**Source: SA4 MTSI SWG Chairman[[1]](#footnote-0)**

**Title: Draft Report for MTSI SWG 20 Mar 2020 Teleconference #5 on ITT4RT**

**Document for: Approval**

**Agenda Item: 5.1**

## **Executive Summary**

The MTSI SWG teleconference on ITT4RT received five contributions, three of which were postponed from the last telco. The contributions on Viewport Control Signalling for Viewport Sharing/Following and RTCP Traffic were agreed after some modifications. The updates to Potential Solution on Overlays was revised then agreed. The proposal on Scene Description-based Solution for Overlays in ITT4RT was noted but an update is expected at SA4#108e. The proposal for An Alternative Potential Solution on Viewport Information Signaling was not discussed and will be covered in the next telco.

## **1. Opening of the conference call**

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| **Telco#5 (Topic: ITT4RT, Date: 20 Mar 2020, Time 15:00-17:00 CET, Host: Intel)** | * Update permanent document to include use cases, architecture / call flows, requirements, potential solutions, and working assumptions * Contribution submission deadline: 23:59 CET, 17 Mar, 2020 |

The SA4 MTSI SWG chairman, Nikolai Leung (Qualcomm), opened the conference call at about 16:04 hours CET on Mar 20, 2020.

Ozgur Oyman and Bo Burman volunteered to take minutes on the conference call. Nikolai also requested the participants to add their names to the attendance list at the end of the on-line minutes located here:

<https://docs.google.com/document/d/1abVckXuz-MaEDjEOzbU_5V-QiYFYcZ0ftSEAzRchW2Y/edit#>

## **2. Approval of the agenda and registration of documents**

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| S4-AHM518 | Proposed agenda for SA4 MTSI SWG 20 Mar 2020 Teleconference #5 on ITT4RT | MTSI SWG Chair  (Nikolai Leung) | 2 |

The MTSI SWG chairman Nikolai Leung (Qualcomm) presented the agenda and registration of documents.

**S4-AHM518 was agreed.**

## **3. Reports and liaisons**

## **4.** Support of Immersive Teleconferencing and Telepresence for Remote Terminals (ITT4RT)

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| S4-AHM512 | ITT4RT: Proposed Updates to Potential Solution on Overlays | Intel | 4 |

Presented by Ozgur Oyman of Intel. (This document is for some reason not present on the SA4 server but was sent on the list).

Discussion:

* Igor: Do we already have a “predefined overlay” definition, in addition to just “overlay”?
* Ozgur: We have a “predefined region” already in the PD in the context of overlays. This is trying to remain consistent with that. We can consider updating the terminology.
* Igor: We made some cleanup before.
* Ozgur: That was different. Clarifying the difference between overlay and viewport.
* Imed: The order of operations matters. Are you only considering overlays directly on the sphere?
* Ozgur: No. That would be a third category of overlays.
* Imed: What is then the order of operations?
* Ozgur: Follow the guidelines and conventions set by OMAF. I will add an editor’s note and provide an update for the next telco.
* Nik: What about the terminology raised by Igor?
* Igor: With “predefined”, it looks like it is fixed and without it, it looks like it could change over time.
* Ozgur: I’m removing all mentions of “predefined” and will include a definition of “overlay” from OMAF (making edits on-screen).
* Igor: I think that can be a good idea.
* Saba: Who defines the predefined regions?
* Ozgur: It is predefined in the sense that the overlay can be described in the SDP. It can be confusing. We can find a better terminology,
* Saba: Are you defining the overlay or the place?
* Ozgur: The place, the region. It is better to align with OMAF.
* Igor: That is good and fine for now.

The document was **revised to AHM527, which was agreed without presentation**.

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| S4-AHM515 | Viewport Control Signalling for Viewport Sharing/Following | Nokia Corporation | 4 |

Presented by Saba Ahsan of Nokia.

Discussion:

* Ozgur: To clarify, are you making UE C receive the same stream as was sent to UE B, based on its viewport?
* Saba: Yes. The diagram says “reject” but the text “accept”; I will align that to say “accept”.
* Ozgur: Does UE B’s and UE C’s capabilities have to be the same?
* Saba: No.
* Ozgur: So it would receive a stream corresponding to the same viewport but would have separate codec capabilities, etc?
* Saba: Yes. The only thing shared is the viewport and the source of viewport control.
* Ozgur: So the gateway would have to generate dedicated streams for each UE.
* Imed: If the two users are wearing HMD, one of them would not have head movements corresponding to the viewport.
* Saba: Yes, it was mentioned that this might make users motion-sick.
* Ozgur: We currently use RTCP FB signaling feedback such as viewport. It seems that the figure assumes regular RTCP reporting messages.
* Saba: Yes, I'll change to use FB.
* Ozgur: In “Immersive Media (RTP)” to UE C, it should perhaps say ...according to UE B viewport? You could e.g. say RTCP FB with viewport information?
* Saba: Yes.

The document was **agreed with the above modifications**.

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| S4-AHM516 | RTCP traffic in ITT4RT | Nokia Corporation | 4 |

Presented by X of Y.

Discussion:

* Nik: If the MTHQ delay is 100 ms, where is the 30 ms coming from?
* Saba: The round-trip and processing taking 70 ms.
* Ozgur: If you have multiple users in the conference, the bandwidth is split between users?
* Igor: Yes, we didn’t consider that yet.
* Bo: It also depends on how the RTP session is constructed, what the topology is, if everyone is in the same RTP session or not.
* Nik: Indicate in the conclusion of the fixed period feedback in case 1 that it is point-to-point.
* Igor: There are also RTCP bandwidth modifiers that can be used to set explicit RTCP bandwidth. We have not added that text either.
* Bo: In case 2, can you use larger degree steps if the angular motion is high, not having to send every 0.1 degree change?
* Saba: It requires some thought to define this event based scheme. We concluded that the fixed rate feedback would be preferable.
* Ozgur: Viewport-dependent may not be possible if the changes are too fast. Did you also consider what happens on packet loss for RTCP FB messages?
* Igor: There’s one sentence in case 1 that mentions losses and delays.
* Ozgur: Loss and reordering can create difficulties, but that is not addressed here. We should look into that as well.
* Igor: There can be some changes in the viewport refresh if RTCP is lost. More if many RTCP are lost.
* Saba: Would you not want a newer viewport rather than retransmit a lost one?
* Ozgur: You could send multiple duplicates. Did you consider jitter in receiving RTCP FB messages? The ratio of RTCP bandwidth alone would not give you the exact update frequency.
* Igor: Yes, this assumes no loss and no jitter.
* Ozgur: You may require some type of de-jitter buffer to make the viewport values stable. That could be a main consideration. I’d like to see an editor’s note that jitter was not considered.
* Igor: OK. I’m hoping to bring more contributions. This is just a first shot.
* Ozgur: We are leaning towards relying on other alternatives than using RTCP. (Adding editor’s notes on-screen).
* Saba: Can you elaborate on the use of jitter buffer?
* Ozgur: When receiving RTP you need a de-jitter buffer. The RTCP packets could be received out of sequence if the jitter is large.
* Nik: Why can’t the receiver just look at the latest RTCP?
* Ozgur: If you want good quality, you may want to get rid of jitter. I think we can leave it at jitter was not considered.

The document was **agreed with the above changes**.

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| S4-AHM525 | Scene Description-based Solution for Overlays in ITT4RT | Qualcomm Incorporated | 4 |

Presented by Imed Bouazizi of Qualcomm (this was called AHI525 on the reflector and on the server).

Discussion:

* Ozgur: I have a concern that the scene description in MPEG-I is just defined and to integrate it in ITT4RT at this stage.
* Imed: I agree. Scene description work has just started. We want to get basic work as soon as possible, but include more advanced things later. It may be possible to get this done in time of Rel-17. This goes beyond overlay. We want this to be considered a potential solution for now. We can perhaps use ITT4RT as a channel to MPEG. We can decide towards the end of ITT4RT to include it or not.
* Ozgur: I’m OK to document this scene description as an alternative in the PD. This should not stop us to specify overlays that do not rely on scene descriptions.
* Imed: We can do an overlay solution and have scene descriptions as a more advanced alternative.
* Ozgur: I’m not so happy to document that SDP is not a suitable solution, etc. We need to dig a bit more into how these things will work together and continue also with the SDP-based solutions. In the long term, it could still be good to include scene descriptions.
* Imed: We had (2D) scene descriptions based on SMIL in PSS. I don’t see that as a problem. I agree that scene description support should be part of the negotiation. Describing order of operations, like rotation, scaling, etc. will be problematic in SDP. We should also have a solution for richer calls in ITT4RT.
* Igor: The MPEG work is good in general, but for a longer term. I’d like to have more time before making a decision on this document. We should perhaps take baby steps.
* Imed: We have plenty of time for Rel-17.

The document was **noted**.

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| S4-AHM526 | An Alternative Potential Solution on Viewport Information Signaling | Intel | 4 |

The document was **not discussed**.

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| S4-AHM527 | ITT4RT: Proposed Updates to Potential Solution on Overlays | Intel | 4 |

Agreed without presentation.

## **5. Review of the future work plan**

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| --- | --- |
| SA#87 (18-20 Mar 2020, e-meeting) | · Approval of CRs to TS 26.114 and TS 26.223 |
| SA4#108 (6-9 April 2020, Sophia Antipolis, France) | · Updates of time plan as found necessary  · Update permanent document to keep track of potential solutions and working assumptions addressing work item objectives  · Agree on CRs to TS 26.114 and TS 26.223 addressing the work item objectives  · Schedule telcos as needed to ensure consistent progress |
| SA4#109 (25-29 May 2020, TBD) | · Updates of time plan as found necessary  · Update permanent document to keep track of potential solutions and working assumptions addressing work item objectives  · Agree on CRs to TS 26.114 and TS 26.223 addressing the work item objectives  · Schedule telcos as needed to ensure consistent progress |
| SA#88 (17-19 Jun 2020, Malmo, Sweden) | · Approval of CRs to TS 26.114 and TS 26.223 |
| SA4#110 (24-28 Aug 2020, EU) | · Updates of time plan as found necessary  · Update permanent document to keep track of potential solutions and working assumptions addressing work item objectives  · Agree on CRs to TS 26.114 and TS 26.223 addressing the work item objectives  · Schedule telcos as needed to ensure consistent progress |
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| SA#90 (9-11 Dec 2020, USA) | · Approval of CRs to TS 26.114 and TS 26.223  · WI Completion |

## **6. Any Other Business**

None.

## **7. Close of the conference call**

Call was closed at 17:16 CET.

List of Annexes:

1. Annex 1: Meeting Agenda (the final revision)

2. Annex 2: List of documents

3. Annex 3: List of participants

## **Annex 1: Meeting Agenda (the final revision)**

**Source: SA4 MTSI SWG Chairman[1]**

**Title: Proposed agenda for SA4 MTSI SWG 20 Mar 2020 Teleconference #5 on ITT4RT**

**Document for: Approval**

**Agenda Item: 2**

**1. Opening of the conference call**

|  |  |
| --- | --- |
| **Telco#5 (Topic: ITT4RT, Date: 20 Mar 2020, Time 16:00-18:00 CET, Host: Intel)** | * Update permanent document to include use cases, architecture / call flows, requirements, potential solutions, and working assumptions * Contribution submission deadline: 23:59 CET, 17 Mar, 2020 |

**2. Approval of the agenda and registration of documents**

|  |  |  |  |
| --- | --- | --- | --- |
| **S4-AHM518** | **Proposed agenda for SA4 MTSI SWG 20 Mar 2020 Teleconference #5 on ITT4RT** | **MTSI SWG Chair**  **(Nikolai Leung)** | **2** |

**3. Reports and liaisons**

**4. Support of Immersive Teleconferencing and Telepresence for Remote Terminals (ITT4RT)**

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| --- | --- | --- | --- |
| **S4-AHM512** | **ITT4RT: Proposed Updates to Potential Solution on Overlays** | **Intel** | **4** |
| **S4-AHM515** | **Viewport Control Signalling for Viewport Sharing/Following** | **Nokia Corporation** | **4** |
| **S4-AHM516** | **RTCP traffic in ITT4RT** | **Nokia Corporation** | **4** |

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| **S4-AHM525** | **Scene Description-based Solution for Overlays in ITT4RT** | **Qualcomm Incorporated** | **4** |
| **S4-AHM526** | **An Alternative Potential Solution on Viewport Information Signaling** | **Intel** | **4** |
| **S4-AHM527** | **ITT4RT: Proposed Updates to Potential Solution on Overlays** | **Intel** | **4** |

**5. Review of the future work plan**

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| **SA#90 (9-11 Dec 2020, USA)** | **·** Approval of CRs to TS 26.114 and TS 26.223  · WI Completion |

**6. Any Other Business**

**7. Close of the conference call**

Note: The deadline for document submission is **17 Mar 2020 @ 23:59 PM CET**. Please ask the MTSI SWG Chair for Tdoc# assignments.

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Tdoc “colour code”: **black** = submitted for the meeting

**blue** = postponed from an earlier SA4 meeting

**red**  = covered during this meeting

**grey** = late submission

**~~strikethrough~~** = withdrawn

Conclusion codes: **a = agreed**

**app = approved**

**n = noted**

**u = updated**

**np = not pursued**

**pp = postponed**

***Note: These conclusion codes appearing in the agenda are only informative. Please refer always to the main body of the meeting report for precise and complete explanation of decisions for each document.***

Other notations: \* = allocated under more than one agenda item

-> = replaced by, [or] action follows

"Noted": A document is "noted" to indicate that its content was made available to the meeting, but that the document itself was not agreed or endorsed by the meeting. Any agreements or actions resulting from discussion of the document are explicitly indicated in the meeting report.

**[1] Nikolai Leung (nleung@qti.qualcomm.com)**

## Annex 2: List of documents

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc** | **Title** | **Source** | **Agenda Item** | **Conclusion** |
| S4-AHM518 | Proposed agenda for SA4 MTSI SWG 20 Mar 2020 Teleconference #5 on ITT4RT | MTSI SWG Chair  (Nikolai Leung) | 2 | Agreed |
| S4-AHM512 | ITT4RT: Proposed Updates to Potential Solution on Overlays | Intel | 4 | Revised to S4-AHM527 |
| S4-AHM515 | Viewport Control Signalling for Viewport Sharing/Following | Nokia Corporation | 4 | Agreed with modifications |
| S4-AHM516 | RTCP traffic in ITT4RT | Nokia Corporation | 4 | Agreed with modifications |
| S4-AHM525 | Scene Description-based Solution for Overlays in ITT4RT | Qualcomm Incorporated | 4 | Noted |
| S4-AHM526 | An Alternative Potential Solution on Viewport Information Signaling | Intel | 4 | Not treated |
| S4-AHM527 | ITT4RT: Proposed Updates to Potential Solution on Overlays | Intel | 4 | Agreed (w/o presentation) |

## **Annex 3: List of participants**

|  |  |
| --- | --- |
| **Name** | **Organization Represented** |
| Abdelmalek, Yousef | ? |
| Ahsan, Saba | Nokia Corporation |
| Bai, Yaxian | ZTE Corporation |
| Bouazizi, Imed | Qualcomm |
| Bhullar, Gurdeep | Fraunhofer HHI |
| Burman, Bo | Ericsson LM |
| Cheng, Huang | ZTE |
| Curcio, Igor | Nokia Corporation |
| Gunkel, Simon | KPN N.V. |
| Han, Jae-Shin | LG Electronics Inc. |
| Leung, Nikolai | Qualcomm Incorporated |
| Oyman, Ozgur | Intel |
| Pousi, Timo | Ericsson LM |
| Szucs, Paul | Sony Corporation |
| Wang, Min | Qualcomm Incorporated |
| Zhang, Zhuoyun | Tencent |

1. Nikolai Leung [↑](#footnote-ref-0)