• EVPN convergence is control plane driven
• Route-scale and topology dependant (route-reflector delays, network delays etc.)

• Using peer’s service label (straightforward solution) :
  • May lead to loops in the network or extra dataplane work
  • Does not work for all load-balancing modes

• EVPN convergence cannot reasonably be expected to meet more stringent requirements (sub-second)
Desired outcome

- Local detection at PE1
- Local restoration at PE1
- *Then* control-plane propagation in EVPN to restore optimal routing/forwarding PE3 → PE2

Draft addresses rerouting EVPN traffic and in particular issues with using peer’s service label:
- Continuous reroutes at simultaneous failures
- Rerouting to an NDF interface
Continuous reroutes for simultaneous failures

- PE1 and PE2 detection in same time window
  Common for EVPN All-active with failure at CE-side of LAG

- Using regular EVPN Service-Label for redirection

- PE1 and PE2 reroute to each other continuously:
  - traffic storm
  - congestion on PE1-PE2 core links.
Reroute-Label: Terminal disposition

- Downstream-allocated Service-Label, Reroute-Label
- Standard Service-Label disposition:
  AC state-based forwarding chain
  - AC-Up: send to CE
  - AC-Down: re-encap with peer’s Reroute-Label

Failure

- Disposition of Reroute-Label is terminal (*final*)
  - Local knowledge. Applies regardless of AC state
  - Once-rerouted packets are not rerouted again

- No dataplane modifications required
  - No extra label on the stack to prevent further reroutes
  - Reroute-Label replaces Service-Label

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Reroute-Label : Bypassing DF-Election

• PE1’s AC down: drop until Control plane DF-Elects PE2, and PE3->PE2 forwarding created

• Applying a Reroute at PE1 results in redirection to PE2 which is still NDF and drops.

• DF-Election Bypass on Reroute-Label
  • Traffic is rerouted much faster than EVPN DF-Election may unblock ports (control plane)
  • DF-Election results do not apply to Reroute-Label traffic (unidirectional bypass)
  • Especially applicable to Single-Active load-balancing
Implementation Results

- Sub-50msec traffic loss for AC (edge) failures
- Applicable to most load-balancing modes
- Complements other procedures
  - Orthogonal to draft-ietf-bess-fast-recovery

For recovery improvement, see: draft-ietf-bess-evpn-fast-df-recovery