**TSG SA Meeting #SP-101 SP-231185**

**11 - 15 September, 2023, Bangalore, India (revision of SP-231168)**

**Source: China Mobile**

**Title: New SID: Study on system architecture for next generation real time communication services phase 2**

**Document for: Approval**

**Agenda Item: 6.4.2**

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 system architecture for next generation real time communication services phase 2

Acronym: FS\_NG\_RTC\_Ph2

Unique identifier:

Potential target Release: Rel-19

# 1 Impacts

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

For a brand-new topic, use “N/A” in the table below. Otherwise indicate the parent Work Item.

|  |  |  |  |
| --- | --- | --- | --- |
| Parent Work / Study Items | | | |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
|  |  |  |  |

### 2.3 Other related Work Items and dependencies

|  |  |  |
| --- | --- | --- |
| Other related Work /Study Items (if any) | | |
| Unique ID | Title | Nature of relationship |
| 770003 | Study on enhancements to IMS for new real time communication services | *Study Item of Stage 1 requirements* |
| 790003 | Enhancements to IMS for new real time communication services | *Work Item of Stage 1 requirements* |
| 850042 | Study on evolution of IMS multimedia telephony service | *Study Item of Stage 1 requirements* |
| 920036 | Evolution of IMS Multimedia Telephony Service | *Work Item of Stage 1 requirements* |
| 940066 | Study on system architecture for next generation real time communication services | *Study Item of Stage 2 architecture and procedures* |
| 970014 | System architecture for Next Generation Real time Communication services | *Work Item of Stage 2 architecture and procedures* |
| 990023 | CT1 aspects of NG\_RTC | *Work Item of Stage 3* |
| 990087 | CT4 aspects of NG\_RTC | *Work Item of Stage 3* |
| 850003 | Study on security support for Next Generation Real Time Communication services | *Study Item of Stage 3* |
| 990049 | PS Data Off for IMS Data Channel Service | *Work Item of Stage 1 requirements* |
| 950005 | Study on Localized Mobile Metaverse Services | *Study Item of Stage 1 requirements* |

# 3 Justification

The system architecture for the next generation real time communication services based on IMS enhancement requirements has been studied in Rel-18 and the architecture, interfaces and procedures of IMS data channel and AR communication service based on IMS data channel are standardized in TS 23.228, TS 24.186, TS 29.175 and TS 29.176. Operators can deploy IMS data channel related services in their networks using the Rel-18 specifications. However, there is still scope for adding features and address some issues to improve the support for IMS Data Channel in the 3GPP system.

The aim of this study is as follows:

**Complete work that could not be carried out in Rel-18, specifically on Third party specific user identities and on exposure of IMS data channel capabilities to enterprise/verticals.**

**full support for interworking between devices and networks supporting IMS data channel and devices and networks that do not support IMS data channel**

**Enhancements to IMS DC services and operational aspects including handling of PS data off exemption, support of IMS data channel without accompanying audio/video media ("standalone" IMS DC).**

**Exposure of IMS real-time communication capabilities (audio, video, message) to enterprises/verticals. The specification of methods to expose services provided by the IMS AS, the S-CSCF and the IP-SM-GW is envisaged.**

**Enhancement to IMS media plane to support the use cases of IMS based Metaverse services as per SA1 requirements. Specifically the following aspects will need to be studied: impact on IMS system to support enhanced media plane capabilities; deployment aspects; how to leverage Release 18 XRM.**

**Enhancements to service registration and service discovery of IMS nodes including I-CSCF, S-CSCF and IMS AS**

# 4 Objective

The objective is to study the enhancement to the IMS network architecture, interfaces and procedures for the next generation real time communication services requirements on phase 2.

The study will investigate the solutions to support the following aspects:

- WT-1: Study on the enhancements to framework for exposure of IMS capability in the context of IMS data channel session

- WT-1.1: enhance the IMS architecture to define event subscription mechanism for a specific IMS subscriber / groups of IMS subscribers, to enable subscription to various IMS events of IMS data channel services.

- WT-1.2: how to expose existing IMS services (e.g. IMS voice/video call, message) in the context of an IMS data channel session, i.e. when DC is established.

NOTE 1: Existing OMA work needs to be considered for exposure of existing services.

- WT-2: Support interworking of IMS data channel

- WT-2.1: study how to provide IMS data channel applications to the subscriber who is using a MTSI UE where it is appropriate depending on the applications;

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- WT-3: Study how to support verified OIP service for 3rd party in IMS session using SA3 work on third party identity authentication as basis.

- WT-4: Enhancements to IMS data channel related services and operational aspects.

- WT-4.1: how to support standalone IMS data channel without accompanying audio/video/messaging media in an IMS session.

- WT-4.2: how to support 3GPP PS Data Off for IMS data channel and applications over IMS data channel.

- WT-4.3: study enhancements of IMS DC architecture and procedure to support multiplexing a SCTP connection for multiple DC applications. Alignment with SA4 is required

- WT-5: Study whether and how to enhance IMS architecture, procedures, interfaces for supporting avatar call (including multi-party communication) and communication with accessibility. This includes service/capability negotiation, enabling transition and transcoding between video and avatar media and avatar representation in the UE and in the IMS network, considering UE capability, network condition, and user preference.

NOTE 3: This WT studies usage of avatar representation in avatar call and the relation to IMS identities.

NOTE 4: Coordination and alignment with SA4 on service/capability negotiation and transcoding aspects are required. IMS related enhancements in SA2 study shall be based on the output from SA4 [FS\_Avatar]..

* WT-6: Study.possible deficiencies and enhancements to select IMS AS in an efficient way.

The impact on 5GS if any should be identified as appropriate in this study.

TU estimates and dependencies

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Work Task ID** | **TU Estimate**  **(Study)** | **TU Estimate**  **(Normative)** | **RAN Dependency**  **(Yes/No/Maybe)** | **Inter Work Tasks Dependency**  Editor’s Note: This column should highlight if WT#x is self-contained, or is depended on completion of other WTs |
| WT#1 | **2.5** | **2** | No | self-contained |
| WT#1.1 | 1 | 1 | No | self-contained |
| WT#1.2 | 1.5 | 1 | No | self-contained |
| WT#2 | **0.5** | **0.5** | No | self-contained |
| WT#2.1 | 0.5 | 0.5 | No | self-contained |
| WT#2.2 |  |  |  |  |
| WT#3 | **0.5** | **0.5** | No | self-contained |
| WT#4 | **1.5** | **1** | No | self-contained |
| WT#4.1 | 0.5 | 0.3 | No | self-contained |
| WT#4.2 | 0.5 | 0.2 | No | self-contained |
| WT#4.3 | 0.5 | 0.5 | No | self-contained |
| WT#5 | **1** | **1.5** | No | self-contained |
| WT#6 | **1.5** | **1** | No | self-contained |

Total TU estimates for the study phase: 7.5

Total TU estimates for the normative phase: 6.5

Total TU estimates: 7.5 + 7 = 14

# 5 Expected Output and Time scale

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| New specifications {One line per specification. Create/delete lines as needed} | | | | | |
| Type | TS/TR number | Title | For info  at TSG# | For approval at TSG# | Rapporteur |
| Internal TR | 23.xxx | Study on system architecture enhancement for next generation real time communication phase 2 | TSG SA#103  (March, 2024) | TSG SA#104 (June, 2024) |  |
|  |  |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Impacted existing TS/TR {One line per specification. Create/delete lines as needed} | | | |
| TS/TR No. | Description of change | Target completion plenary# | Remarks |
|  |  |  |  |
|  |  |  |  |

# 6 Work item Rapporteur(s)

# 7 Work item leadership

SA2

# 8 Aspects that involve other WGs

Charging aspects: SA5.

Security aspects: SA3.

Media aspects : SA4.

Service exposure: SA6.

# 9 Supporting Individual Members

|  |
| --- |
| Supporting IM name |
| China Mobile |
| Deutsche Telekom |
| Huawei |
| Samsung |
| Telefonica |
| T-Mobile USA |
| vivo |
| ZTE |
| AT&T |
| Matrixx Software |
| BT |
| Xiaomi |
| Verizon |
| DOCOMO |
| Ericsson |
| Meta |
| Lenovo |
| Philips International B.V. |
| CATT |