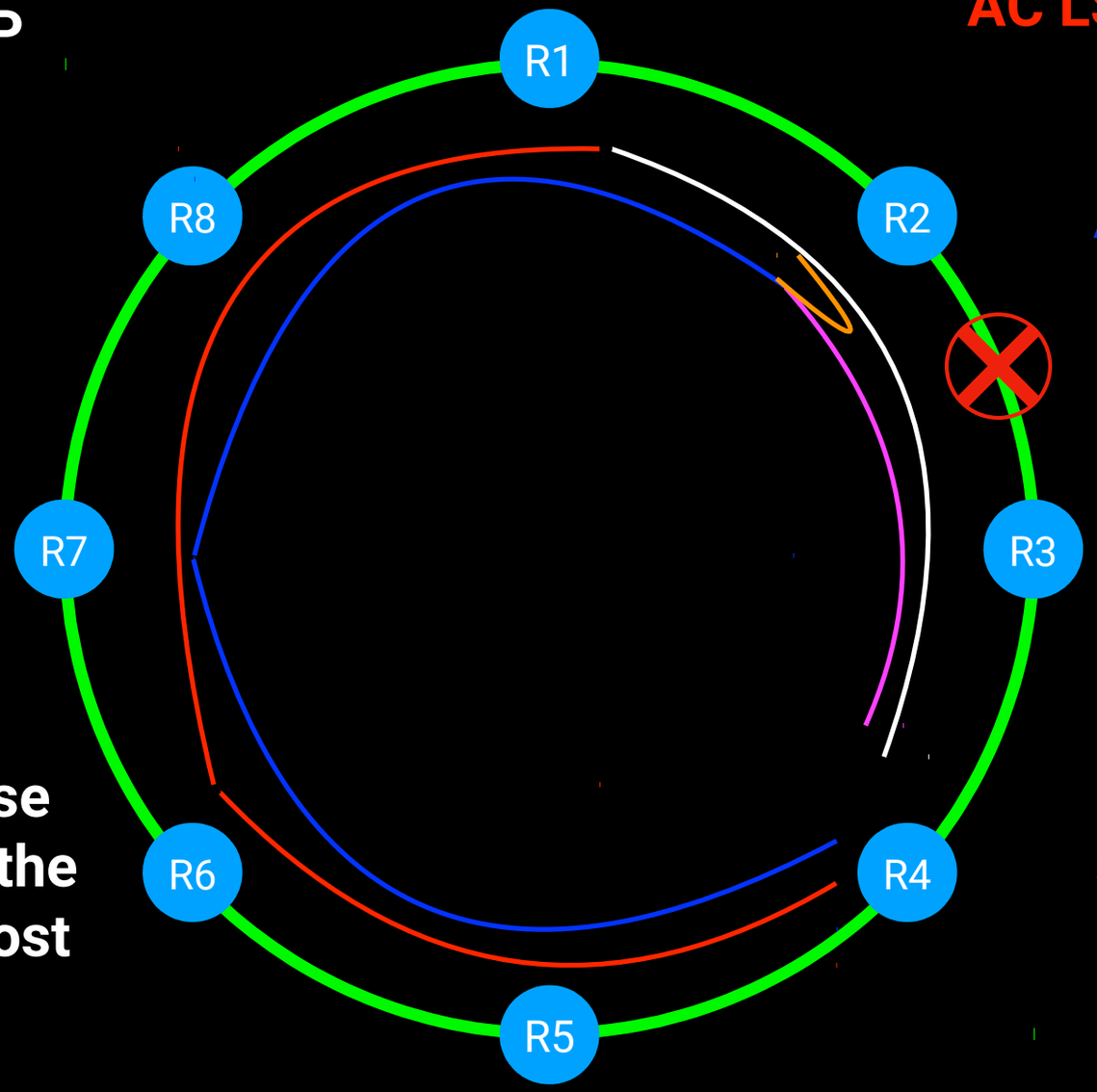
These LSPs are not configured. Signaling occurs automatically when the ring discovery is complete.
This is being defined for RSVP-TE and LDP

Creating LSP pairs with SPRING

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

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

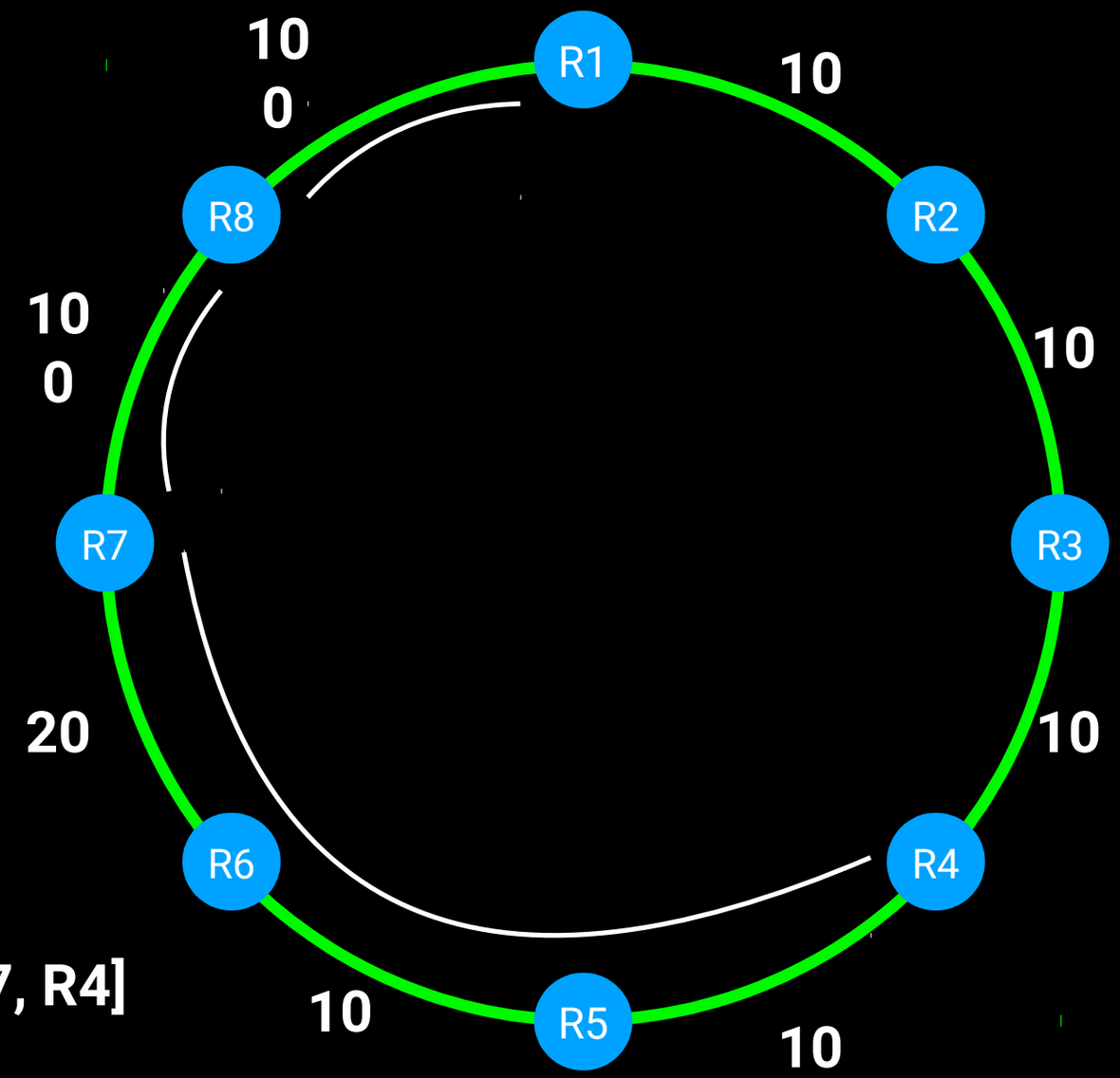
CW LSP R2->R4: [R4]
AC LSP R2->R4: [R7,R4]



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]

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