Multi-TopologyTRILL
draft-eastlake-trill-multi-topology-02.txt

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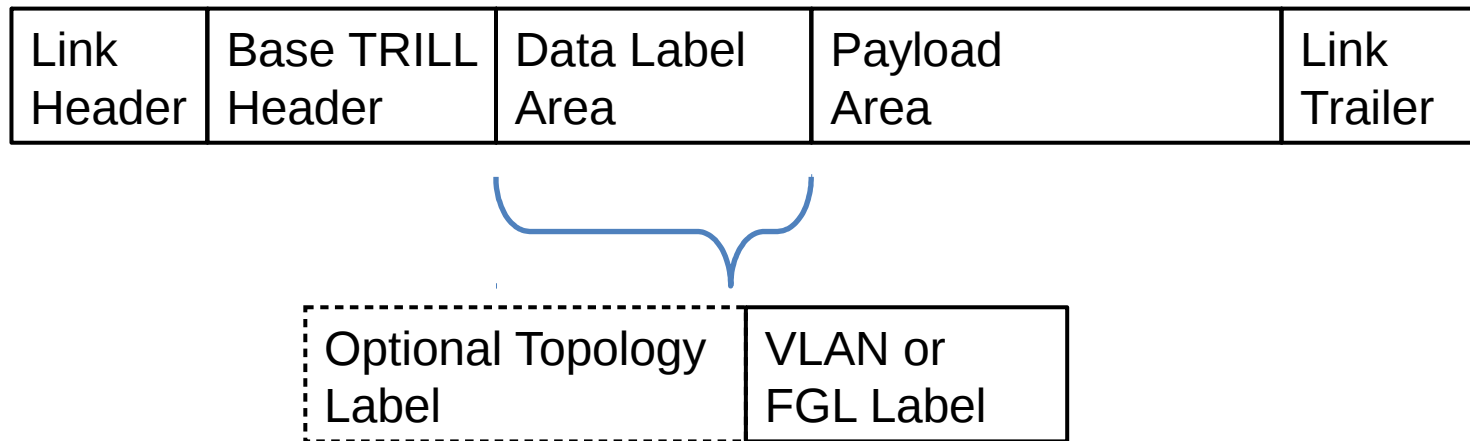Ayan Banerjee, Vishwas Manral,
Mingui Zhang

Multi Topology

- Multi-topology creates different subsets of links and TRILL switches from a single TRILL campus topology.

- Each TRILL switch and switch port advertises the topologies it can handle.

- Each data packet is in exactly one topology
  - Commonly derived from field(s) in data packet itself or the port on which the data is received.
  - Draft provides for optional explicit topology labeling.
  - A multi-topology router classifies packets as to the topology within which they should be routed and uses logically different routing tables for different topologies to constrain the packet to its topology. (If routers in the network do not agree on the topology classification of packets or links, persistent routing loops can occur.)

Multi Topology

- The draft uses IS-IS multi-topology as specified in RFC 5120.

- Differences from RFC5120:
  - RFC 5120 only specifies multi-topology for unicast. This draft also covers multi-destination data.
  - Adds an optional provision for explicit topology labeling of data packets.
  - In RFC 5120, support of default topology zero is optional. In this draft, it is mandatory for all TRILL switches and switch ports to support topology zero.
    - Legacy topology-ignorant areas of a TRILL campus are permitted, are considered to be in topology zero, and cannot provide transit for non-zero topology data.

Explicit Topology Labeling

- Explicit topology labeling appears in the Data Label area of the TRILL data packet.

Link Header	Base TRILL Header	Data Label Area	Payload Area	Link Trailer

Optional Topology Label	VLAN or FGL Label

Some More Details

- Adjacency [RFC7177] is updated so that ports on a link are adjacent only for the topology(s) they share.

- TRILL nicknames are topologically invariant like the IS-IS System IDs they represent. Almost everything else can be different in different topologies.

- Multi-destination distribution trees are per topology and zero trees are permitted for a non-zero topology since you might have a topology that only handles known unicast traffic.

End

- Questions?