To TRILL WG co-chairs and IEEE-IETF liaisons:
From: IEEE 802.1

Thank you for your query of November 6, 2008, reproduced below so that
it is clear what question is being answered:

> "*As you know, the IETF TRILL Working Group has been developing a
> protocol for devices called RBridges (Routing Bridges).*
>
> *We believe that the draft specification of the TRILL protocol
> (the*
> *protocol that is implemented by RBridges) has reached a stage of
> maturity where, as required by the TRILL WG Charter, it would be
> appropriate to request IEEE 802.1 to comment on the draft,
> particularly from the point of view of its effect on the Ethernet
> Service model."*

A number of the members of IEEE 802.1 have read the draft-ietf-TRILL-
rbridge-protocol-10.txt, draft-ietf-TRILL-rbridge-protocol-11.txt
and the recent draft-ietf-TRILL-rbridge-protocol-12.txt.

While we don't plan to comment on the details of the TRILL design there
are statements in these revisions of the document with respect to IEEE
802.1 we would appreciate being revised. It was our understanding at
the outset of TRILL the design was planned to be link-layer agnostic
however the current design only refers to IEEE 802.1. Further there are
errors or inaccuracies in descriptions about IEEE 802.1 equipment used
in conjunctions with Trill.

IEEE 802.1 does not have an Ethernet Service model per se but we have
an architecture that governs the design of 802.1 bridged networks and
maintains compatibility among new and legacy IEEE 802.1 bridged
networks.

TRILL, as currently defined, depends upon a subset of 802.1Q. It is
designed to integrate into a flat C-VLAN network and provide a
different forwarding and control model from that specified in 802.1Q.
By inserting RBridges into a C-VLAN network a network structure is
created that is incompatible with current 802.1Q S-VLAN and B-VLAN
network architecture. This incompatibility in network architecture may
create a complex network structure which, if not actually broken, will
be difficult to administer and evolve.

For example:
802.1Q includes:
- Services based on Provider Bridges (Clause 16 IEEE 802.1Q) and
  Provider Backbone Bridges (Clause 25 IEEE 802.1Q) are not
  accounted for in TRILL.
- OAM functions IEEE 802.1 Connectivity Fault Management (Clause 22
  IEEE 802.1Q) that are not accounted for in TRILL. TRILL weakens
  the applicability of CFM.
- 802.1Q Bridge protocols provide a low probability of frame
  misordering, including during topology changes. New protocols
  such as Fibre channel over Ethernet depend on this behavior.
802.1Q will include:

- Shortest Path Bridging. IEEE 802.1aq provides an example of how to conform to the architecture and include shortest path tree forwarding.

Our analysis was not complete and there are other aspects of IEEE 802.1 that are changing behavior even on C-VLAN bridges (such as AV Bridging, Congestion management) that may not be compatible with TRILL RBridges in the future.

Furthermore, it is impossible for 802.1 to effectively ensure any ongoing compatibility between 802.1 bridged network architecture and TRILL. In consequence it is our opinion that the "effect on the Ethernet Service model" as we understand it could be severe and deleterious.

Where the TRILL document refers to replacing IEEE 802.1Q Bridges, it would be more accurate to state that it supports only a limited subset of IEEE Std 802.1Q (including its approved amendments), and what that subset is. The document should also make it clear that there is no assurance of compatibility with future versions of IEEE Std 802.1Q, even within the limited subset identified.

Sincerely,

Tony Jeffree
IEEE 802.1 WG Chair