IEEE 802.1 Working Group

22-26 January 2018 Interim Meeting

Geneva, Switzerland

Meeting Minutes

The 802.1 Chair, Glenn Parsons, presided.
The 802.1 Recording Secretary, Jessy Rouyer, wrote the minutes in part based on input from 802.1 Task Group Chairs.

1 Attendance and affiliation

Last Name	*First Name*	*Affiliation*
ADEMAJ	Astrit	TTTech Computertechnik AG
Assmann	Ralf	Marvell Semiconductor, Inc.
Bao	Shenghua	HUAWEI
Bjornstad	Steinar	TransPacket
Boiger	Christian	b-plus GmbH
Bruckner	Dietmar	B&R Industrial Automation
Canchi	Radhakrishna	Kyocera International Inc.
Chen	David	Nokia
Chen	Feng	Siemens AG
Choi	Jin Seek	Hanyang Univerisity
Congdon	Paul	Tallac Networks; Huawei
Cummings	Rodney	National Instruments Corporation
DeLaOlivaDelgado	Antonio	Universidad Carlos III Madrid
Dorr	Josef	Siemens AG
Dut	Steve	International Electrotechnical Commission (IEC)
Elbakoury	Hesham	Huawei Technologies Co. Ltd
Ellegaard	Lars	Microsemi Corporation
Enzinger	Thomas	B&R Industrial Automation
Fang	Yonggang	ZTE TX Inc
Farkas	Janos	Ericsson
Finn	Norman	Huawei Technologies Co. Ltd
Fontaine	Mickael	TransPacket
Fritsche	Matthias	Self Employed
Garner	Geoffrey	Broadcom Corporation
Geilhardt	Frank	Deutsche Telekom AG
Gray	Eric W	Ericsson AB
Gunther	Craig	HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Gutierrez	Marina	TTTech Computertechnik AG
Haddock	Stephen	Stephen Haddock Consulting, LLC
Han	Ruibo	China Mobile Communications Corporation (CMCC)
Hantel	Mark	Rockwell Automation
Harima	Taro	Mitsubishi Electric Corporation

Holness	Marc	Ciena Corporation
Itaya	Satoko	National Institute of Information and Communications Technology (NICT)
Kabra	Lokesh	Synopsys, Inc.
Kehrer	Stephan	Hirschmann Automation and Control, Inc.
Kirrmann	Hubert	Solutil
KOTO	Hajime	National Institute of Information and Communications Technology (NICT)
Lutz	Peter	Sercos International
Mangin	Christophe	Mitsubishi Electric Corporation
Mansfield	Scott	Telefon AB LM Ericsson
Mardmoeller	Christian	Renesas Electronics Corporation
Marks	Roger	EthAirNet Associates; Huawei
Maruhashi	Kenichi	NEC Corporation
Mayer	Michael	Huawei Technologies Co. Canada Ltd
McIntosh	James	Microsemi Corporation
Messenger	John	ADVA Optical Networking Ltd.
Morita	Naotaka	Nippon Telegraph and Telephone Corporation (NTT)
Mustala	Tero	Nokia Networks
Natarajan	Sriram	Cisco Systems, Inc.
Ohsawa	Tomoki	NICT
Osagawa	Daisuke	Mitsubishi Electric Corporation
Pannell	Donald R	NXP Semiconductors
Parsons	Glenn	Ericsson AB
Pienciak	Walter	IEEE
QIU	WEI	Huawei Technologies Co., Ltd
Riegel	Maximilian	Nokia Networks
Rouyer	Jessy	Nokia
Sato	Atsushi	Yokogawa Electric Corporation
Seaman	Michael	Individual
Shen	Li	Huawei Technologies Co., Ltd
Specht	Johannes	University of Duisburg-Essen and General Motors Company
Stanica	Marius-Petru	ABB AB
Steindl	Guenter	Siemens AG
Sun	Wenhao	Huawei Technologies Co., Ltd
Tarui	Isao	Mitsubishi Electric Corporation
Thaler	Patricia	Broadcom Limited
Ting	Ao	ZTE Corporation
Unbehagen	Paul	Avaya Inc.
Varga	Balazs	Ericsson AB
Wamsser	Reiner	IEC SC65C MT9-Member
Wang	Hao	Fujitsu Research & Development Center
Wang	Tongtong	Huawei Technologies Co. Ltd
Weber	Karl	Beckhoff
Weis	Brian	Cisco Systems, Inc.

Wessels	Leon	Uman Technologies ZA
Winkel	Ludwig	Siemens AG
Wood	Graeme	British Standards Institution (BSi), Rockwell Corp
Woods	Jordon	Analog Devices, Inc.
YU	XIANG	Huawei Technologies Co., Ltd
Zein	Nader	NEC Corporation

2 802.1 Officers and Management

Glenn Parsons	Working Group Chair
John Messenger	Working Group Vice-chair
Mick Seaman	Chair, Security Task Group
Janos Farkas	Chair, Time Sensitive Networking Task Group
Craig Gunther	Secretary, Time Sensitive Networking Task Group
Pat Thaler	Chair, Data Center Bridging Task Group
Max Riegel	Chair, OmniRAN Task Group
Jessy Rouyer	Working Group Secretary

3 Task Group Meetings

3.1 Data Center Bridging

The Data Center Bridging (DCB) Task Group Chair, Patricia Thaler presided. Paul Congdon wrote the minutes. The DCB TG met Thursday 25 January 2018 starting 8:00 AM and Friday 26 January 2018 adjourning 4:45 PM.

At the beginning of the meetings on Thursday and Friday, Patricia Thaler presented the IEEE-SA PatCom Patent Slides for Standards Development Meetings https://development.standards.ieee.org/myproject/Public/mytools/mob/slideset.pdf, presented the IEEE 802 Participation slide, and made the Call for Potentially Essential Patents. There were no responses to the calls prior to the end of the week's session.

The agenda for each day was reviewed and approved as follows:

1. P802.1CQ
    a. Proposals - starting Thursday 8:00 AM
    b. Discussion about the interaction between SLAP and P802.11aq random addresses
2. P802.1Qcy (the project formerly known as P802.1Qcn)
    a. Comment resolution - if there are comments either 4:00 PM Thursday afternoon or 8:00 AM Friday
3. Congestion Isolation
    a. Prepare the PAR and CSD for precirculation
    b. Updates on simulation

Roger Marks presented *Short Address Assignment in IEEE 802.15.10*
http://www.ieee802.org/1/files/public/docs2018/cq-Marks-Perkins-802dot11dot10-0118-v00.pdf

- There is an address assignment protocol in IEEE 802.15.10 for a 16-it short address. These are not local MAC addresses, so it is not in specific scope for P802.1CQ.
- A coordinator is responsible for forwarding the request to a PAN coordinator and/or mesh root for the short address from a requesting device. It is possible for the device to request a specific address or any address as well as specify how long it intends to use the address. The address use can be refreshed before the expiry time.
- The EUI-64 is used to communicate with the coordinator to allocate the short address. The short address conserves space and power when transmitting over the PAN.

Disposition: Related to ongoing project; more discussion needed.

Antonio de la Oliva presented Proposal for IEEE 802.1CQ - LAAP
http://www.ieee802.org/1/files/public/docs2018/cq-aoliva-proposal-LAAP-0118-v1.pdf

- Looking at how IPv6 operates (SLAACL and DHCP) and considering if that approach is relevant to P802.1CQ.
- The proposal involves the node performing a self-assignment from a previously defined pool or select from an advertised pool of addresses.
- An advertised pool would have TLVs showing a prefix of the address block that is fixed. Once an address is chosen, duplicate address detection is performed like how IPv6 does this.
- What addresses to use for duplicate detection? The destination could be the broadcast address, the claimed unicast or a special multicast. The big issue is: what address to use as the source address?
- Some discussion about a NULL address and whether it could be used on the wire. A NULL address should not be sent on the wire as a source. It is most likely that P802.1CQ will define a well-known source address that bridges are instructed to never learn.
- It was pointed out that some devices have implemented an ‘anti-flopping’ feature that might throw away packets if a source address is seen to move between ports very rapidly. This feature is a protection mechanism that some products put in place to deal with issues in link aggregation misconfiguration or loops in the network.
- The Duplicate Address Detection (DAD) message would include a random cookie as well as the desired MAC address. If the response to this message was to assign a

different address (i.e., from a server perhaps), then one would want a larger cookie to avoid collisions from multiple clients. Using 64 bits for the cookie feels more comfortable. If the cookie was long enough to hold part of a certificate, then it could be authorized as well. There is some desire to provide a type and length on this field, so it could be used for different things.

- For a server-based assignment, one option is the listen to an advertisement from either the server or some proxy device that is near the server. Once the server address is known, an explicit request can be sent (like IETF's DHCP approach). Using what source address? It was suggested that P802.1CQ should model after IETF if it pursues a server approach. There is a lot of functionality that IETF's DHCP has that should be included. The destination address should probably be a multicast, and perhaps the same one the IETF uses.
- A draft for DHCP assignment of MAC addresses written by Bernie Volz and Tomek Mrugalski should emerge before the next IETF meeting in March 2018.
- There is some question of whether P802.1CQ should be using LLDP or not as the means to carry the advertisements of the server. This would simply just be a new capability bit that indicates there is a LAAP server in the network or not. Perhaps two bits max.

Disposition: Related to ongoing project; more discussion needed.

Roger Marks presented *Address Assignment for Stateless Flow-Zone Switching in the Data Center* http://www.ieee802.org/1/files/public/docs2018/cq-Marks-flow-zone-addressing-0118-v00.pdf

- Address assignment specifically for the data center to support L2 routing using a structured address. Essentially, the MAC address provides source routing information and does not require forwarding tables.
- This is for a specific topology, not a general topology (folded Clos "fat tree"). The layers of the Clos networks are labeled as zones where zone 0 is the connectivity to the server (for example). There are identifiers for the various layers of the topology: server, rack, pod.
- The format for the address would then include a byte for the pod, rack and server IDs as well as other fields such as flow IDs that could be used for various things like virtual machine IDs, router selectors, QoS, etc.
- One of the goals is to not require learning and address tables, but does this imply that the path will always be fixed? Once one enters a pod, the path is likely fixed, but there could be different paths getting to the pod.
- The first byte of the address specifies details about the type of address being used. So, it is possible to use slightly different formats for control packets going directly to a switch than data packets going to servers (for example); however, going to rack switches would need to be like data frames going to servers.
- Scaling for this approach is compared to what Facebook is currently doing and it is much larger. This would limit switches to 512 ports.
- One objective is that switches do not need to learn addresses and really do not need to have forwarding tables at all. The switches need to know their role to forward properly (i.e. whether they are pod, spine or rack switches). The path down from the spin is essentially fixed but going up towards the spine there are many paths.

- Some questions about how this compares to L3 DCNs of today and how to migrate there, and what are the savings. A technical benefit is the separation of control and data such that control data could be communicated independently without congestion. The same could be done with IP by defining a separate control network, just using L3 lookups and standard L3 switches.
- The address assignment can be initiated by the Spin switch, who knows its role, and tells its children in the topology assigning them all the way down to the server.
- One issue with handling failures in this approach is that the sending nodes need to understand there was a failure and that they must use a new address to communicate to the server (potentially).
- Some question about how virtual machine mobility works in this environment and/or differs from the current L3 scenario today.

Disposition: Related to ongoing project; more discussion needed.

Paul Congdon led the review of draft *P802.1Qcz Congestion Isolation* (CI) PAR http://www.ieee802.org/1/files/public/docs2018/new-dcb-congdon-draft-congestion-isolation-PAR-0118-v03.pdf and CSD http://www.ieee802.org/1/files/public/docs2018/new-dcb-congdon-draft-congestion-isolation-CSD-0118-v01.pdf.

- Minor word smith changes and discussion.
- There was an observation that an issue exists when the congested queue fills, but packets exist upstream for a congested flow in the non-congested queue. A CIP message was sent, but if there were packets already queued upstream, they will need to drain. If there is no space in the downstream congested queue, PFC will be need to be asserted on both traffic classes (congested and non-congested).
- A solution to the issue was discussed. The tricky part is to know when to assert PFC on the non-congested queue. It will require a change to the normal mechanism of PFC because it is not related to the depth of the non-congested queue, but rather the associated congested queue. There needs to be extra headroom assigned to the congested queue and multiple trigger thresholds. PFC will be asserted on the congested queue, perhaps, one headroom amount before typical so that there is one headroom's worth of space to absorb the packets in flight coming from the non-congested queue. There will also be a need to consider when to XOFF PFC on the non-congested queue. It will not be dependent on the depth of the non-congested queue, but rather the associated congested queue. This will need to be discussed and included in the document.
- The discussion of this issue and a potential solution point out that the issue of starvation and modified/interlinked ETS scheduling of the congested and non-congested queues really do need to be addressed. Strict priority scheduling only will create an unfair situation and potentially block the non-congested queue much longer than needed. The congested queue really needs to be drained as quickly as possible in this scenario, but without creating an out-of-order packet situation. Something like the solution discussed when CI was initially introduced would be appropriate.

Disposition: New project; updated PAR will be precirculated

- Updated PAR: http://www.ieee802.org/1/files/public/docs2018/new-dcb-congdon-draft-congestion-isolation-PAR-0118-v04.pdf

- Updated CSD: http://www.ieee802.org/1/files/public/docs2018/new-dcb-congdon-draft-congestion-isolation-CSD-0118-v02.pdf

Kevin Shen presented *Simulation Analysis of Congestion Isolation (CI)* http://www.ieee802.org/1/files/public/docs2018/new-dcb-shen-congestion-isolation-simulation-0118-v01.pdf providing additional simulation results from new runs based on feedback and requested adjustments from the previous meeting.

- It was observed that XON value of 4KB is somewhat low.
- With the two-queue model, the mice flows benefit the most. Strict priority is used to schedule the non-congested queue.
- When adjusting the memory parameters, the benefit is seen mostly for the large flows.
- Adding switch latency did not make a significant change to the results. For mice flows, the incremental delay is pretty much the summation of the static latency, but large flows are impacted more because there is an increase in the number of pause frames. It is not clear why there is an increase in the number of pause frames because of this additional latency. Further analysis is required to understand why the results from part of the simulation do not make sense.
- Measuring queue depth shows how CI keeps the average and maximum queue depth on the non-congested queue below the PFC threshold.
- The Lossy scenario disables PFC everywhere then the amount of packet loss is measured. When packet loss rate is reduced overall, it has a multiplication effect because retransmission is also reduced, thus the overall amount of traffic that could create congestion is reduced.
- There is some question about the conclusion from the memory sensitivity tests without adjusting the headroom. The conclusion should really point to the reduction in overall PFC frames generated improving the flow completion time of the large flows.
- There was a question about the workload mix. In the real world, the mice flows might be used to start up the large flows, so if mice flows are allowed to complete quickly, more large flows could, in theory, be started up and the overall utilization and load on the network could be increased. This is not currently modeled.

Disposition: Related to ongoing project; more discussion needed

Paul Congdon presented *Discussion of Objectives for Congestion Isolation* http://www.ieee802.org/1/files/public/docs2018/new-dcb-congdon-ci-objectives-0118-v01.pdf

- Compatibility objectives were adjusted to indicate that only signally will be disabled if peer does not support CI. However, it seems that if PFC is enabled, there really is a need to make sure the upstream peers supports CI, otherwise the wrong traffic class will be paused and the discussion about linking PFC between the congested and non-congested queues will have implications.
- It was pointed out that the first and last performance objective are most relevant to customers and overall cost/savings.
- Correctness objectives were made clearer and more assertive.
- Scale objectives were updated to include a discussion of limiting state.
- Implementation objectives were updated to indicate benefit could be achieved without adding any additional memory.

- The management objectives were augmented with an assertion that no new hello protocols will be created.

Disposition: Objectives updated during the meeting as http://ieee802.org/1/files/public/docs2018/new-dcb-congdon-ci-objectives-0118-v02.pdf.

Paul Congdon presented *Discussion of Congestion Isolation Changes to 802.1Q* http://www.ieee802.org/1/files/public/docs2018/new-dcb-congdon-ci-Q-changes-0118-v01.pdf providing an initial pass at considering what changes are required in 802.1Q for P802.1Qcz.

- The general philosophy was to look at how 802.1Qau was integrated into 802.1Q and to follow that; however, P802.1Qcz probably can do some further consolidation and perhaps not create as many higher layer clauses.
- There was common belief that P802.1Qcz should include end-station behavior.
- Rather than modifying 802.1Qau terms and clauses, P802.1Qcz should create parallel clauses.
- There was some discussion of whether clause 12 items were needed or not. It was suggested to discuss this with the 802.1Q editor to understand the future of clause 12.
- It was agreed that P802.1Qcz should make modifications to queuing to avoid starvation and eliminate the chance of out-of-order packets. Rather than make large changes to clause 8, P802.1Qcz should put those changes into the same main clause of CI instead.
- The “principles of operation” type clause, a good initial reference diagram should be created and discussed upfront. It should show the problem and solution. The problem of incast is most significant.
- It was agreed that P802.1Qcz could include the PDU encodings in the main clause on protocol operation, making sure they are at the end. P802.1Qcz does not need its own high-level clause for PDU encoding as done for 802.1Qau.

Disposition: Initial pass updated as http://ieee802.org/1/files/public/docs2018/new-dcb-congdon-ci-Q-changes-0118-v02.pdf.

Paul Bottorff and Yizhou Li presented the outcome of the P802.1Qcy WG recirculation ballot

- The WG recirculation ballot completed with no comments.

Disposition:

- The Sponsor Ballot needs to start by the end of the week following this meeting to complete prior to the ending of the March 2018 plenary meeting.
- The invitation for P802.1Qcy was sent out and it is currently closed; however, there is a need to ask the 802.1 Chair to re-open the invitation so at least one of the editors can join the Sponsor ballot pool.
- The draft also needs to be sent in for Mandatory Editorial Coordination (MEC) before the ballot can be started.
- The IETF RFC draft has finished last call and been submitted to IESG, so the RFC number will be available in time.
- Paul Bottorff will prepare the draft for submission to MEC.

3.2 Maintenance

Minutes of the Maintenance Task Group are not available yet.

3.3 OmniRAN

OmniRAN Task Group meeting minutes are incorporated into these minutes by reference and are available at https://mentor.ieee.org/omniran/dcn/18/omniran-18-0011-00-00TG-jan-2018-f2f-meeting-minutes.docx.

Current status of OmniRAN Task Group activities (including future meeting announcements, past meeting and conference call minutes) is available via a wiki located at https://mentor.ieee.org/omniran/bp/StartPage.

3.4 Security

Call to order: 22 January 2018 9:30 AM. The Security Task Group met:

- Monday 22 January 2018 in the morning starting 9:30 AM and in the afternoon starting 2:00 PM;
- Tuesday 23 January 2018 in the morning following the Maintenance TG meeting and in the afternoon starting 2:30 PM; and
- Wednesday 24 January 2018 in the morning starting 9:00 AM and in the afternoon.

The Security TG Chair, Mick Seaman, presided and wrote the minutes.

At the beginning of the meetings on Monday and Wednesday, Mick Seaman presented the IEEE-SA PatCom Patent Slides for Standards Development Meetings, and the IEEE 802 Participation slide. (These two sets of slides were shown by the Maintenance TG chair at the start of Tuesday's meeting.) Mick Seaman made the “Call for Potentially Essential Patents” on each of these occasions. There were no responses to the calls prior to the end of the week’s meetings.

Participants:

- Eric Gray (part)
- James McIntosh
- Mick Seaman
- Brian Weis

Mick Seaman proposed the following agenda (draft posted on the new 802.1 website prior to the meeting) for the Security Task Group meeting week:

1. P802.1AR-Rev (*Secure Device Identity*)
   - Sponsor ballot recirculation
2. P802.1Xck (*Port-Based Network Access Control – YANG Data Model*)
   - WG recirculation ballot resolution
3. P802.1AE-Rev MAC Security (roll-up and maintenance revision)
   - Review of roll-up draft
   - WG ballot resolution
4. A.O.B
   - 802.1X roll-up (maintenance revision)
   - Potential new MACsec Cipher Suites
   - JTC1 SC6 SC (802 response to China NB comments on 802.22b)
5. Future meeting/teleconferences

This agenda was reviewed and approved at the start of Monday's Security TG meeting.

1. P802.1AR-Rev (Secure Device Identity)

Mick Seaman, P802.1AR-Rev editor, presented the outcome of the second Sponsor recirculation ballot on http://www.ieee802.org/1/files/private/ar-rev-drafts/d2/802-1AR-rev-d2-6.pdf. This ballot passed, with no comments. Two votes were changed to Approve. There was one outstanding Disapprove, with a single comment (made on the initial Sponsor ballot) with the only suggested change being punctuation. The response to this would remain unchanged and permission to proceed to RevCom would be sought in March 2018.

[Post-meeting note: The Sponsor ballot summary, together with the outstanding negative comment, are in http://www.ieee802.org/1/files/private/ar-rev-drafts/d2/802-1AR-rev-d2-6-sponsor-recirc2-dis.pdf.]

2. P802.1Xck (Port-Based Network Access Control: YANG Data Model)

Marc Holness, P802.1Xck editor, presented the outcome of the WG recirculation ballot on http://www.ieee802.org/1/files/private/ck-drafts/d1/802-1Xck-d1-3.pdf. This ballot concluded with a cumulative 100% Approval, 77% Response. No comments were received (a single comment had been withdrawn prior to ballot resolution). A detailed tally of responses is in http://www.ieee802.org/1/files/private/xck-drafts/d1/802-1Xck-d1-3-dis-v01.pdf

Marc Holness has prepared http://www.ieee802.org/1/files/private/xck-drafts/d2/802-1Xck-d2-0.pdf which is identical to the balloted draft 1.3 with the removal of text marked in draft 1.3 for removal prior to Sponsor Ballot.

3. P802.1AE-Rev (MAC Security)

Mick Seaman, P802.1AE-Rev editor, presented the outcome of the WG ballot on http://www.ieee802.org/1/files/private/ae-rev-drafts/d1/802-1AE-rev-d1-0.pdf. This ballot passed with 100% Approval and 29 comments. The TG reviewed the comments. The ballot results and agreed disposition of comments are recorded in http://www.ieee802.org/1/files/private/ae-rev-drafts/d1/802-1AE-rev-d1-0-dis.pdf.

Mick Seaman would prepare a further draft incorporating the agreed changes and issue a WG recirculation ballot to close before the March 2018 802 plenary meeting. The TG anticipates requesting permission to proceed to Sponsor Ballot at that meeting.

4. A.O.B.

4.1 802.1X roll-up (maintenance revision)

It was proposed and agreed that the TG begin a P802.1X-Rev roll-up and maintenance project as soon as P802.1Xck is approved. The TG chair would draft a PAR for 802.1 consideration at the March 2018 802 plenary meeting.

[Post-meeting note: Following consultation with the 802.1 Chair, it appears that a revision PAR can be approved before P802.1Xck completes, and that (being a roll-up and maintenance-only PAR) it would not require 30-day precirculation to other Working Groups. It may be possible to obtain 802.0 approval for forwarding the PAR to NesCom at the March 2018 802 plenary meeting.]

4.2 Potential new MACsec CipherSuites

The TG had a brief discussion prompted by the *Small Crypto for Small IOT* draft https://datatracker.ietf.org/doc/draft-moskowitz-small-crypto/.

There are 17 remaining competitors in the CAESAR competition, so it is too early to anticipate winners. However an interesting application of a new Cipher Suite would be to power or memory challenged systems, and some of the candidates (such a Keccak and Ketje) do not use AES as a building block. The TG could examine what options or changes might be desirable for MACsec and MKA use in a non-AES capable system (or system that does not have high performance AES capability). Areas for study include: the Default Cipher Suite (GCM-AES-128) implementation requirement; use of C bit Clear in the TCI or the SecTAG to indicate that the Secure Data is the same as the User Data and the ICV is 16 octets long (allowing the User Data to be extracted without knowledge of the Cipher Suite when integrity-only is being provided); the use of AES Key Wrap to protect distributed SAKs and CAKs; the KDF used for derivation of the ICK and KEK from the CAK; and the use of AES-CMAC to protect MKPDUs.

4.3 JTC1 SC6 SC response to China NB comments on 802.22b

The 802.1 Chair brought a wording change, proposed in 802.0, to the response to NB comments. This corrected a deficiency in the initial proposed response but also introduced the idea of "national needs" (not mentioned at all in the original response) being a consideration of future cipher suites. This change was of general concern as it seems to be code for market allocation/division, non-technical or non-cost related considerations, and/or for mandating the use of weaker ciphers to facilitate pervasive surveillance. If taken as a general ground for cipher suite discussion, it would have significant impact on 802.1X and 802.11. The general opinion expressed in the meeting was that almost any other text would be better than use of the term "national needs".

5. Future meetings/teleconferences

The task group would meet during the March 2018 802 plenary meeting in Rosemont, IL, USA.

3.5 Time-Sensitive Networking

The 802.1 Working Group Vice-chair, John Messenger, exceptionally presided over the first day of the Time-Sensitive Networking (TSN) Task Group meeting, the TSN TG Chair, János Farkas presiding over the remaining days. Craig Gunther wrote the minutes, Jordon Woods writing those of the IEC - IEEE 802 Joint Working Group sessions.

At the beginning of the meetings each day the president Officer presented IEEE-SA PatCom Patent Slides for Standards Development Meetings https://development.standards.ieee.org/myproject/Public/mytools/mob/slideset.pdf, presented the IEEE 802 Participation slide, and made the Call for Potentially Essential Patents. There were no responses to the calls prior to the end of the week’s meeting.

Monday 22 January 2018 9:00 AM-6:00 PM
Call to order: 22 January 2018, 9:00 AM

John Messenger presented the agenda for the TSN Task Group meeting week:
https://docs.google.com/spreadsheets/d/12Dk6Fgv-gs_HwoCJwSPzpMOqZwEg25w7fcBOQBTdyHQ/edit#gid=1822844945
Disposition: Administrative

Geoff Garner, P802.1AS-Rev editor, led the resolution of comments received on http://www.ieee802.org/1/files/private/as-rev-drafts/d6/802-1AS-rev-d6-0.pdf, and presented *P802.1AS-Rev/D6.0 Editor's Report* http://ieee802.org/1/files/public/docs2018/as-garner-802-1AS-Rev-d6-0-wg-ballot-editors-report-01-18.pdf.
Disposition: Continued in a later session.

Tuesday 23 January 2018 10:30 AM-6:00 PM
Call to order: 23 January 2018, 10:30 AM

Tae-kyu Kang presented *Updates to Scheduled Traffic State Machines to Support 802.1Qbu Frame Preemption - Supplement for P802.1Q-rev D2.1 comments* - http://www.ieee802.org/1/files/public/docs2018/q-rev-kang-comment-bv-state-machine-0118-v01.pdf
Disposition: Supports rogue ballot comment r01-14 on P802.1Q-Rev/D2.1.

John Messenger, P802.1Q-Rev editor, continued the resolution of comments received on http://www.ieee802.org/1/files/private/q-REV-drafts/d2/802-1Q-rev-d2-1.pdf. This comment resolution began in the Maintenance Task Group meeting.
Disposition: Continued in a later session.

Jean-Yves Le Boudec presented *Application of Network Calculus to the TSN Problem Space* http://www.ieee802.org/1/files/public/docs2018/new-leboudec-network-calculus-for-tsn-0118-v04.pdf.
Disposition: Invited speaker

Craig Gunther presented *802.1Qcc Sponsor Ballot Comment #i-22 "Declaring more MSRP streams"* http://www.ieee802.org/1/files/public/docs2018/cc-gunther-sponsor-ballot-comment-0118-v02.pdf.
Disposition: Supports ballot comment

Rodney Cummings, P802.1Qcc editor, led the resolution of comments received on http://www.ieee802.org/1/files/private/cc-drafts/d2/802-1Qcc-d2-0.pdf.
Disposition: Continued in a later session.

Johannes Specht, P802.1Qcr editor, led the resolution of comments received on http://www.ieee802.org/1/files/private/cr-drafts/d0/802-1Qcr-D0-3.pdf.
Disposition: Continued in a later session.

Wednesday 24 January 2018 8:00 AM-10:00 AM
IEC - IEEE 802 Joint Working Group (JWG) – TSN TG joint session (whole TSN TG)
Call to order: 24 January 2018, 8:00 AM

The minutes of this session are incorporated into these minutes by reference and are available as section 1 of http://www.ieee802.org/1/files/public/minutes/2018-01-jwg-minutes-v1.pdf.

Wednesday 24 January 2018 10:30 AM-6:00 PM
(split TSN TG)
Call to order: 24 January 2018, 10:30 AM

Norman Finn, P802.1CS editor, led the resolution of comments received on http://www.ieee802.org/1/files/private/cs-drafts/d1/802-1CS-d1-2.pdf and presented *Discovery and Association in IEEE 802.1CS Link-local Registration Protocol* http://ieee802.org/1/files/public/docs2018/cs-finn-discovery-association-0118-v02.pdf.
Disposition: Continued in a later session.

John Messenger, P802.1Q-Rev editor, continued the resolution of comments received on http://www.ieee802.org/1/files/private/q-REV-drafts/d2/802-1Q-rev-d2-1.pdf.
Disposition: Ballot comment resolution recorded in http://www.ieee802.org/1/files/private/q-REV-drafts/d2/802-1Q-rev-d2-1-dis-v1.pdf

John Messenger provided an oral update on P802.1AC Corrigendum 1.

Johannes Specht, P802.1Qcr editor, continued the resolution of comments received on http://www.ieee802.org/1/files/private/cr-drafts/d0/802-1Qcr-D0-3.pdf.
Disposition: Continued in a later session.

Christophe Mangin led the development of new draft PAR and CSD for P802.1CBdb *Extended Stream Identification Functions* based on his presentation of http://ieee802.org/1/files/public/docs2018/new-mangin-stream-identification-CB-amendment-draft-PAR-1217-v02.docx and http://www.ieee802.org/1/files/public/docs2017/new-mangin-stream-identification-CB-amendment-draft-CSD-1217-v01.doc.
Disposition: New draft PAR and CSD

- Draft PAR: http://www.ieee802.org/1/files/public/docs2018/db-draft-PAR-0118-v02.pdf
- Draft CSD: http://www.ieee802.org/1/files/public/docs2018/db-draft-CSD-0118-v01.pdf

Wednesday 24 January 2018 10:30 AM-6:00 PM
IEC - IEEE 802 JWG: TSN for Industrial Automation (TSN-IA) Profile (split TSN TG)
Call to order: 24 January 2018, 10:30 AM

The minutes of this session are incorporated into these minutes by reference and are available as sections 2 and 3 of http://www.ieee802.org/1/files/public/minutes/2018-01-jwg-minutes-v1.pdf.

Thursday 25 January 2018 8:00 AM-10:00 AM
IEC - IEEE 802 Joint Working Group (JWG) – TSN TG joint session (whole TSN TG)
Call to order: 25 January 2018, 8:00 AM

The minutes of this session are incorporated into these minutes by reference and are available as sections 4 and 5 of http://www.ieee802.org/1/files/public/minutes/2018-01-jwg-minutes-v1.pdf.

Thursday 25 January 2018 10:30 AM-3:00 PM
(split TSN TG)
Call to order: 24 January 2018, 8:00 AM

Stephen Haddock, P802.1AX-Rev editor, presented *802.1AX -- Link Aggregation: Editor's Report: January 2018* http://www.ieee802.org/1/files/public/docs2018/ax-rev-haddock-editors-report-0118-v1.pdf. Haddock also presented Mick Seaman's *LACP state machines revisited* http://www.ieee802.org/1/files/public/docs2018/ax-seaman-lacp-suggestions-0118-02.pdf.
Disposition: Editor's update on ongoing project

Marc Holness, P802.1Qcx editor, presented *IEEE 802.1Qcx (CFM) YANG Model Overview* http://www.ieee802.org/1/files/public/docs2018/cx-mholness-YANG-Model-Overview-0118-v02.pdf.
Disposition: Editor's update on ongoing project

Scott Mansfield presented the incoming liaison letter from ITU-T SG15 *Liaison statement regarding coordination on IM/DM for OAM (reply to IEEE 802.3WG-LS54 (TD141/WP3))* http://www.ieee802.org/1/files/public/docs2017/liaison-ITU-T-SG15-LS80-CFM_OAM-1217.pdf.
Disposition: Incoming liaison letter, response needed

Scott Mansfield presented the incoming liaison letter from BBF *For Action: YANG model for CFM OAM* http://www.ieee802.org/1/files/public/docs2018/liaison-BBF-121_CFM_YANG-0118.pdf and http://www.ieee802.org/1/files/public/docs2017/liaison-BBF-84-CFM_YANG-0917.zip.
Disposition: Incoming liaison letter, response needed

Norman Finn/Huawei presented *802.1DC PAR for Quality of Service Provision by Network Systems* http://www.ieee802.org/1/files/public/docs2018/dc-finn-non-bridge-queuing-PAR-0118-v05.pdf and *CSD for P802.1DC: Quality of Service Provision by Network Systems* http://www.ieee802.org/1/files/public/docs2018/dc-finn-non-bridge-queuing-CSD-0118-v03.pdf, and led the review of the draft PAR and CSD for P802.1DC.
Disposition: Continued in a later session.

Thursday 25 January 2018 12:15 PM-3:00 PM
IEC - IEEE 802 JWG: TSN for Industrial Automation (TSN-IA) Profile (split TSN TG)
Call to order: 25 January 2018, 12:15 PM

The minutes of this session are incorporated into these minutes by reference and are available as section 6 of http://www.ieee802.org/1/files/public/minutes/2018-01-jwg-minutes-v1.pdf.

Thursday 25 January 2018 3:30 PM-6:00 PM
IEC - IEEE 802 Joint Working Group (JWG) – TSN TG joint session (whole TSN TG)
Call to order: 25 January 2018, 3:30 PM

The minutes of this session are incorporated into these minutes by reference and are available as sections 7 to 10 of http://www.ieee802.org/1/files/public/minutes/2018-01-jwg-minutes-v1.pdf.

Friday 26 January 2018 8:00 AM-10:00AM
Call to order: 26 January 2018, 8:00 AM

Rodney Cummings, P802.1Qcc editor, continued the resolution of comments received on http://www.ieee802.org/1/files/private/cc-drafts/d2/802-1Qcc-d2-0.pdf.
Disposition: Ballot comment resolution recorded in http://www.ieee802.org/1/files/private/cc-drafts/d2/802-1Qcc-d2-0-pdis-v2.pdf. Final comment resolution provided post-meeting in http://www.ieee802.org/1/files/private/cc-drafts/d2/802-1Qcc-d2-0-dis-v2.pdf.

Johannes Specht, P802.1Qcr editor, continued the resolution of comments received on http://www.ieee802.org/1/files/private/cr-drafts/d0/802-1Qcr-D0-3.pdf.
Disposition: Ballot comment resolution recorded in http://www.ieee802.org/1/files/private/cr-drafts/d0/802-1Qcr-d0-3-dis.pdf

Friday 26 January 2018 10:45 AM-12:30 PM
(split TSN TG)
Call to order: 26 January 2018, 10:45 AM

János Farkas presented *P802.1CM Editor's Report Status Update*
http://www.ieee802.org/1/files/public/docs2018/cm-farkas-editor-report-0118-v01.pdf.
Disposition: Editor's update on ongoing project

Norman Finn/Huawei led the review of the draft PAR and CSD for P802.1DC.
Disposition: New draft PAR and CSD
- Draft PAR: http://www.ieee802.org/1/files/public/docs2018/dc-draft-PAR-0118-v03.pdf
- Draft CSD: http://www.ieee802.org/1/files/public/docs2018/dc-draft-CSD-0118-v02.pdf

Stephan Kehrer presented the draft PAR and CSD for P802.1CBcv *Information Model, YANG Data Model and Management Information Base Module*
Disposition: New draft PAR and CSD
- Draft PAR: http://www.ieee802.org/1/files/public/docs2017/cv-draft-PAR-1017-v03.pdf
- Draft CSD: http://www.ieee802.org/1/files/public/docs2017/cv-draft-CSD-0917-v01.pdf

Christophe Mangin presented the draft PAR and CSD for P802.1CBdb *Extended Stream Identification Functions*
Disposition: New draft PAR and CSD
- Draft PAR: http://www.ieee802.org/1/files/public/docs2018/db-draft-PAR-0118-v02.pdf
- Draft CSD: http://www.ieee802.org/1/files/public/docs2018/db-draft-CSD-0118-v01.pdf

Marc Holness led the resolution of comments received in the Sponsor ballot on http://www.ieee802.org/1/files/private/cp-drafts/d2/802-1Qcp-d2-0.pdf
Disposition: Ballot comment resolution recorded in http://ieee802.org/1/files/private/cp-drafts/d2/802-1Qcp-d2-0-dis-v02.pdf

Marc Holness led the review of a draft response to the incoming liaison letter from ITU-T SG15 *Liaison statement regarding coordination on IM/DM for OAM (reply to IEEE 802.3WG-LS54 (TD141/WP3))* http://www.ieee802.org/1/files/public/docs2017/liaison-ITU-T-SG15-LS80-CFM_OAM-1217.pdf
Disposition: Incoming liaison letter, response needed

Scott Mansfield presented *Draft YANG 802.1ABcu*
http://ieee802.org/1/files/public/docs2018/cu-mansfield-draft-YANG-0118-v01.pdf
Disposition: Editor's update on ongoing project

Scott Mansfield presented *YANGsters*
http://www.ieee802.org/1/files/public/docs2018/yangsters-smansfield-status-0118-v02.pdf
Disposition: YANGsters update

Scott Mansfield presented *Open Source Implementation for IEEE Standards* https://mentor.ieee.org/802-ec/dcn/17/ec-17-0172-00-00EC-ieee-sa-update-on-open-source-activity.pdf and *IEEE open source offering* https://mentor.ieee.org/802-ec/dcn/17/ec-17-0103-00-00SA-ieee-open-source-offering.pdf.

- The 802.1 Chair indicated that IEEE is moving forward with its trial on open source projects to figure out what rules are appropriate. He considers it a potential advantage for 802.1 to open source its YANG projects with the advantage that 802.1 could continuously update its YANG models in GitHub without new PARs. To get in this trial, 802.1 has to prepare a survey, and the 802.1 Chair was looking for feedback.

Scott Mansfield led the review of proposed 802.1 answers to the IEEE-SA Pilot Query in http://www.ieee802.org/1/files/public/docs2017/yangsters-smansfield-meeting-05-pilot-query-1117-v02.docx
Disposition: Proposed 802.1 answers, updated as http://www.ieee802.org/1/files/public/docs2018/yangsters-smansfield-pilot-query-0118-v01.docx, will be sent by the 802.1 Chair to IEEE staff. The 802.1 Chair will update the WG in March 2018 with the received feedback to decide on the next step in this process.

Friday 26 January 2018 10:45 AM-12:30 PM
(split TSN TG)
Call to order: 26 January 2018, 10:45 AM

Geoff Garner, P802.1AS-Rev editor, continued the resolution of comments received on http://www.ieee802.org/1/files/private/as-rev-drafts/d6/802-1AS-rev-d6-0.pdf,
Disposition: Continued in a later session.

Friday 26 January 2018 1:30 PM-6:00 PM
Call to order: 26 January 2018, 1:30 PM

Feng Chen presented *How to Document RAP Specification - as an amendment to 802.1Q or stand-alone* http://ieee802.org/1/files/public/docs2018/new-chen-RAP-which-document-0118-v02.pdf.
Disposition: Proposes new project; more discussion needed

Norman Finn, P802.1CS editor, continued the resolution of comments received on http://www.ieee802.org/1/files/private/cs-drafts/d1/802-1CS-d1-2.pdf.
Disposition: Ballot comment resolution recorded in http://www.ieee802.org/1/files/private/cs-drafts/d1/802-1CS-d1-2-dis.pdf

Geoff Garner, P802.1AS-Rev editor, continued the resolution of comments received on http://www.ieee802.org/1/files/private/as-rev-drafts/d6/802-1AS-rev-d6-0.pdf,
Disposition: Ballot comment resolution recorded in http://www.ieee802.org/1/files/private/as-rev-drafts/d6/802-1AS-rev-d6-0-pdis.pdf.

4 Next meeting

5-9 March 2018, Rosemont, IL, USA