**3GPP TSG-SA2 Meeting #170 *S2-2507700***

**Gothenburg, August 21st – 25th 2025**

**Source: Intel**

**Title: KI#4, New Sol: Sensing Data Collection via DCCF**

**Document for: Approval**

**Agenda Item: 20.2.1**

**Work Item / Release: FS\_Sensing\_ARC / Rel-20**

*Abstract: The Sensing Data and the Associated Information Collection and Transport for FS\_Sensing\_ARC are proposed.*

# 1. Introduction

This pCR proposes the solution for Key issue#4 Sensing Data and the Associated Information Collection and Transport.

# 2. Text Proposal

It is proposed to capture the following changes in TR 23.700-14.

\* \* \* \* First change \* \* \* \*

# 6 Solutions

## 6.0 Mapping of Solutions to Key Issues

Table 6.0-1: Mapping of Solutions to Key Issues

|  |  |
| --- | --- |
|  | Key Issues |
| Solutions | <Key Issue #4> | <Key Issue #y> |
| #1 | X |  |
| #2 |  |  |

\* \* \* \* First change (all text new)\* \* \* \*

## 6.X Solution #X: Sensing Data and associated information transport via DCCF

### 6.X.0 High-level Solution Principles

The solution is based on the following general principles to support sensing service:

- The sensing data and associated information from multiple Sensing Entities and Sensing Function (SSMF) in the 5G Core Network is collected and coordinated by the DCCF.

- The Sensing Function (SSMF) discovers and selects the DCCF based on the Sensing Service request from the consumer based on criteria such as location/coverage area.

- The SSMF sends the Sensing Configuration Request to the selected Sensing Entities. The request includes the DCCF endpoint information as selected by the SSMF to establish a data plane connection to coordinate the sending data collection and coordination from the Sensing Entities.

### 6.X.1 Description

 This solution is built on the high-level system architecture described in Solution 7. A new Core Network function SSMF is introduced. The SSMF is responsible for coordinating sensing services between 5GC, NG-RAN, and external applications and handling all control signalling aspects, including sensing-service authorisation, configuration of sensing entities. The DCCF Data-Collection and Coordination Function (DCCF) as defined in TS 23.288 is re-used for sensing data collection which collects the raw measurements from the sending entities, coordinates any additional data sources, performs formatting and processing on the measurements as requested by the SSMF.

### 6.X.2 Procedures



Figure 6.X.2-1: Procedure for sensing data transport

1. A sensing service consumer (either an external AF or an internal network function) triggers a request for a sensing service (e.g. detecting the presence of an object in a geographic area).
2. The NEF authenticates and authorizes the sensing consumer and forwards the subscription to the SSMF.
3. The SSMF selects one or more sensing entities (gNBs) according to coverage . The exact mechanism by which the SSMF discovers, filters, selects sensing entities is dependent on the solution for key issue 3.
4. The SSMF discovers and selects DCCF based on the sensing coverage area required based on the sensing service request in step1.
5. The SSMF sends Namf\_SensingCfg\_Request configuration instructions to the chosen sensing entities via AMF. In addition to the configuration parameters included in step 5 clause 6.7.3.2.1, the SSMF includes the DCCF endpoint information (e.g., DCCF ID/ FQDN).
6. SSMF subscribes with the DCCF selected in step 4 for sensing data management with the request including service operation, data specification, formatting and processing instructions.

Editor’s Note: Whether single or multiple SSMF are considered in this Release of the study is for FFS.

1. A data connection is established between the SE(s) and DCCF for sensing data transfer using the DCCF endpoint information provided in step 5.
2. The Sensing Entity(s) performs the sensing operations according to the configurations received in step 5. The sensing data generated is reported to the DCCF. The data can be reported either periodically, aggregated report, or partial sensing data reporting depending on the configuration information provided by the SSMF in step 5.
3. If the SSMF included formatting and processing instructions in step 6 for the sensing data collected by SE(s), the DCCF performs the sensing data formatting and processing on the sending data report received in step 8.

NOTE: Formatting and/or Processing instructions can be provided in requests by Data Consumers (SSMF) via the Ndccf\_DataManagement service as defined in TS 23.288[x].

1. The DCCF uses Ndccf\_DataManagement\_Notify to send the sensing data to the SSMF.

Editor’s Note: Whether service-based operations can be used to support sending data delivery from DCCF to SSMF is for FFS.

1. The SSMF processes the sensing data received in step 10 from multiple SE(s) as needed for example - running detection algorithms, or filtering noise - to generate a sensing result that meets the consumer request.
2. -13. The SSMF sends Nssmf\_SensingService response the final sensing result (which may include detected object info, positions, radio environment maps, etc. along with optional confidence metrics or timestamps) is sent to the AF via the NEF.

### 6.X.3 Impacts on Services, Entities and Interfaces

- **SSMF**: It is a control-plane function and does not replace any existing NF.

**New/Extended Interfaces:**

* **NEF**: The Nnef interface (between NEF and SSMF) is extended to support exposure of sensing services where NEF invokes an SSMF service for incoming request from the sensing consumer.
* **AMF:** The AMF interface with the SSMF is supported to send the sensing configuration request for sensing entities and the sensing data response from the sensing entities to the SSMF.
* **DCCF:** Support new Service operation, Data specification to support sensing data from the sensing data from the Sensing Entities.
* **gNB:** Support to establish the data tunnel with the DCCF using the tunnel information received from the SSMF, transfer sensing data and the associated information to the DCCF via the data tunnel

\* \* \* \* End of changes \* \* \* \*