**3GPP TSG-SA WG6 Meeting #56 S6-23xxxx**

**Gothenburg, Sweden 21st – 25th August 2023 (revision of S6-232211)**

**Source: xxx**

**Title: New SID on application enablement for Localized Mobile Metaverse Services**

**Document for: Approval**

**Agenda Item: xxx**

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 application enablement for Localized Mobile Metaverse Services

Acronym: FS\_MetaApp

Unique identifier: TBD

Potential target Release: Rel-19

# 1 Impacts

{For Normative work, identify the anticipated impacts. For a Study, identify the scope of the study}

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 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

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) |
| Metaverse | SA1 | 1000028 | Mobile Metaverse Services |

### 2.3 Other related Work Items and dependencies

|  |  |  |
| --- | --- | --- |
| Other related Work /Study Items (if any) | | |
| Unique ID | Title | Nature of relationship |
| 950005 | Study on Localized Mobile Metaverse Services | SA1 study on metaverse services in Rel-19 |
|  |  |  |

# 3 Justification

A substantial justification appears in the study item description for the parent feature in SP-230509 (Metaverse) and applies to this study item description.

The term ‘metaverse’ has been used in various ways to refer to the broader implications of AR and VR. We use it to refer to a persistent, shared, perceived set of interactive perceived spaces. The metaverse in diverse sectors evokes a number of possible new experiences, products and services, and other activities.

In Rel-19, SA1 has completed working on a study in FS\_Metaverse (TR 22.856) where specific use cases and service requirements for localized mobile metaverse services to offer shared and interactive user experience of local content and services, accessed either by users in the proximity or remotely. Many of the requirements captured in stage 1 are well suited for application enabler layer. Some example (non-exhaustive) list of use cases are - Localized Mobile metaverse Service, Spatial Anchor Enabler, Spatial Mapping and Localization Service, interconnection of mobile metaverse services, Access to avatars, virtual store in a mobile metaverse marketplace, Avatar Call Support for Accessibility etc.

Specifically use cases and scenarios for localized mobile metaverse services, where AR services and content are associated with locations in the physical world, could be potentially enabled by means of application service enablers. Based on SA1 defined use cases and requirements (and possibly from other 3GPP groups and different SDOs), this study focuses on an application enabler layer to support metaverse applications. Specifically, this study proposes to study key issues, architecture support, functional model and solutions for application enablement for new metaverse services in such diverse areas as social, cultural, governmental and business requirements.

Based on the use cases as defined in TR 22.856, SA6 can provide enablement support to:

* metaverse applications to create and access avatars and associated information;
* spatial anchor producer and consumer to create and access spatial anchors and associated information;
* third party applications to access spatial maps and track objects
* application discovery and service continuity considering metaverse application specific requirements and KPIs
* disabled users for enhancing user profile and support for possible transcoding.

# 4 Objective

The objectives of the study includes:

1) Study requirements for overall application framework/enabling layer platform architecture to support localized mobile metaverse services in 3GPP specified networks, including the interactions between UE and application enablement layer including (non-exhaustive):

a) Application enablement and management of avatars/alter egos;

b) Application enablement and management of spatial anchors;

c) Support for Spatial mapping and localization service

d) Enhancements to application discovery for metaverse applications;

e) Enhancements to service continuity for metaverse application;

f) Support for communication for users with disabilities;

2) Identify key issues based on 1), develop corresponding functional model and potential solutions;

3) Establish deployment models.

NOTE 1: Enhancements to existing SA6 defined enablers (e.g. SEAL, CAPIF, EDGEAPP) may be required.

NOTE 2: The objectives will be adjusted based on the outcomes of Rel-19 Stage-1 normative output.

NOTE 3: For some of the objective items (like 1a, 1c), SA6 can be dependent on progress and decisions by other working groups (e.g. SA2, SA3). For potential impacts to 5G system, coordination with SA2 may be required. For potential security requirements, coordination with SA3 may be required.

# 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.XYZ | Study on Application architecture for enabling metaverse applications | TSG#103 (Mar 2024) | TSG#104 (Jun 2024) | Shah, Sapan, Samsung  <sapan.shah@samsung.com> |
|  |  |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| 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)

Shah, Sapan, Samsung <sapan.shah@samsung.com>

# 7 Work item leadership

SA6

# 8 Aspects that involve other WGs

SA2 for system aspects, SA3 for security aspects, SA4 for media aspects and SA5 for management aspects.

# 9 Supporting Individual Members

|  |
| --- |
| Supporting IM name |
| Samsung |
| AT&T |
| CATT |
| CEWiT |
| CMCC |
| Convida Wireless |
| Dish Network |
| Deutsche Telekom |
| ETRI |
| InterDigital |
| Lenovo |
| NTT |
| NTT Docomo |
| Orange |
| Vivo |
| ZTE |
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