IEEE P802.11  
Wireless LANs

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| Telecon Minutes - AANI SC – 15 September 2020 | | | | |
| Date: 2020-09-21 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Harry Wang | Tencent | Beijing, China |  | [harryhwang@tencent.com](mailto:harryhwang@tencent.com) |
|  |  |  |  |  |
|  |  |  |  |  |

Abstract

This document contains the minutes of the IEEE 802.11 AANI SC teleconference held on 15 September 2020 at 11:15 hrs EDT. Some minor edits were provided by the AANI SC Chair.

Note: Highlighted text are action items.

Q- proceeds a question asked at the meeting

A- proceeds an answer given by the presenter

C- proceeds a comment

# Tuesday 15 September 2020, 11:15 hrs EDT:

**Chair: Joseph Levy, Interdigital**

**Acting Secretary: Harry Wang, Tencent**

**1. The teleconference was called to order by Chair 11:15 hrs. EDT,**

Harry Wang (Tencent) volunteered to be acting secretary.

Agenda slide deck (11-20/1364r1):

<https://mentor.ieee.org/802.11/dcn/20/11-20-1364-01-AANI-aani-sc-teleconference-agenda-15-september-2020.pptx>

**2. The Chair reminded everyone to sign attendance.**

See attendance list at the bottom of this document.

**3. Approval of the Agenda:**

The Chair reviewed the agenda.

The final agenda was approved without objection.

**4. Policies and procedures were presented by the chair.**

**5. Minutes:**

Draft minutes [11-20/1098r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1098-00-AANI-aani-sc-teleconference-14-july-2020-meeting-minutes.docx), [11-20/1146r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1146-00-AANI-aani-sc-teleconference-28-july-2020-meeting-minutes.docx), [11-20/1321r2](https://mentor.ieee.org/802.11/dcn/20/11-20-1321-00-AANI-aani-sc-teleconference-25-aug-2020-meeting-minutes.docx), [11-20/1406r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1406-00-AANI-aani-sc-teleconference-1-september-2020-meeting-minutes.docx), [11-20/1455r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1455-00-AANI-aani-sc-teleconference-8-sep-2020-meeting-minutes.docx), were approved with unanimous consent.

**6.** **Status on the proposal on interworking:**

Chair review the progress and status of the report and proposal. The latest version of the document [11-20/0013r5](https://mentor.ieee.org/802.11/dcn/20/11-20-0013-05-AANI-draft-technical-report-on-interworking-between-3gpp-5g-network-wlan.pdf) was released to the working group for a 20 day comment collection. Comment resolution started on 25 August 2020, and 104 of 111 comments were assigned. The comment database is under updating and details are provided in document [11-20/1262r2](https://mentor.ieee.org/802.11/dcn/20/11-20-1262-02-AANI-cc32-aani-report-comments.xlsx). A separate contribution [11-20/1356r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1356-00-AANI-proposed-comment-resolution-for-cid-10-11-12-105-on-comment-collection-sheet-11-20-1262r2.docx) was submitted for addressing CID 10,11,12,105.

An alternate report [11-20/1376r0](https://mentor.ieee.org/802.11/dcn/20/11-20-1376-00-AANI-technical-report-on-interworking-between-3gpp-5g-system-and-wlan.docx) has been submitted and reviewed by the group on 1 September, and 8 September AANI conference call.

A straw poll conducted on 8 September AANI conference call indicates the group willingness to proceed with the current comment resolution process on [11-20/0013r5](https://mentor.ieee.org/802.11/dcn/20/11-20-0013-05-AANI-draft-technical-report-on-interworking-between-3gpp-5g-network-wlan.pdf). The results are provided as follows,

[Straw Poll]: AANI should: Proceed with the current comment resolution process: continuing to develop 11-20/0013r5. [Results]: Y-11 N-3 A-2.

## 7. Comment resolution:

**7.1 Technical report on interworking between 3GPP 5G system and WLAN, (11-20/1376r0, 11-20/1472r0)**

https://mentor.ieee.org/802.11/dcn/20/11-20-1376-00-AANI-technical-report-on-interworking-between-3gpp-5g-system-and-wlan.docx

https://mentor.ieee.org/802.11/dcn/20/11-20-1472-00-AANI-context-on-11-20-1376r0-technical-report.pptx

Binita presented the slides in document 11-20/1472r0 which provides the issues with 11-20/0013r5 and how those are addressed in 11-20/1376r0. In addition, she leads the group to a thorough review on the report 11-20/1376r0.

**Discussion:**

C – This report highly focused on 3GPP activity and standard. But document 11-20/0013r5 intends to address the interworking issues between WLAN and 3GPP core network on QoS management and scheduling. Regarding the issues pointed out by 11-20/1472r0, the following needs to be clarified for 11-20/0013r5,

1. It is correct that 3GPP doesn’t define ‘tightly couple interworking model’ for 5G, but this term has been widely and previously used to describe the non-3GPP network interworking.

2. QoS management is the sole focus, so the security aspect of trusted WLAN has not been covered in this report.

3. The mentioned 5G functionalities have all been defined in 3GPP documents, yet this report is not a 3GPP study.

4. This report also covers the integration of both 5G and Wi-Fi radio in a single device from the perspective of ATSSS.

5. It is necessary for both AP and STA to establish a security tunnel in support of trusted WLAN integration.

6. As the role of TSN in the interworking is still an open issue, this report intends to provide a possible configuration and application.

7. At a high level, this report points out the loosely coupled interworking model, QoS mapping and scheduling.

A – As a report to define the interworking between WLAN and 5G, it is necessary to understand the interworking functions in order to identify the gaps and challenges. The report 11-20/1376r0 doesn’t define any new concepts or functions, rather it summarizes the work in 3GPP that is relevant to the topic including QoS. It is agreed that end-to-end QoS from 5G to WLAN is an important area to be addressed, but the report 11-20/0013r5 doesn’t provide enough details in terms of direction or any specific technical improvements. We are looking at the problem from both 5G and WLAN sides. We also think it is not appropriate to provide an architecture for TSN in such kind of report.

Q – Do you think it is worth considering the next version of 11-20/0013 which will incorporate the comments and revisions from the WG balloting process as the new baseline?

Chair – There are still comments that don’t provide any resolution. I think portion of this report can be an input to address these open comments.

A – It would require significant work to merge the two reports.

C – There are many efforts done in WBA for nearly two years regarding WLAN and 5G convergence. As in the white paper published on the interworking, there are many contributions and discussions in WBA towards a complete proposal to IEEE.

Binita Gupta requests an additional motion (Motion #3) after the discussion.

## 8. Motions

Chair confirms the affiliation of the participants who don’t indicate theirs in the meeting window.

[Motion #1]: Move to approve the proposed resolutions for the 41 Editorial Comments accepted in 11-20-1262r3: CIDs: 4, 18, 20-31, 39, 42, 45, 47, 49, 50, 51.

Moved: Harry Hao Wang (Tencent) Second: Jeff Jones (Qorvo)

Result: Y: 19 N:3 A:13 DNV:12

Motion Passed

Detail voting results:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Yes | No | Abs | Affiliation | IMAT |
| [A] Vyacheslav Loginov, IITP RAS |  |  | X | yes | yes |
| [N] Kanke Wu Qualcomm |  |  |  | yes | yes |
| [N] Kapil Rai Qualcomm |  |  |  | yes | yes |
| [NV] Nancy Lee Signify | X |  |  | yes | yes |
| [NV] Yair Yona Qualcomm |  |  |  | yes | no |
| [V] Albert Bredewoud Broadcom |  |  |  | yes | yes |
| [V] Athanasios Stavridis, Ericsson |  |  |  | yes | yes |
| [V] Bahar Sadeghi Intel |  |  | X | yes | yes |
| [V] Bill Carney SONY |  |  | X | yes | yes |
| [V] BO SUN ZTE |  |  | X | yes | yes |
| [V] Carl Kain USDOT/Noblis | X |  |  | yes | yes |
| [V] Cheng Chen Intel | X |  |  | yes | yes |
| [V] Dave Cavalcanti Intel |  | X |  | yes | yes |
| [V] dibakar das Intel |  | X |  | yes | yes |
| [V] Edward Au, Huawei |  |  | X | yes | no |
| [V] Emily Qi Intel |  |  | X | yes | yes |
| [V] Ganesh Venkatesan Intel | X |  |  | yes | yes |
| [V] Harry Hao Wang Tencent | X |  |  | yes | yes |
| [V] Jonas Sedin Ericsson |  |  | X | yes | yes |
| [V] Leif Wilhelmsson Ericsson |  |  | X | yes | yes |
| [V] Menzo Wentink Qualcomm |  |  | X | yes | yes |
| [V] Osama Aboul-Magd Huawei |  |  | X | yes | yes |
| [V] Prabodh Varshney Nokia |  |  | X | yes | yes |
| [V] Sai Cypress | X |  |  | yes | yes |
| [V] Song H An Independent |  |  | X | yes | yes |
| [V] Stuart Kerry, Self |  |  |  | yes | yes |
| [V] Yasuhiko Inoue, NTT |  |  |  | yes | yes |
| [V] Yonggang Fang ZTE TX | X |  |  | yes | yes |
| [V]Xin Zuo Tencent | X |  |  | yes | yes |
| Alan Berkema [HP Inc.] | X |  |  | yes | yes |
| Ann Krieger US DoD | X |  |  | yes | yes |
| Binita Gupta Intel |  | X |  | yes | yes |
| choonsik yim RCN | X |  |  | yes | yes |
| Dieter Smely KAPSCH |  |  |  | yes | yes |
| Dorothy Stanley HPE |  |  |  | yes | yes |
| Graham Smith SR Technology | X |  |  | yes | yes |
| hanbyeog cho ETRI | X |  |  | yes | yes |
| Hyeong Ho LeeNetvision Telel com | X |  |  | yes | yes |
| Hyun Seo Oh, ETRI | X |  |  | yes | yes |
| Jeff Jones Qorvo | X |  |  | yes | yes |
| Necati Canpolat Intel |  |  | X | yes | no |
| oh chang han, allRadio Co. Ltd | X |  |  | yes | no |
| ShinHo CHO allRadio | X |  |  | yes | yes |
| Shreeraman Qualcomm |  |  |  | yes | no |
| Thomas Derham Broadcom |  |  |  | yes | yes |
| Youngjae Kim\_TTA | X |  |  | yes | yes |

[Motion #2] Move to approve the proposed resolutions for the 49 Technical Comments accepted in 11-20-1262r3: CIDs: 1-3, 5-7, 9, 13-17, 32-38, 40, 41, 43, 44, 46, 48, 74, 76-79, 82-90, 97, 100, 101, 103, 106-110.

Moved: Ganesh Venkatesan (Intel) Second: Youngjae Kim (TTA)

Result: Y:14 N:8 A:10 DNV:14

Motion Failed

Detail voting results:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Yes | No | Abs | Affilication | IMAT |
| [A] Vyacheslav Loginov, IITP RAS |  |  | X | yes | yes |
| [N] Kanke Wu Qualcomm |  |  |  | yes | yes |
| [N] Kapil Rai Qualcomm |  |  |  | yes | yes |
| [NV] Nancy Lee Signify | X |  |  | yes | yes |
| [NV] Yair Yona Qualcomm |  |  |  | yes | no |
| [V] Albert Bredewoud Broadcom |  |  |  | yes | yes |
| [V] Athanasios Stavridis, Ericsson |  |  |  | yes | yes |
| [V] Bahar Sadeghi Intel |  |  |  | yes | yes |
| [V] BO SUN ZTE | X |  |  | yes | yes |
| [V] Carl Kain USDOT/Noblis |  |  | X | yes | yes |
| [V] Cheng Chen Intel |  | X |  | yes | yes |
| [V] Dave Cavalcanti Intel |  | X |  | yes | yes |
| [V] dibakar das Intel |  | X |  | yes | yes |
| [V] Edward Au Huawei |  |  | X | yes | no |
| [V] Emily Qi Intel |  | X |  | yes | yes |
| [V] Ganesh Venkatesan Intel |  | X |  | yes | yes |
| [V] Harry Hao Wang Tencent | X |  |  | yes | yes |
| [V] Jonas Sedin Ericsson |  |  | X | yes | yes |
| [V] Leif Wilhelmsson Ericsson |  |  | X | yes | yes |
| [V] Menzo Wentink Qualcomm |  |  | X | yes | yes |
| [V] Osama Aboul-Magd Huawei |  |  | X | yes | yes |
| [V] Prabodh Varshney Nokia |  | X |  | yes | yes |
| [V] Sai Cypress |  |  |  | yes | yes |
| [V] Song H An Independent |  |  | X | yes | yes |
| [V] Stuart Kerry Self |  |  |  | yes | yes |
| [V] Yasuhiko Inoue, NTT |  |  |  | yes | yes |
| [V] Yonggang Fang ZTE TX |  |  | X | yes | yes |
| [V]Xin Zuo Tencent | X |  |  | yes | yes |
| Alan Berkema [HP Inc.] | X |  |  | yes | yes |
| Ann Krieger US DoD |  |  | X | yes | yes |
| Binita Gupta Intel |  | X |  | yes | yes |
| choonsik yim RCN | X |  |  | yes | yes |
| Dieter Smely KAPSCH |  |  |  | yes | yes |
| Dorothy Stanley HPE |  |  |  | yes | yes |
| Graham Smith SR Technology | X |  |  | yes | yes |
| hanbyeog cho ETRI | X |  |  | yes | yes |
| Hyeong Ho LeeNetvision Telelcom | X |  |  | yes | yes |
| Hyun Seo Oh, ETRI | X |  |  | yes | yes |
| Jeff Jones, Qorvo | X |  |  | yes | yes |
| Necati Canpolat Intel |  | X |  | yes | no |
| oh chang han allRadio | X |  |  | yes | no |
| ShinHo CHO allRadio | X |  |  | yes | yes |
| Shreeraman Qualcomm |  |  |  | yes | no |
| Thomas Derham Broadcom |  |  |  | yes | yes |
| Youngjae Kim\_TTA | X |  |  | yes | yes |

[Motion #3]: Motion to approve the 11-20/1376r0 as the baseline for the technical report on the 5G and WLAN interworking and address any comments on it.

Moved: Binita Gupta (Intel) Second: Ganesh Venkatesan (Intel)

Result: Y:10 N:12 A:9 DNV:12

Motion Failed

Detail voting results:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Yes | No | Abs | Affilication | IMAT |
| [A] Vyacheslav Loginov, IITP RAS |  |  | X | yes | yes |
| [N] Kanke Wu Qualcomm |  |  |  | yes | yes |
| [N] Kapil Rai Qualcomm |  |  |  | yes | yes |
| [NV] Nancy Lee Signify |  |  | X | yes | yes |
| [NV] Yair Yona Qualcomm |  |  |  | yes | no |
| [V] Albert Bredewoud Broadcom |  |  |  | yes | yes |
| [V] Athanasios Stavridis, Ericsson |  |  |  | yes | yes |
| [V] Bahar Sadeghi Intel | X |  |  | yes | yes |
| [V] BO SUN ZTE |  |  | X | yes | yes |
| [V] Carl Kain USDOT/Noblis |  |  | X | yes | yes |
| [V] Cheng Chen Intel | X |  |  | yes | yes |
| [V] Dave Cavalcanti Intel | X |  |  | yes | yes |
| [V] dibakar das Intel | X |  |  | yes | yes |
| [V] Edward Au Huawei |  |  | X | yes | no |
| [V] Emily Qi Intel | X |  |  | yes | yes |
| [V] Ganesh Venkatesan Intel | X |  |  | yes | yes |
| [V] Harry Hao Wang Tencent |  | X |  | yes | yes |
| [V] Jonas Sedin Ericsson |  |  | X | yes | yes |
| [V] Leif Wilhelmsson Ericsson |  |  |  | yes | yes |
| [V] Menzo Wentink Qualcomm |  | X |  | yes | yes |
| [V] Osama Aboul-Magd Huawei |  |  | X | yes | yes |
| [V] Prabodh Varshney Nokia | X |  |  | yes | yes |
| [V] Sai Cypress |  |  |  | yes | yes |
| [V] Song H An Independent |  |  | X | yes | yes |
| [V] Stuart Kerry Self |  |  |  | yes | yes |
| [V] Yasuhiko Inoue, NTT |  |  |  | yes | yes |
| [V] Yonggang Fang ZTE TX |  | X |  | yes | yes |
| [V]Xin Zuo Tencent |  | X |  | yes | yes |
| Alan Berkema [HP Inc.] | X |  |  | yes | yes |
| Ann Krieger US DoD |  |  | X | yes | yes |
| Binita Gupta Intel | X |  |  | yes | yes |
| choonsik yim RCN |  | X |  | yes | yes |
| Dieter Smely KAPSCH |  |  |  | yes | yes |
| Graham Smith SR Technology |  | X |  | yes | yes |
| hanbyeog cho ETRI |  | X |  | yes | yes |
| Hyeong Ho LeeNetvision Telelcom |  | X |  | yes | yes |
| Hyun Seo Oh ETRI |  | X |  | yes | yes |
| Jeff Jones Qorvo |  |  |  | yes | yes |
| Necati Canpolat Intel | X |  |  | yes | no |
| oh chang han allRadio |  | X |  | yes | no |
| ShinHo CHO allRadio |  | X |  | yes | yes |
| Shreeraman Qualcomm |  |  |  | yes | no |
| Youngjae Kim\_TTA |  | X |  | yes | yes |

## 9. 802 Tutorial on ‘WLAN and 3GPP 5G Interworking’

A tutorial on WLAN&5G interworking requested by Binita Gupta has been approved and scheduled on the next 802 virtual plenary on October 13th.

Hyun Seo Oh (ETRI) requests to be a speaker candidate for this tutorial.

AANI Chair will work with Binita to coordinate the presentations and speakers for the 1.5 hour tutorial.

## 10. Review future schedule

Chair – Weekly conference calls are scheduled, on 22, 29 September, and 6, 13 October 2020 for comment resolution.

## 11. AOB:

None.

## 12. Adjourned: 13:20 hrs. EDT

# Attendance:

The following recorded their attendance in the 802.11 imat attendance tool:

|  |  |
| --- | --- |
| **Name** | **Affiliation** |
| Aboulmagd, Osama | Huawei Technologies Co. Ltd |
| An, Song-Haur | INDEPENDENT |
| Andersdotter, Amelia | None - Self-funded |
| Berkema, Alan | HP Inc. |
| Bredewoud, Albert | Broadcom Corporation |
| Carney, William | Sony Corporation |
| Cavalcanti, Dave | Intel Corporation |
| Chen, Cheng | Intel Corporation |
| Cho, Hanbyeog | ETRI |
| cho, shinho | allradio |
| Das, Dibakar | Intel |
| Davies, Robert | Signify |
| Derham, Thomas | Broadcom Corporation |
| Dong, Xiandong | Xiaomi Inc. |
| Fang, Yonggang | ZTE TX Inc |
| Gupta, Binita | Intel Corporation |
| han, oh | 101 Consulting Corporation |
| Inoue, Yasuhiko | Nippon Telegraph and Telephone Corporation (NTT) |
| Jeong, Yangseok | KT Corp. |
| JONES, JEFFRUM | Qorvo |
| Kain, Carl | Noblis, Inc. |
| Kerry, Stuart | OK-Brit; Self |
| Kim, Youhan | Qualcomm Incorporated |
| KIM, Youngjae | Telecommunications Technology Association (TTA) |
| Krieger, Ann | US Department of Defense |
| Lansford, James | Qualcomm Incorporated |
| Lee, Hyeong Ho | Netvision Telecom Inc. |
| Lee, Nancy | Signify |
| Levy, Joseph | InterDigital, Inc. |
| Loginov, Vyacheslav | IITP RAS |
| Murti, Wisnu | SeoulTech |
| NANDAGOPALAN, SAI SHANKAR | Cypress Semiconductor Corporation |
| Oh, Hyun Seo | Electronics and Telecommunications Research Institute (ETRI) |
| Qi, Emily | Intel Corporation |
| Rai, Kapil | Qualcomm Incorporated |
| Sadeghi, Bahareh | Intel Corporation |
| Sand, Stephan | German Aerospace Center (DLR) |
| Sedin, Jonas | Ericsson AB |
| Segev, Jonathan | Intel Corporation |
| Serafimovski, Nikola | pureLiFi |
| Smely, Di Dieter | Kapsch TrafficCom AG |
| Smith, Graham | SR Technologies |
| Stacey, Robert | Intel Corporation |
| Stanley, Dorothy | Hewlett Packard Enterprise |
| Stavridis, Athanasios | Ericsson AB |
| Sun, Bo | ZTE Corporation |
| Varshney, Prabodh | Nokia |
| Venkatesan, Ganesh | Intel Corporation |
| Wang, Hao | Tencent |
| Wentink, Menzo | Qualcomm Incorporated |
| Wilhelmsson, Leif | Ericsson AB |
| Wu, Kanke | Qualcomm Incorporated |
| yim, choon sik | RCN |
| Young, Christopher | Broadcom Corporation |
| Zuo, Xin | Tencent |

\*did not indicate attendance via IMAT – were present based on Webex participants list.