**3GPP TSG-SA Meeting #101 XX-yyxxxx**

**Bangalore, India, 11th Sep 2023 - 15th Sep 2023** **(revision of xx-yyxxxx)**

**Source: Vodafone**

**Title: New WID on Roaming service providers in 5G**

**Document for: Approval**

**Agenda Item: 3.2**

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: Roaming service providers in 5G

Acronym: Roaming5G

Unique identifier:

Potential target Release: Rel-18

# 1 Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Affects: | UICC apps | ME | AN | CN | Others (specify) |
| Yes |  |  |  | X |  |
| No | X | 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 …

|  |  |
| --- | --- |
|  | Study  |
| X | 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) |
|  |  |  | N/A |

### 2.3 Other related Work Items and dependencies

|  |
| --- |
| Other related Work /Study Items (if any) |
| Unique ID | Title | Nature of relationship |
|  |  |  |

# 3 Justification

3GPP defined the Security Edge Protection Proxy (SEPP) as a non-transparent proxy that supports message filtering and policing on inter-PLMN control plane interfaces as well as topology hiding (see TS 23.501 clause 6.2.17) for the 5G SA roaming and interconnect. The related SEPP impacting security requirements and solutions following the 5G system (5GS) e2e service architecture are captured in TS 33.501. 3GPP defined requirements and solutions for e2e core network interconnection based on the request provided by GSMA LS S1-180207/S3-180338 to consider additional security when control messages pass via IPX in inter-PLMN roaming and interconnect.

Roaming and interconnect services are important parts of the mobile ecosystem. The roaming services infrastructure provided by the mobile operator to its subscribers typically utilizes 3rd parties. IP interconnect exchange (IPX), roaming hub (RH) as well as RVAS (roaming value-added service) providers make available roaming services to the MNO with efficiency and scalability. The current 5G System provides for end-to-end secure design. This design is divergent from the established 2G/3G/4G roaming ecosystem with its hop-by-hop approach via intermediaries without end-to-end security.

GSMA provided a set of requirements to 3GPP (per LS bundle SP-230351-53 and SP-2303761) describing what Roaming Hub (RH), IPX and RVAS Providers would be needed within the roaming ecosystem to continue providing the existing services. The use cases described are well-established in previous generations but not specified in 3GPP. The requirements in the LS bundle included additional IPX requirements and requirements for RVAS and Roaming Hubs.

According to LS bundle SP-230351-53 and SP-230376 /S3-231717-21 there are several use cases foreseen in the 5G system to support subscriber roaming services by the mobile operators:

* Delegation of a PLMN's SEPP to an intermediate provider (aka: SEPP Hosting), with or without a SEPP deployed in the mobile operator/PLMN.
* Delegation of roaming related services (all or partial services), contractual agreements, financial liability to a trusted 3rd party (Roaming Hub).
* Ability to support deployment models in parallel, including the capability for the PLMN to use bi-lateral direct interconnections, delegation of SEPP functionality, and use of a 3rd party to provide roaming service on a per partner PLMN basis.
* Support of SMS Hub interworking from within the 5GS (SMS-SBI Interworking) across the N32 interface:

While the existing services could be provided using methods (similar to 2G/3G/4G networks) in a hop-by-hop manner utilizing TLS, the 5GS specifications do not support 3rd party entities from offering the same or similar services over 5G because of full end to end security, including end-to-end mutual authentication and attribution as required in 5GS. It is also observed that existing 3GPP service requirements and functionalities of 5G do not cover the support of those specific roaming services use cases.

# 4 Objective

The objective of this feature is to enable Roaming service providers in 5G systems. This work item covers the SA1 aspects, which are to describe the role of a roaming service provider and specify related requirements.

# 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 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

|  |
| --- |
| Impacted existing TS/TR {One line per specification. Create/delete lines as needed} |
| TS/TR No. | Description of change  | Target completion plenary# | Remarks |
| 22.261 | Service requirements for the 5G system | TSG#101 |  |
|  |  |  |  |

# 6 Work item Rapporteur(s)

Dawes, Peter, Vodafone, peter.dawes@vodafone.com

# 7 Work item leadership

SA1

# 8 Aspects that involve other WGs

SA3 to define Stage 2 (architecture aspects) and Stage 3 (protocol aspects).

# 9 Supporting Individual Members

|  |
| --- |
| Supporting IM name |
| Vodafone |
| Verizon |
| Telecom Italia |
| T-Mobile USA |
| Telefónica |
| KDDI |
| DISH Network |
| Deutsche Telekom |
| Futurewei |
| KPN |
| Spark NZ |
| CKH IOD UK LIMITED |
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