**3GPP TSG-SA Meeting #123 *S3-25xxxx***

Goteborg, Sweden, 25 – 29 August 2025

**Source:** **Cisco Systems**

**Title:** **Study on Security Aspects of Interconnect of SNPN**

**Document for: Discussion**

**Agenda Item: Conference Calls on inputs to 6G study and SID preparation**

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: Security Aspects of Interconnect of SNP

Acronym: FS\_ ISN \_Sec

Unique identifier:

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 |
| 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 |
| 990053 | Study on Interconnect of SNPN | Related stage-1 Rel-19 3GPP SA1 work item |
|  |  |  |
|  |  |  |

# 3 Justification

SA1 completed a study on the interconnect of SNPN (FS\_ISN), which resulted in the addition of requirements to support stand-alone non-public network (SNPN) cellular hotspots in TS 22.261. The security aspects of FS\_ISN will be covered in SA3. More specifically, the following topics require SA3 coordination as per potential security impact:

Interconnectivity: With the increasing adoption of SNPNs, there is a growing need to facilitate seamless interconnectivity among many SNPNs and SNPN Credential Providers (a.k.a., Credentials Holder (CH): refer to NOTE below). This requires a scalable and secure mechanism for SNPNs to interconnect without preconfigured information about each other's IP addresses or certificates.

NOTE: Stage1 defines SNPN Credential Provider as "Entity within the 5G system that creates and manages identity information and provides **authentication** services for those identities for the purpose of accessing a SNPN. The SNPN Credential Provider can also **authorize** access to a non-public network for a subscriber associated with an identity handled by this SNPN Credential Provider. Stage 2 defines Credentials Holder as " Entity which **authenticates** and **authorizes** access to an SNPN separate from the Credentials Holder."

Scalability and Signalling: The potential for a significant increase in SNPN deployments poses challenges regarding signaling scalability and the management of signaling connections between SNPNs and CHs. This includes supporting dynamic and potentially short-lived signaling connections.

Network Domain Security: The current network domain security approach of cross-certification in 5GS may not scale effectively for SNPNs. A study is required to explore alternative solutions that secure connections between CHs and SNPNs in a scalable manner.

Notifications: CHs need a scalable mechanism to securely notify events to an SNPN, especially in scenarios where the CH may not have an established relationship with the SNPN.

# 4 Objective

Based on the above justification, the following objectives will be studied based on the related Rel-19 work:

WT#1: Study and propose mechanisms that enable dynamic connections between SNPN and CH other than current pre-configuration of addresses and certificates, and specifically the following aspects:

* Establishment of secure connection(s) for bidirectional signaling between an SNPN and a CH with no pre-established relationships between the SNPN and CH.
* Required lifetime (if any) of this/these connection(s).

WT#2: Study and propose mechanisms that enable SNPNs to be used to support emergency service and public safety use case.

* Basic internet access.
* Emergency service and public safety services, including IMS.

## 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 dependent on completion of other WTs |
| WT#1 | tbd | tbd | No | WT#1 is self-contained |
| WT#2 | tbd | tbd | No | SA2, SA6 |

Total TU estimates for the study phase: tbd

Total TU estimates for the normative phase: tbd

Total TU estimates: tbd

# 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 | TBD | Security Aspects of Interconnect of SNPN | TBD | TBD | TBD  |
|  |  |   |  |  |  |

|  |
| --- |
| 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)

TBD

# 7 Work item leadership

SA3

# 8 Aspects that involve other WGs

Stage 3 aspects covered by CT WGs.

Some aspects of emergency service and public use cases may require corresponding stage 2 work in SA2 and SA6.

# 9 Supporting Individual Members

|  |
| --- |
| Supporting IM name |
| Cisco |
| Intel |
| Peraton Labs  |
| CISA ECD |
| Samsung  |
| CableLabs |
| ETRI |
| Lenovo |
|  |
|  |