



Multicast VPN fast fail-over

[draft-morin-l3vpn-mvpn-fast-failover-04](#)

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- This document describes two mechanisms to reduce connectivity restoration time for multicast traffic in a VPN context, for failures on the upstream PE side:
 - UMH Selection based on P-tunnel status: avoid waiting for unicast convergence
 - Standby C-multicast route: avoid signaling at failure-time by preparing the backup upstream PE
- These mechanisms can be used in different combinations depending on the failure coverage and level of protection wanted
 - Different levels of protection: cold, warm, hot, leaf hot



Standby BGP C-Multicast route

- Idea : prepare the backup PE so that it is ready to become UMH when the primary PE fails
- How ?
 - Besides advertising a normal (C-S,C-G) C-multicast Tree Join route to the nominal upstream PE, downstream PEs advertise a Standby C-multicast Tree Join route to the backup upstream PE
 - The backup upstream PE prepares for a possible failure (prepares more for hot standby, and less for cold or warm standby...)
 - The backup upstream PE monitors the reachability of C-S through the nominal/primary PE
 - On failure, traffic is forwarded by backup PE
- Failure detection can be done, for instance:
 - based on P2MP OAM
 - based on unicast VPN reachability to C-S
 - based on tunnel status (same criteria as in next slide)

Key: reduce the additional signaling at failure time

UMH selection taking into account tunnel status

- **Reminder:**
 - “UMH Selection” specifies procedures by which a downstream PE determines the PE from which it will receive a said multicast flow (C-S, C-G)
 - In the current spec, “UMH Selection” is done solely based on the VPN unicast routing information and does not take into account the state of the P-tunnel that the selected UMH uses to send (C-S, C-G) to the local PE
- **Idea: let UMH procedures take into account the state of the P-tunnel from the selected/primary UMH to the PE**
 - Make “UMH Selection” on a (downstream) PE switch to a backup (upstream) PE as soon as the (downstream) PE determines that the P-tunnel from the selected/primary (upstream) PE is down, without waiting for unicast VPN convergence
 - Different possible ways for a PE to detect that a P-tunnel from the selected/primary UMH to the PE is down:
 - P2MP OAM (Multipoint BFD)
 - Traffic counters
 - P-Tunnel signaling (RSVP-TE PathTear)
 - ...

Key: avoid waiting for unicast convergence



- Next steps:
 - Include Hot leaf standby support in an Inter-AS context
 - Clarify on the different cases where "UMH Selection based on tunnel status" and "Standby C-multicast routes" need, should or can be used together
- Good support to the document during the presentation made in previous IETF
- We would like to ask for WG adoption if there is a recharter

