Problem Statement:
TRILL Active/Active Edge

draft-zhang-trill-aggregation-03.txt
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Overview

• An MCLAG link is used to connect an edge device to multiple R Bridges.
• The edge R Bridge group is represented by a virtual R Bridge RBv.
• All member R Bridges use RBv as the ingress nickname in TRILL data encapsulation to avoid the MAC move issue at the remote R Bridges.
Purpose

• Provide edge devices with active/active connection to multiple RBridges
  – Increase the reliability of TRILL edge
  – Increase the access bandwidth of RBridge campus

• It’s different from the Active/Standby connection for LAN links
Frame Processing: Unicast Ingressing

- Encapsulate native frames using RBv as their ingress nickname.

- Remote R Bridges will regard the RBv as the egress R Bridge for the edge node.
Frame Processing: Unicast Egressing

• Member RBridges should egress TRILL data frames whose egress nickname is RBv.

• Discard frames whose ingress nickname is RBv to avoid loops.
Frame Processing: Multicast Ingressing

• Member RBridges encapsulate the native frames using RBv as their ingress nickname.

• Member RBridges must not share a distribution tree to avoid the Reverse Path Forwarding Check issue.
Frame Processing: Multicast Egressing

• Only one member RBridge can egress a data frame. This avoids duplication.

• Discard frames whose ingress nickname is RBv to avoid loops.
DRB and Pseudonode

• Since there is no HELLO exchanging on the MCLAG link, member RBridges SHOULD have other signaling method to discover each other and elect the DRB.

• Each MCLAG link should be allocated with a pseudonode nickname, otherwise, Component Links from Different MCLAG Links Cannot be Distinguished by the same RBridge.
MAC Addresses Sharing

• Northbound Sharing
  – MAC address learnt from the local end node
• Southbound Sharing
  – MAC addresses learnt from remote RBridges
• MAC Addresses Sharing helps to reduce the multicast frames.
Failures and Self-healing

• The failure of a component link/node of the active/active edge group will be handled by ISIS.

• This provides the self-healing characteristic of the edge group.
Reverse Path Forwarding Check

• According to RFC 6325, RBridges MUST drop multicast frames that fail the RPFC.
• For the distribution tree on the left, multicast frames from RBv should only come from the port of RBi connecting to RB1.
• If RB2 uses this distribution tree to ingress multicast frame, these frames will be discarded by RBi.
Reverse Path Forwarding Check (cont.)

- Leverage the feature that one RBridge can compute multiple Distribution Trees.
- Each member RBridge gets an unique distribution tree [CMT].
- This avoids the RPFC issue.

![Diagram of Distribution Trees](attachment:tree_diagram.png)

(a) DT, root=RBx   (b) DT, root=RBy

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Next Step

• WG adoption.
Thanks!