

IEEE 802.1 March 10-15, 2019 Plenary in Vancouver, BC, Canada

Joint TSN-IEC/IEEE 60802 Joint Project (Friday, 15-Mar-2019, 13:00 - 15:30)		
Joint TSN-IEC/IEEE 60802 Joint Project (Friday, 15-Mar-2019, 08:00 - 12:00)		
Closing Plenary (Thursday, 14-Mar-2019, 13:30 - 18:00)		
IEC/IEEE 60802 Joint Project (Thursday, 14-Mar-2019, 08:00 - 12:30)		
TSN (Thursday, 14-Mar-2019, 08:00 - 12:30)		
IEC/IEEE 60802 Joint Project (Wednesday, 13-Mar-2019, 13:30 - 18:00)		
Security (Wednesday, 13-Mar-2019, 13:30 - 18:00)		
TSN (Wednesday, 13-Mar-2019, 13:30 - 18:00)		
OmniRAN Wednesday, 13-Mar-2019, 13:30 - 15:30)		
IEC/IEEE 60802 Joint Project (Wednesday, 13-Mar-2019, 10:30 - 12:30)		
TSN (Wednesday, 13-Mar-2019, 10:30 - 12:30)		
Security (Wednesday, 13-Mar-2019, 09:00 - 12:30)		
Joint TSN-IEC/IEEE 60802 Joint Project (Wednesday, 13-Mar-2019, 08:00 - 10:00)		
Nendica (Wednesday, 13-Mar-2019, 08:00 - 10:00)		
Nendica (Tuesday, 12-Mar-2019, 19:30 - 21:30)		
YANGsters (Tuesday, 12-Mar-2019, 18:00 - 19:30)		
Joint TSN-802.24 (Tuesday, 12-Mar-2019, 18:00 - 18:30)		
TSN (Tuesday, 12-Mar-2019, 13:30 - 18:00)		
Security (Tuesday, 12-Mar-2019, 13:30 - 18:00)		
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Maintenance (Tuesday, 12-Mar-2019, 08:00 - 10:00)		
TSN (Monday, 11-Mar-2019, 13:30 - 18:00)		
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OmniRAN (Monday, 11-Mar-2019, 13:30 - 15:30)		
Opening Plenary (Monday, 11-Mar-2019, 10:30 - 12:30)		
TSN (Monday, 11-Mar-2019, 08:00 - 10:00)		
Last name	First Name	Affiliation
Duan	Shihui	China Academy of Information and Communications Technology (China Academy of Telecommunication Research, MIIT) CAICT (CATR)
Enzinger	Thomas	B&R Industrial Automation
Farkas	Janos	Ericsson
Fedyk	Donald	LabN Consulting, L.L.C.
Fincher	Scott	Extreme Networks
Finn	Norman	Huawei Technologies Co. Ltd
Fujishima	Mitsushiro	Mitsubishi Electric Corporation
Garner	Geoffrey	Huawei Technologies Co. Ltd
Gravel	Mark	Hewlett Packard Enterprise
Gunther	Craig	Robert Bosch GmbH
gupta	sanjay	Futurewei Technologies
Gutierrez	Marina	TTTech Computertechnik AG
Haagens	Randolph	Microsoft Corporation
Hantel	Mark	Rockwell Automation
Hemmer	David	PILZ
Henry	Jerome	Cisco Systems, Inc.
Hiertz	Guido	Ericsson AB
Holness	Marc	Ciena Corporation
Hotta	Yoshifumi	Mitsubishi Electric Corporation
Igarashi	Shunsuke	Mitsubishi Electric Corporation
Kabra	Lokesh	Synopsys, Inc.
Kehrer	Stephan	Hirschmann Automation and Control, Inc.
Kelsey	Randy	Engineering Solutions, Inc
Kim	Yongbum	NIO
KONDO	Kenji	Yaskawa Electric Corp
Kondo	Yoshihisa	Advanced Telecommunications Research Institute International (ATR)
KOTO	Hajime	National Institute of Information and Communications Technology (NICT)
Lackner	Hans	QoSCom, Leoni e.a.
Lawlis	James	Ford Motor Company
Lu	Yuchun	HUAWEI
Mangin	Christophe	Mitsubishi Electric Corporation
Marks	Roger	EthAirNet Associates; Huawei
Maruhashi	Kenichi	NEC Corporation
McCall	David	Intel
McCann	Stephen	BlackBerry
McIntosh	James	Microchip Technology, Inc.
McMillan	Larry	Western Digital Corporation
Messenger	John	ADVA Optical Networking Ltd.
Miller	Martin	Microchip Technology, Inc.
Mustala	Tero	Nokia Networks
Myers	Roy	INDEPENDENT

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Last name	First Name	Affiliation												
Neet	Kyle	Rockwell Automation
Noseworthy	Bob	University of New Hampshire InterOperability Laboratory (UNH-IOL)
Ohsawa	Tomoki	NICT
Osagawa	Daisuke	Mitsubishi Electric Corporation
Osuga	Toru	National Institute of Information and Communications Technology (NICT)
Pannell	Donald	NXP Semiconductors
Petre	Razvan	Spirent Communications
Potts	Michael	General Motors Company
Randall	Karen	INDEPENDENT
Rettig	Thomas	Beckhoff Automation
Riegel	Maximilian	Nokia Networks
Rouyer	Jessy	Nokia
Sato	Atsushi	Yokogawa Electric Corporation
Seaman	Michael	Individual
Seewald	Maik	Cisco Systems, Inc.
Sivakolundu	Ramesh	Cisco Systems, Inc.
Specht	Johannes	University of Duisburg-Essen and General Motors Company
Stanica	Marius	ABB AB
Stanton	Kevin	Intel Corporation
St-Denis	Bernie	NXP Semiconductors
Steindl	Guenther	Siemens AG
Tarui	Isao	Mitsubishi Electric Corporation
Tse	Richard	Microsemi
Unbehagen	Paul	Avaya Inc.
Wamsser	Reiner	IEC SC65C MT9-Member
Wang	Hao	Fujitsu Research & Development Center
Wang	Xinyuan	Huawei Technologies Co. Ltd
Wang	Xuehuan	Huawei Technologies Co. Ltd
Weber	Karl	Beckhoff
Winkel	Ludwig	Siemens AG
Wolfe	Jason	Non-Member
Wood	Graeme	British Standards Institution (BSI), Rockwell Corp
Woods	Jordon	Analog Devices Inc.
Xu	Dayin	Rockwell Automation
Yamaura	Takahiro	TOSHIBA Corporation
YU	XIANG	Huawei Technologies Co., Ltd
Zein	Nader	NEC Europe (NLE)
Zhu	Chunhui	Huawei R&D USA
Zinner	Helge	Continental Automotive Systems AG
Zuniga	Juan Carlos	SIGFOX
Zweck	Harald	Infineon Technologies AG

2 802.1 Officers and Management

Glenn Parsons	Working Group Chair
John Messenger	Working Group Vice-chair and acting Chair
Jessy Rouyer	Working Group Secretary and acting Vice-Chair
Paul Congdon	Maintenance Task Group Chair
Max Riegel	OmniRAN Task Group Chair
Mick Seaman	Security Task Group Chair
János Farkas	Time-Sensitive Networking Task Group Chair
Craig Gunther	Time-Sensitive Networking Task Group Vice-Chair and Secretary
Ludwig Winkel	IEC/IEEE 60802 Joint Project Chair
Josef Dorr	IEC/IEEE 60802 Joint Project Secretary
Roger Marks	Nendica Chair
Scott Mansfield	YANGsters Chair
Stephan Kehrer	YANGsters acting Chair
Mark Hantel	Email Maintenance and IEC/IEEE 60802 Joint Project Website Maintenance
Paul Unbehagen	Website Maintenance
Hal Keen	Email Maintenance

3 Opening Plenary Meeting

Monday March 11, 2019

10:39 AM (call to order by the acting Chair) to 12:32 PM

The Vice-Chair, John Messenger, presided as acting Chair.
The Recording Secretary, Jessy Rouyer, wrote the minutes.

The acting Chair presented the *Opening Agenda* slides finalized as
<http://www.ieee802.org/1/files/public/minutes/2019-03-opening-plenary-slides-v3.pdf>.

During this presentation, the acting Chair:

- Introduced the agenda on slide 2. The agenda was approved.
- Presented slides 3 through 7 (including reproduced slides 0 through 4 of the IEEE-SA PatCom Patent Slides for Standards Development Meetings, separately available at <http://standards.ieee.org/about/sasb/patcom/materials.html>).

The acting Chair:

- Presented information on these slides including:
 - Instructions for the WG Chair (and TG Chairs);
 - Participants' duty to inform the IEEE;
 - Ways to inform IEEE;
 - Other guidelines for IEEE WG meetings; and
 - Patent-related information.
- Advised WG attendees that:
 - IEEE's patent policy is described in Clause 6 of the IEEE-SA Standards Board Bylaws;
 - Early identification of patent claims which may be essential for the use of standards under development is strongly encouraged;
 - There may be Essential Patent Claims of which IEEE is not aware. Additionally, neither IEEE, the WG, nor the WG Chair can ensure the accuracy or completeness of any assurance or whether any such assurance is, in fact, of a Patent Claim that is essential for the use of the standard under development.
- Made the "Call for Potentially Essential Patents" thereby providing an opportunity for participants to identify patent claim(s)/patent application claim(s) and/or the holder of patent claim(s)/patent application claim(s) of which the participant is personally aware and that may be essential for the use of that standard.
 - There were no responses to the call.
- Reminded 802.1 TG Chairs of their daily obligations (per slide 8) with respect to presenting the IEEE-SA PatCom Patent Slides for Standards Development Meetings and making the "Call for Potentially Essential Patents".
- Reviewed general administrative information including:
 - Meeting "Decorum" or rules, including the policies on public reporting, and on photography or recording (slide 9);
 - The acting Chair called for any members of the press (i.e., anyone reporting publicly on this meeting) to announce their presence.
 - There were no responses to the call.
 - Participation in IEEE 802 meetings on an individual basis (slide 10);
 - Hotel and meeting room security (slide 11);
 - General information on 802.1 (slide 12), including information on newcomers orientation available at <http://www.ieee802.org/1/files/public/docs2018/tsn-farkas-intro-0318-v01.pdf>, information on 802.1 operation available at <http://www.ieee802.org/1/files/public/minutes/802-1-general-info-v3.pdf>, a reminder that contributions are to be uploaded before presentation, how to access meeting minutes and schedule, and how to report meeting session attendance;
 - Meeting logistics (slide 13).
- Introduced 802.1 officers (slide 14) announcing that Craig Gunther:
 - Is appointed Vice-Chair of the Time-Sensitive Networking (TSN) TG;
 - Will preside over TSN TG "track B"; and
 - Will continue as TSN TG Secretary for this session.
- Encouraged volunteers to step in to serve as TSN TG Secretary in future sessions.
- Provided 802.1 website information (slide 14).
- Reviewed the list of 802.1 voters (slide 15), including information about individuals who

- have lost (slide 16), may gain (slides 18 and 19), may (slide 20) or will lose (slide 17) 802.1 voting membership.
- Reminded individual participants of their obligations and of 802.11 reciprocal credit, which was continued at this meeting (slide 21).
 - Provided an update on the 802.1 website at <http://1.ieee802.org> (slide 22).
 - Reviewed the schedule for future interim sessions (slide 23):
 - May 20-24, 2019 in Salt Lake City, UT, USA
 - September 2019 in Edinburgh, UK
 - John Messenger gave an oral update on ADVA Optical Networking hosting the week of September 16, 2020
 - January 20-24, 2020 (workshop January 25) potentially in Geneva, Switzerland
 - Steve Trowbridge presented slides 24 to 26.
 - May 2020 in North America
 - September 2020 potentially in China
 - Reviewed the schedule for future plenary sessions (slide 27):
 - July 14-19, 2019 in Vienna, Austria
 - November 10-15, 2019 in Waikoloa, HI, USA
 - March 15-20, 2020 in Atlanta, GA, USA
 - July 12-17, 2020 in Montreal, QC, Canada
 - November 8-13, 2020 in Bangkok, Thailand
 - March 14-19, 2021 in Denver, CO, USA
 - Reported the following items out of the 802 Executive Committee (EC) executive session (slide 28):
 - SA staff are available – Jodi Haasz is our new staff contact
 - 802 Task Force (Thurs 10:30-12:30 - Oxford - HRV 3rd Floor)
 - IEEE SA Tools update - Web conferencing
 - Bulk Framemaker licenses
 - P&P, OM, WG & CG change proposals ([EC-19-37](#))
 - Update Standard Committee P&P
 - Update WG P&P
 - Venues ([EC-16-66-07](#))
 - Bangkok was popular
 - Treasurer ([EC-19-35](#))
 - Nov 2018: \$44k surplus with larger attendance
 - 2019 projected loss: \$500k (reducing reserves to \$1M)
 - Showed statistics on the standing of 802 (C/LM) as part of the top 10 Society/Committee Projects and Standards (slide 29).
 - Reviewed the list of 802 EC meetings to be held this week (slide 30).
 - Indicated that the status of myProject is unchanged since the last plenary session (slide 31).
 - Provided and discussed an update on the IEEE Open Source offering (slide 32).
 - Provided information about public review (slide 33) and about the following email ballots (ePoll) since the last plenary session (slide 34):
 - None.
 - Pointed out PARs, CSDs, and ICAIDs that were up for vote at this IEEE 802 plenary session (slides 35 and 36) and encouraged the TSN TG to review material on 802.11be
 - Related to 802.11be, the TSN TG Chair indicated that the TG and 802.11 may meet jointly at the July 2019 IEEE 802.1 plenary session, the acting Chair encouraging discussion on topics of common interest via cross-WG collaboration.
 - Introduced the 802 Industry Connections activity (slide 37) and the Monday tutorial at this 802 plenary session (slide 38).
 - Reviewed the list of liaisons within 802 (joint and standing committee meetings, 802 task

- force) for which meetings were to be held during this 802 plenary week (slide 39).
- Reviewed the list of liaisons incoming to 802.1 to be handled by the TSN TG (slide 40).
- Provided the anticipation of next actions with respect to projects in the WG's current workload (slide 42) and discussed promotion of the work of the WG (slide 43).
- Provided an overview of the various IEEE-SA Awards, encouraging nominations (slide 44).
- Noted that Standards Project Awards are being prepared (slide 45).
- Summarized the list of anticipated motions for EC Consent Agenda (slides 46-47).
- Showed the 802.1 plenary schedule/agenda for this meeting, which was tacitly approved (slide 48).
- Listed 802.1 management meetings (slide 49).
- Requested that the sub group agendas be presented (slide 50):
 - The YANGsters acting Chair, Stephan Kehrer, presented the agenda on slide 51
 - The TSN TG Chair, János Farkas, presented the agenda on slide 53.
 - The OmniRAN TG Chair, Max Riegel, presented the agenda on slides 54-55.
 - The Security TG Chair, Mick Seaman, presented the agenda on slide 52.
 - The Maintenance TG Chair, Paul Congdon, presented the agenda on slide 56.
 - The Nendica Chair, Roger Marks, presented the agenda on slide 57.
- Called for Any Other Business (A.O.B. – slide 59):
 - Dillon Seo presented *The Network Relevance in VR*
<https://mentor.ieee.org/802.21/dcn/19/21-19-0023-00-0000-the-network-relevance-in-vr.pptx>
(slide 58).

4 Maintenance Task Group

Tuesday March 12, 2019

8:00 AM (call to order by the TG Chair) to 9:45 AM

The Maintenance Task Group Chair, Paul Congdon, presided and wrote the minutes.

At the beginning of the meeting the TG Chair presented the IEEE-SA PatCom Patent Slides for Standards Development Meetings <https://development.standards.ieee.org/myproject/Public/mytools/mob/slideset.pdf>, the IEEE 802 Participation slide <https://mentor.ieee.org/802-ec/dcn/17/ec-17-0093-05-0PNP-ieee-802-participation-slide-ppt.ppt>, and made the Call for Potentially Essential Patents. There were no responses to the call prior to the end of the meeting.

The TG Chair:

- Introduced the agenda per *Maintenance Task Group Meeting March 12, 2019 Agenda* in <http://www.ieee802.org/1/files/public/docs2019/maint-congdon-session-0319-v01.pdf> that was approved.
- Presented *Document Vehicles -Status Update* in <http://www.ieee802.org/1/files/public/docs2019/maint-congdon-session-0319-v01.pdf>.
- Led the discussion of 5 new maintenance items.
 - 0224 - Clarify whether frame ends on last bit or after the inter-packet gap and preamble
 - 0225 - Addendum to Maintenance Request 0223: IEEE8021-SRP-MIB inappropriate SYNTAX for ieee8021SrpStreamDataFramePriority
 - 0226 - 802.1CB Active Destination MAC and VLAN Stream identification
 - 0227 - 802.1CB Required stream identification methods
 - 0228 - 802.1AE-2018 incorrect text in Figure 9-4
 - **Disposition:** Details for discussion on all new items was logged and is available

on the IEEE 802.1 Maintenance database at: <https://www.802-1.org/home>. For maintenance item 0228, a proposed PAR for a Corrigendum was reviewed: <http://www.ieee802.org/1/files/public/docs2019/ae-cor1-draft-par-0319-v00.pdf>

- Led the review of the incoming liaison from ITU-T SG15 in http://www.ieee802.org/1/files/public/docs2019/liaison-SG15-LS172-OTNT_standardization_workplan-0119.zip
 - The WG was reminded to review the current report of 802.1 activities in the referenced zip file and that there is no current need to respond to this liaison. Glenn Parsons (in his role as ITU-T SG15 Liaison Rapporteur for 802.1 matters) will be providing an updated report to SG15 for their September meeting.
 - **Disposition:** 802.1 WG Chair to provide updated report of 802.1 activities.
- Led the review of a draft response <http://www.ieee802.org/1/files/public/docs2019/maint-randall-SC6CommentResponse802c-v02.pdf> to CN.1 on IEEE 802c-2017 (ISO/IEC/IEEE FDIS 8802-A:2015/FDAmd 2)
 - It was suggested to clarify the issue of backward compatibility using OIDs for protocol identifiers.
 - It was pointed out that all references to ISO/IEC/IEEE FDIS 8802-A:2015 need to include ISO in the list.
 - **Disposition:** A new final version of the comment response was created: <http://www.ieee802.org/1/files/public/docs2019/maint-randall-SC6CommentResponse802c-v03.pdf>. A motion to approve of this response is planned for the EC consent agenda.
- Led a discussion of the JTC1/SC6 pre-ballot results for IEEE 802.1AE, IEEE 802.1Q, and IEEE 802.1Xck
 - A summary of the CN comments on the pre-ballot results was reviewed. The summary is available at: <http://www.ieee802.org/1/files/public/docs2019/maint-randall-SC6comments1Q1XckAE-0319-v1.pdf>
 - **Disposition:** The Security TG will draft responses to the comments. If possible, as many of the responses that can be prepared and reviewed prior to the JTC1 meeting will be provided by the Security TG.
- Led the review of the status of standards in the SC6 engagement and PSDO process
 - The current status of 802.1 documents using the PSDO process for international standardization was reviewed. The status slides are part of the maintenance meeting material at <http://www.ieee802.org/1/files/public/docs2019/maint-congdon-session-0319-v01.pdf>.

Future meetings/teleconferences

Future meetings were discussed but the TG intends to hold teleconferences on the Tuesday of the week before the next Interim and Plenary sessions. The teleconferences will be held on Tuesday May 14, 2019 and Tuesday July 09, 2019 at 8:00AM Pacific, unless cancelled prior to the call. A motion to propose the teleconferences will be made at the closing plenary.

The TG meets face-to-face next at the May 2019 IEEE 802.1 interim session in Salt Lake City, Utah, USA.

A.O.B.

No other business was discussed in this meeting.

Post-meeting, the TG Chair provided meeting slides updated based on discussion in <http://www.ieee802.org/1/files/public/docs2019/maint-congdon-session-0319-v02.pdf>. The TG

website at <http://www.ieee802.org/1/maint.html> provides further details and discussion.

5 OmniRAN Task Group

The OmniRAN Task Group Chair, Max Riegel, presided.
Hao Wang wrote the minutes.

At the beginning of the meetings on Monday, Tuesday, and Wednesday the TG Chair presented the mandatory IEEE-SA PatCom Patent Slides for Standards Development Meetings and the IEEE 802 Participation slide contained in the OmniRAN session slides for the week (*IEEE 802.1 OmniRAN TG March 2018 F2F Meeting Vancouver, BC* <https://mentor.ieee.org/omniran/dcn/19/omniran-19-0013-01-00TG-mar-2019-f2f-meeting-slides.pptx>), and made the “Call for Potentially Essential Patents”. There were no responses to the calls prior to the end of the week’s session.

Additionally to the participants listed in section **Error! Reference source not found.** who registered in IMAT, the following individuals also participated:

- Don Pannell, NXP Semiconductors

The session slides were amended throughout the OmniRAN TG meetings of the week with additional auxiliary information and finally uploaded to mentor as <https://mentor.ieee.org/omniran/dcn/19/omniran-19-0013-04-00TG-mar-2019-f2f-meeting-slides.pptx>.

Current status of OmniRAN Task Group activities (including future meeting announcements, past meeting and conference call minutes) is available at <https://1.ieee802.org/omniran/>.

Monday 11 March 2019

01:30 PM (call to order by the TG Chair) to 03:30 PM

Agenda Approval

The TG Chair presented the agenda per slide 11 of the session slides.
The agenda was reviewed and discussed.

Disposition: The following agenda was approved per acclamation.

- Review of minutes
- Reports
- IEEE 802.1CF socialization activities
- P802.1CQ contributions and discussions
 - P802.1CQ ToC and specification text contributions
- Potential new project for OmniRAN TG
- Conference calls until July 2019 F2F
- Status report to IEEE 802 WGs
- Liaisons
- Next meeting
- AOB

Schedule of topics during the week

The TG Chair discussed availabilities of the contributors and preferences to discuss the various topics.

Disposition: Agreement to arrange the discussion topics according to the following plan over

the week:

Mon, 13:30 – 15:30

Review of minutes

Reports

P802.1CQ contributions and discussions

- P802.1CQ ToC and specification text contributions

Tue, 13:30 – 15:30

IEEE 802.1CF socialization activities

Potential new project for OmniRAN TG

Liaisons

Conference calls until July 2019 F2F

Motions to 802.1 closing plenary

Draft status report to IEEE 802 WGs

Wed, 13:30 – 15:30

P802.1CQ contributions and discussions

- IEEE 802.11 related discussions

Status report to IEEE 802 WGs

Next meeting

AOB

Review of minutes

The TG Chair presented the minutes of the OmniRAN TG and asked for comments, if any.

- Conference call held 6 February 2019: <https://mentor.ieee.org/omniran/dcn/19/omniran-19-0008-00-00TG-feb-6th-confcall-minutes.docx>
- Conference call held 27 February 2019: <https://mentor.ieee.org/omniran/dcn/19/omniran-19-0014-00-00TG-feb-27th-confcall-minutes.docx>
- Interim session held in January 2019 in Hiroshima, Japan: <https://mentor.ieee.org/omniran/dcn/19/omniran-19-0005-02-00TG-jan-2019-f2f-meeting-minutes.docx>

Disposition: No comments were raised on any of the minutes.

Reports

P802.1CF was forwarded for RevCom approval at its March 20, 2019 meeting. The IEEE staff editor will engage after Standards Board approval.

The TG Chair explained that a new minutes template was introduced for better integration of all 802.1 TG meeting minutes for jointly held meetings.

Disposition: The TG decided to use the same template for all meetings and conference calls well based on a slightly amended template.

P802.1CQ contributions and discussions

Antonio de la Oliva presented *MAC Address Acquisition Protocol*

<https://mentor.ieee.org/omniran/dcn/19/omniran-19-0011-01-CQ00-maap-introduction.pptx>

- The MAC Address Acquisition Protocol (MAAP), specified in IEEE Std 1722, has been investigated and considered to be reused for both multicast and unicast address assignment in P802.1CQ.
- A verbal update was provided on the current status of the IEEE 1722 WG. The TG discussed both the use of MAAP in the professional audio market and the rationale for multicast to be addressed in the scope of P802.1CQ.

- The TG discussed the idea of adopting MAAP in P802.1CQ for self-claiming address assignment in both wired and wireless media, but certain changes may be needed, e.g. the frame encapsulation;
- It was noted that the EtherType used for MAAP belongs to Harman International.

Disposition: The investigation regarding IEEE 1722 will be presented to the TSN TG on March 12, 2019. The OmniRAN TG will decide how to proceed regarding the adoption of MAAP afterwards.

Tuesday 12 March 2019

01:30 PM (call to order by the TG Chair) to 03:30 PM

IEEE 802.1CF socialization activities

The TG Chair led a discussion on IEEE 802.1CF socialization activities per slide 15 of the session slides.

- It was indicated that IEEE SA provides the opportunity to publish online articles for promoting technologies and standards. An example is *Laying the Foundation for the Lossless Data Center* <https://beyondstandards.ieee.org/networking/laying-the-foundation-for-the-lossless-data-center/>.

Disposition: Max Riegel will contact IEEE staff for more information regarding submission to the *BeyondStandards* IEEE SA blog.

Liaisons

The TG Chair presented drafts of outgoing liaisons finalized as:

- *Liaison reply to JCA for IMT2020 to update IEEE 802.1 information in the IMT-2020 roadmap* <https://mentor.ieee.org/omniran/dcn/19/omniran-19-0015-00-00TG-802-1-liaison-response-to-itu-t-jca-imt2020.docx>

Disposition: An EC consent agenda motion was prepared as per slide 17 of <https://mentor.ieee.org/omniran/dcn/19/omniran-19-0013-04-00TG-mar-2019-f2f-meeting-slides.pptx>. Draft liaison to be forwarded to the 802.1 closing plenary for approval. The 802.1 closing plenary did not approve sending this liaison.

For the preparation of a liaison, Roger Marks presented a draft *Proposed liaison to IEEE 1722 Working Group* <https://mentor.ieee.org/omniran/dcn/19/omniran-19-0017-00-CQ00-proposed-liaison-to-ieee-1722-working-group.pptx> regarding MAAP adoption.

- Based on the proposal, the TG Chair drafted *Liaison to IEEE 1722 regarding address assignment protocol in P802.1CQ (Multicast and Local Address Assignment)* <https://mentor.ieee.org/omniran/dcn/19/omniran-19-0018-01-00TG-802-1-liaison-to-ieee-1722.docx>

Disposition: A motion was prepared as per slide 18 of <https://mentor.ieee.org/omniran/dcn/19/omniran-19-0013-04-00TG-mar-2019-f2f-meeting-slides.pptx>. Draft liaison to be forwarded to the 802.1 closing plenary for approval.

Conference calls until the July 2019 802.1 plenary session

TG decided not to meet at the next 802.1 or 802 Wireless Interim to accommodate cross-WG participation in P802.1CQ and availability of main contributors.

Disposition: Agreed to hold 90-minute conference calls at 09:00 AM ET on April 5, 2019 and April 26, 2019. Further conference calls until the July 2019 802.1 plenary session will be discussed on the April 26, 2019 conference call and announced on the 802.1 mailing list.

Wednesday 13 March 2019

01:30 PM (call to order by the TG Chair) to 03:12 PM

P802.1CQ contributions and discussions

P802.1CQ ToC and specification text contributions

Antonio de la Oliva presented *IEEE 802.1CQ ToC*

<https://mentor.ieee.org/omniran/dcn/19/omniran-19-0016-00-CQ00-thoughts-on-toc.pptx>.

- The proposal in the slides was modified according to, and during the discussion.
- Open questions were presented and potential conclusions discussed.

Disposition: Agreement reached to start drafting the specification based on *IEEE 802.1CQ Table of Contents* <https://mentor.ieee.org/omniran/dcn/19/omniran-19-0020-00-CQ00-ieee-802-1cq-table-of-contents.docx> with Table of Content modifications as needed during drafting.

IEEE 802.11 related discussions

Antonio de la Oliva presented *MAC Address Policy ANQP*

<https://mentor.ieee.org/802.11/dcn/19/11-19-0286-03-000m-mac-address-policy-anqp-and-beacon-element.docx>.

- This contribution to 802.11md, covered address policy discovery, and was to be discussed in 802.11 on Thursday March 14, 2019.
- The concept and dependencies on P802.1CQ were discussed and potential dependencies were considered.

Disposition: Conclusion reached that the proposed amendment to 802.11md sufficiently covers the necessary additions to Pre-Association Discovery (PAD).

Status report to IEEE 802 WGs

The TG Chair presented *IEEE 802.1 OmniRAN TG Status Report to IEEE 802 WGs*

<https://mentor.ieee.org/omniran/dcn/19/omniran-19-0019-00-00TG-mar-2019-report-to-ieee-802-wgs.pptx>.

Disposition: The report was reviewed and edited as needed.

Next meeting

Conference call on April 5, 2019 at 09:00 AM ET.

A.O.B.

No other business was discussed in this meeting.

6 Security Task Group

The Security Task Group Chair, Mick Seaman, presided and wrote the minutes. Security TG participants also participated in the JTC1 SC, see the separate minutes for that meeting.

At the beginning of the TG meetings on Monday, Tuesday, and Wednesday, the TG Chair presented the IEEE-SA PatCom Patent Slides for Standards Development Meetings <https://development.standards.ieee.org/myproject/Public/mytools/mob/slideset.pdf>, the IEEE 802 Participation slide <https://mentor.ieee.org/802-ec/dcn/17/ec-17-0093-05-0PNP-ieee-802-participation-slide-ppt.ppt>, and made the “Call for Potentially Essential Patents”. There were no responses to the calls prior to the end of the week’s meetings.

Additionally to the participants listed in section **Error! Reference source not found.** who registered in IMAT, the following individuals also participated:

- Ben Anderson, U.S. Federal Government [Monday PM]
- Jody Haasz, IEEE Staff [Monday PM]
- Jerome Henry, Cisco Systems, Inc. [Wednesday PM]
- Marc Holness, Ciena Corporation [Wednesday AM]
- James McIntosh, Microchip Technology, Inc. [Monday PM, Tuesday AM]
- Mick Seaman, Independent [Wednesday AM]

The draft agenda posted on the 802.1 website prior to the meeting was reviewed by the TG Chair during the 802.1 WG opening plenary. There were no changes at that time, or at the beginning of the TG meeting.

1. ISO/IEC JTC1 PSDO processing
2. P802E Privacy (Recommended Practice ... for 802 ...)
3. P802.1X-Rev Port-Based Network Access Control
4. IEEE 802.1AE-2018 Corrigendum
5. Traffic flow privacy
6. A.O.B
7. Future meetings/teleconferences

Monday March 11, 2019

2:00 PM (call to order by the TG Chair) to 4:30 PM

ISO/IEC JTC1 PSDO processing

The TG Chair led a discussion on the purpose of ISO/IEC JTC1 processing of 802.1 standards, and the current status.

- FDIS pre-ballots on 802.1AE-Rev, 802.1Q-Rev, 802.1Xck closed March 11, 2019 and were to be discussed (if available) in the Maintenance TG on March 12, 2019.
- Discussion also continued Wednesday PM.

Disposition: The ballots passed, the comments received on the ballots are in *Comments on pre-ballots in ISO/IEC JTC1 SC6* <http://www.ieee802.org/1/files/public/docs2019/maint-randall-SC6comments1Q1XckAE-0319-v1.pdf>

A.O.B.

Mick Seaman presented *Running with scissors: Cut-through in bridged networks* <http://www.ieee802.org/1/files/public/docs2019/new-seaman-cut-through-scissors-0119-v01.pdf>.

- Discussion of potential security exposures as per section 3 of the document. Further exposures could be expected.
- Reaffirmed that all Cipher Suites used by MACsec provide protection against known plain text attacks.

Disposition: Further discussion expected if 802.3 and the TSN TG proceed with cut-through related projects.

IEEE 802.1AE-2018 Corrigendum

The TG Chair led a discussion on the proposed *P802.1AE-2018/Cor 1* <http://www.ieee802.org/1/files/public/docs2019/ae-cor1-draft-par-0319-v00.pdf> corrigendum PAR.

Disposition: Agreed (non-dissenting) to present to the Maintenance TG and request

forwarding to NesCom.

Traffic flow privacy

Don Fedyk presented *Ethernet-Traffic Flow Security*

<http://www.ieee802.org/1/files/public/docs2019/new-fedyk-traffic-flow-security-0219.pdf>.

- The TG Chair suggested that this work might be best progressed as an amendment to IEEE Std 802.1AE-2018.
- The envisaged functionality would be additional (and potentially separable) "Privacy enhancement" capability to be used in conjunction with (rather than as a change to MACsec).
- The scope of work could include development of an informative "Privacy Considerations" annex based on *Privacy considerations in bridged networks* <http://www.ieee802.org/1/files/public/docs2018/e-seaman-privacy-in-bridged-networks-1018-v01.pdf> as this would provide useful background, as well as address the issue of where to place such material (it being impractical to engage in multiple projects to add privacy considerations to all 802.1 standards, as well as there being a need to assess privacy as a function of using standards in combination with each other).
- The need for managed objects might be best addressed by YANG, as a new MIB or extensions to the existing MIB would be unlikely to be used. This would necessitate creating a YANG model for the existing 802.1AE functionality, based on the existing IEEE Std 802.1AE-2018 Figure 10-5 *SecY managed objects* UML (and not on conversion of the existing MIB).

Disposition: Discussion to be continued Tuesday PM.

Tuesday March 12, 2019

10:30 AM (call to order by the TG Chair) to 12:30 PM

P802E Privacy (Recommended Practice ... for 802 ...)

Jerome Henry, P802E editor, led the resolution of comments received in the TG ballot on <http://www.ieee802.org/1/files/private/802-e-drafts/d1/802E-d1-3.pdf> based on

- Editor report: *Comment Resolution for 802.1 TG Ballot D 1.3 (as of 03/12/2019)* <http://www.ieee802.org/1/files/private/802-e-drafts/d1/802E-d1-3-editor-report.pdf>
- Initial *Disposition of Working Group Ballot Comments on IEEE Draft P802E-Rev-D1.3* <http://www.ieee802.org/1/files/private/802-e-drafts/d1/802E-d1-3-pdis1.pdf>
 - This initial disposition showed (incorrectly) the ballot as a WG ballot, and recorded passed/failed (not applicable at TG ballot) accordingly.
 - Refinements to this initial disposition to be incorporated in the next draft and a revised disposition.
- Clarified in discussion of comment 296 that a threat model is a process by which threats are identified, and as such the entire document comprises the threat model. Text to be added by the editor as a new clause 1.3 to make that point, offline input from the TG welcomed.
- Next draft to be forwarded for IETF coordination (via Dorothy Stanley) as agreed in the November 2018 coordination meeting.
- No work directly on P802E in the May 2019 802.1 interim session. WG ballot of next draft to be made available through the normal 802.1 process for soliciting comments from other WGs, with ballot resolution during the July 2019 802.1 plenary session.

Disposition: Agreed (informally, none dissenting) to request permission to proceed to WG ballot with the next draft.

- Final disposition: <http://www.ieee802.org/1/files/private/802-e-drafts/d1/802E-d1-3->

[dis.pdf](#)

- Updated draft: <http://www.ieee802.org/1/files/private/802-e-drafts/d1/802E-d1-4.pdf>

3:30 PM (call to order by the TG Chair) to 5:00 PM

Traffic flow privacy

Don Fedyk presented *Ethernet-Traffic Flow Security*

<http://www.ieee802.org/1/files/public/docs2019/new-fedyk-traffic-flow-security-0219.pdf>.

- Continuation of Tuesday PM discussion, focusing on the "Traffic Flow Security Requirements" in the document.
- Discussion of a potential "privacy shim" and accompanying frame formats. Frame format to be self-identifying, i.e., correct decoding would not depend on any mode setting negotiated between transmitter and receiver(s). Options available to transmitter to choose extent to which traffic analysis could be protected against, e.g. fixed frame sizes with padding, packing original frames in larger frame, padding at front of frame before including a frame (or between frames included in outer frame). Small number of options to be described to allow for clarity in describing implementation capabilities to user, not restricting more complex strategies (e.g., making flow characteristics appear like the known characteristics of a different flow).
- Fragmentation of an original frame across an encapsulating frame (necessitating reassembly) likely to be the most controversial suggestion. Though reassembly not necessarily mandatory, may result in usual 'any option in standard becomes mandatory to implement'. Partitioning privacy enhancement from MACsec encryption as a clean shim means more information to be carried in privacy enhancement to ensure correct reassembly. May be some view that fragmentation/reassembly capability should be left to similar IP project. Needs WG discussion.
- Will be interest from MACsec implementers not attending 802 meetings. Need outreach activity to those implementers.
- Prepare further information and detail to begin 802.1 discussion in May 2019. Potential request to develop a PAR in July 2019, with PAR development during the September 2019 802.1 interim session.

Disposition: For further discussion in teleconferences and during the May 2019 802.1 interim session.

Wednesday March 13, 2019

9:00 AM (call to order by the TG Chair) to 12:00 PM

Mick Seaman, P802.1X-Rev editor, led the resolution of comments received in the WG ballot on <http://www.ieee802.org/1/files/private/x-rev-drafts/d1/802-1X-rev-d1-0.pdf>.

- Initial disposition of comments showing the comments received: *Proposed Disposition of the Working Group Ballot on IEEE Draft Standard P802.1X-Rev/D1.0*
<http://www.ieee802.org/1/files/private/x-rev-drafts/d1/802-1X-rev-d1-0-pdis00.pdf>
- The WG ballot passed (100% Approve, 80% Response)
- A number of comments were simple editorial and could be dealt with by the editor. Comment 79 was discussed, no change to the proposed disposition at this time, but follow up with the commenter required.
- A large number of comments were directed at the YANG model introduced by the 802.1Xck amendment. In general, these were directed at a very tight specification of the model, as opposed to a looser, more embracing, definition with the use of deviation/refinement for managing specific items of equipment. In general, the tighter definition was viewed favorably.

- Some of the comments, specifically those on timer values, suggested that the base specification be changed to fit the past MIB and past/future YANG capabilities. This would be a deviation from past practice, where the base specification takes precedence of restriction and description in the MIB. Changes to timer values/ranges would require careful consideration. Some discussion on the adequacy or otherwise of timer value ranges considering the wide range of equipment types to be managed.
- Detailed discussion of restriction of the UTF-8 alphabet in strings. Not considered culturally sensitive.

Disposition: For further discussion in teleconferences, with goal of completing WG recirculation ballot before the July 2019 802.1 plenary.

- Updated proposed disposition of comments capturing the resolution/discussion in this meeting: <http://www.ieee802.org/1/files/private/x-rev-drafts/d1/802-1X-rev-d1-0-pdis01.pdf>
- Interim draft with updates for resolved comments and discussion in teleconferences: <http://www.ieee802.org/1/files/private/x-rev-drafts/d1/802-1X-rev-d1-1.pdf>

1:45 PM (call to order by the TG Chair) to 4:30 PM

P802E Privacy (Recommended Practice ... for 802 ...)

Jerome Henry, P802E editor, led the resolution of comments received in the TG ballot on <http://www.ieee802.org/1/files/private/802-e-drafts/d1/802E-d1-3.pdf>

- Discussion continued from Tuesday AM. Brief discussion of the proposed new clause 1.3.

Disposition:

- Final disposition of comments as per meeting resolution: <http://www.ieee802.org/1/files/private/802-e-drafts/d1/802E-d1-3-dis.pdf>
- Updated draft: <http://www.ieee802.org/1/files/private/802-e-drafts/d1/802E-d1-4.pdf>.

ISO/IEC JTC1 PSDO processing

The TG Chair led a discussion on the ISO/IEC JTC1 processing of 802.1 standards.

- A response <http://www.ieee802.org/1/files/public/docs2019/maint-randall-SC6Ballotresponse1Q2018-0319-v01.pdf> to the China National Body (NB) comments on the IEEE Std 802.1Q Revision pre-FDI ballot had been prepared and briefly discussed in the Maintenance TG, and would be considered by the closing 802.1 plenary.
- There was nothing new in the China NB comments <http://www.ieee802.org/1/files/public/docs2019/maint-randall-SC6comments1Q1XckAE-0319-v1.pdf> on the pre-FDIS ballots of IEEE Std 802.1AE Revision and IEEE Std 802.1Xck. All the points raised had been responded to in the course of previous processing of 802.1 standards under the PSDO agreement; however, there was insufficient time in this session to assemble these rebuttals into a response.

Disposition: Continue discussion on responses to the IEEE Std 802.1AE Revision and IEEE Std 802.1Xck comments on teleconferences.

Future meetings/teleconferences

Agreed (informally, none dissenting) to hold teleconferences for progression of work as identified during this session and to address TG matters arising, subject to the usual required notice, with the first in the first or second week of April 2019. Short discussion on time of day, 10.00 AM Pacific/1.00 PM Eastern.

The TG will meet during the May 2019 IEEE 802.1 interim session in Salt Lake City, Utah, USA. The main topic will be traffic flow privacy. P802E will not be discussed.

A.O.B.

No other business was discussed in this meeting.

7 Time-Sensitive Networking Task Group

The Time-Sensitive Networking (TSN) Task Group Chair, János Farkas, presided. The TSN TG Secretary, Craig Gunther, wrote the minutes.

At the beginning of the meetings on Monday, Tuesday, Wednesday, and Thursday the TG Chair and/or TG Vice-Chair presented the IEEE-SA PatCom Patent Slides for Standards Development Meetings

<https://development.standards.ieee.org/myproject/Public/mytools/mob/slideset.pdf>, the IEEE 802 Participation slide <https://mentor.ieee.org/802-ec/dcn/17/ec-17-0093-05-0PNP-ieee-802-participation-slide-ppt.ppt>, and made the Call for Potentially Essential Patents. There were no responses to the calls prior to the end of the week's session.

Minutes of the TG conference calls held since the last plenary session are available at <https://1.ieee802.org/tsn-calls-0319-0719/>.

Monday March 11, 2019

8:00 AM (call to order by the TG Chair) to 10:00 AM

The TG Chair presented the agenda in <http://www.ieee802.org/1/files/public/docs2019/admin-TSN-agenda-0319-v03.pdf>.

Disposition: The agenda was reviewed, discussed and approved.

Marc Holness, P802.1Qcx editor, led the resolution of comments received on <http://www.ieee802.org/1/files/private/cx-drafts/d1/802-1Qcx-d1-0.pdf>.

- Continuation of the comment resolution that began on the weekly TSN calls.

Disposition: Disposition recorded in <http://www.ieee802.org/1/files/private/cx-drafts/d1/802-1Qcx-d1-0-pdis-v09.pdf>. Updated post-meeting as <http://www.ieee802.org/1/files/private/cx-drafts/d1/802-1Qcx-d1-0-pdis-v11.pdf>.

1:30 PM (call to order by the TG Chair) to 6:00 PM

The TG Chair presented:

- *Liaison on the "Category A+" TAE Requirement*
http://www.ieee802.org/1/files/public/docs2018/liaison-IEEE_1914-CategoryA+-1118.pdf
 - Response finalized as <http://www.ieee802.org/1/files/public/docs2019/liaison-response-1914-Category-A+-0319-v01.pdf>
- *CPRI TWG response to Liaison on the "Category A+" TAE Requirement*
http://www.ieee802.org/1/files/public/docs2018/liaison-CPRI_Category_Aplus_TAE_Requirement-1218.pdf
 - Response finalized as <http://www.ieee802.org/1/files/public/docs2019/liaison-response-CPRI-Category-Aplus-Requirement-0319-v01.pdf>
- *Commencement of IEEE P1914.3a Amendment*
<http://www.ieee802.org/1/files/public/docs2019/liaison-IEEE1914.3a-0219.pdf>

- No response.

Disposition: Incoming liaisons discussed and responses prepared for the closing plenary.

Paul Congdon presented *IETF LSVR WG Work on LSoE (Link neighbor, liveness and encapsulation discovery)* <http://www.ieee802.org/1/files/public/docs2019/liaison-IETF-LSVR-Link-State-over-Ethernet-0119.pdf>

- The TG suggested that IETF rename the protocol and participate in possible LLDP enhancement to meet IETF needs.
- Response finalized as <http://www.ieee802.org/1/files/public/docs2019/liaison-response-IETF-LSVR-Link-State-over-Ethernet-0319-v01.pdf>.

Disposition: Incoming liaison discussed and response prepared for the closing plenary.

The TG Chair presented the July 5, 2018 OPC Foundation *Liaison request and access to IEEE P802.1 Drafts* <http://www.ieee802.org/1/files/public/docs2018/liaison-OPCF-liaison-and-drafts-0718-v01.pdf> and the initial July 12, 2018 802.1 response in <http://www.ieee802.org/1/files/public/docs2018/liaison-response-OPCF-0718-v01.pdf>.

- Further response finalized as <http://www.ieee802.org/1/files/public/docs2019/liaison-response-OPCF-0319-v01.pdf>.

Disposition: Previous material discussed and further response prepared for the closing plenary.

Marc Holness presented *LS/r on Coordination of Ethernet information and data modelling work (reply to IEEE 802.1-LS44 & Broadband Forum-LS133)*

<http://www.ieee802.org/1/files/public/docs2019/liaison-SG15-LS176-data+info-model-0119.pdf>.

- Response finalized as <http://www.ieee802.org/1/files/public/docs2019/liaison-response-SG15-LS176-data+info-model-0319-v01.pdf>.

Disposition: Incoming liaison discussed and prepared response for closing Plenary.

The TG Chair reviewed draft motions for the closing plenary, finalized beginning slide 44 of <http://www.ieee802.org/1/files/public/minutes/2019-03-closing-plenary-slides-v7.pdf>.

Disposition: Material discussed and updated.

Geoff Garner, P802.1AS-REV editor, presented *P802.1AS-Rev/D8.0 Editor's Report Proposed Comment Resolution for Sponsor Ballot* <http://www.ieee802.org/1/files/public/docs2019/as-garner-802-1AS-Rev-d8-0-sponsor-ballot-editors-report-0319.pdf> and led the resolution of comments received on <http://www.ieee802.org/1/files/private/as-rev-drafts/d8/802-1AS-rev-d8-0.pdf>.

Disposition: Continued later in the session.

Christophe Mangin presented *AS-Rev pathTrace issue*

<http://www.ieee802.org/1/files/public/docs2019/as-mangin-sb-comment-258-support-0319-v02.pdf>.

Disposition: Material discussed. Related to comment #258 on P802.1AS-Rev/D8.0.

Rodney Cummings presented *synchronizationUncertain feature in IEEE P1588-rev (for IEEE P802.1AS-rev comment i-368)* <http://www.ieee802.org/1/files/public/docs2019/as-cummings-1588rev-sync-uncertain-0319-v1.pdf>.

Disposition: Material discussed. Related to comment #368 on P802.1AS-Rev/D8.0.

The TG Chair presented *802.1Qcp press release*

<http://www.ieee802.org/1/files/public/docs2019/liaison-SG15-LS176-data+info-model-0119.pdf>, finalized per slide 57 of <http://www.ieee802.org/1/files/public/minutes/2019-03-closing-plenary-slides-v7.pdf>.

Disposition: Material discussed and updated.

Tuesday March 12, 2019

10:30 AM (call to order by the TG Chair) to 6:00 PM, with a 1-hour lunch break

Roger Marks presented *Investigating the Multicast Usage Model for P802.1CQ*
<https://mentor.ieee.org/omniran/dcn/19/omniran-19-0009-01-CQ00.pptx>.

Disposition: The TG explained the need for multicast addressing and suggested a liaison be sent to IEEE 1722.

Geoff Garner, P802.1AS-REV editor, continued the resolution of comments received on
<http://www.ieee802.org/1/files/private/as-rev-drafts/d8/802-1AS-rev-d8-0.pdf>.

Disposition: Continued later in the session.

Marina Gutiérrez, P802.1Qcw editor, provided a verbal status update on P802.1Qcw.

Disposition: Material discussed. A new draft and a TG ballot are next.

Johannes Specht, P802.1Qcr editor, presented *ATS Current Work*

<http://www.ieee802.org/1/files/public/docs2019/cr-specht-currentwork-0319-v01.pdf>.

Disposition: Material discussed.

Stephan Kehrer presented *TSN Configuration Enhancements*

<http://www.ieee802.org/1/files/public/docs2019/new-kehrer-TSN-Configuration-Enhancements-0319-v01.pdf>, a proposed project.

Disposition: Material discussed.

The TG Chair and Kevin Stanton led the review of *802.11 EHT* [Enhancements for Extremely High Throughput] *Proposed PAR* [P802.11be] <https://mentor.ieee.org/802.11/dcn/18/11-18-1231-04-0eht-ehd-draft-proposed-par.docx>.

Disposition: Material discussed. PAR and CSD comments (per slides 12-14 in <https://mentor.ieee.org/802.11/dcn/19/11-19-0459-04-0eht-ehd-par-and-csd-comments.pptx>) were submitted.

Paul Congdon presented *Next steps for LLDPv2 proposals*

<http://www.ieee802.org/1/files/public/docs2019/new-congdon-LLDPv2-0319-v01.pdf>, an update on a proposed project.

Disposition: Material discussed.

Yoshihisa Kondo presented *Further consideration for enhanced mechanism for flexible factory*

<http://www.ieee802.org/1/files/public/docs2019/new-FFIoT-kondo-further-consideration-for-enhanced-mechanism-for-flexible-factory-0319-v01.pdf>, an update on a proposed project.

Disposition: Material discussed.

6:00 PM to 6:12 PM

The TSN TG and 802.24 had a joint meeting. János Farkas, TSN TG Chair, and Tim Godfrey, 802.24 Technical Advisory Group (TAG) Chair, presided. The TSN TG Secretary, Craig Gunther, wrote the minutes.

The TAG Chair presented *Utility Applications of Time Sensitive Networking White Paper (D3)*
<https://mentor.ieee.org/802.24/dcn/18/24-18-0022-03-sgtg-utility-applications-of-time-sensitive-networking-white-paper-d3.docx>, an update on an existing whitepaper project.

Disposition: Material discussed.

Wednesday March 13, 2019

8:00 AM (call to order by Ludwig Winkel) to 10:00 AM

Minutes of this meeting, a joint meeting of the TSN TG and IEC/IEEE 60802 Joint Project, are provided in section 8 below.

10:30 AM (call to order by the TG Chair) to 6:30 PM, with a 1-hour lunch break

Paul Unbehagen, P802.1Qcj editor, presented *802.1Qcj D0.4 Status*

<http://ieee802.org/1/files/public/docs2019/Qcj-unbehagen-tg-ballot-editors-report-0319-v00.pptx> and led the resolution of comments received on <http://ieee802.org/1/files/private/cj-drafts/d0/802-1Qcj-d0-4.pdf>.

Disposition: Disposition recorded in <http://ieee802.org/1/files/private/cj-drafts/d0/802-1Qcj-d0-4-pdis-v01.pdf>.

Norman Finn presented *Portal Associations in P802.1CS D2.1*

<http://ieee802.org/1/files/public/docs2019/cs-finn-portal-associations-0319-v2.pdf>, an overview of changes in state machines for draft 2.1.

Disposition: Material discussed.

Feng Chen presented potential draft text <http://www.ieee802.org/1/files/public/docs2019/dd-chen-draft-text-contribution-0319-v01.pdf> for P802.1Qdd Resource Allocation Protocol (RAP).

Disposition: Material discussed.

Paul Congdon presented *Draft Individual Contribution P802.1Qcz*

<http://www.ieee802.org/1/files/public/docs2019/cz-congdon-draft-contribution-0319-v01.pdf> and potential draft text <http://ieee802.org/1/files/public/docs2019/cz-congdon-draft-text-contribution-0319-v01.pdf> for P802.1Qcz Congestion Isolation.

Disposition: Material discussed.

Christophe Mangin presented *802.1CBdb draft text contribution*

<http://www.ieee802.org/1/files/public/docs2019/db-mangin-text-contribution-companion-0319-v01.pptx> and potential draft text <http://ieee802.org/1/files/public/docs2019/db-mangin-draft-text-contribution-0319-v03.pdf> for P802.1CBdb Extended Stream identification.

Disposition: Material discussed.

Geoff Garner, P802.1AS-REV editor, continued the resolution of comments received on <http://www.ieee802.org/1/files/private/as-rev-drafts/d8/802-1AS-rev-d8-0.pdf>.

Disposition: Continued later in the session.

Thursday March 14, 2019

8:00 AM (call to order by the TG Vice-Chair) to 12:30 PM

The Task Group Vice-Chair, Craig Gunther, presided.

The TG Vice-Chair presented the agenda in

<http://www.ieee802.org/1/files/public/docs2019/admin-TSN-agenda-0319-v03.pdf>

Michael Potts presented *Managing Automotive Accumulated Network Traffic Congestion Points – Use Case* <http://www.ieee802.org/1/files/public/docs2019/dg-potts-auto-network-accum>

[cong-use-case-0319-v01.pdf](#).

Disposition: Material discussed.

Michael Potts presented *Automotive Time Synchronization – Use Case*

<http://www.ieee802.org/1/files/public/docs2019/dg-potts-automotive-time-sync-use-case-0319-v01.pdf>.

Disposition: Material discussed.

Helge Zinner presented *Automotive Time Synchronization – Use Case*

<http://www.ieee802.org/1/files/public/docs2019/dg-zinner-automotive-architecture-evolution-0319-v02.pdf>.

Disposition: Material discussed.

Geoff Garner, P802.1AS-REV editor, continued the resolution of comments received on

<http://www.ieee802.org/1/files/private/as-rev-drafts/d8/802-1AS-rev-d8-0.pdf>.

Disposition: Disposition recorded in <http://www.ieee802.org/1/files/private/cx-drafts/d1/802-1Qcx-d1-0-pdis-v09.pdf>.

8 IEC/IEEE 60802 Joint Project

Ludwig Winkel, IEC MT9 Convenor and IEC/IEEE 60802 Joint Project Chair (60802 Chair), and János Farkas, IEEE 802.1 TSN Task Group Chair (TG Chair), presided. The IEC/IEEE 60802 Joint Project Secretary (60802 Secretary), Josef Dorr, wrote the minutes.

At the beginning of the meetings on each day:

- The IEEE-SA PatCom Patent Slides for Standards Development Meetings and the IEEE 802 Participation slide were presented (<http://standards.ieee.org/about/sasb/patcom/materials.html>).
- The Call for Potentially Essential Patents was made. There were no responses to the calls prior to the end of the week's session.
- The IEC MT9 Convenor reminded the IEC participants that patent rules similar to those of IEEE-SA apply in IEC, reminded all that patents required for use of the IEC/IEEE 60802 profile must be announced to IEC and IEEE and made available using the IEC licensing form, and reminded that presentations shall not have copyright marks or confidentiality information.
- The agenda and the expected results of the day were reviewed and approved. The final agenda is in <http://www.ieee802.org/1/files/public/docs2019/admin-60802-agenda-0319-v02.pdf> and also available at <https://1.ieee802.org/march-2019-plenary-meeting-in-vancouver-bc-canada-tsn-tg-agenda/>.

Draft minutes were reviewed at the end of the week's session under the lead of the 60802 Secretary.

Wednesday March 13, 2019

8:00 AM (call to order by the TG Chair and the 60802 Chair) to 10:00 AM

The TSN TG and IEC/IEEE 60802 Joint Project had a joint meeting.

The TG Chair and the 60802 Chair:

- Welcomed the participants of the IEC/IEEE 60802 Joint Project, a joint effort of the:
 - IEC 65C/MT9/PT 60802 (TSN) Project Team, led by Ludwig Winkel; and
 - IEEE 802.1 Time-Sensitive Networking Task Group, led by the TG Chair.

- Provided information about internet access, lunch, attendance log to the IEC/IEEE 60802 Joint Project.

The TG chair reminded that the deadline for text contributions associated with ballot comments is the end of the ballot period. The TG Chair noted that it is good practice to take a look at the proposed disposition and associated contributions prior to the meeting.

The 60802 Chair reported on Conformity Assessment activities. The 60802 Chair announced two IEC 65C/PT60802 Task Force (TF) meetings in Frankfurt/Main, Germany to prepare an IEC project: April 16-18, 2019, and May 7-9, 2019, per [802.1 - 13060] *Task Force Meetings IEC SC65C/PT60802 on TSN Conformance Testing according to IEC/IEEE 60802* <http://www.ieee802.org/1/private/email2/msg28171.html> and [Meeting announcement for task force meetings of the IEC.IEEE.60802](#) <https://collaborate.iec.ch/#/pages/workspaces/139201/documents/111335/details/395991>.

Stephan Kehrer gave a briefing on his proposal for a new project for *TSN Configuration Enhancements* <http://www.ieee802.org/1/files/public/docs2019/new-kehrer-TSN-Configuration-Enhancements-0319-v01.pdf> that he presented the day before in the TSN TG. [The scope that should be covered by a new project was discussed.](#) The TG Chair proposed to continue the discussion in teleconferences or offline until the next IEEE 802.1 interim session. The topic was to be resumed on Friday. There was to be a related motion at the IEEE 802.1 closing plenary.

Jordon Woods, 60802 editor, presented *Editor's Report 60802 Draft 1.0* <http://www.ieee802.org/1/files/public/docs2019/60802-woods-D10-update-0319-v01.pdf> on the TG ballot and IEC Committee Draft (CD) on <http://www.ieee802.org/1/files/private/60802-drafts/d1/60802-d1-0.pdf>. The 60802 Chair reminded that the IEC CD review of the draft was started on January 28, 2019 and was ongoing until March 22, 2019. The 60802 Chair copied the comments received in the TG ballot to the IEC collaboration tool indicating that the national committees should not provide comments that are already in the IEC collaboration tool. The 60802 Chair will provide the comments from the IEC CD review to the 60802 editor for incorporation into the comment database.

János Farkas presented <http://www.ieee802.org/1/files/public/docs2019/60802-farkas-d1-0-ballot-comment-support-steps-1-and-2-clean-0219-v01.pdf> supporting ballot comments #578 (regarding restructuring) and #579 (regarding conformance) to slightly restructure 60802/D1.0. **Disposition:** Further discussion is needed. The topic will be resumed.

The TSN TG and IEC/IEEE 60802 Joint Project met separately afterwards.

10:30 AM (call to order by the 60802 Chair) to 6:00 PM with a 1-hour lunch break

Graeme Wood presented a proposal to revise 60802 subclause 4.1 Control Loop Basic Model <http://www.ieee802.org/1/files/public/docs2019/60802-wood-d1-0-comments-clause-4-1-0119-v01.pdf>.

Disposition: The contribution will be integrated with modifications into the next 60802 draft.

Mark Hantel presented *A Sample Selection for an Industrial Profile of TSN (with contributions)* <http://www.ieee802.org/1/files/public/docs2019/60802-Hantel-SampleSelection-0319-v00.pdf>.

Disposition: Further discussion is needed.

Jordon Woods, 60802 editor, continued resolving comments received in the TG ballot on <http://www.ieee802.org/1/files/private/60802-drafts/d1/60802-d1-0.pdf>.

Disposition: Partial disposition recorded in <http://www.ieee802.org/1/files/private/60802->

drafts/d1/60802-d1-0-pdis-v03.pdf.

Thursday March 14, 2019

8:00 AM (call to order by the TG Chair and the 60802 Chair) to 1:30 PM with a 30-minute break

Jordon Woods, 60802 editor, continued resolving comments received in the TG ballot on <http://ieee802.org/1/files/private/60802-drafts/d1/60802-d1-0.pdf>.

Disposition: Partial disposition recorded in <http://ieee802.org/1/files/private/60802-drafts/d1/60802-d1-0-pdis-v03.pdf>.

Jordon Woods presented *Considerations for securing the Industrial Network* <http://ieee802.org/1/files/public/docs2019/60802-woods-SecurityConsiderations-0319-v01.pdf>.

Disposition: Further discussion is needed.

Jordon Woods, 60802 editor, continued resolving comments received in the TG ballot on <http://ieee802.org/1/files/private/60802-drafts/d1/60802-d1-0.pdf>.

Disposition: Partial disposition recorded in <http://ieee802.org/1/files/private/60802-drafts/d1/60802-d1-0-pdis-v03.pdf>.

Astrit Ademaj presented *Traffic Type Introduction* <http://www.ieee802.org/1/files/public/docs2019/60802-ademaj-traffic-type-introduction-0319-v03.pdf>

Disposition: Further discussion is needed.

Jordon Woods, 60802 editor, continued resolving comments received in the TG ballot on <http://ieee802.org/1/files/private/60802-drafts/d1/60802-d1-0.pdf>.

Disposition: Partial disposition recorded in <http://ieee802.org/1/files/private/60802-drafts/d1/60802-d1-0-pdis-v03.pdf>.

Friday March 15, 2019

8:00 AM (call to order by the TG Chair and the 60802 Chair) to 3:30 PM with a 90-minute lunch break

The TSN TG and IEC/IEEE 60802 Joint Project had a joint meeting.

The TG Chair and the 60802 Chair summarized the work performed so far in this session, and pointed out that future IEEE 802.1 sessions <https://1.ieee802.org/meetings/> and upcoming TSN TG conference calls <https://1.ieee802.org/tsn-calls/> are linked from the 60802 project page <https://1.ieee802.org/tsn/iec-ieee-60802/> and the IEC Collaborative Tool <https://collaborate.iec.ch/#/pages/workspaces/139201/documents/42125>.

Jordon Woods, 60802 editor, led a discussion on the structure of the 60802 conformance clause.

The 60802 Chair proposed to document the high-level principles for the essence of 60802 then give license to the editor to implement these principles in 60802 as he sees best fit. The IEC/IEEE 60802 Joint Project agreed to this approach.

Jordon Woods, 60802 editor, drafted the following high-level 60802 principles together with the IEC/IEEE 60802 Joint Project during the session:

1. The 60802 standard shall explicitly identify which parts (clauses, subclauses, figures, lists, tables, etc.) of the cited standards apply to this profile.
2. The features of any cited standard that are mandatory, optional, excluded, or not applicable shall be explicitly identified.
3. Additional constraints for features of any cited standard shall be identified.

The IEC/IEEE 60802 Joint Project agreed to these 60802 principles that were to be recorded in the resolution of comment #579 in <http://ieee802.org/1/files/private/60802-drafts/d1/60802-d1-0-pdis-v03.pdf>.

Graeme Wood and Mark Hantel presented <http://www.ieee802.org/1/files/public/docs2019/60802-Wood-clause411-0319-v04.docx> and <http://www.ieee802.org/1/files/public/docs2019/60802-Hantel-Ch4Contribution-0319-v02.docx>, respectively.

Disposition: The updated proposals will be integrated into the next 60802 draft.

Jordon Woods, 60802 editor, continued resolving comments received in the TG ballot on <http://ieee802.org/1/files/private/60802-drafts/d1/60802-d1-0.pdf>.

Disposition: Partial disposition recorded in <http://ieee802.org/1/files/private/60802-drafts/d1/60802-d1-0-pdis-v03.pdf>.

Future meetings/teleconferences

Agreed (informally, none dissenting) to hold biweekly teleconferences starting on Monday March 25, 2019.

The IEC/IEEE 60802 Joint Project meets next May 22-24 during the May 2019 IEEE 802.1 interim session in Salt Lake City, Utah, USA.

A.O.B.

No other business was discussed in this meeting.

9 Nendica

The IEEE 802 Network Enhancements for the Next Decade Industry Connections Activity (Nendica) Chair, Roger Marks, presided. Hao Wang wrote the minutes.

Additionally to the participants listed in section **Error! Reference source not found.** who registered in IMAT, the following individuals also participated:

- Randy Haagens, Microsoft Corporation [Wednesday AM]
- Jesus Escudero-Sahuquillo, University of Castilla-La Mancha (UCLM). [Wednesday AM remotely]

Tuesday March 12, 2019

19:30 (call to order by the Nendica Chair) to 21:16

A conference call bridge was setup for remote participants.

The Nendica Chair presented the IEEE-SA PatCom Guidelines for IEEE-SA Meetings <https://development.standards.ieee.org/myproject/Public/mytools/mob/preparslides.pdf>, the

IEEE 802 Participation slide <https://mentor.ieee.org/802-ec/dcn/16/ec-16-0180.pdf>, and *IEEE ICCOM requirements* <https://1.ieee802.org/802-nendica/ieee-iccom-requirements/>.

Agenda Approval

The Nendica Chair presented the agenda in <https://mentor.ieee.org/802.1/dcn/19/1-19-0024-00-ICne.pdf>.

Disposition: The agenda was reviewed, discussed and approved.

The Nendica Chair proposed to defer data center agenda items to the Nendica meeting on March 13, 2019.

Update

The Nendica Chair showed the update of the Nendica webpage <https://1.ieee802.org/802-nendica/>, the documents on the Mentor server to be discussed, and how to record attendance on IMAT.

The Nendica Chair presented *IEEE 802 “Network Enhancements for the Next Decade” Industry Connections Activity (Nendica): Status Report* <https://mentor.ieee.org/802.1/dcn/19/1-19-0023-00-ICne-nendica-meeting-overview-2019-03.pptx>.

Review of Minutes

The Nendica Chair presented draft minutes of the Nendica conference call held February 28, 2019 <https://mentor.ieee.org/802.1/dcn/19/1-19-0021-00-ICne-minutes-of-nendica-meeting-of-2019-02-28.docx>.

Disposition: No comments were raised. Without objection, these minutes were approved.

ICAID Renewal

The Nendica Chair presented the ICCOM Nendica Status Report in <https://mentor.ieee.org/802.1/dcn/19/1-19-0015-01-ICne-iccom-nendica-status-report-draft.pptx>, the 2018 Annual Nendica Report in <https://mentor.ieee.org/802.1/dcn/18/1-18-0078-02-ICne.ppt> and the updated *IEEE 802 Network Enhancements for the Next Decade Industry Connections Activity (Nendica) Initiation Document (ICAID)* <https://mentor.ieee.org/802.1/dcn/18/1-18-0079-02-ICne-icaid-extension-and-revision-proposed-draft.docx>.

Disposition: No comments were raised. The following motion was presented:

- **Motion:**
 - To agree to forward ICAID renewal draft accompanied by 2018 Annual Nendica Report and ICCOM Nendica Status Report as background information.
 - Moved by Paul Congdon, seconded by Nader Zein
 - Yes: 18, No: 0, Abstain: 0
 - Motion passed

FFIoT

Nader Zein presented *FFIoT Status Report – IEEE 802 Nendica* <https://mentor.ieee.org/802.1/dcn/19/1-19-0022-01-ICne-ffiot-status-report-ieee-802-nendica-march-2019.pptx> and summarized *Flexible Factory IoT: Use Cases and Communication Requirements for Wired and Wireless Bridged Networks* <https://mentor.ieee.org/802.1/dcn/18/1-18-0025-07-ICne-pre-draft-wired-wireless-use-cases->

[and-communication-requirements-for-flexible-factories-iot-bridged-network.pdf](#).

- The group discussed the date for the ballot on this draft. The Chair preferred to delay ballot opening until after Nendica's expected renewal on March 21, 2019.

Disposition: The following motion was presented.

- **Motion:**
 - To accept the Flexible Factory IoT report titled "Flexible Factory IoT: Use Cases and Communication Requirements for Wired and Wireless Bridged Networks" draft 802. 1-18-0025-07-ICne as the new "Nendica Draft Report" and initiate a 21-days Call for Comments starting March 21, 2019.
 - Moved by Nader Zein, seconded by Hao Wang
 - Yes: 18, No: 0, Abstain: 0
 - Motion passed

The Nendica Chair offered to prepare the call for comments on the Nendica webpage.

802.21 Study Group topic

Dong-II Dillon Seo presented *Why you should care about VR network requirements* <https://mentor.ieee.org/802.21/dcn/19/21-19-0022-01-0000-why-you-should-care-about-the-vr-network-requirements.pptx>.

- The group discussed the throughput and QoS requirements for the network in the proposed Virtual Reality (VR) use cases.
- The group discussed standardization issues and sought to clarify the goals of the Study Group mentioned in the presentation.
 - This Study Group is clarifying requirements for the network and is not authorized to develop a project at this stage.
 - A participant pointed out the past efforts of the 802.1 AVB and TSN TGs, suggesting an investigation of how well current 802 technologies meet the VR use cases.

Disposition: Further information is needed.

Future meetings/teleconferences

Agreed (informally, none dissenting) to hold a teleconference at 9:00 AM ET on April 18, 2019, and at 9:00 AM ET on May 7, 2019.

Nendica meets next during the May 2019 IEEE 802 wireless interim session in Atlanta, GA, USA, and during the May 2019 IEEE 802.1 interim session in Salt Lake City, UT, USA.

Wednesday March 13, 2019

08:00 AM (call to order by the Nendica Chair) to 10:15 AM

A conference call bridge was setup for remote participants.

Lossless Data Center Networks (LLDCN)

Jesus Escudero-Sahuquillo presented *Congestion Management for Ethernet-based Lossless DataCenter Networks* <https://mentor.ieee.org/802.1/dcn/19/1-19-0020-00-ICne-presentation-on-congestion-management-for-ethernet-based-lossless-datacenter-networks.pdf>.

- More technical details can be found in *Congestion Management for Ethernet-based Lossless DataCenter Networks* <https://mentor.ieee.org/802.1/dcn/19/1-19-0012-00-ICne-congestion-management-for-ethernet-based-lossless-datacenter-networks.pdf>
- The group discussed the implementation of the idea and how it might be documented in

a specification.

Disposition: The presenter is encouraged to come back with new information in future meetings.

Future meetings/teleconferences

Agreed (informally, none dissenting) to hold an additional teleconference at 8:00 AM PT on April 10, 2019.

A.O.B.

No other business was discussed in this meeting.

10 YANGsters

The YANGsters acting Chair, Stephan Kehrer, presided and wrote the minutes.

Additionally to the participants listed in section **Error! Reference source not found.** who registered in IMAT, the following individuals also participated:

- Mick Seaman, Independent
- Jodi Haasz, IEEE Standards Staff Liaison for 802.1

Tuesday March 13, 2019

6:10 PM (call to order by the YANGsters Chair) to 7:25 PM

The YANGsters acting Chair presented the IEEE-SA PatCom Patent Slides for Standards Development Meetings <https://development.standards.ieee.org/myproject/Public/mytools/mob/slideset.pdf>, the IEEE 802 Participation slide <https://mentor.ieee.org/802-ec/dcn/17/ec-17-0093-05-0PNP-ieee-802-participation-slide-ppt.ppt>, and made the “Call for Potentially Essential Patents”. There were no responses to the call prior to the end of the week’s meeting.

The YANGsters acting Chair presented the agenda in <http://www.ieee802.org/1/files/public/docs2019/yangsters-smansfield-vancouver-agenda-v02.pdf>.

Disposition: The agenda was reviewed, discussed and approved.

The YANGsters acting Chair led the *Management Address Grouping (.1Qcx) Comment discussion*.

- The latest version of the solution is not the one reflected in the minutes of the YANGsters teleconference held in February 2019.
- The latest CFM YANG data model incorporates needed changes.

Disposition: The current proposal was discussed pre-meeting and presented at the meeting. The YANG snippets for the most up-to-date solution are in *Management Address Grouping (.1Qcx) suggested solution* <http://www.ieee802.org/1/files/public/docs2019/yangsters-kehrer-management-address-grouping-0319-v01.pdf> and also on GitHub at <https://github.com/YangModels/yang/blob/master/standard/ieee/draft/802.1/ieee802-dot1q-cfm.yang>.

The YANGsters acting Chair summarized information about the *IETF Module on Ether[T]ypes*.

Disposition: Deferred to a future YANGsters teleconference or meeting.

The YANGsters acting Chair summarized information about, then led a discussion on the *IEEE Website for YANG modules* and on *YANG Catalog Issues*. Questions were raised during discussion.

- Should YANG modules be provided as files on the IEEE 802.1 website (<https://1.ieee802.org/>) or should they only be linked on GitHub (<https://github.com/YangModels/yang/tree/master/standard/ieee/published/802.1>)?
 - The “published” folder on GitHub is more useful for developers.
 - The copy on the IEEE server is needed to have a source that is directly under IEEE control.
- Is it intended to keep all the published versions of the models on the IEEE website (and on GitHub)? If so, how can the different versions be identified?
 - Concerns were raised that adding the date to the filename is redundant information that could introduce additional errors/mismatches. Should this approach be taken? This approach might be necessary for putting the YANG modules on the IEEE website.

Disposition: More discussion needed. An overview figure of how all the bits and pieces fit together (i.e. GitHub, IEEE website, published IEEE document...) will be produced to facilitate the discussion and help decide. YANGsters need to clarify the process before they can define how to name files, how to keep them on the IEEE website and GitHub, etc.: this is a topic to be discussed on future YANGsters teleconference or meeting, the result of which should result in a process description.

The YANGsters acting Chair summarized information about, then led a discussion on the *IEEE Open Source Initiative*.

Disposition: More detailed information on the current situation is planned to be provided in the YANGsters monthly teleconference in April 2019.

Future meetings/teleconferences

Agreed (informally, none dissenting) to put forward a motion in the closing plenary session to authorize YANGsters to hold monthly teleconferences on the last Tuesday of every month, starting Tuesday March 26, 2019 and ending Tuesday June 25, 2019.

A.O.B.

No other business was discussed in this meeting.

11 Closing Plenary Meeting

Thursday March 14, 2019

1:43 AM (call to order by the acting Chair) to 6:30 PM

The Vice-Chair, John Messenger, presided as acting Chair.
The Recording Secretary, Jessy Rouyer, wrote the minutes.

The acting Chair presented the *Closing Agenda* slides finalized as <http://www.ieee802.org/1/files/public/minutes/2019-03-closing-plenary-slides-v7.pdf>.

During this presentation, the acting Chair:

- Introduced the agenda on slide 2, which was approved.
- Showed slides 3 through 7 (reproducing slides 0 through 4 of the IEEE-SA PatCom Patent Slides for Standards Development Meetings, separately available at

<http://standards.ieee.org/about/sasb/patcom/materials.html>):

The acting Chair:

- Presented information on these slides including:
 - Instructions for the WG Chair (and TG Chairs);
 - Participants' duty to inform the IEEE;
 - Ways to inform IEEE;
 - Other guidelines for IEEE WG meetings; and
 - Patent-related information.
- Made the "Call for Potentially Essential Patents" thereby providing an opportunity for participants to identify patent claim(s)/patent application claim(s) and/or the holder of patent claim(s)/patent application claim(s) of which the participant is personally aware and that may be essential for the use of that standard.
 - There were no responses to the call.
- Reviewed meeting "Decorum" or rules, including the policies on public reporting, and on photography or recording (slide 8);
 - The acting Chair called for any members of the press (i.e., anyone reporting publicly on this meeting) to announce their presence.
 - There were no responses to the call.
- Showed the list of 802.1 Officers (slide 9) that remained unchanged from the opening plenary meeting except for mention of Craig Gunther's appointment as TSN TG Vice-Chair.
- Reviewed the list of 802.1 voters (slide 10), including information about individuals who gained (slide 11), may gain (slides 12 and 13), may lose (slide 14), will lose (slide 15) 802.1 voting membership. The acting Chair reminded individual participants of their obligations and of 802.11 reciprocal credit, which was continued at this meeting (slide 16).
- Reviewed the schedule for future 802.1 interim sessions (slide 16), which remained unchanged from the opening plenary meeting, except for the following additions:
 - Dates of the May 2020 interim session: 18-22.
 - John d'Ambrosia presented *Interim Meeting hosted by Ethernet Alliance Salt Lake City, Utah, USA, May 20-24, 2019*
<http://www.ieee802.org/1/files/public/docs2019/admin-EA-may-2019-interim-0219-v01.pdf>.
 - Dates of the September 2019 interim session: 16-20.
 - John Messenger presented *Welcome to Edinburgh September 2019 IEEE 802.1 Meeting 16th– 20th September 2019*
<http://ieee802.org/1/files/public/docs2019/admin-messenger-sept-2019-interim-0319-v01.pdf>.
 - September 23, 2019 TSN TG interim session
 - Proposal: TSN interim meeting for 802.1DG hosted by GM in Detroit, prior to IEEE [Ethernet/IP Automotive Tech Day](#)
 - Proposal for the Jan 20-24, 2020 interim session: *January 2020 Joint Interim Meeting Proposal IEEE 802.1 and 802.3* <http://www.ieee802.org/1/files/public/docs2019/admin-ITU-jan-2020-interim-0319-v02.pdf>
 - The acting Chair presented slides 18-20 summarizing the proposal.
- Conducted straw polls about this plenary session (slide 21):
 - Do you like this venue?
 - Yes: 56 No: 2
 - Did you like the social?
 - Yes: 54 No: 0
 - Did you go to the social?
 - Yes: 58 No: 6
- Reviewed the schedule for future 802.1 plenary sessions (slide 22), which remained unchanged from the opening plenary meeting.

- Introduced promotional activities (slide 23) with upcoming relevant events including:
 - ISPCS, September 22-27, 2019 in Portland, Oregon, USA
 - Bob Noseworthy presented *2019 International IEEE Symposium on Precision Clock Synchronization for Measurement, Control, and Communication; An opportunity for participation from the IEEE 802.1 Working Group*
<http://www.ieee802.org/1/files/public/docs2019/admin-noseworthy-ISPCS2019-0319-v01.pdf>.
 - IEEE-SA Ethernet & IP Automotive Technology Day: September 24-25, 2019 in Detroit, MI, USA
 - Jim Lawlis gave an oral introduction.
 - TSN/A Conference 2019, October 8-9, 2019 in Bad Homburg, Germany
 - Kevin Stanton presented *5th Annual Time Sensitive Networks / and Applications Conference (TSN/A)* <http://www.ieee802.org/1/files/public/docs2019/admin-stanton-TSNA2019-0319-v01.pdf>.
- Reviewed the WG's current workload (slide 24).
- Showed the 802.1 plenary schedule/agenda for this session (slide 25).
- Introduced information about the reports on 802 Standing Committees (SCs) and on the 802 Task Force (TF, slide 26):
 - The acting Chair reported on the IETF SC that did not meet.
 - The acting Chair reported on the [JTC1 SC](#).
 - The acting Chair reported on the ITU SC. that did not meet.
- Reported on the following 802 TF topics (slide 27):
 - The 802 Task Force meetings will become teleconferences with a follow-up at SASB meetings
 - Initial call will be 28 May 2019 11am-noon ET
 - IEEE SA tools update will be given at SASB next week
 - Web conferencing: do we want to switch to WebEx?
 - Bulk FrameMaker licensing will be investigated by IEEE
- Requested that the sub group Chairs provide reports on the activities of their sub groups (slide 29; see individual sub group minutes above for details):
 - The Maintenance TG Chair, Paul Congdon, presented the report on slides 30-33.
 - The Nendica Chair, Roger Marks, presented the report on slide 34.
 - The OmniRAN TG Chair, Max Riegel, presented the report on slides 35-37.
 - The Security TG Chair, Mick Seaman, presented the report on slide 38.
 - The TSN TG Chair, János Farkas, presented the report on slide 39.
 - The YANGsters acting Chair, Stephan Kehrer, presented the report on slide 40.

The meeting recessed at 3:15 PM and reconvened at 3:50 PM.

The acting Chair:

- Resumed presentation of the *Closing Agenda* slides finalized as <http://www.ieee802.org/1/files/public/minutes/2019-03-closing-plenary-slides-v7.pdf> at slide 41, asking for brief presentations of draft outgoing liaisons (slide 43), some of which were in response to the incoming liaisons of slide 42.
 - Review of the P802.1DG eBlast (IEEE SA promotion activity) was deferred.
 - The TSN TG Chair and the acting Chair presented the draft 802.1Qcp YANG Data Model press release finalized as <http://www.ieee802.org/1/files/public/docs2019/cp-draft-press-release-0319-v01.pdf>.
 - The TSN TG Chair presented the draft liaison response to ITU-T SG15 on LS176 finalized as <http://www.ieee802.org/1/files/public/docs2019/liaison-response-SG15-LS176-data+info-model-0319-v01.pdf>.
 - The OmniRAN TG Chair presented the draft liaison to ITU-T JCA IMT2020 on IMT2020 Roadmap <https://mentor.ieee.org/omniran/dcn/19/omniran-19-0018-01-00TG-802-1->

- [liaison-to-ieee-1722.docx](#). Modifications were required that will be addressed by the IEEE Standards Staff Liaison for 802.1, Jodi Haasz.
- The Maintenance TG Chair presented draft PSDO Comment Responses on 802c-2017 finalized as <http://www.ieee802.org/1/files/public/docs2019/maint-randall-SC6CommentResponse802c-v03.pdf>.
 - The acting Chair noted that “ODVA: Liaise P802.1AS-Rev latest draft (EC II)” need not be presented as it is appropriately watermarked for liaison without a liaison letter.
 - The TSN TG Chair presented the draft liaison to IEEE 1914 on Category A+ finalized as <http://www.ieee802.org/1/files/public/docs2019/liaison-response-1914-Category-A+-0319-v01.pdf> and the draft liaison to CPRI Cooperation on Category A+ finalized as <http://www.ieee802.org/1/files/public/docs2019/liaison-response-CPRI-Category-Aplus-Requirement-0319-v01.pdf>.
 - Paul Congdon presented the draft liaison to IETF LSVR WG on Link State over Ethernet LSVR liaison finalized as <http://www.ieee802.org/1/files/public/docs2019/liaison-response-IETF-LSVR-Link-State-over-Ethernet-0319-v01.pdf>.
 - The TSN TG Chair presented the draft liaison response to OPC Foundation finalized as <http://www.ieee802.org/1/files/public/docs2019/liaison-response-OPCF-0319-v01.pdf>.
 - The OmniRAN TG Chair presented the draft liaison to IEEE 1722 on MAAP finalized as <https://mentor.ieee.org/omniran/dcn/19/omniran-19-0018-01-00TG-802-1-liaison-to-ieee-1722.docx>.
 - It was clarified that liaised drafts have to be copied to the IEEE Standards Staff Liaison for 802.1 and to stds-copyright@ieee.org.
 - Conducted votes on the following motions (slides 44-104) that all passed. (Supporting information is available in *Closing Agenda* slides finalized as <http://www.ieee802.org/1/files/public/minutes/2019-03-closing-plenary-slides-v7.pdf>.)
 - EC consent agenda motions: PARs/ICAIDs to NesCom/ICCom (Motion, External – ME)
 - Motion
 - Approve forwarding P802.1AE-2018/Cor 1 PAR documentation in <http://www.ieee802.org/1/files/public/docs2019/ae-cor1-draft-par-0319-v00.pdf> to Nescom [Corrigendum PAR, no CSD]
 - In the WG, Proposed: Seaman Second: Congdon
 - PAR (y/n/a): 43, 0, 0
 - In LMSC, mover: John Messenger Second: David Law
 - (y/n/a): <y>, <n>, <a>
 - Motion
 - Approve forwarding IEEE 802 Nendica ICAID documentation in IEEE 802.1-18-0079-02 <https://mentor.ieee.org/802.1/dcn/18/1-18-0079-02-ICne.docx> to ICCom
 - In the Working Group, Moved: Marks, Second: Congdon
 - Y: 43, N: 0, A: 1
 - In LMSC: Moved: Messenger, Second: Marks
 - Y: ??, N: ?, A: ?
 - EC consent agenda motions: Drafts to Sponsor Ballot
 - Motion
 - Conditionally approve sending P802.1AX-Rev D2.0 to Sponsor Ballot
 - Note: there are no CSD for this maintenance project
 - P802.1AX-Rev D1.0 had 90% approval at the end of the last WG ballot
 - In the WG, Proposed: János Farkas Second: Jessy Rouyer
 - Sending draft (y/n/a): 44,0,0
 - In EC, Mover: John Messenger Second: David Law

- (y/n/a): <y>,<n>,<a>
- EC consent agenda motions: Drafts to RevCom
 - None
- EC consent agenda motions: External communications (Motion, External – ME)
 - Motion
 - Approve the press release on IEEE Std 802.1Qcp in <http://www.ieee802.org/1/files/public/docs2019/cp-draft-press-release-0319-v01.pdf>, to be released with editorial changes as deemed necessary
 - In the WG (y/n/a): 41, 0, 1
 - Proposed: Janos Farkas Second: Jessy Rouyer
 - In EC, mover: John Messenger Second: David Law
 - (y/n/a): <y>,<n>,<a>
 - Motion
 - Approve liaison of the following response (to LS 176) to ITU-T SG15
 - <http://www.ieee802.org/1/files/public/docs2019/liaison-response-SG15-LS176-data+info-model-0319-v01.pdf>
 - Granting the IEEE 802.1 WG chair (or his delegate) editorial license.
 - This approval is under LMSC OM “Procedure for public statements to government bodies”
 - In the WG (y/n/a): 41, 0, 0
 - Proposed: Janos Farkas Second: Jessy Rouyer
 - In EC, mover: John Messenger, Second: David Law
 - (y/n/a): <y>,<n>,<a>
 - Motion
 - Approve liaison of the following comment responses to ISO/IEC JTC1/SC6 under the PSDO agreement:
 - CN.1 on IEEE 802c-2017 (ISO/IEC/IEEE FDIS 8802- A:2015/FDAmd 2)
 - <http://www.ieee802.org/1/files/public/docs2019/maint-randall-SC6CommentResponse802c-v03.pdf>
 - In the WG, Proposed: Paul Congdon Second: Mick Seaman
 - (y/n/a): 42, 0, 0
 - In EC, mover: John Messenger Second: David Law
 - (y/n/a): <y>,<n>,<a>
- EC consent agenda motions: Information Items (II)
 - Motion
 - Approve liaison of the following response to IEEE 1914
 - <http://www.ieee802.org/1/files/public/docs2019/liaison-response-1914-Category-A+-0319-v01.pdf>
 - In the WG (y/n/a): 41, 0, 2
 - Proposed: János Farkas Second: Jessy Rouyer
 - In EC, for information
 - Motion
 - Approve liaison of the following response to CPRI Cooperation
 - <http://www.ieee802.org/1/files/public/docs2019/liaison-response-CPRI-Category-Aplus-Requirement-0319-v01.pdf>
 - In the WG (y/n/a): 39, 0, 1
 - Proposed: János Farkas Second: Jessy Rouyer
 - In EC, for information
 - Motion
 - Approve liaison of the following response to the IETF LSVR WG
 - <http://www.ieee802.org/1/files/public/docs2019/liaison-response-IETF-LSVR-Link-State-over-Ethernet-0319-v01.pdf>

- In the WG (y/n/a): 39, 0, 2
 - Proposed: Paul Congdon Second: Mick Seaman
- In EC, for information
- Motion
 - Approve liaison of the following response to OPC Foundation
 - <http://www.ieee802.org/1/files/public/docs2019/liaison-response-OPCF-0319-v01.pdf>
 - In the WG (y/n/a): 43, 0, 0
 - Proposed: János Farkas
 - Second: Ludwig Winkel
 - In EC, for information
- EC regular motions: External communications (Motion, External – ME)
 - Motion
 - Approve liaison of the following comment responses to ISO/IEC JTC1/SC6 under the PSDO agreement:
 - CN.1 on IEEE 802.1Q-2018 (revision to ISO/IEC/IEEE 8802-1Q:2016)
 - <http://www.ieee802.org/1/files/public/docs2019/maint-randall-SC6Ballotresponse1Q2018-0319-v01.pdf>
 - In the WG, Proposed: Mick Seaman Second: Paul Congdon
 - (y/n/a): 41, 0, 0
 - In EC, mover: John Messenger Second: David Law
 - (y/n/a): <y>,<n>,<a>
- EC regular motions: Information Items (II)
 - Motion
 - Approve sending the following liaison to IEEE 1722
 - <https://mentor.ieee.org/omniran/dcn/19/omniran-19-0018-01-00TG-802-1-liaison-to-ieee-1722.docx>
 - Granting the IEEE 802.1 WG chair (or his delegate) editorial license.
 - In the WG (y/n/a): 40, 0, 0
 - Proposed: Max Riegel Second: Roger Marks
 - In EC, for information
 - Motion
 - Liaise the latest revision of the P802.1AS-Rev draft specification to ODVA SIG for Distributed Motion and Time Synchronization.
 - Proposed: Jordon Woods
 - Second: Mark Hantel
 - In the WG (y/n/a): 37, 0, 0
 - In the LMSC: for information
- WG motions
 - Motion
 - 802.1 approves the November 2018 (Plenary) and January 2019 (Interim) minutes:
 - <http://ieee802.org/1/files/public/minutes/2018-11-minutes-v2.pdf>
 - <http://ieee802.org/1/files/public/minutes/2019-01-minutes-v2.pdf>
 - Proposed: Jessy Rouyer Seconded: János Farkas
 - Approved by Acclamation
 - Motion
 - 802.1 approves to hold an 802.1 interim session January 20-24, 2020 in Geneva, Switzerland hosted by International Telecommunication Union (ITU), Nokia and IEEE 802.3
 - Proposal in <http://ieee802.org/1/files/public/docs2019/admin-ITU-jan-2020-interim-0319-v02.pdf>

- 802.1 approves participation in a Joint Workshop with ITU-T SG15 and 802.3 at ITU-T Headquarters, hosted by ITU, Nokia and IEEE 802.3 in Geneva, Switzerland on January 25, 2020
 - Proposed: Jessy Rouyer Seconded: János Farkas
- Y: 39 N: 0 A: 1
- Maintenance TG motions
 - Motion
 - 802.1 authorizes the Maintenance TG to hold teleconferences on May 14, 2019 and July 9, 2019 at 11:00 AM EST if necessary. Access information will be posted to the 802.1 reflector in advance.
 - Proposed: Paul Congdon
 - Second: Craig Gunther
 - Approved by acclamation
- OmniRAN TG motions
 - Motion
 - Approve OmniRAN TG conference calls:
 - Apr 5, 2019, 09:00 AM ET 1.5hr
 - Apr 26, 2019, 09:00 AM ET 1.5hr
 - Further conference calls until the July 2019 plenary with at least 14 days prior notice to the 802.1 mailing list.
 - Agenda proposal and call-in details will be announced at least 14 days prior to the call on the 802.1 mailing list and made available on <http://1.ieee802.org/omniran/>
 - Moved: Max Riegel, Second: Hao Wang
 - Result: Approved by acclamation
- Security TG motions
 - Motion
 - 802.1 authorizes the Security Task Group to hold teleconferences to progress P802E, P802.1X-Rev, PAR development for 802.1AE privacy enhancements, and task group matters arising:
 - Dates/times to be announced subject to notice of at least 10 days to the 802.1 email exploder
 - Proposed: Congdon Second: McIntosh
 - Approved by acclamation
 - Motion
 - 802.1 authorizes the May 2019 Interim to generate a PAR and CSD for an amendment to IEEE Std 802.1AE specifying Privacy enhancements for use with MACsec.
 - Proposed: Congdon Second: McIntosh
 - For: 40 Against: 0 Abstain: 1
 - Motion
 - 802.1 authorizes the editor of P802E (Recommended Practice for Privacy Considerations for IEEE 802 Technologies), Jerome Henry, to produce drafts for and conduct Working Group balloting.
 - Proposed: Congdon Second: McIntosh
 - For: 40 Against: 0 Abstain: 1
- TSN TG motions
 - Motion
 - 802.1 authorizes the TSN Task Group to hold an Interim meeting in Vienna on July 19, 2019 (i.e., the Friday after the IEEE 802 Plenary session) together with IEC 65C/MT9 to progress the IEC/IEEE 60802 Joint Project.
 - Proposed: János Farkas

- Second: Ludwig Winkel
- In the WG (y/n/a): 41, 0, 1
- Motion
 - 802.1 authorizes Paul Unbehagen, the editor of P802.1Qcj Automatic Attachment to Provider Backbone Bridging (PBB) Services, to prepare drafts for and conduct Working Group balloting.
 - Proposed: Paul Unbehagen
 - Second: János Farkas
 - In the WG (y/n/a): 42, 0, 0
- Motion
 - 802.1 authorizes Paul Congdon, the editor of P802.1Qcz Bridges and Bridged Networks Amendment: Congestion Isolation, to prepare drafts for and conduct Task Group balloting.
 - Proposed: János Farkas
 - Second: Rodney Cummings
 - In the WG (y/n/a): 40, 0, 1
- Motion
 - 802.1 authorizes Christophe Mangin, the editor of P802.1CBdb Frame Replication and Elimination for Reliability Amendment: Extended Stream Identification Functions, to prepare drafts for and conduct Task Group balloting.
 - Proposed: János Farkas
 - Second: Craig Gunther
 - In the WG (y/n/a): 40, 0, 0
- Motion
 - 802.1 authorizes Feng Chen, the editor of P802.1Qdd Bridges and Bridged Networks Amendment: Resource Allocation Protocol, to prepare drafts for and conduct Task Group balloting.
 - Proposed: János Farkas
 - Second: Ludwig Winkel
 - In the WG (y/n/a): 42, 0, 0
- Motion
 - 802.1 authorizes János Farkas, the editor of P802.1CMde Time-Sensitive Networking for Fronthaul Amendment: Enhancements to Fronthaul Profiles to Support New Fronthaul Interface, Synchronization, and Syntonization Standards, to prepare drafts for and conduct Task Group balloting.
 - Proposed: Jessy Rouyer
 - Second: Tero Mustala
 - In the WG (y/n/a): 42, 0, 1
- Motion
 - 802.1 authorizes Craig Gunther, the editor of P802.1DG Time-Sensitive Networking Profile for Automotive In-Vehicle Ethernet Communications, to prepare drafts for and conduct Task Group balloting.
 - Proposed: János Farkas
 - Second: Mike Potts
 - In the WG (y/n/a): 43, 0, 0
- Motion
 - 802.1 authorizes the May 2019 Interim to generate PAR and CSD for pre-circulation to the EC for an amendment to IEEE Std 802.1AB to specify LLDPv2.
 - Proposed: Paul Congdon
 - Second: Mark Hantel

- In the WG (y/n/a): 42, 0, 0
- Motion
 - 802.1 authorizes the May 2019 Interim to generate PAR and CSD for pre-circulation to the EC for an amendment to IEEE 802.1Q to specify TSN Configuration Enhancements.
 - Proposed: Stephan Kehrer
 - Second: János Farkas
 - In the WG (y/n/a): 37, 0, 1
- Motion
 - 802.1 authorizes the TSN Task Group to hold pre-meeting on the Monday morning of the July 2019 Plenary session.
 - Proposed: János Farkas
 - Second: Craig Gunther
 - In the WG (y/n/a): 40, 0, 0
- Motion
 - 802.1 authorizes the TSN Task Group to hold an Interim meeting on September 23, 2019, to progress the IEEE P802.1 DG Project. The meeting is hosted by General Motors.
 - No registration fee
 - Location: General Motors VEC-East, 30400 Van Dyke, Warren, MI 48093, USA
 - Proposed: Michael Potts
 - Second: Craig Gunther
 - In the WG (y/n/a): 40, 0, 0
- Motion
 - 802.1 authorizes the TSN Task Group to hold teleconferences weekly on Mondays from 11:00 AM (US- Eastern) to 1:00 PM (US-Eastern).
 - Access information is posted on the <http://www.ieee802.org/1/tsn> page and will be updated as necessary.
 - Agenda will be announced on the 802.1 email reflector at least 5 days before the call.
 - Proposed: János Farkas
 - Second: Craig Gunther
- Motion
 - 802.1 authorizes the TSN Task Group to hold bi-weekly teleconferences together with IEC 65C/MT9 to progress the IEC/IEEE 60802 Joint Project on Mondays from 9:00 AM (US-Eastern) to 11:00 AM (US-Eastern), starting on March 25, 2019.
 - Access information is posted on the <http://www.ieee802.org/1/tsn> page and will be updated as necessary.
 - Agenda will be announced on the 802.1 email reflector at least 5 days before the call.
 - Proposed: János Farkas
 - Second: Ludwig Winkel
 - Approved by acclamation.
- Motion
 - 802.1 authorizes the TSN Task Group to hold bi-weekly teleconferences to progress the P802.1DG project on Tuesdays from 9:00 AM (US-Eastern) to 10:00 AM (US- Eastern) starting on April 2, 2019.
 - Access information is posted on the <http://www.ieee802.org/1/tsn> page and will be updated as necessary.

- Agenda will be announced on the 802.1 email reflector at least 5 days before the call.
- Proposed: Michael Potts
- Second: Craig Gunther
- Approved by acclamation.
- YANGsters motion
 - Motion
 - 802.1 authorizes monthly teleconferences for the YANGsters group convening on the last Tuesday of every month from
 - 10:00 AM (US-Eastern) to 11:00 AM (US-Eastern), starting on March 26, 2019.
 - Access information is posted on the
 - <https://1.ieee802.org/yangsters/yangsters-call-information/>
 - page and will be updated as necessary.
 - Agenda will be announced on the 802.1 email reflector at least 5 days before the call.
 - Proposed: János Farkas
 - Second: Stephan Kehrer
 - Approved by acclamation.
- Nendica motion
 - Motion
 - 802.1 Authorizes Nendica to meet in person on May 14, 2019 in Atlanta (at the Wireless interim meeting) and to hold teleconferences on April 10, 2019 (11:00 AM ET), April 18, 2019 (09:00 AM ET), and May 07, 2019 (09:00 AM ET), with additional teleconferences to be announced at least 10 days in advance.
 - Access information is posted on the <https://1.ieee802.org/802-nendica> page.
 - Agenda will be provided at least 5 days before the call.
 - Proposed: Zein Second: Marks
 - For_40_Against_0Abstain_0_
- EC regular motions: External communications (Motion, External – ME)
 - Motion
 - Approve the eblast on the P802.1DG project in <http://www.ieee802.org/1/files/public/docs2019/dg-draft-cfp-0319-v01.pdf>, to be released with editorial changes as deemed necessary
 - In the WG (y/n/a): 27, 0, 0
 - Proposed: János Farkas Second: Craig Gunther
 - In EC, mover: John Messenger Second: David Law
 - (y/n/a): <y>,<n>,<a>
- Motions – Any others?
 - Motion
 - Liaise the latest revision of the P802.1AS-Rev draft specification to IEEE 1588 WG.
 - Proposed: Rodney Cummings
 - Second: Don Pannell
 - In the WG (y/n/a): 24, 0, 0
 - In the LMSC: for information
 - Motion
 - Approve liaison of the following drafts to ISO/IEC JTC1/SC6 for information under the PSDO agreement at sponsor ballot time:
 - P802.1AX-Rev
 - Proposed: Jessy Rouyer

- Second: Janos Farkas
- In the WG (y/n/a): 19, 0, 0
- In the LMSC: for information

12 Next Session

May 20-24, 2019, Salt Lake City, UT, USA