# IEEE 802.1 Interim Meeting
Los Angeles, CA, US
# 802.1 Meeting Minutes – 21-24 January 2014

## Attendees

| Last Name | First Name | Middle Name | Affiliation |
|---|---|---|---|
| Bottorff | Paul | | Hewlett-Packard Development Company, L.P. |
| Cummings | Rodney | | National Instruments Corporation |
| Diamond | Patrick | | Semtech Ltd |
| Diarra | Aboubacar Kader | | Robert Bosch GmbH |
| Edge | Bob | | Consultant |
| Farkas | Janos | | Ericsson |
| Finn | Norman | | Cisco Systems, Inc. |
| Garner | Geoffrey | | Broadcom Corporation, Marvell Semiconductor, Siemens AG, Hirschmann |
| Ghanwani | Anoop | | Dell |
| Gravel | Mark | | Hewlett-Packard Development Company, L.P. |
| Gray | Eric | | Ericsson AB |
| Gunther | Craig | | Harman International |
| Haddock | Stephen | | Stephen Haddock Consulting, LLC |
| Hussain | Rahil | | ABB, Inc. |
| Jeffree | Anthony | | HP, Broadcom |
| Johas Teener | Michael | | Broadcom Corporation |
| Jones | Peter | | Cisco Systems, Inc. |
| Kamble | Keshav | | IBM |
| Kao | Yu-Hsiang | | Broadcom Corporation |
| Kiessling | Marcel | | Siemens AG |
| Klein | Philippe | | Broadcom Corporation |
| Korhonen | Jouni | | Broadcom Corporation |
| Lynch | Jeff | | IBM |
| Mack-Crane | Thomas | | Huawei Technologies Co. Ltd |
| McIntosh | James | | Vitesse Semiconductor Corporation |
| Messenger | John | | ADVA Optical Networking Ltd. |
| Multanen | Eric | | Intel Corporation |
| Noseworthy | Bob | | University of New Hampshire InterOperability Laboratory (UNH-IOL) |

| | | |
|---|---|---|
| Pannell | Donald | Marvell Semiconductor, Inc. |
| Parsons | Glenn | Ericsson AB |
| Pelissier | Joseph | Cisco Systems, Inc. |
| Randall | Karen | NSA/IAD |
| Riegel | Maximilian | NSN |
| Rodrigues | Silvana | Integrated Device Technology, Inc. |
| Rouyer | Jessy | Alcatel-Lucent |
| Saltsidis | Panagiotis | Ericsson AB |
| Seaman | Michael | Individual |
| Sexton | Daniel | General Electric Company (GE) |
| Specht | Johannes | University of Duisburg-Essen and General Motors Company |
| Steiner | Wilfried | TTTech Computertechnik AG |
| Thaler | Patricia | Broadcom Corporation |
| Ting | Ao | ZTE Corporation |
| Touve | Jeremy | Alcatel-Lucent |
| Walter | Todd | National Instruments Corporation |
| Weis | Brian | Cisco Systems, Inc. |
| Woods | Jordon | Innovasic |

# Task Group Minutes

## *Interworking minutes*

**Tuesday, 21 January**

Interworking Task Group meeting called to order at 9:00 AM.

Stephen Haddock presented the preliminary agenda for the week.

Stephen Haddock presented patent policy slides.  No response to the call for patents.

Stephen Haddock reviewed the pending liaisons.

**802.1AX-Rev DRNI:**  Panagiotis Saltsidis initiated comment resolution on the Working Group recirculation ballot of 802.1AX-REV-d3.1 Link Aggregation with Distributed Resilient Network Interconnect.
- http://www.ieee802.org/1/files/private/ax-rev-drafts/d3/802-1AX-REV-d3-1.pdf
- http://ieee802.org/1/files/private/ax-rev-drafts/d3/802-1AX-REV-d3-1-pdis-v1.pdf

Break at 12:00 PM.

Resume at 1:10 PM.

**802.1AX-Rev DRNI:**  Panagiotis Saltsidis continued comment resolution on the Working Group recirculation ballot of 802.1AX-REV-d3.1 Link Aggregation with Distributed Resilient Network Interconnect.

**802.1Q-Rev:**  Tony Jeffree conducted comment resolution on the Working Group ballot of 802.1Q-REV-d1.4.
- http://www.ieee802.org/1/files/private/q-rev-drafts/d1/IEEE802-1Q-REV-2013-d1-4.pdf
- http://www.ieee802.org/1/files/private/q-rev-drafts/d1/802-1Q-REV-2013-d1-4-dis.pdf

**Liaison:**   Stephen Haddock led further discussion regarding possible responses to ls 076 from the ITU.  Norm Finn and Panagiotis Saltsidis volunteered to prepare an initial draft response.

Adjourn at 5:15 PM.


## Wednesday, 22 January

**[802.1 Maintenance meeting from 8:00 to 8:40 AM]**
Michael Teener called the joint Interworking/Time-Sensitive-Networking meeting to order at 9:00 AM.

Michael Teener presented patent policy slides.  No response to the call for patents.

**802.1Qca PCR:**  Janos Farkas gave presentations on generalized SPB and maximally redundant trees:
- http://ieee802.org/1/files/public/docs2014/ca-farkas-generalized-spb-0114-v01.pdf
- http://ieee802.org/1/files/public/docs2014/ca-farkas-mrt-0114-v01.pdf

**802.1Qcc SRP:**  Craig Gunther and Rodney Cummings gave presentations on why to create stream reservations on wireless and on explicit scheduling:
- http://www.ieee802.org/1/files/public/docs2014/at-cgunther-srp-for-802-11-0114-v01.pdf
- http://www.ieee802.org/1/files/public/docs2014/cc-cummings-explicit-scheduling-0114-v1.pdf

Break at 12:10 PM.

**[802.1 and 802.15 joint meeting from 1:30pm to 2:40pm]**

Discussion about:
- https://mentor.ieee.org/802.15/dcn/14/15-14-0048-02-0010-impact-of-low-power-networks-on-bridge-operation.doc

Resume 802.1 IWK/TSN joint meeting at 3:00 PM.

**802.1Qcc:**  Rodney Cummings continued his presentation.

**802.1CB:**  Norm Finn gave a presentation on layering in L2 and L3 networks.
- http://www.ieee802.org/1/files/public/docs2014/tsn-nfinn-L2-Data-Plane-0114-v02.pdf
- http://www.ieee802.org/1/files/public/docs2014/tsn-nfinn-L3-Data-Plane-0114-v01.pdf

Adjourn at 5:45 PM.


## Thursday, 23 January

**[802.1Qbz and 802.11ak joint meeting from 8:00 to 10:00 AM]**

Interworking Task Group meeting called to order at 10:30am.

Stephen Haddock presented patent policy slides.  No response to the call for patents.

**Liaison:**  Donald Eastlake gave a presentation summarizing the IETF liaison regarding TRILL OAM:
- http://ieee802.org/1/files/public/docs2014/new-senevirathne-trill-oam-liaison-0114-v01.pptx

Break at 11:45 AM.

Resume at 1:00 PM.

**802.1AX-Rev DRNI:**  Stephen Haddock gave a presentation on how RSTP could operate over a DRNI (v1 was presented; v2 has minor updates following the ensuing discussion):
- http://ieee802.org/1/files/public/docs2014/ax-rev-haddock-rstp-0114-v1.pdf
- http://ieee802.org/1/files/public/docs2014/ax-rev-haddock-rstp-0114-v2.pdf

**802.1Qca PCR:**  Janos Farkas reviewed his presentation on maximally routed trees, and conducted comment resolution on the Task Group ballot of 802.Qca-d0.5 Path Control and Reservation.
- http://ieee802.org/1/files/public/docs2014/ca-farkas-editor-report-0114-v01.pdf

- http://ieee802.org/1/files/private/ca-drafts/d0/802-1Qca-d0-5-pdis-v01.pdf

Adjourn at 6:10 PM.


# Friday, 24 January


Joint IWK/TSN Task Group meeting called to order at 9:00 AM.

Stephen Haddock presented patent policy slides.  No response to the call for patents.

**802.1Qcb:**  Marcel Kiessling gave a presentation on the sequence number relationships.
- http://www.ieee802.org/1/files/public/docs2014/cb-kiessling-Sequence-number-relationship-0113-v01.pdf

**802.1Qca PCR:**  Marcel Kiessling gave a presentation on the relationship of IS-IS PCR and MSRP.  Janos Farkas completed comment resolution on the Task Group ballot of 802.Qca-d0.5 Path Control and Reservation.
- http://www.ieee802.org/1/files/public/docs2014/ca-kiessling-ISIS-PCR-and-TSN-0114-v01.pdf

**Liaison:**  Norm Finn led a review of draft liaisons to the IETF regarding CFM code points and to the ITU-T regarding Multi-Domain Segment Protection.   These will be handed over to Tony Jeffree for approval by email ballot or by motions at the March plenary meeting.

Adjourn at 12:30pm

## TSN Minutes

**Tuesday, 21 January**

Michael Johas Teener presented Administration, Patent Policy, and Agenda. There was no response to the call for patents.

Geoffrey M. Garner discussed 802.1ASbt Status and Assumptions.

Geoffrey M. Garner presented 802.1ASbt Minor Issues
http://www.ieee802.org/1/files/public/docs2014/as-garner-new-802-1as-minor-issues-0114.pdf

Geoffrey M. Garner presented Handling One-step on Receive in 802.1ASbt (Updated)
http://www.ieee802.org/1/files/public/docs2014/as-garner-one-step-on-receive-1113-v01.pdf

Geoffrey M. Garner presented 1588 High accuracy work update
http://www.ieee802.org/1/files/public/docs2014/as-garner-1588-high-accuracy-work-update-0114.pdf

**Wednesday, 22 January**

Joint meeting with 802.1 TSN and 802.1 Interworking task group

János Farkas presented Generalized Shortest Path Bridging
http://www.ieee802.org/1/files/public/docs2014/ca-farkas-generalized-spb-0114-v01.pdf

János Farkas presented Maximally Redundant Trees (MRT) for 802.1Qca
http://www.ieee802.org/1/files/public/docs2014/ca-farkas-mrt-0114-v01.pdf

Craig Gunther presented Easier SRP for 802.11 (802.1 Review)
http://www.ieee802.org/1/files/public/docs2014/at-cgunther-srp-for-802-11-0114-v01.pdf

Rodney Cummings presented Qcc: Explicit Scheduling
http://www.ieee802.org/1/files/public/docs2014/cc-cummings-explicit-scheduling-0114-v1.pdf

Norman Finn presented TSN L2 Data Plane
http://www.ieee802.org/1/files/public/docs2014/tsn-nfinn-L2-Data-Plane-0114-v02.pdf

Norman Finn presented TSN L3 Data Plane
http://www.ieee802.org/1/files/public/docs2014/tsn-nfinn-L3-Data-Plane-0114-v01.pdf

**Thursday, 23 January**

Joint meeting with 802.1 and 802.11 working groups started at 8:00 AM.

Norman Finn presented 802.1 / 802.11 Formal Interface
http://www.ieee802.org/1/files/public/docs2014/ac-nfinn-11-14-0168-formal-interface-0114-v01.pdf

Craig Gunther presented Easier SRP for 802.11
http://www.ieee802.org/1/files/public/docs2014/at-cgunther-srp-for-802-11-0114-v02.pdf

Joint session ended at 10:00 AM.

TSN meeting started at 10 AM.

Rodney Cummings presented Qcc: More Streams
http://www.ieee802.org/1/files/public/docs2014/cc-cummings-more-streams-0114-v1.pdf

Tony Jeffree presented Qbv Status and Comment Review
http://www.ieee802.org/1/files/private/bv-drafts/d1/802-1Qbv-D1-0-pdis-v1.pdf

Adjourned at 5:00 PM.

**Friday, 24 January**

Meeting started at 9:00 AM.

János Farkas presented 802.1Qca Editor's Report
http://www.ieee802.org/1/files/public/docs2014/ca-farkas-editor-report-0114-v01.pdf

Marcel Kießling presented Sequence Number Relationship
http://www.ieee802.org/1/files/public/docs2014/cb-kiessling-Sequence-number-relationship-0113-v01.pdf

Marcel Kießling presented ISIS PCR and TSN
http://www.ieee802.org/1/files/public/docs2014/ca-kiessling-ISIS-PCR-and-TSN-0114-v01.pdf

Tony Jeffree continued with Qbv Status and Comment Review
http://www.ieee802.org/1/files/private/bv-drafts/d1/802-1Qbv-D1-0-pdis-v1.pdf

Meeting adjourned at 1:00 PM.

## Security Minutes

As discussed at the November 2013 meeting, the Task Group would continue to be involved in liaison activities through this interim and did not ask for a fixed room allocation as that would be a waste of resources.

Accordingly Task Group members rendezvoused each morning at registration to establish the day's liaison schedule and to discuss other task group business.

As a result, these meeting minutes are not organized on a day-by-day basis.

### Patent Policy

The chair showed the patent policy slides and issued the call for notification of essential patents at the start of each day's meetings (Tuesday 9.00 a.m, Wednesday 9.00 a.m., Thursday 9.00 a.m.) There were no responses at this time. The patent policy slides can be found in the opening plenary slides of any recent meeting (pointer distributed to the 802.1 email list by the 802.1 WG chair) if attendees wished to study them further, and that notifications of essential patents can be made to either the TG or WG chair at any time.

### JTC1 ad hoc

JTC1 ad hoc discussions were held 1.30 pm Tuesday, Wednesday, Thursday.

They are separately minuted. IEEE 802.1AR, AB, and AS have passed their ISO/IEC JTC1 FDIS ballots.

Karen Randall's previously prepared presentation that is our response to the comments received on the previously successful 802.1AE and 802.1X ballots has been posted on the 802.1 website (in the public docs directory).

Karen would lead the preparation of responses to SC6 on the FDIS ballot for .1AR and the pre-ballots for .1AEbn and .1AEbw. Tony Jeffree would prepare the responses to the FDIS ballots of .1AB and .1AS. (Karen will send him copies of the existing responses)

### P802.15.9 liaison

Liaison discussions were held at 4.00 pm Tuesday and Wednesday. They are separately minuted by 802.15.9. Brian Weis contributed an Annex to the 15.9 draft on the use of .1X with 15.4 based on 802.1 task group discussion. Brian's contribution has been included in the 802.15.9 draft but is also posted on the 802.1 website.

### P802.1AEcg (EDE) Discussion

D0.1, prepared by Editor/Task Group Chair to facilitate the ongoing PAR development discussion and distributed just prior to the meeting, was discussed. One important issue was ensuring that the use of MACsec within standard bridges is not seen as being deprecated by the definition of EDEs, which are a special but limited case.

A further draft will be prepared shortly. The plan remains to further develop and pre-circulate the PAR for approval at the July 2014 plenary.

### P802.1ARce Discussion

The Editor/Task Group Chair sought clarification on some aspects of terminology. The PAR scope should encompass their clarification. A draft was in progress, following the November discussion of D0.1.

References and other items noted at that meeting had been updated, a further draft will be issued within the next month so that we could check on any remaining issues that would bear on the inclusion of P-384/SHA-384.

It was agreed that this would occur too late for pre-circulation prior to the March 802 plenary, the plan is now to target the July plenary where task group members will be able to attend and answer questions/deal with comments received.

### Perpass Discussion

Pat Thaler had arranged for a perpass discussion in the upcoming IEEE/IETF leadership teleconference.

Karen and Mick would join that conference. Brian brought the group up to speed on the IETF discussion. It was likely that no special action would be required from us at this time - the focus is not specifically on encryption, although encryption is recognized as part of the solution space.

### P802.1Xbx

The Sponsor Ballot was in progress. Teleconference times for ballot resolution (and potentially other task group discussion) were agreed, and have now been announced to the 802.1 email reflector.

### Upcoming meetings

The Task Group would not meet during the March 2014 plenary or the May 2014 interim, but would continue discussion via teleconference supplemented by email.

The Task Group would meet during the July 2014 plenary in San Diego.

## *DCB Minutes*

**Wednesday, 22 January**

Pat showed the Patent slides and there were no responses to the call for patents.

Agenda:
- WG ballot comments for P802.1Qcd
- New work discussiom of flow control for higher speed links

**Qcd comments - Eric Multanen, Intel**
- Ballot is valid and passed but 4 disapproves.
- Application VLAN TLV will be mandatory for implementations that support the DCBX TLV (was previously optional but conflicts with general TLV ruiles).
- Several MIB comments.
- Security considerations for Application VLAN TLV -- Update D.6.4.  (Also missing for Application Priority TLV .)
- MAX-ACCESS permissions -- Admin/Config/Local/Remote.
  - Admin: What is configured.
  - Config: Oper config (result of negotiation).
  - Local: What is sent.
  - Remote: What is received.
  - Need further research to address this.
- Enhancement to provide priorities associated with the DSCP in the Application Priority TLV.
  - Discuss with Tony if it can be handled in scope of the current PAR or if a PAR modification may be needed.
  - "Corrections and extensions to the Application Priority TLV."
- The same enhancement may be used for Application VLAN TLV.
  - Use cases are less clear but one could use it where VLANs are used for traffic engineering (e.g. combined SPB/STP network, Qca, etc.).
  - Keeps App Priority and App VLAN consistent.
- Will go to recirc before next meeting.

**The case for an alternative link level flow control mechanism at high speeds - Anoop Ghanwani, Dell**
- http://www.ieee802.org/1/files/public/docs2014/new-ghanwani-llfc-01-14-v01.pdf
- Need to discuss inefficiencies of buffering.
- Update presentation with all the problems of PFC summarized and have a slide on each.
  - Credit loss due to FCS errors -- absolute vs incremental credits.
- Send comment to Tony/Pat for Q-REV to fix MACsec portion of the delay (should be 4 x) in Annex N.  (Fix error in Qbb.)

**Credit-based link level flow control and capability exchange using DCBX for CEE ports - Keshav Kamble, IBM**

- http://www.ieee802.org/1/files/public/docs2014/new-DCB-kamble-FlowControl-0114-v05.pdf
- Credit request/credit grant as an optional mechanism.
- 512 bits as credit size.
- Why credit request?
  - Forcefully ask for credits to allieviate credits.
  - Receiver would need to have unallocated credits or taking credits from one channel (S-channel) and using them on a different S-channel.
  - Sender monitors traffic and knows that one channel is busier than the other channel, so it can request the receiver to reallocate credits.
- Increasing granularity?
  - Won't have enough memory to allocate per channel per priority.
  - Even if we want it to be between per priority and per channel per priority, how do we settle on something reasonable?
  - Are you solving the memory issue or HoL blocking issue?  They are conflicting.
- To be continued Thursday, afternoon

**Thursday, 23 January**

**Continuation of IBM presentation by Keshav Kamble**

- At higher speeds, we have the need to virtually dividing the pipe into multiple smaller pipes.
  - We only do this at the edge, not in the core.
  - Switches can shape on a virtual port basis.
  - Show why this is necessary.
- Proposed new 8-byte CE-tag.
  - Problematic because the tag changes hop-by-hop which requires FCS to be recalculated.
  - Debugging, layering issues.  Why not use separate messages for this instead of a tag?  We don't need to worry about saving bandwidth.
  - This is an alternative to pass credits.
- Speeds for credits/PAUSE/both.
  - At 100G and below must do either PFC only or both (cannot do only credits).
  - Have credits only above a certain speed?
  - Use PFC on one priority and CFC on another?  No.
  - Got into a discussion where folks thought it might be a good idea to use the same MAC control frame with credits instead of timeouts.  A different opcode would be better for a sniffer.  What about absolute/incremental credits?  Needs more work.
- DCBX to exchange credit size and number of credits.
  - Protocol should be made to work peer to peer (as DCBX does).
- Discussion of end-to-end flow control.

- o Similar to FC and IB,
- o Already in TCP.  Already in RoCE.  FC can worry about E2E credits.

**General Discussion**

- Pass a motion in March to pre-circulate a PAR at the July meeting.

**PAR, 5C & Objectives - Jeff Lynch, IBM & TG**

- Per-priority credit-based flow control.

Conference calls -- 2/11 8-10 AM, 2/20 8-10 AM (US Pacific Time).