3GPP TSG-WG3 Meeting #123 S3-252957

**Goteborg, Sweden; 25 – 29 August 2025** **(revision of S3-252640)**

**Source: KDDI, AT&T, Boost Mobile Network, Deutsche Telekom, SK Telecom, SoftBank, TOYOTA MOTOR CORPORATION, Rakuten Mobile, Verizon, vivo, Vodafone, NEC, Philips, Ericsson, Telefonica**

**Title: New SID on Security Aspects for IMS resiliency**

**Document for: Approval**

**Agenda Item: 6.1.2**

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 Security Aspects for IMS resiliency

Acronym: FS\_IMSRE\_SEC

Unique identifier: TBD

Potential target Release: Rel-20

# 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 |  |
| No | X | X | X |  | X |
| Don't know |  |  |  |  |  |

# 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) |
| N/A | N/A | N/A | N/A |

### 2.3 Other related Work Items and dependencies

None

# 3 Justification

Even if the service is provided normally, when congestion occurs and the response from IMS/5GC becomes slow, massive UEs attempts to register to the network in cycles, increasing the load on the UDM and leading to a cascade of failures, the UDM may drop signaling because of overload of UDM. It goes without saying that strengthening the resiliency of IMS is necessary to decrease signaling to UDM, e.g. targeting to decrease 20% signaling overhead as MNOs continue to operate it over the coming years.

When a UE subscribes to IMS service, it sends a USIM authentication request to 5GC first, then to the IMS second. This means that the same UE and the same UDR are involved in the two different authentications.

Additionally, the IMS AKA procedures for SIP Registration involve multiple steps that further increase the load on the UDM. Simplifying these processes , if possible, can help reduce signaling and prevent congestion in the network.

# 4 Objective

The study aims to investigate and identify enhancements on 5GS and/or IMS to support the network resiliency.

The main objectives of this study include:

 WT1: Study and Identify potential IMS congestion scenarios and which are related to IMS registration.

WT2: Study the potential solution taking into account existing solutions addressing the identified congestion scenarios.

NOTE 1: The potential solutions will not weaken the IMS security.

NOTE 2: The TR 29.867 would need to be taken into account.

NOTE 3: It is assumed that the same PLMN has control of both the IMS system and 5GC and it is assumed that the IMS UE identifiers i.e. IMPU, IMPI are derived from IMSI.

## TU estimates and dependencies

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Work Task ID | TU Estimate(Study) | TU Estimate(Normative) | RAN/SA2 Dependency(Yes/No/Maybe) | Inter Work Tasks Dependency |
| **WT1** | **1** | **0.25** | **Yes** |  |
| **WT2** | **3** | **0.75** | **Yes** |  |

Total TU estimates for the normative phase: 1

Total TU estimates: 5

# 5 Expected Output and Time scale

***{If this WID covers both stage 2 and stage 3, clearly indicate the different completion dates.}***

|  |
| --- |
| 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 | 33.xyz | Study on Security Aspects of IMS resiliency | SA#110 (Dec 25) | SA#111 (Mar 26) |  |

# 6 Work item Rapporteur(s)

TBD

# 7 Work item leadership

SA3

# 8 Aspects that involve other WGs

SA2 for the Architecture aspects.

# 9 Supporting Individual Members

|  |
| --- |
| Supporting IM name |
| KDDI |
| AT&T |
| Boost Mobile Network |
| Deutsche Telekom |
| SK Telecom |
| SoftBank |
| TOYOTA MOTOR CORPORATION |
| Rakuten Mobile |
| Verizon |
| vivo |
| Vodafone |
| NEC |
| Philips |
| Ericsson |
| Telefonica |