

Update on P802.1CQ and MAAP: Personal Views

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2019-07-30

P802.1CQ

- Project for standard on “Multicast and Local Address Assignment”
- Active since 2016, but progress was slow
 - Assigned to two different Task Groups, each of which is now inactive
 - Good progress starting around 2018
 - Assigned to 802.1 TSN Task Group as of July 2019
 - Has been communicating with IEEE 1722 WG on MAAP

P802.1CQ PAR

- P802.1CQ: “(Draft) Standard for Local and Metropolitan Area Networks: Multicast and Local Address Assignment”
 - Approved 2016-02-05; Times out 2020-12-31
 - <https://mentor.ieee.org/omniran/dcn/19/omniran-19-0033-00-00TG.pdf>
- CSD
 - <https://mentor.ieee.org/802-ec/dcn/15/ec-15-0105-01-ACSD-802-1cq.pdf>
- Scope: *This standard specifies protocols, procedures, and management objects for locally-unique assignment of 48-bit and 64-bit addresses in IEEE 802 networks. Peer-to-peer address claiming and address server capabilities are specified.*
- Need: *Currently, global addresses are assigned to most IEEE 802 end station and bridge ports. Increasing use of virtual machines and Internet of Things (IoT) devices could exhaust the global address space. To provide a usable alternative to global addresses for such devices, this project will define a set of protocols that will allow ports to automatically obtain a locally-unique address in a range from a portion of the local address space. Multicast flows also need addresses to identify the flows. They will benefit from a set of protocols to distribute multicast addresses. Peer-to-peer address claiming and address server capabilities will be included to serve the needs of smaller (e.g. home) and larger (e.g. industrial plants and building control) networks.*

P802.1CQ: Key Developments

- 2016-01
 - DCB drafted Table of Contents and named an Editor (Marks)
- 2016-02-16
 - Editor created D0.1 containing the draft Table of Contents
- 2018-03
 - 802.1 WG Chair closed DCB TG and moved P802.1CQ to OmniRAN TG
- 2019-07
 - 802.1 Acting WG Chair moved P802.1CQ to TSN TG
 - Editor established project web page under TSN (2019-07)
 - <https://1.ieee802.org/tsn/802-1cq/>
 - See web page for contribution list
 - Editor's Draft D0.2 based on contributions

Proposed Schedule

- Difficult to complete work before PAR timeout (Dec 2020)
- Hope to gain more participation and interest from TSN
- Aim for:
 - TG ballot November 2019
 - WG ballot March 2020
 - SA ballot November 2020
 - and PAR extension
 - Conclude July 2021
- Schedule to be discussed in TSN
- Teleconferences to be scheduled

IEEE Std 1722 MAAP Communications

- 2019-03
 - Presented “Investigating the Multicast Usage Model for P802.1CQ” to 802.1 TSN TG, requesting views on the role of IEEE 1722 “MAC Address Acquisition Protocol” (MAAP)
 - omniran-19-0009-02
 - Liaison from 802.1 to IEEE 1722 Working Group
 - omniran-19-0017-01
- 2019-07
 - Response from IEEE 1722 WG
 - “During the development of MAAP, it was realized by the group, that IEEE 802.1 would be a better keeper of this standard if it ever needed to be enhanced and/or improved.”
 - P802.1CQ Editor has drafted a response to encourage an 802.1 response 2019-07-18
 - Reply from 802.1
 - Draft: <http://ieee802.org/1/files/public/docs2019/liaison-response-IEEE-1722-MAC-allocation-0719-v01.pdf>

Personal Views on July 18 Draft Liaison to 1722

- P802.1CQ was assigned to TSN, and a draft is available
- Will provide claiming-based and server-based protocols
 - PALMA-S: client-server method based DHCP
 - PALMA-C: claiming method based on MAAP
- could make normative reference to MAAP, or...
- open to adopting and maintaining MAAP, ensuring backward compatibility and alignment with PALMA-C
 - PALMA-C and MAAP could be separate, with common parts
 - PALMA-C need not generally use the MAAP reserved address range
 - may differ in the message format
 - 1722 message format may be large for 802.1, especially the unused 8-byte Stream ID
- P802.1CQ Editor will offer a personal presentation on July 30
- Should develop a list of issues to be decided if the transfer of MAAP into P802.1CQ is to proceed
- Hope to exchange drafts (and share IEEE Std 1722 to 802.1)
 - And share IEEE 1722 source files with P802.1CQ editor

P802.1CQ/MAAP Issue List

- Will AVTP EtherType (22F0) be assigned to IEEE?
- Will MAAP be moved to 802.1CQ, or invoked by reference?
- Will MAAP be a subset of the more general PALMA-C?
- Will PALMA-C use the AVTP EtherType?
- Will MAAP subtype (FE) be assigned to 802.1CQ?
- Will a few additional AVTP subtypes be assigned to 802.1CQ?
- “Reserved MAAP MAC addresses” are reserved for 1722 and use the 1722 OUI; this material need not be transferred (P802.1CQ needs to avoid these addresses are not used)
- What will be the sequence of actions?
- How will 1722 participants ensure that MAAP is handled properly?

Next steps

- Agree on a list of issues
- 1722 Working Group could communicate its view regarding:
 - AVTP EtherType reassignment to IEEE
 - Views on transferring MAAP into P802.1CQ
 - Openness to permanent subtype assignment
 - [will this be recorded in the amended IEEE 1722?]
 - Schedule for initiating and developing P1722b