Title: Liaison to IESG from IEEE 802.1
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Location: Kona, Hawaii
From: IEEE 802.1
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To: Russ Housley, IETF and IESG Chair (housley@vigilsec.com)

Mr. Housley,

It has come to the attention of the IEEE 802.1 working group that there is work proposed and underway in the IETF that addresses the operation and control of MAC bridged networks (i.e., networks forwarding MAC frames). This work covers redundant connection of end systems to MAC networks, interconnection of MAC VLANs over a connectionless server network to enhance scalability, enhanced address resolution mechanisms (for associating a destination MAC address to a connectionless server network's egress address), and other aspects related to MAC networks.

IEEE 802.1 would like to work in concert with IETF WGs engaged in work related to MAC networking to ensure interoperability and uniformity in the operation and control of these networks. Our goal is to avoid the creation and proliferation of multiple solutions to common problems and to ensure that technologies developed by IETF meet the needs of MAC networks as specified by 802.1 and vice versa.

As a first step in this cooperative effort 802.1 would appreciate a liaison from IETF listing the work items that are proposed or underway that relate to MAC networks and a brief description of the problems these are addressing. The following is a list of recent and current IEEE 802.1 work:

Among the 802.1 projects completed in the last two years are:

- **Stream Reservation Protocol** (802.1Qat) – allowing resources to be reserved for specific traffic streams in a bridged network.
- **Forwarding and Queuing Enhancements for Time-Sensitive Streams** (802.1Qav) – enhancements to the forwarding and queuing functions of a VLAN Bridge to support the transmission of time-sensitive data streams including a credit-based shaper mechanism.
- **Edge Virtual Bridging** (802.1Qbg) – specifying protocols and connectivity enhancements for attaching virtualized end systems to a bridged network.
- **Bridge Port Extension** (802.1BR) – specifying a bridge port extender component and related functionality enabling a bridge to control traffic to/from remote ports.

- **Congestion Notification** (802.1Qau) – congestion management of long-lived data flows within network domains of limited bandwidth-delay product. This is achieved by enabling bridges to signal congestion to end stations capable of transmission rate limiting to avoid frame loss.
- **Enhanced Transmission Selection** (802.1Qaz) – enhancements to transmission selection to support allocation of bandwidth amongst traffic classes, plus a protocol for controlling the application of Data Center Bridging features.
- **Priority-based Flow Control** (802.1Qbb) – enables flow control per traffic class on point-to-point full duplex links. This is achieved by a mechanism similar to PAUSE, but operating on individual priorities.
- **Shortest Path Bridging** (802.1aq) – specifies shortest path bridging of unicast and multicast frames, including protocols to calculate multiple active topologies that can share learnt station information, and support of a VLAN by multiple, per topology VLAN identifiers (VIDs).

802.1 is currently working on

- **Link Aggregation** (802.1AX-REV) – a revision of Link Aggregation that includes support for **Distributed Resilient Network Interconnect** (DRNI) – a resilient interconnect using multiple links among one or more nodes in a network and one or more nodes in another, separately administered, network, along with a means to ensure that frames belonging to any given service will use the same physical path in both directions between the two networks..
- **Equal Cost Multiple Paths** (802.1Qbp) – providing for hash-based load spreading of unicast traffic and computed load spreading of multicast traffic in SPB VLANs.

New 802.1 projects and project proposals include

- **Frame Preemption** – define a class of service for time-critical frames that requests the transmitter in a bridged Local Area Network to suspend the transmission of a non-time-critical frame, and allow for one or more time-critical frames to be transmitted. When the time-critical frames have been transmitted, the transmission of the preempted frame is resumed.
- **Enhancements for Scheduled Traffic** – specify time-aware queue-draining procedures to enable bridges and end stations to schedule the transmission of frames based on timing derived from IEEE Std 802.1AS. VLAN tag encoded priority values are allocated allowing simultaneous support of scheduled traffic, credit-based shaper traffic and other bridged traffic over a bridged network.
- **Enhancements for MAC Security** – extending for operation above 100 Gbps.

The 802.1 WG would appreciate the IETF's opinion on whether these new MAC networking standards impact IETF RFCs or current or proposed IETF work related to L2 connectivity and MAC bridging, and looks forward to receiving a list of proposed or active IETF work items related to MAC networks and a brief description of the problems these are addressing.

With best regards,

Tony Jeffree
IEEE 802.1 WG Chair