TRILL ESADI

draft-hu-trill-rbridge-esadi-00

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Motivate

- ESADI(End System Address Distribution Information): a optional VLAN scoped way that RBridges can announce and learn end station addresses rapidly and securely

- Advantage:
  - Security advantages: announces end stations with an authenticated enrollment , ESADI protocol supports cryptographic authentication

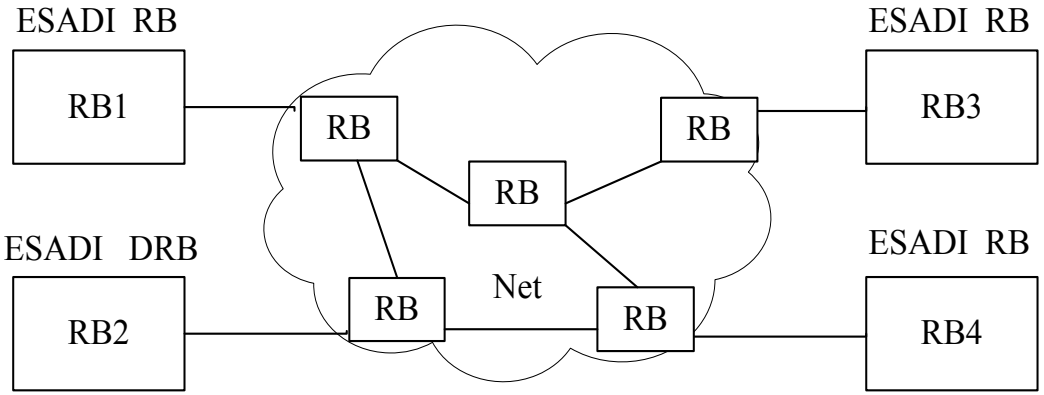
  - Fast update advantages: provides a fast update of end station MAC addresses

Motivate

- Why do we need a new ESADI draft?
  - Move the MAC and parameters from ISIS PDU to ESADI frame
    - In the Basic TRILL RFC(RFC6325), TRILL parameters and MAC addresses are carried by TRILL IS-IS PDU. The ESADI MAC address flooding has effect on TRILL control plane, which reduces the TRILL robust and reliability
    - In the new draft, TRILL MAC addresses and parameters are carried in ESADI frames rather than in the core TRILL IS-IS protocol, the ESADI frame is encapsulated as multicast TRILL data traffic. By this design, ESADI is a virtual logical topology (for each VLAN) overlay in the TRILL topology.
  - Rich and complement the ESADI protocol
    - Design DRB election state machine , ESADI sub-TLV , etc.

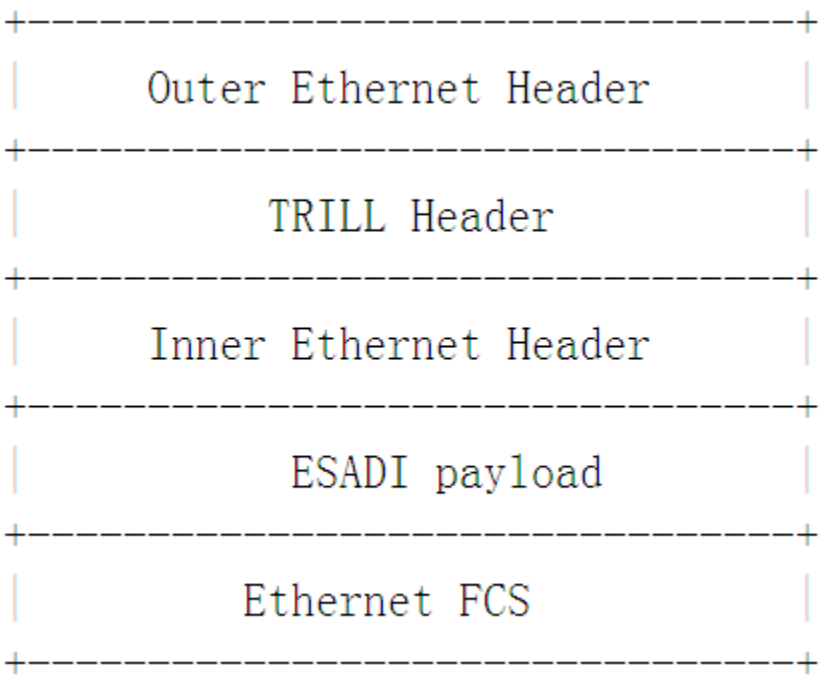
Overview

- ESADI RBridge:
  - The RBridge is appointed VLAN-x forwarder and participants in ESADI protocol is called an ESADI RBridge
- Transit RBridge:
  - Forward ESADI frame as multicast TRILL data frame
- All the ESADI RBridges appear to be directly connected by a shared virtual link for that VLAN
- No “routing” computation or decisions ever have to be made by ESADI
- No Hello frame between ESADI RBridges



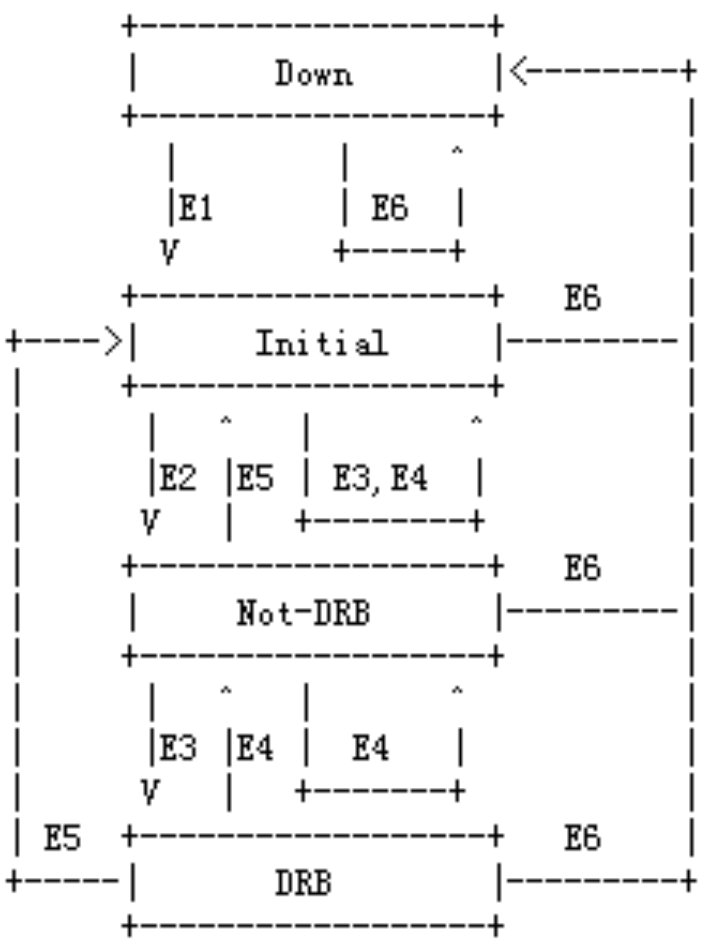
TRILL ESADI Structure

- ESADI frames encapsulation in transit on Ethernet links is similar with TRILL encapsulation with an outer Ethernet header
- ESADI frame has an inner Ethernet header with the Inner.MacDA of “All- ESADI-RBridges” and the “L2-IS-IS” Ethertype followed by the ESADI payload.



ESADI DRB Election

TRILL ESADI state diagram

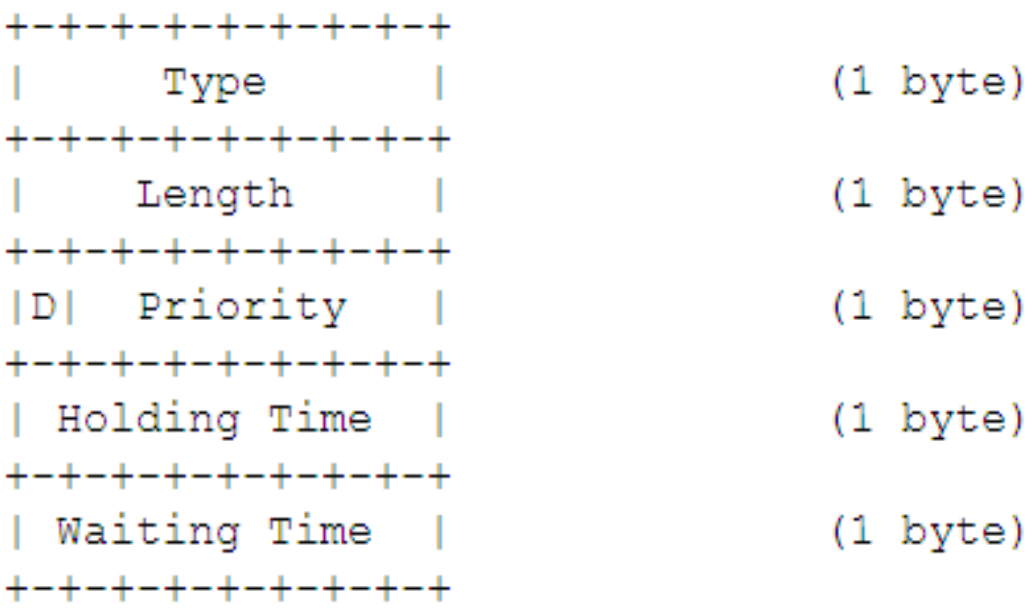


Down: Virtual state
Initial: ESADI instance is up but does not know of any ESADI neighbors
Not-DRB: ESADI instance has found at least one valid ESADI neighbor and is not DRB yet
DRB: ESADI instance multicasts the ESADI CSNP PDUs periodically, and responds to ESADI-PSNP PDUs with ESADI-LSPs.

E1: Operationally up
E2: Finding first neighbor
E3: Holding Timer expired
E4: Receiving higher priority PDU
E5: Losing last neighbor
E6: Operationally down

ESADI LSP contents

- ESADI participation data sub-TLV
  - MUST be included in LSP fragment zero



ESADI LSP contents

- ESADI MAC Address sub-TLV
  - TRILL ESADI LSP PDUs consists of one or more MAC Reachability (MAC-RI) TLVs
  - specified in [RFC6165].
  - These sub-TLV contain one or more unicast MAC addresses of end stations

Summary

- What do we do in the new ESADI draft (difference with RFC6325)?
  - Move MAC addresses and parameters in TRILL IS-IS protocol to ESADI frames
  - Design DRB election state machine
  - design ESADI neighbor list
  - design PDU processing , optimize self-originated LSP to be sent in unicast in stead of multicast in some situation to reduce multicast storm.
  - Specific ESADI Participation Data TLV to announce ESADI capability for RBridges

END

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