3GPP TSG-SA4 Meeting #125 ***S4-231195r04***

Goteborg, Sweden, 21st Aug 2023 - 25th Aug 2023

**Agenda item:** 6.2

**Source:** Qualcomm Incorporated, Samsung

**Title:** Principle Alignment of Media Functions and Protocols for 5GMS and RTC

**Document for** Agreement

# Introduction

In document S4aI230132, Qualcomm provided input to the discussion on media service architectures and specifications in SA4. The details notes and agreements are provided below.

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| [S4aI230132](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/3GPP_SA4_AHOC_MTGs/SA4_MBS/Docs/S4aI230132.zip) | [ARCH] Alignment of Media Functions and Protocols | Qualcomm CDMA Technologies | Thomas Stockhammer |

**Presenter**: Thomas Stockhammer

**Online Discussion**:

* Stephane: How do you see communication services in 26.114 in relation to this? I have some questions about the naming. Do we have a new spec in parallel to 26.114 or replace?
  + Thomas: 26.114 is out of scope for this. It would proceed separately.
* Yoshihiro: How will the differences between 5GMS and RTC be covered? For example, under Figure 2, Media AS is described as dedicated to media delivery. How about RTC aspects? It needs to support WebRTC signaling aspects at least.
  + Thomas: These are details for starting point. We could extend the definition to include all the RTC aspects during this work.
* Spencer: Question on bullet point 5: if we are adding everything to 26.114, do you feel that we will be adding everything to 114?
  + Thomas: I believe it would be a large unstructured document if we add to 114. Preference is not to aggregate everything in 114. It would be better if we start with a blank page.
  + Spencer: I would support starting new
  + Richard: I think we are going to have the problem of mingling different aspects and domains anyway even if we start a new spec. Do we envisage the two new specs are abstractions of M1 and M5. Is that the idea?
  + Thomas: I believe we will have a hard time to separate media streaming and real time communication anyway. We have to look at each feature separately
  + Richard: It may not be much different to either update the current spec, or end up having new specs. Starting with a new spec might be appealing.
* Spencer: Table 1 is helpful. It will help us understand and make it clear as to the features that are supported.
* Iraj: About “add updated functionalities directly to TS 2651x and TS 26.51y, add reference from 26.512 as needed” - when we are adding new text, how do we make sure we are not conflicting 512 text. Do we need to be checking? There might be issues
  + Thomas: Yes, we need to careful. Make sure we are doing it carefully everytime we add some new text to new spec.
* Richard: WIth this proposal , where would be OpenAPI live for Rel-18, and what would happen with Open API for Rel17?
  + Thomas: It would stay as is right? We need a bit of thinking. We can address this
* Yoshihiro: Title of 51y has to be modified.
* Yoshihiro: In conclusion #4, we have to add an objective for creating specifications about protocols.
  + Thomas: It is included in item 3, as it is in 26.506, and we are bringing everything from 26.506.

**Decision**: agreed. Implementation of agreements needed

[S4aI230132](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/3GPP_SA4_AHOC_MTGs/SA4_MBS/Docs/S4aI230132.zip) is **agreed**.

In S4aI230144 as a follow-up was provided

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| [S4aI230144](https://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/3GPP_SA4_AHOC_MTGs/SA4_MBS/Docs/S4aI230144.zip) | [ARCH] Alignment of Media Functions and Protocols - Next Steps | Qualcomm CDMA Technologies | Thomas Stockhammer |

**Presenter**: Thomas Stockhammer

**Online Discussion**:

* Thorsten: Does 26.512 contain definition around media session handling
* Yoshihiro: What is the purpose of this paper? I have some comments on the draft of the new WID.
* Thomas: Paper requests agreement on proposed implementation specified in clause 4.
* Richard: What is the motivation for dividing the specs? What is wrong in having 26.512 defining both of them
* Thomas: In my opinion, there is value in doing them independently
* Richard: A simpler thing to do might be to extend 26.512, instead of starting a new spec.
* Thomas: I believe 26.512, as it is written now, is hard to extend. We can discuss on this, but need to make decision at some point
* Richard: Given the timeframe, recycling 26.512 may be more  beneficial than starting some new specifications. This proposal is ambitious, but the work isn’t trivial, using either proposal.
* Yoshihiro: We need to clarify the scope of 4a (ii) c. We need to clarify all the aspects as part of this objective
* Thomas: This is not the complete list of objectives. Everyone needs to think of the objectives
* Yoshihiro: Thank you. I understand we agree with the way forward, not concrete objectives in the table in clause 4..
* Thorsten: Current title of 26.512 is very generic (“5G Media Streaming (5GMS); Protocols”), not specific to media session handling or media streaming. It will be good to be clear on titles of new specifications
* Thorsten: I am in favor of recycling 26.512, but given the very generic title of 26.512, I am open to new specifications. Still thinking.
* Iraj: We have stage-3, and we are adding extensions (e.g., uplink streaming interfaces) to 26.512. At the same time we are talking about new specs. We have two moving parts. How do we make changes - to 26.512 first and then the new specifications afterwards, or something else?
* Thomas: New specs will only exist at the Chicago meeting and onwards. Until then all agreements will go to 26.512. Once the new specs are ready, we can add references in 26.26.512
* Imed: If we are defining RTC stage-3 procedures, could we start with PD so we can start at this meeting.
* Thomas: We do not have agreement on the proposed work item yet. Propose to use a draft TS. It can be used instead of the PD.

**Decision**:

S4aI230144 is **noted**.

Also, after the call, another set of comments were received by BBC here

|  |  |  |
| --- | --- | --- |
| [[5GMS\_Pro\_Ph2|RTC|ARCH] S4aI230132->S4aI230144: Alignment of Media Functions and Protocols - Next Steps](https://list.etsi.org/scripts/wa.exe?A2=3GPP_TSG_SA_WG4_MBS;9cf1f813.2308B&S=) | Richard Bradbury <richard.bradbury@RD.BBC.CO.UK> | Fri, 11 Aug 2023 12:05:29 +0100 |

**Specification naming**

We need to get this right if we decide to go for one/two new stage 3 Technical Specifications because, as Thorsten pointed out, it's not possible to change this once a TS is published. The current proposal is:

1. TS 26.51x: "5G Media Session Handling" addressing stage-3 Media Handling features and interfaces M1, M5 and M6 for all media services.
2. TS 26.51y: "5G Media Content Delivery" addressing stage-3 Media Content delivery features and interfaces M2, M3, M4 and M7 for all media services taking into account different content and media delivery protocols.

There was some discussion on this yesterday, plus a previous objection to "content delivery" in the name that hadn't been taken into account.

I suggest something more functional that more obviously describes the two heritages that are being combined here:

1. TS 26.51x: "Object- and packet-based media streaming; protocols and APIs for media session handling"
   * addressing stage-3 Media Handling features and interfaces M1, M5 and M6 for all media services.
2. TS 26.51y: "Object- and packet-based media streaming; protocols and APIs for media stream handling"
   * addressing stage-3 Media Content delivery features and interfaces M2, M3, M4 and M7 for all media services taking into account different content and media delivery protocols.

I noted from the gap analysis in contribution S4aI230143 the unfortunate complication that trusted session management is actually done at reference point M4 rather than M5 in the case of the RTC architecture. This muddies the water somewhat *vis à vis* the division of responsibilities between the proposed generic Media AF and Media AS functions.

It would be more logical to seat the **trusted signalling function** in the Media AF rather than the Media AS, but I suspect it's so deeply entwined in the underlying WebSocket protocol with the media for that to be technically possible (and maybe it wouldn't be desirable anyway for operational reasons). So we are left with a slightly less than perfect division of functional responsibilities in that case.

**Reference point M3**

The current proposal is that reference point **M3** is specified in the second new Technical Specification.

For configuration of the Media AS by the Media AF, this makes sense because configuration is a service exposed by the AS to the AF. Squint a bit, and we could stretch this to encompass notification of health and load by the AS to the AF in the opposite direction.

On the other hand, contribution S4aI230143 makes reference to a **QoS control** subfunction of the RTC AS, and I commented on this in yesterday's call. Since neither the RTC AS nor the proposed generic replacement Media AS function are connected to the PCF/NEF, QoS management for RTC needs to be mediated through the Media AF (which *is* connected to the PCF/NEF). This implies the need for some kind of QoS management service to be exposed by the Media AF to the Media AS at reference point **M3**. This feels like it belongs more in the first of the proposed new Technical Specifications rather than the second. This could also be a way to act on CTA WAVE CMCD signalling sent by the Media Player via reference point **M4**. One way of achieving this would be to expose (suitably renamed) *M5\_NetworkAssistance* and *M5\_DynamicPolicy* services to the Media AS via **M3** in addition to **M5**.

In addition, I wonder whether the RTC AS has some Quality of Experience metrics to report to the RTF AF? This could be achieved by the Media AF exposing a service to the Media AS very similar to *M5\_MetricsReporting* via reference point **M3**. Again, this feels like it belongs more in the first of the proposed new Technical Specifications rather than the second.

So, maybe the proposal needs to be amended to acknowledge that **M3** services are divided across the two documents.

**Data reporting**

The first time we reviewed the proposal, I asked where data reporting fitted in, and this question hasn't been addressed yet either. There are two relevant features of TS 26.512 to consider:

* *Data reporting by 5GMS AS to Data Collection AF instantiated in 5GMS AF* (reference point **R4**).
  + This is used in Rel-17 to report M4 access logs.
* *Data reporting by Direct Data Collection Client instantiated in 5GMS Client to Data Collection AF instantiated in 5GMS AF* (reference point **R2**).
  + This is a new Rel-18 feature in scope for 5GMS\_Pro\_Ph2 to support data reporting of ANBR-based Network Assistance.

Because the target of data reporting is always Data Collection AF instantiated in 5GMS AF, it feels like this would belong in the first of the two proposed new Technical Specifications. This detail could usefully be added to the proposal.

**Event exposure**

This seems to fit squarely within the scope of the first of the two proposed new Technical Specifications. This detail could also usefully be added to the proposal.

This document takes into account the comments received during the AHG group phase. From here on revision marks are applied.

# Background

In S4-230818, commonalities and differences between the across the different work items and specifications were identified.

Commonalities across different work items are summarized in the following. For Media Delivery, extensions to the 5G System architecture were developed to address media delivery. This includes different delivery systems including download, streaming, real-time communication, etc. Key in the media delivery is that the media is time-continuous. Streaming points to the fact that the media is predominantly sent only in a single direction and consumed as it is received. Real-time communication refers more to bi-directional traffic for which media is delivered in both directions.

Generalized Media Support within the 5G System is shown in Figure 1 and Figure 2 below.



Figure 1 – Generalized Media Support within the 5G System



Figure 2 Generalized 5G Media Delivery Architecture

Functional definitions may be generalized as follows:

- **Media AF:** An Application Function similar to that defined in TS 23.501, clause 6.2.10, dedicated to 5G Media Delivery.

- **Media AS:** An Application Server dedicated to 5G Media Delivery.

- **Media Client:** A UE internal function dedicated to 5G Media Delivery.

- **Media Session Handler:** A function on the UE that communicates with the Media AF in order to establish, control and support the delivery of a media session.

- **Media Access Function:** A UE internal function A function on the UE that communicates with the Media AS in order to access and deliver media content. The media access function for example may be further sub-divided into content delivery protocols, codecs, media types and metadata representation.

The following interfaces and APIs may be defined for 5G Media Delivery:

- M1 (Provisioning API): External API, exposed by the Media AF which enables the Media Application Provider to provision the usage of the 5G Media Delivery and to obtain feedback.

- M2 (User Plane interface): External interface provided by the Media AS and used when the Media AS in the trusted DN to exchange data media data with the application service provider.

- M3: (Server Configuration API): API used to exchange information between Media AF and Media AS for configuration purposes.

- M4 (Media Delivery Interface): Interface and reference point between media access function and Media AS in order to exchange media content.

- M5 (Session Handling API): APIs exposed by a Media AF to the Media Session Handler for media session handling, control, reporting and assistance that also include appropriate security mechanisms, e.g. authorization and authentication.

- M6 (Client Configuration APIs): APIs exposed by a Media Session Handler to the Application and media access function for client-internal communication.

- M7 (Media Access APIs): APIs exposed by a Media Access function to configure and communicate with the Media access function.

- M8 (Application reference point): application interface used for information exchange between the Media Application and the Media Application Provider.

While on architecture and interface level, commonalities are pretty obvious, questions may arise what is common on the next level. For this, the core functions are further divided into

- Media Delivery Functions including codecs, content delivery protocol, encapsulation

- Media Session Handling functions

What has been of lower priority until now, but is getting more importance and never found a real home, are aspects around HTTP versions, HTTP headers in use, the usage and configuration for HTTP and QUIC for media user plane services, secure media delivery, and so on. While some of those aspects may be dealt specifically for a stack, some layering is needed, and also components, extensions and profiling of these stacks is needed.

A summary what may be useful for either of the frameworks is provided in Table 1.

Table 1 Overview of media and media handling functions in different service scenarios

|  |  |  |  |
| --- | --- | --- | --- |
| Feature | Downlink media streaming | Uplink media streaming | Real-time communication |
| Media Delivery Functions and Protocols | | | |
| **CMAF** | Yes | yes | No |
| **DASH/HLS** | Yes | No | No |
| **MP4** | Yes | No | No |
| **RTP/AVP** | Not until now | Not until now | No |
| **webRTC** | Not until now | Not until now | yes |
| **HTTP/1.1 and TCP/IP** | Yes | Yes | No |
| **HTTP/2** | Yes | Yes | No |
| **HTTP/3 and QUIC** | Yes | Yes | No |
| **UDP/IP** | Yes | Yes | yes |
| Media Handling Functions | | | |
| Service Access | Yes | Yes | Yes  In form of configuration information |
| Content hosting | Yes | No | ??? |
| Content publishing | No | Yes | ??? |
| Content preparation | Yes | No | ??? |
| Network assistance | Yes | Yes | Yes |
| Dynamic policies | Yes | Yes | Yes |
| Remote control | No | Yes | ??? |
| Consumption reporting | Yes | No | Yes |
| QoE metrics reporting | Yes | ??? | ??? |
| Service URL Handling | Yes | Yes | Yes |
| Edge Computing | Yes | Yes | Yes |
| eMBMS delivery | Yes | No | ??? |
| Data Collection | Yes | ??? | ??? |
| MBS delivery | Yes | No | ??? |
| Event exposure | Yes | Yes | ??? |

At the end, many of the features collected above may be considered a toolbox which are applicable to different service scenarios. Differences for the different service scenarios in the content delivery protocols as well as in the applicable tools.

# Agreed Actions and Proposals from S4-230132

Based on the SA4 agreements, the status check and the background, the following concrete actions and proposals are need to be taken

1. Reconfirm that a separation on stage-3 in user plane (AS and Media Client) and control plane (AF and Media Session Handler) independent of the Media Service is a principle way forward. (see agreement 5 in Table 2-1)
2. Minimize in the remaining Rel-18 timeframe the work on stage-2 in TS 26.501 and TS 26.506, but address this principle agreement by adding the proposal 2 in Table 2-1 to TS 26.506 and TS 26.501 in CRs at SA4#125.
3. At the end of Rel-18, have (addressing agreement 6 in Table 2-1)
   1. two new stage-3 specifications
      1. TS 26.51x: "5G Media Session Handling" addressing stage-3 Media Handling features and interfaces M1, M5 and M6 for all media services.
      2. TS 26.51y: "5G Media Content Delivery" addressing stage-3 Media Content delivery features and interfaces *M2, M3, M4 and M7* for all media services taking into account different content and media delivery protocols.
   2. TS 26.512 and possibly other specifications referring to specific features in these new specifications, and gradually deprecate this.
4. In order to get to this, (implementing the second option of 6 in Table 2-1)
   1. create a new stage-3 work item as follows
      1. 5G Media Delivery – General Features, Real-time Communication and Alignment with Streaming
      2. Main objectives:
         1. Create a generalized media session handling framework consolidating the stage-3 specification for interfaces M1, M5 and M6
         2. Create a generalized media delivery framework consolidating the stage-3 specification for interfaces M2, M3, M4 and M7
         3. Address the stage 3 functionalities of TS 26.506 in alignment with functionalities already defined in TS 26.512.
      3. Impacted specifications: TS 26.51x, TS 26.51y
   2. Update the stage-3 work item 5GMS\_Pro\_Ph2 as follows
      1. Add to the objectives
         1. Support a generalized media session handling framework consolidating the stage-3 specification for interfaces M1, M5 and M6
         2. Support a generalized media delivery framework consolidating the stage-3 specification for interfaces M2, M3, M4 and M7
      2. Add new functionalities directly to TS 26.51x and TS 26.51y, and reference from TS 26.512 as needed.
      3. Add updated functionalities directly to TS 26.51x and TS 26.51y, and reference from TS 26.512.
      4. Updated impacted specifications and add TS 26.51x, TS 26.51y
   3. Run a permanent document on the side to investigate the commonality and differences between 26.501 and 26.506 especially for the functionalities, interfaces, procedures, and resources associated and document them in TS 26.506 using the progress and findings on a common stage-3 specification. (addressing proposal 4 in Table 2-1)
   4. Run these two work items in a single SA4 SWG or in a joint session of two SWGs.
5. ~~If proposal 3 is not acceptable for Rel-18 then consider~~
   1. ~~not creating any new specification, but add everything to TS 26.512 and use a subset of the proposal 4 (implementing the first option of 6 in Table 2-1)~~
   2. ~~re-using existing specifications such TS 26.113~~

If proposals are agreed, we will support the procedures by:

* drafting relevant work items and work item updates
* supporting being rapporteur of work items, specifications and permanent documents
* support execution of the above plans

# Proposed Implementation of Agreements

Based on the discussion during SA4#125, the following way forward is proposed

|  |  |  |
| --- | --- | --- |
| # | Agreed proposal in S4aI0132 | Proposed Implementation |
| *1* | Reconfirm that a separation on stage-3 in media delivery (AS and Media Client) and media session handling (AF and Media Session Handler) independent of the Media Service is a principle way forward. | Confirm agreement at SA4#125 |
| *2* | Minimize in the remaining Rel-18 timeframe the work on stage-2 in TS 26.501 and TS 26.506, but address this principle agreement by adding the proposal 2 in Table 2-1 (see below) to TS 26.506 and TS 26.501 in CRs at SA4#125.  *Add a diagram to TS 26.506 (or at least at a bullet point to the outstanding issues) to address that RTC AF and 5GMS AF functionalities are included in a common Media AF on the network and also the Media Session Handler.*   * *A conceptual example is illustrated as follows; (Note: Dotted line in RTC AF means it may need further clarification along with its stage-3 work)*     *Encourage that the same action is done in TS 26.501 to add a not* | Create a CR for TS 26.501. See S4-231196.  Create a CR for TS 26.506.  See S4-231197. |
| *3* | At the end of Rel-18, have (addressing agreement 6 in Table 2-1)   1. three new stage-3 specifications    1. TS 26.51x: "5G Media Session Handling" addressing stage-3 Media Handling features and interfaces M1, M5 and M6 for all media services.    2. TS 26.51y: "5G Media Content Delivery" addressing stage-3 Media Content delivery features and interfaces *M2, M3, M4 and M7* for all media services taking into account different content and media delivery protocols.    3. TS 26.113: "Enablers for immersive Real-time Communication” 🡺 “Real-time Communication: Protocols and APIs” 🡺 “Media delivery: Protocols and APIs for Real-time Communication” 2. TS 26.512 and TS 26.113 referring to specific features in the first two new specifications, and gradually move common features to them. | Provide Draft TS 26.51x. See S4-231198 "Draft TS 26.51x: Media delivery; APIs for media session handling" (preferably vast majority of OpenAPI spec included here) => Rel-18  Provide Draft TS 26.51y.  See S4-231199 "Draft TS 26.51y: Media delivery; protocols and APIs for media transport" => potentially Rel-19  Update TS26.113 accordingly |
| *4a* | create a new stage-3 work item as follows   1. 5G Media Delivery – General Features, Real-time Communication and Alignment with Streaming 2. Main objectives:    1. Create a generalized media session handling framework consolidating the stage-3 specification for interfaces M1, M5 and M6    2. Create a generalized media delivery framework consolidating the stage-3 specification for interfaces M2, M3, M4 and M7    3. Address the stage 3 functionalities of TS 26.506 in alignment with functionalities already defined in TS 26.512.   Impacted specifications: TS 26.51x, TS 26.51y | See S4-231200 "New Draft WID: Object- and packet-based media delivery: General Features, Real-time Communication and Alignment with Streaming (OPAMEDIA)" |
| *4b* | Update the stage-3 work item 5GMS\_Pro\_Ph2 as follows   1. Add to the objectives    1. Support a generalized media session handling framework consolidating the stage-3 specification for interfaces M1, M5 and M6    2. Support a generalized media delivery framework consolidating the stage-3 specification for interfaces M2, M3, M4 and M7 2. Add new functionalities directly to TS 26.51x and TS 26.51y, and reference from TS 26.512 as needed. 3. Add updated functionalities directly to TS 26.51x and TS 26.51y, and reference from TS 26.512.   Updated impacted specifications and add TS 26.51x, TS 26.51y | Attached is a draft update for 5GMS\_Pro\_Ph2 work item  see S4-231201 "Updates to WID for 5G Media Streaming Protocols Phase 2" |
| *4c* | Update iRTCw work item to address the following   * Making it the stage3 work item for TS26.506 * Referencing common media session handling and media protocols from the specifications 51x and 51y * Add a dependency to the new work item on OPAMEDIA | Some work is still needed on thie matter. |
| *4d* | Run a permanent document on the side to investigate the commonality and differences between 26.501 and 26.506 especially for the functionalities, interfaces, procedures, and resources associated and document them in TS 26.506 using the progress and findings on a common stage-3 specification.  Also identify potential bug fixes for TS 26.506 based on the work on stage-3. | Provide Draft PD  See S4-231202 Draft Permanent Document: Commonalities and Differences between TS 26.501 and TS 26.506 |
| *4e* | Run the new work item in a single SA4 SWG or in a joint session of two SWGs.  Continue the work on iRTCw in RTC  Continue the work on 5GMS\_Pro\_Ph2 in MBS | Attached is a draft work plan S4-231203 Proposed Work Plan for Object- and packet-based media delivery: General Features, Real-time Communication and Alignment with Streaming (OPAMEDIA) |

# Updated Proposed Implementation of Agreements

During SA4#125, some discussions were done and based on new information and input an intermediate set of proposals was developed that was further discussed. The most important development was the agreement that the iRTCw work item can serve as stage-3 work item of TS 26.506 and that TS 26.113 can serve as the stage-3 specification of TS 26.506.

Of those developments, the ones that are marked as green are agreed, yellow postponed, pink rejected.

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| --- | --- | --- |
| # | Updated Proposal | Proposed Implementation |
| *2* | Minimize in the remaining Rel-18 timeframe the work on stage-2 in TS 26.501 and TS 26.506, but address this principle agreement by adding the proposal 2 in Table 2-1 (see below) to TS 26.506 and TS 26.501 in CRs at SA4#125.  *Add a diagram to TS 26.506 (or at least at a bullet point to the outstanding issues) to address that RTC AF and 5GMS AF functionalities are included in a common Media AF on the network and also the Media Session Handler.*   * *A conceptual example is illustrated as follows; (Note: Dotted line in RTC AF means it may need further clarification along with its stage-3 work)*     *Encourage that the same action is done in TS 26.501 to add a not* | Create a CR for TS 26.501. See S4-231196.  Create a CR for TS 26.506.  See S4-231197.  Postponed |
| *3* | At the end of Rel-18, have   1. one new stage-3 specifications 2. TS 26.51x: " TS 26.51x: Media delivery; APIs for media session handling" addressing stage-3 Media Handling features and interfaces M1, M5 and M6 for all media services. 3. Option 1: Rename and refocus TS 26.113 to be the media transport for real-time communication 4. "Enablers for immersive Real-time Communication” 🡺 “Real-time Communication: Protocols and APIs for media transport” 5. Address stage-3 Media Content transport features and interfaces *RTC-2, RTC-3, RTC-4 and RTC-7* for what is defined in TS26.506 6. Stage-3 for *RTC-1*, *RTC-5* and *RTC-6* is defined in TS 26.51x 7. Option 2: Rename and refocus TS 26.113 to stage-3 for real-time communication 8. "Enablers for immersive Real-time Communication” 🡺 “Real-Time Communication; Protocols and APIs” 9. Stage-3 for all interfaces defined in TS26.506 are defined in TS 26.113 10. Address stage-3 Media Content transport features and interfaces *RTC-2, RTC-3, RTC-4 and RTC-7* directly in the specification 11. Reference to TS 26.51x for *RTC-1*, *RTC-5* and *RTC-6* 12. Option 3: Rename and refocus TS 26.113 to be the media transport for all services in the future 13. "Enablers for immersive Real-time Communication” 🡺 “Media delivery; protocols and APIs for media transport” 14. Keep the scope generic to add *M2, M3, M4 and M7* for all media services taking into account different content and media delivery protocols in future Releases, also from TS 26.512, but not in Rel-18 15. In Rel-18, only address the addressing stage-3 Media Content delivery features and interfaces *RTC-2, RTC-3, RTC-4 and RTC-7* for what is defined in TS26.506 16. Stage-3 for *RTC-1*, *RTC-5* and *RTC-6* is defined in TS 26.51x 17. Update TS 26.512 18. refers to specific features in TS 26.51x for media session handling if moved 19. If option 3 is defined, in Rel-19 start moving media transport functions related to *M2, M3, M4 and M7* to TS 26.113 20. If option 1 is defined, possibly in Rel-19 start moving media transport functions related to *M2, M3, M4 and M7* to a new specification TS 26.51y | Provide Draft TS 26.51x. See S4-231198 "Draft TS 26.51x: Media delivery; APIs for media session handling" (preferably vast majority of OpenAPI spec included here) => Rel-18  Update TS26.113 based on the chosen option  Do not create TS 26.51y in Rel-18 |
| *4a* | create a new stage-3 work item as follows   1. Media Session Handling – General Features, Real-time Communication and Alignment with Streaming 2. Main objectives:    1. Create a generalized media session handling framework consolidating the stage-3 specification for interfaces M1, M5 and M6    2. Address the stage 3 functionalities of TS 26.506 for RTC-1, RTC-5 and RTC-6 in alignment with functionalities already defined in TS 26.512.   Impacted specifications: TS 26.51x | See S4-231200r01 "New Draft WID: Media Session Handling – General Features, Real-time Communication and Alignment with Streaming (MEDIAHAND)" |
| *4b* | Update the stage-3 work item 5GMS\_Pro\_Ph2 as follows   1. Add to the objectives    1. Support a generalized media session handling framework consolidating the stage-3 specification for interfaces M1, M5 and M6 2. Add new functionalities directly to TS 26.51x and reference from TS 26.512 as needed.   Updated impacted specifications and add TS 26.51x | Attached is a draft update for 5GMS\_Pro\_Ph2 work item  see S4-231201r01 "Updates to WID for 5G Media Streaming Protocols Phase 2" |
| *4c* | Update iRTCw work item to address the following   * Making it the stage-3 work item for TS26.506 * Depending on option chosen, possibly add referencing common media session handling and media protocols from the specifications 51x | Some work is still needed on thie matter. |
| *4d* | Run a permanent document on the side to investigate the commonality and differences between 26.501 and 26.506 especially for the functionalities, interfaces, procedures, and resources associated and document them in TS 26.506 using the progress and findings on a common stage-3 specification.  Also identify potential bug fixes for TS 26.506 based on the work on stage-3. | Provide Draft PD  See S4-231202 Draft Permanent Document: Commonalities and Differences between TS 26.501 and TS 26.506 |
| *4e* | Run inputs to 26.51x in a single SA4 SWG or in a joint session of two SWGs.  Continue the work on iRTCw (independent of TS 26.51x) in RTC  Continue the work on 5GMS\_Pro\_Ph2 (independent of TS 26.51x) in MBS | Attached is a draft work plan S4-231203r01 Proposed Work Plan for Media Session Handling – General Features, Real-time Communication and Alignment with Streaming |

# Final proposed way forward for SA4#125

Based on the colour coding and decisions above, the following actions are proposed as a way forward for SA4#125:

1. Make iRTCw the stage-3 work item for TS 26.506 and updates accordingly including
   1. Add dependency to 5GMS\_Pro\_Ph2
   2. Add new specification TS 26.51x: Media delivery; procedures and APIs for provisioning and media session handling
2. Rename TS 26.113 to "Real-Time Media Communication; Protocols and APIs" that includes
   1. Stage-3 for all reference points and functions defined in TS26.506
   2. For RTC-1, RTC-5 and RTC-6, primarily reference to TS 26.51x and map Mx interfaces to RTC-x interfaces.
   3. Address stage-3 Media Content transport features and interfaces RTC-2, RTC-3, RTC-4 and RTC-7 directly in the specification
3. Update 5GMS\_Pro\_Ph2 work item as follows:
   1. Add to the objectives: “Support a generalized media session handling framework consolidating the stage-3 specification for interfaces M1, M5 and M6”
   2. Add new functionalities directly to TS 26.51x and reference from TS 26.512 as needed.
   3. Updated impacted specifications and add TS 26.51x
4. Create a new specification TS 26.51x: " Media delivery; procedures and APIs for provisioning and media session handling" addressing stage-3 Media Handling features and interfaces M1, M5 and M6 for all media services.
   1. Use S4-231500 (revision of 1198r01) as starting point
   2. Assign Richard Bradbury (BBC) as editor of the specification
5. Run a permanent document on the side to investigate the commonality and differences between 26.501 and 26.506 especially for the functionalities, interfaces, procedures, and resources associated and document them in TS 26.506 using the progress and findings on a common stage-3 specification.
   1. identify potential bug fixes for TS 26.506 based on the work on stage-3.
   2. Use S4-231502 (revision of 1202r01) as starting point
6. Postpone stage-2 CRs to TS 26.501 and TS26.502 that address alignment
7. Coordinate session scheduling as follows:
   1. Run inputs to 26.51x in a single SA4 SWG or in a joint session of two SWGs.
   2. Continue the work on iRTCw (independent of TS 26.51x) in RTC
   3. Continue the work on 5GMS\_Pro\_Ph2 (independent of TS 26.51x) in MBS
8. Dispose the documents in the following manner

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| 8.4 | Issues for immediate consideration | Architecture alignment session (Joint session with RTC on Tuesday 8am)Arch. Align.: 1195r04->1498, 1196pp, 1197pp, 1198r01🡪1500, 1199n, 1315aNew WID: 1200n (OPAMEDIA)Rev. WID: 1201r01->1501 (5GMS\_Pro\_Ph2), 1202r01->1502, 1203n-> offline -> washup |

# Proposal

It is proposed to

* Agree the proposed final way forward in clause 6
* Collect co-signers for the different documents