**TSG SA Meeting #SP-110 SP-251652**

**09 - 12 December, 2025, Baltimore, USA *rev of SP-251620*** (S4-252142)

**Source: SA WG4**

**Title: New** **SID on Media Aspects for 6G System**

**Document for: Approval**

**Agenda Item: 6.7**

3GPP™ Work Item Description

Information on Work Items can be found at <http://www.3gpp.org/Work-Items>   
See also the [3GPP Working Procedures](http://www.3gpp.org/specifications-groups/working-procedures), article 39 and the TSG Working Methods in [3GPP TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm)

Title: Study on Media Aspects for 6G System

Acronym: FS\_6G\_MED

Unique identifier: 1100010

Potential target Release: Rel-20

# 1 Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Affects: | UICC apps | ME | AN | CN | Others (specify) |
| Yes |  | X |  | X |  |
| No | X |  |  |  |  |
| Don't know |  |  | X |  | X |

# 2 Classification of the Work Item and linked work items

## 2.1 Primary classification

### This work item is a …

|  |  |
| --- | --- |
| X | Study |
|  | Normative – Stage 1 |
|  | Normative – Stage 2 |
|  | Normative – Stage 3 |
|  | Normative – Other\* |

**\* Other = e.g. testing**

## 2.2 Parent Work Item

|  |  |  |  |
| --- | --- | --- | --- |
| Parent Work / Study Items | | | |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
| FS\_6G\_REQ | SA WG1 | 1050110 | Study on 6G Use Cases and Service Requirements; Stage 1 |

### 2.3 Other related Work Items and dependencies

|  |  |  |
| --- | --- | --- |
| Other related Work /Study Items (if any) | | |
| Unique ID | Title | Nature of relationship |
| 1060079 | Study on 6G Scenarios and Requirements (FS\_6G\_RAN\_Scen\_Req) | The media related requirements from RAN may need to be taken into account. |
| 1080057 | Study on Architecture for 6G System (FS\_6G\_ARC) | Take into account the principles and decisions in SA2. |
| 1080072 | Study on 6G Radio (FS\_6G\_Radio) | The media related aspects from RAN may need to be taken into account. |

**Dependency on non-3GPP (draft) specification:**

none

# 3 Justification

The 5G network architecture marked a significant leap forward compared with previous generations, with its adoption of a Service-Based Architecture (SBA) enabling a cloud-native deployment, and 5G promoted business opportunities to providing services to verticals. These innovations enhanced flexibility and scalability, enabling more dynamic and adaptable network orchestration.

5G media services are built on top of this new architecture, primarily referring to the Media Delivery Architecture as defined in TS 26.501 and TS 26.506 for streaming and real-time communication.

While 5G is continuously introducing remarkable advancements, there is the need from operators for further CAPEX/OPEX reduction and monetization opportunities by further improvement of overall 3GPP system performance, as well as to introduce new services and experiences in the era of 6G. 6G brings a good opportunity to provide solutions to meet those needs, e.g. by means of simplifying the overall system, integrating of new technologies, etc.

March 2025 Workshop on 6G indicated of the motivation to be: *Enabling new services and use cases beyond traditional communication, such as integrated sensing and communication (ISAC), XR/immersive communication, and AI-based services – Compute.* And one of the 6G Goals to be *“Improved end-user/customer experience through seamless, ubiquitous connectivity, ensuring reliable, high-quality services delivery. Optimized Quality of Experience (QoE) across diverse devices and network conditions.”*

3GPP SA1 has started the FS\_6G\_REQ study item to identify use cases and service/operational requirements for 6G system. TSG RAN has also initiated the FS\_6G\_RAN\_Scen\_Req study item to develop requirements for 6G Radio. 3GPP SA2 has started the FS\_6G\_ARC study item to address critical challenges identified in 5G deployments and study the architecture aspects to support both connectivity service and beyond connectivity services in 6G era in a more efficient, sustainable, and innovative way.

This study is aimed to identify media-related opportunities and gaps in the context of 6G, building on SA1-defined service requirements and SA2-defined architectural enhancements. One of the objectives is to support the 6G studies in other working groups with media-related aspects. Another objective is to identify media-related industry trends from operators, third-party providers and verticals that may impact 6G media architectures.

Potential work topics related to media aspects include the following:

1) Media Delivery Architecture: Study Media Delivery architecture aspects for 6G based on TS 26.501, TS 26.506 and the new developments in 6G architecture to support flexible deployment scenarios of new services e.g. XR/Immersive communication and use cases while maintaining relevant baseline services in alignment with SA2. The media delivery architecture is defined as collection, of capabilities and high-level functionalities. Aspects to be taken into account include, but are not limited to and not in priority order:

- whether the current 5G media delivery architecture functionalities accommodate the new 6G use cases and identify which relevant components from 5G and possibly earlier Gs may be re-used and improved,

- simplification of the architecture, for example for improved deployability and implementability,

- possibly further harmonization of the media delivery architecture for streaming and conversational services,

- collect relevant existing and emerging content delivery protocols and enable their use in 6G,

- aligning the media delivery architecture with 6G design concepts to be defined by SA2,

- aligning the architecture to accommodate commercially relevant media services and evolving standardization activities.

2) 6G Media: Identify trends and expected services related to media, in particular including immersive and AI related media, that may impact mobile networks in the 6G era and collect potentially relevant QoE requirements, traffic characteristics and other design vectors, also taking into account SA1 service requirements and use cases to support other working groups in 6G design. Study aspects include:

a) End-to-end service quality for media services: Study aspects and identify opportunities to define end-to-end service quality for media-related services, in particular but not limited to when UEs are included in capturing and rendering. This includes capturing, rendering as well as definition of media related QoE metrics. The study will summarize existing documented metrics and consider if any new metrics may be needed.

b) Traffic characteristics: Study and identify traffic characteristics of media services and use cases, including those mentioned in TR 22.870. The goal is to support the design of 6G radio and service architectures, based on initial SA1 service requirements and new developments in the media industry. Traffic characteristics from current and past studies are taken into account.

c) Immersive media formats and communication: collect, categorize and characterize (3C) media formats (including different media types) are emerging in the industry and/or currently specified and/or studied in 3GPP or elsewhere that could fit with 6G XR/immersive media service requirements and the related impacts to services such as ongoing in TR 22.870. Information from current and past studies (such as TR 26.956) are taken into account.

d) Media communication for emerging AI services: collect and study AI representation formats and traffic characteristics used in AI-related media services based on use cases (e.g. agents, multi-modal large language models, diffusion models) and the related impacts to services such as developed in TR 22.870 and identify gaps to potentially be addressed in 3GPP specifications, e.g. QoS requirements, dynamic traffic characteristics, or definition of relevant identified AI-representation formats.

3) Media Aspects related to SA2 topics: Study if there are any media related aspects and impacts resulting from different SA2 study topics and identify if any work is needed to be addressed in SA4 including:

a) AI for 6G: Study if there are any media-related impacts related to "AI for 6G (e.g. AI agent, framework)" based on decisions and in alignment with WT#3 in the SA2 study, and other involved working groups.

b) Integration of Sensing and Communication: Study if there are any media-related impacts related to "Integration of Sensing and Communication" based on decisions and in alignment with WT#4 in the SA2 study, and other involved working groups.

c) Data handling: Study if there are any media-related impacts related to data handling including, for example, data collection, distribution, processing, storage, data access and data exposure, with consideration of access control/user consent and privacy where relevant based on decisions and in alignment with WT#5 in the SA2 study, and other involved working groups.

d) Computing: Study if there are any media-related impacts related to support of computing for UE and application servers in 6G based on decisions and in alignment with WT#6 in the SA2 study, and other involved working groups.

NOTE: The analysis of the each of the above topics may just confirm that there is no impact on SA4-related specifications.

NOTE: The topics above may be updated based on decisions in upcoming SA2 meetings.

4) Media for ubiquitous access: Study aspects and opportunities for support of media services on ubiquitous networks including Non-Terrestrial Networks and other low bit-rate/low power scenarios beyond speech. The primary focus is to identify supported bitrates, functionalities, delays, power consumption and other design vectors, in particular also taking into account the information collected in the FS\_ULBC study.

5) Trusted and private communication for media: Study and identify aspects and opportunities to support trusted and private media communication in applications including, but not restricted, to generative AI or agent to agent communication, including end-to-end workflows, authentication, trust and other aspects, and explore what role 6G can play in this.

NOTE: Coordination with SA3 is expected on authentication and trust-related topics.

The progress of the topics above may depend on progress in other working groups, and it is not expected that the first phase necessarily completes all work topics. Certain topics may require more time and be addressed later.

Certain topics may complement other ongoing studies and are not expected to be covered in this study, but only referred to unless additional aspects (in particular 6G aspects) need to be addressed.

# 4 Objective

The objective of this study is in the context of the above background, referred to as work topics. Specifically, the following objectives are identified:

1. Document the work topics introduced above in more detail, in particular how they relate to media delivery and taking into account the progress in other working groups:

- WT#1: Media Delivery Architecture

- WT#2: 6G Media

- WT#3: Media Aspects related to SA2 topics

- WT#4: Media for ubiquitous access

- WT#5: Trusted and private media communication

2. Identify the dependencies of the issue to other working groups and collect information on relevant developments within 3GPP and externally.

NOTE: Topics potentially requiring input into other WG studies or those creating dependencies on other work topics will be prioritized.

3. Based on existing media delivery architectures and functionalities, as well as the development in SA2 architectures, and design concepts with respect to 6G, map the work topics to basic functions and develop high-level call flows, if appropriate.

4. Identify potential gaps and opportunities that may need solutions and either

a) recommend potential further study or normative work for stage-2 and stage-3, including which existing specifications would be impacted and/or if any new specifications would preferably be developed.

b) provide candidate solutions that may address the issues

5. Coordinate work with other 3GPP groups e.g. SA1, SA2, SA3, SA5, SA6 and others as needed.

6. Coordinate work with external organizations such as SVTA, CTA WAVE, ISO/IEC JTC1 SC 29, 5G-MAG, Metaverse Standards Forum, Khronos or IETF, as needed.

During the study, the progress and results of 3GPP TR 22.870 (SA1 study), TR 38.960 (RAN study), TR 23.801-01 (SA2 study) and possibly other working groups shall be taken into account.

Specific work topics may be concluded earlier than the envisaged timeline below and may then be progressed in a dedicated study in a newly defined timeframe. In such a case this study will refer to the dedicated study where relevant.

# 5 Expected Output and Time scale

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| New specifications | | | | | |
| Type | TS/TR number | Title | For info  at TSG# | For approval at TSG# | Rapporteur |
| Internal TR | 26.870 | Study on Media Aspects for 6G System | TSG SA#114  (Dec-26) | TSG SA#115  (Mar-27) | Elmira Ramazanirend, Vodafone, (elmira.ramazanirend1@vodafone.com) |

|  |  |  |  |
| --- | --- | --- | --- |
| Impacted existing TS/TR | | | |
| TS/TR No. | Description of change | Target completion plenary# | Remarks |
|  |  |  |  |

# 6 Work item Rapporteur(s)

Primary: Thomas Stockhammer, Qualcomm (tsto@qti.qualcomm.com)

Secondary: Elmira Ramazanirend, Vodafone (elmira.ramazanirend1@vodafone.com)

# 7 Work item leadership

SA4

# 8 Aspects that involve other WGs

Potential RAN impact to be covered by RAN WGs.

Service requirements to be covered by SA1.

Potential architecture impacts to be covered by SA2.

Potential security impacts to be covered by SA3.

Potential management and charging impacts to be covered by SA5.

Potential specific exposure related aspects to be covered by SA6

# 9 Supporting Individual Members

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| --- |
| Supporting IM name |
| ABS |
| Apple Inc. |
| AT&T |
| ATEME |
| Beijing Xiaomi Mobile Software Co., Ltd |
| Bytedance |
| CATT |
| China Mobile Com. Corporation |
| Deutsche Telekom AG |
| Dolby Laboratories Inc. |
| EBU |
| Ericsson LM |
| Fraunhofer HHI |
| Fraunhofer IIS |
| Free Stream Technologies |
| Google |
| Hisilicon |
| Huawei Technologies Co Ltd. |
| Interdigital Communications |
| Lenovo |
| LG Electronics Inc. |
| MATRIXX Software |
| MediaTek Inc. |
| Mesaqin.com sro (Ltd.) |
| NERC-DTV |
| Nokia |
| Novamint |
| NTT |
| ONE Media 3.0 |
| Orange |
| ORS |
| Qualcomm Incorporated |
| PengCheng Laboratory |
| Philips International B.V. |
| Samsung Electronics Co. Ltd. |
| Shanghai Jiao Tong University |
| Sony Europe Limited |
| Tencent |
| Thales |
| vivo Mobile Communication |
| Viasat |
| Vodafone Group Plc. |
| VoiceAge Corporation |
| ZTE |