

draft-esale-mpls-ldp-node-frr-05

Fast Reroute for Node Protection in LDP- based LSPs

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(presented by
Kireeti Kompella)

Authors - Santosh Esale, Raveendra Torvi, Luyuan Fang, Luay Jalil

Central theme

- † Fast Re-route for LDP-signaled transport LSPs
- † Local protection to minimize connectivity disruption
- † Link and node protection for LDP based transport LSPs using RSVP-TE bypasses
- † No restrictions on the network topology – provide topology independent local protection so long as there is alternate path in the network that avoids the protected node

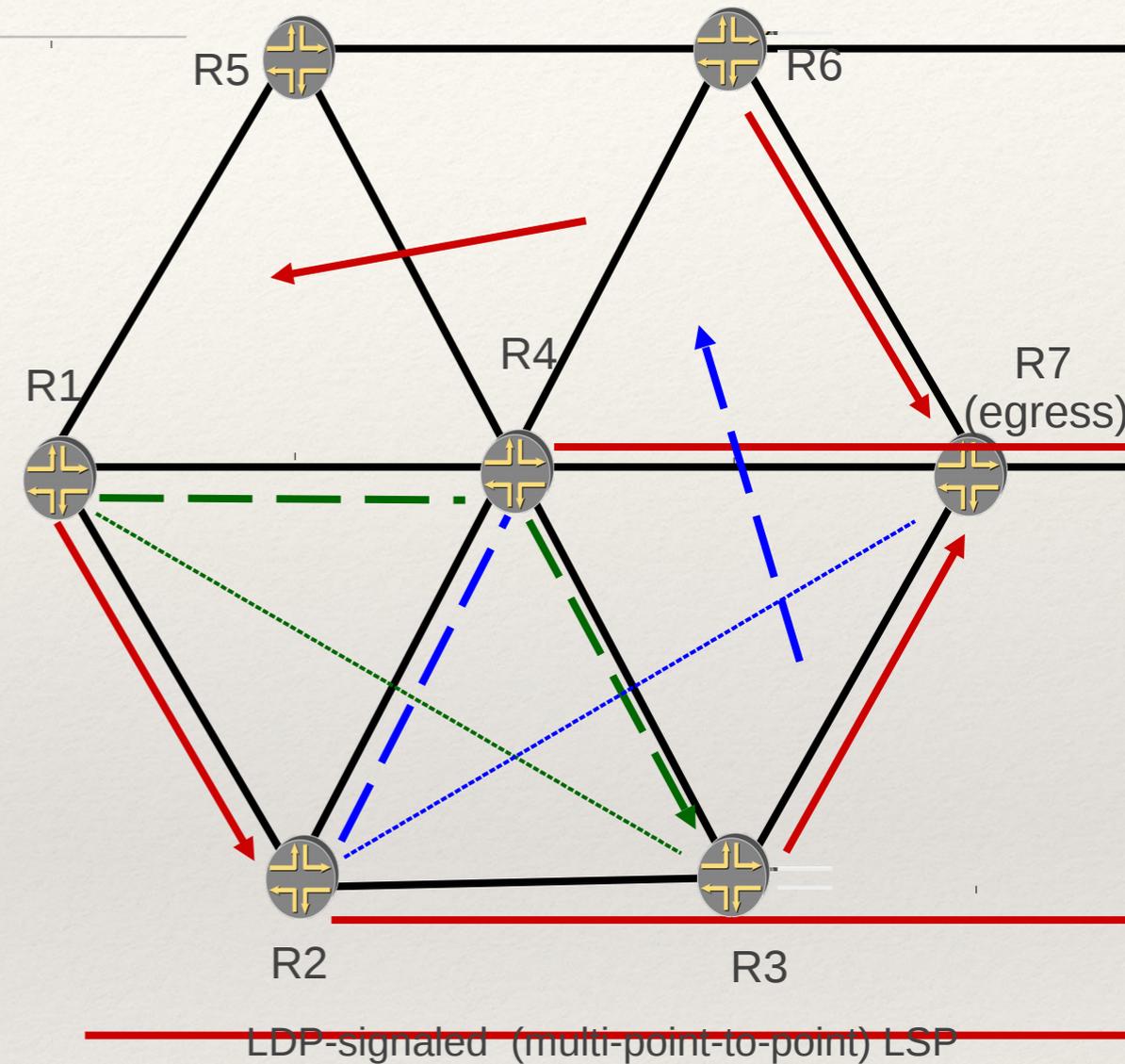
Central theme

- † Additional provisioning and configuration required could be fairly small
 - † Depends on implementation - it could be as minimal as single line
 - † bypass LSPs from PLR to MPT and Targeted LDP between PLR and MPT can be established automatically
- † Relies on the existing IETF standards
 - † RSVP-TE for establishing bypass LSPs
 - † Targeted LDP to obtain label mapping from MPT
 - † Needed only for node protection
- † Synergy with link and node protection for mLDP-signaled LSPs

Node Protection – Intra-area

(protected node is **not** ABR)

- ❖ Consider an LSP that traverses PLR, protected node, and particular neighbor of the protected node - we'll refer to this neighbor as the "next next-hop"
 - ❖ From PLR's perspective the protected node is the next hop for the FEC associated with that LSP
 - ❖ From protected node's perspective the next next-hop is the next hop for that FEC
- ❖ When the protected node is not an Area Border Router (ABR), PLR can determine the next next-hop as a by-product of SPF required by ISIS/OSPF
 - ❖ No additional SPF may be needed
- ❖ When the protected node is not an ABR, PLR uses the next next-hop as MPT
 - ❖ As path from the next next-hop to the egress is not affected by failure of the protected node

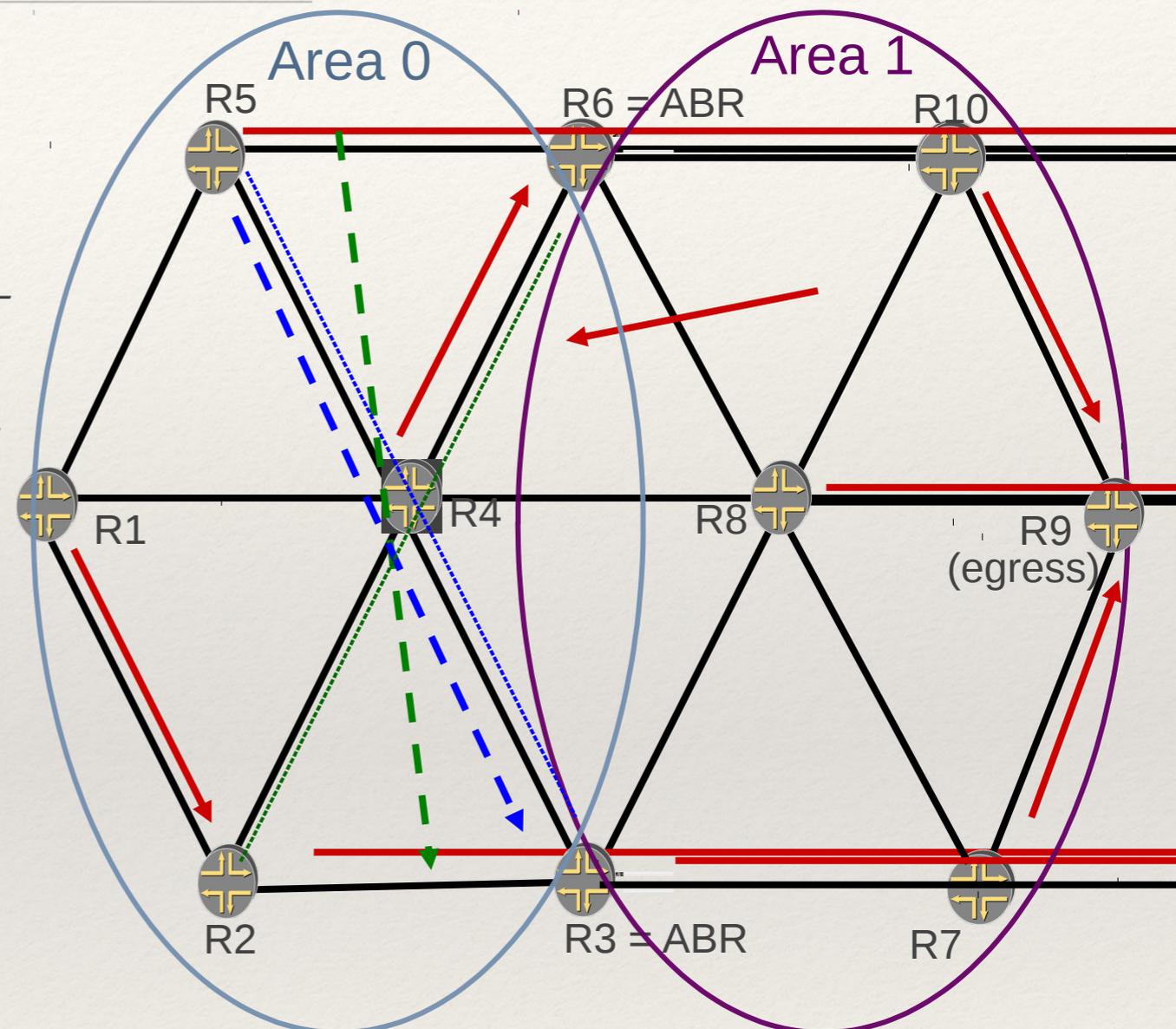


Protected node	PLR	MPT	Bypass LSP
R2	R1	R3	<R1, R4, R3>
R3	R2	R7	<R2, R4, R7>

Node Protection – Inter-area

(protected node is ABR)

- ❖ Consider an LSP that traverses PLR, protected node, and particular neighbor of the protected node - we'll refer to this neighbor as the "next next-hop"
- ❖ When the protected node is an ABR, PLR may not be able to determine the next next-hop from its SPF
 - ❖ As PLR and the next next-hop may end up in different IGP areas
 - ❖ Yet in ISIS/OSPF scope of SPF is the IGP area of PLR
- ❖ In this scenario PLR uses an "alternative" ABR as MPT
 - ❖ For a given LSP that traverses PLR and protected ABR, an alternative ABR is defined as any ABR that advertises into PLR's own IGP area reachability to the FEC associated with the LSP
- ❖ PLR discovers an alternative ABR from the IGP



Protected node	PLR	MPT	Bypass LSP
R3	R2	R6	<R2, R4, R6>
R6	R5	R3	<R5, R4, R3>

Next Steps

- † Version 05 addresses all the comments that we have received so far
- † The draft is stable for more than one year
- † Thus, the authors would like to request a working group adoption of the draft