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| Minutes of IEEE 802.1 OmniRAN TG Meeting in Macau, CN |
| **Date: March 14th – 17th , 2016** |
| **Author(s):** |
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## Abstract

Minutes of the IEEE 802.1 OmniRAN TG meeting at the IEEE 802 Plenary Meeting in Macau, CN on March 14-17, 2016

# Monday, March 14th, 2016

Chair: Max Riegel

Recording secretary: Walter Pienciak

## Call to order

* Meeting called to order by Max Riegel at 16:05 hrs.
* Meeting was guided by the slides uploaded and maintained by the chair:
<https://mentor.ieee.org/omniran/dcn/16/omniran-16-0015-00-00TG-mar-2016-f2f-meeting-slides.pptx>

## Minutes

* Walter Pienciak volunteered to take notes.

## Attendance

* IEEE 802.1 meeting IMAT page was used for recording of attendance
* Participants

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| **Name** | **Affiliation** |
| Max Riegel | Nokia Networks |
| Walter Pienciak | IEEE |
| Juan Carlos Zuniga | Interdigital  |
| Yonggang Fang | ZTE TX |
| Liang Jin | Spirent Comm. |
| Roger Marks | EtherAirNet Assoc. |
| Fulei Liu | ZTE |
| Wang Hao | Fujitsu |
| Patrick Slaats | IEEE SA |
| Hyeong-Ho Lee | ETRI |
| Glenn Parsons | Ericsson |
| Richard Burbidge | 3GPP |
| Philippe Reininger | 3GPP |
| Sasha Sirotkin | 3GPP |

## IEEE WG Guidelines

* The chair presented the mandatory IEEE SA guideline slides and asked for anybody willing to make an IPR announcement.
* No IPR declarations were brought up.

## Agenda approval

* Agenda as proposed in the chair’s meeting was presented and discussed.
* It was proposed to invite the representatives of 3GPP for a dedicated discussion of the 3GPP LWA approach and its relationship to the OmniRAN activities
* It was clarified that instead of comment resolution, further steps will be discussed regarding 802.1CF editor’s draft. Open comments will be forwarded to the May interim meeting for resolution.
* The following agenda resulted from the agenda bashing:
* Review of minutes
* Reports
* New P802.1CF contributions
* Fault diagnostics and maintenance
* <https://mentor.ieee.org/omniran/dcn/16/omniran-16-0012-01-CF00-ethernet-oam-survey-and-introducing-nms.pptx>
* <https://mentor.ieee.org/omniran/dcn/16/omniran-16-0019-01-CF00-measurement-and-management-in-ieee-802-11.pptx>
* <https://mentor.ieee.org/omniran/dcn/16/omniran-16-0021-00-CF00-nms-architectural-considerations.pptx>
* Functional design and decomposition
* Deployment scenarios
* <https://mentor.ieee.org/omniran/dcn/16/omniran-16-0020-00-CF00-nrm-operational-arrangements.pptx>
* Representing access network virtualization in P802.1CF
* Models, approaches
* <https://mentor.ieee.org/omniran/dcn/16/omniran-16-0016-00-CF00-access-network-virtualization-nrm.pptx>
* <https://mentor.ieee.org/omniran/dcn/16/omniran-16-0017-01-CF00-nfv-for-omniran.pptx>
* Network reference model amendments
* Review of 802.1CF editor’s draft
* Next steps
* Wi-Fi as component of 5G within the scope of P802.1CF
* Presentation and discussion with 3GPP on LWA and LWIP
* <https://mentor.ieee.org/802.11/dcn/16/11-16-0351-01-0000-liaison-from-3gpp-on-lwa-and-lwip.pptx>
* Project planning
* Status report to IEEE 802 WGs
* AOB
* Agenda approved without further comments.

## Schedule of the topics during the week

* Chair proposed to rearrange the agenda topics in a slightly different order to allow presenters to create and present revisions for final conclusion during the week.
* Group agreed to arrange the discussion topics according to the following plan over the week:

***Monday***

* Fault diagnostics and maintenance
* <https://mentor.ieee.org/omniran/dcn/16/omniran-16-0012-01-CF00-ethernet-oam-survey-and-introducing-nms.pptx>
* Representing access network virtualization in P802.1CF
* <https://mentor.ieee.org/omniran/dcn/16/omniran-16-0016-00-CF00-access-network-virtualization-nrm.pptx>

***Tuesday***

* Representing access network virtualization in P802.1CF
* <https://mentor.ieee.org/omniran/dcn/16/omniran-16-0017-01-CF00-nfv-for-omniran.pptx>
* Deployment scenarios
* <https://mentor.ieee.org/omniran/dcn/16/omniran-16-0020-00-CF00-nrm-operational-arrangements.pptx>
* Presentation and discussion with 3GPP on LWA and LWIP
* <https://mentor.ieee.org/802.11/dcn/16/11-16-0351-01-0000-liaison-from-3gpp-on-lwa-and-lwip.pptx>

 ***Wednesday***

* Review of minutes
* Jan
<https://mentor.ieee.org/omniran/dcn/16/omniran-16-0010-01-00TG-jan-2016-f2f-meeting-minutes.docx>
* Feb
<https://mentor.ieee.org/omniran/dcn/16/omniran-16-0014-01-00TG-feb-2016-confcall-minutes.docx>
* Reports
* Fault diagnostics and maintenance
* <https://mentor.ieee.org/omniran/dcn/16/omniran-16-0019-01-CF00-measurement-and-management-in-ieee-802-11.pptx>

 ***Thursday***

* <https://mentor.ieee.org/omniran/dcn/16/omniran-16-0021-00-CF00-nms-architectural-considerations.pptx>
* Review of 802.1CF editor’s draft
* Discussion of way forward
* Project planning
* Status report to IEEE 802 WGs
* AOB

## Fault diagnostics and maintenance

* <https://mentor.ieee.org/omniran/dcn/16/omniran-16-0012-01-CF00-ethernet-oam-survey-and-introducing-nms.pptx>
* Wang Hao walking through his presentation on 802.3ah, 802.1ag, 802.11k and 802.11v architecture and capabilities.
* Functional similarities between wired and wireless approaches are becoming visible.
* Consider adaptation of SS towards NM.
* Discussion did not lead to final conclusions but provided insights into basic functional models and indications that overloading subscription service by network management would not fit general expectations

## Representing access network virtualization in P802.1CF

* <https://mentor.ieee.org/omniran/dcn/16/omniran-16-0016-00-CF00-access-network-virtualization-nrm.pptx>
* Max presented initial thoughts on adoption of NRM for virtualized networks
* NRM represents an instance of a virtual network with CIS acting as common interface towards shared resources
* Concept of network slicing with NRM representing one virtual network instance was well received by the group.
* Group invites text contribution on amendment to Chapter 6 (NRM) describing the presented approach for network virtualization.

Recessed by chair at 18:05

# Tuesday, March 15th, 2016

Reconvened at 16:00

* Call for IPR: No response

## Representing access network virtualization in P802.1CF

* <https://mentor.ieee.org/omniran/dcn/16/omniran-16-0016-00-CF00-access-network-virtualization-nrm.pptx>
* Yonggang explained idea of Network Function Virtualization for P802.1CF
* Discussion on clarification of ambiguities in presentation on terminology, definition of network functions in the context of P802.1CF and location of NFV in the network reference model
* Revision of presentation with more comprehensive explanation requested to allow evaluation and verification of proposals. There seems to be close relations to SDN concepts hinting to integration of NFV with SDN chapter.

## Deployment scenarios

* <https://mentor.ieee.org/omniran/dcn/16/omniran-16-0020-00-CF00-nrm-operational-arrangements.pptx>
* Max went through small presentation showing the operational assumptions of P802.1CF
* Basic operational model assumes that operation of Access Network is distinct from Subscription Service and Access Router.
* Max highlighted that distinct operators have distinct network management systems, i.e. network management of Access Network resides within the Access Network Operator
* Yonggang claims that a single operator may operate access network, subscription service and access router. Max agrees that this would be possible but strongly recommends to reflect only the distinct model in the P802.1CF specification, potentially with some informative annex to show the variety of models, which can be supported by the P802.1CF.

## Presentation and discussion with 3GPP on LWA and LWIP

* <https://mentor.ieee.org/802.11/dcn/16/11-16-0351-01-0000-liaison-from-3gpp-on-lwa-and-lwip.pptx>
* Richard and Philippe interactively went through the slides explaining the basic assumptions and solutions of aggregation of LTE radio frames over WLAN in downlink direction.
* Aggregation is controlled by the eNB taking into account a number of radio parameters of WLAN AP.
* Network interface of WLAN access to be assumed either at a WLAN controller or at an AP. 3GPP does not make assumptions about implementation of WLAN access, but it seems that WT more likely relates to a WLC.
* Some ambiguities detected in control flow between 3GPP and WLAN. WLAN does not know about reservation of resources for a STA before association.
* Impression that P802.1CF specification may help designing of interworking solutions between 3GPP and IEEE 802. OmniRAN offered to send more information about P802.1CF to 3GPP RAN when the specification is more complete and mature.

Recessed by chair at 18:05

# Wednesday, March 16th, 2016

Reconvened at 16:05

* Call for IPR: No response

## Review of minutes

* Jan
<https://mentor.ieee.org/omniran/dcn/16/omniran-16-0010-01-00TG-jan-2016-f2f-meeting-minutes.docx>
* Revised version created and uploaded with corrected affiliation of Yonggang Fang
* <https://mentor.ieee.org/omniran/dcn/16/omniran-16-0010-02-00TG-jan-2016-f2f-meeting-minutes.docx>
* Feb
<https://mentor.ieee.org/omniran/dcn/16/omniran-16-0014-01-00TG-feb-2016-confcall-minutes.docx>
* Revised version created and uploaded with corrected affiliation of Yonggang Fang
* <https://mentor.ieee.org/omniran/dcn/16/omniran-16-0014-01-00TG-feb-2016-confcall-minutes.docx>

## Reports

* Max reported about the P802.1CF presentation to 5G SC based on material created in OmniRAN in November 2015
* Concluding slide on cost and benefits caused discussions what would be needed to cover the network aspects for the various options
* IMT 2020 application would be feasible with some ‘profiling’ to P802.1CF, however IEEE 5G would require comprehensive network specification likely causing efforts >> 100 SY.

## Fault diagnostics and maintenance

* <https://mentor.ieee.org/omniran/dcn/16/omniran-16-0019-01-CF00-measurement-and-management-in-ieee-802-11.pptx>
* Wang Hao presented various options and thoughts for mapping network management and monitoring to the NRM.
* In particular there was no common view on the options for the interface between the Element Managers and the Network Management. Much less concerns were expressed in the discussions on the concept of a set of functions.
* No conclusion could be reached on the location of the NM in the NRM. The presented location in the SS was seen as inappropriate.

Recessed by chair at 18:10

# Thursday, March 17th, 2016

Reconvened at 10:35

* Call for IPR: No response

## Fault diagnostics and maintenance

* <https://mentor.ieee.org/omniran/dcn/16/omniran-16-0021-00-CF00-nms-architectural-considerations.pptx>
* Max presented slides and explained that P802.1CF has to focus on the network management only of the access network.
* An additional slide was added after slide 8 to clarify NMS arrangements of access network and ‘IP service operation’, showing that in the generic case NMS of access network is independent of NMS of IP service operation
* It was agreed that an operator may combine NMS of access network and IP service operation, when owning both access and IP service parts. But for the generic case the NMS are separated.
* Discussion of option 1 versus option 2 for the location of the NM led to unanimous support for adopting option 1 to the NRM
* Introducing a dedicated functional unit containing the network management functions allows for more easy representation of the IEEE 802 managed objects work
* Agreement was reached on a revision of the NRM exposing NM as an additional function next to CIS connected to the ANC, which contains the EM.
* Reference points will be slightly renumbered to maintain meaningful assignments
* Max will create a text proposal of the amended NRM for approval in the upcoming OmniRAN TG conference call
* The updated slides were uploaded to mentor under
<https://mentor.ieee.org/omniran/dcn/16/omniran-16-0021-01-CF00-nms-architectural-considerations.pptx>

## Review of 802.1CF editor’s draft

* Discussion of way forward
* Next revision to be created after the May interim meeting with much more content to be merged in
* Amendments to NRM will be discussed in next conference call to create stable foundation for further text on function description
* Complete contributions on fault diagnostic and maintenance as well as on authentication and trust establishment expected
* If Antonio will be able to attend Budapest meeting, SDN chapter would be thoroughly reviewed and revised
* Open comment resolution from Jan F2F will be concluded with Yonggang enabling to participate remotely

## Project planning

* Project timeline quite stable, but dependency on amount of content, which can be adopted during/after Budapest meeting
* Intention to create more complete revision in September for distribution to all IEEE 802 WGs as well as externally to IETF for collecting feedback and comments
* OmniRAN TG will meet in Budapest, HU on May 24-26 (Tue PM, Wed PM, Thu PM), as well as in San Diego, CA on July 25-28 (Mon, Tue, Wed, Thu).
* For preparation 2 conference calls were agreed planned until July plenary
* Discussion about appropriate time w/ participants from California and China resulted in compromise to start calls at 9:30AM ET and extend planned duration to 90mins.
* April 19th, 09:30AM ET
* June 21st, 09:30AM ET
* Chair created templates for OmniRAN motions to the 802.1 closing plenary requesting approval of the conference calls as well as endorsing Walter Pienciak to create further drafts and performing task group balloting.
* Motion text added to amended meeting slides
* Motions to 802.1 closing plenary were unanimously approved by OmniRAN TG

## Status report to IEEE 802 WGs

* Chair drafted and presented summary status report to 802WGs
* Group discussed and revised content.
* Agreed wording was uploaded to mentor under
<https://mentor.ieee.org/omniran/dcn/16/omniran-16-0022-00-00TG-mar-2016-status-report-to-802wgs.pptx>

## AOB

* None

Meeting adjourned by chair at 12:39hrs