

Multicast and RMR

draft-zzhang-mpls-rmr-multicast-00

MPLS WG

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Multicast and RMR

- Informational draft (for now) discussing multicast in the presence of RMR
 - Multicast can work as is
 - Some optimizations could be applied for certain cases
- Two scenarios:
 - The multicast domain is a RMR
 - The multicast domain has one or more RMRs

Multicast Services & Transport

- Services: end-end (x,g) multicast
 - In global table (default routing instance): GTM
 - In VPNs (VRFs): MVPN/EVPN/VPLS
- Transport: tunnels used to support multicast services
 - Provider tunnels for MVPN/GTM/EVPN/VPLS
 - mLDP inband signaling
 - RSVP-TE P2MP base tunnel for mLDP over RSVP-TE

PIM/mLDP

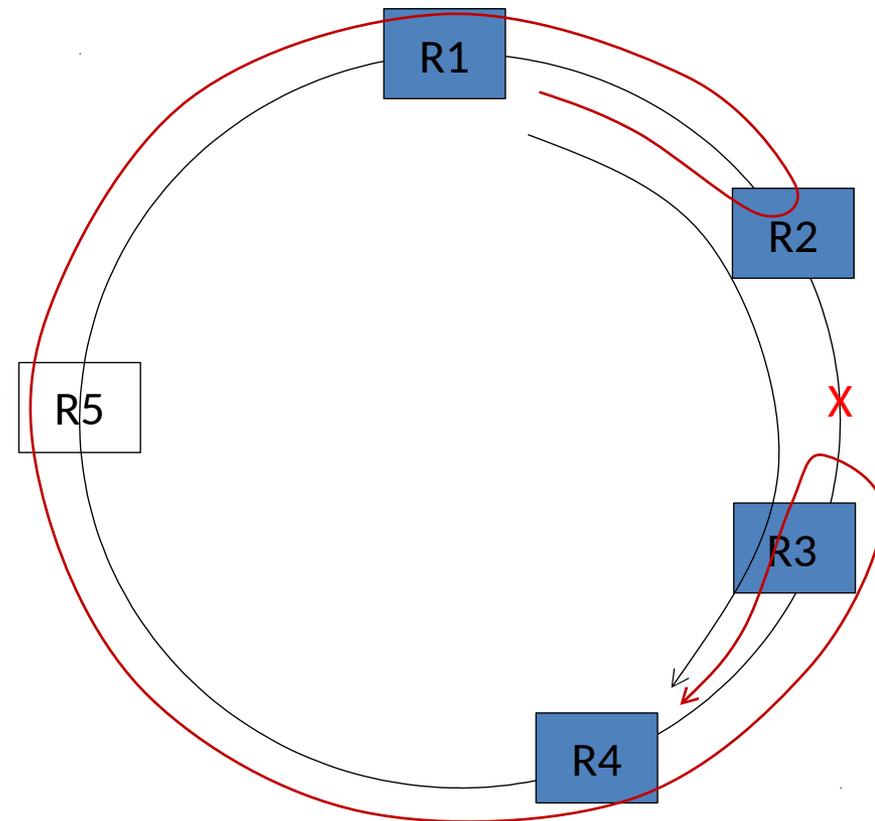
- No need for optimization
 - Except for mLDP tunnel protection on a RMR
 - See later slides
 - Whether the domain goes beyond a ring or not
 - PIM join messages and mLDP label mapping merged as they go upstream
 - Ring topology does not make any difference
- PIM can be for both multicast service and transport
- mLDP is for transport

RSVP-TE P2MP Tunnel

- Multicast transport
 - For multicast services
 - For mLDP over RSVP-TE P2MP
- Tunnel spanning a single RMR:
 - draft-zzhang-mpls-rmr-rsvp-p2mp
 - One or at most two sub-LSPs
 - No need for explicit path
 - Implicit Leaves
 - Tunnel protection
- Tunnel spanning beyond a single RMR
 - Optimizations over each RMR, with the help of
 - Service overlay segmentation, or
 - Built-in RSVP-TE P2MP signaling enhancements
 - Further pondering needed

P2MP/MP2MP Tunnel Protection on a RMR

- No additional signaling or state for protection
- Before global repair finishes after a failure:
 - Don't send RESV tear on failure
 - On link failure, PLR tunnels traffic to next node via a unicast ring LSP in the other direction
 - On node failure, PLR tunnel traffic s traffic to next next node
 - Traffic then continues from there on



Live-live Protection

- Live-live protection not needed in most situations
 - Traffic tunneled via Ring LSP upon failure
- Live-live protection can be easily achieved for mission-critical scenarios
 - If duplication removal is done by application
 - Just set up two opposite-direction sub-LSPs to reach all leaves and send traffic in both directions
 - Each leaf will deliver duplicate traffic (received in two directions) to application
 - No switchover upon failure detection; just global repair

Next Steps

- Seek comments
- Polish the document then request adoption