**3GPP TSG-CT WG1 Meeting #131-eC1-214388**

**E-meeting, 19-27 August 2021**

**Source: Lenovo, Motorola Mobility**

**Title: Network slice capability management procedures**

**Spec: 3GPP TS 24.549**

**Agenda item: 17.2.23**

**Document for: Agreement**

**1. Introduction**

WID for network slice capability management has been agreed and this CR is adding new needed features for 3GPP TS 24.549.

**2. Reason for Change**

Adding network slice capability management procedures. Plus related references and related abbreviations.

**3. Conclusions**

<Conclusion part (optional)>

**4. Proposal**

It is proposed to agree the following changes to 3GPP TS 24.549.

\* \* \* First Change \* \* \* \*

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[X] 3GPP TS 23.434: "Service Enabler Architecture Layer for Verticals (SEAL); Functional architecture and information flows;".

[Y] 3GPP TS 24.526: "User Equipment (UE) policies for 5G System (5GS); Stage 3".

[Z] 3GPP TS 24.547: "Identity management - Service Enabler Architecture Layer for Verticals (SEAL); Protocol specification;".

[W] IETF RFC 7231: "Hypertext Transfer Protocol (HTTP/1.1): Semantics and Content".

[r6750] IETF RFC 6750: "The OAuth 2.0 Authorization Framework: Bearer Token Usage".

[r7159] IETF RFC 7159: "The JavaScript Object Notation (JSON) Data Interchange Format".

\* \* \* Next Change \* \* \* \*

## 3.3 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

5GCN 5G Core Network

DNN Data Network Name

HTTP Hypertext Transfer Protocol

PCF Policy Control Function

SEAL Service Enabler Architecture Layer

SNSCM-C SEAL Network Slice Capability Management Client

SNSCM-S SEAL Network Slice Capability Management Server

S-NSSAI Single Network Slice Selection Assistance Information

URSP UE Route Selection Policy

VAL Vertical Application Layer

\* \* \* Next Change \* \* \* \*

## 6.1 General

The network slice capability management procedures is a SEAL service providing capabilities for network slice re-mapping from one vertical application to one or more other vertical applications, 3GPP TS 23.434 [X]. The network server entity, providing the functionality for the network slice re-mapping, acts as an AF communicating with 5GCN to provide guidance to update and modify the S-NSSAIs and the DNNs of the route selection descriptors of the URSP rules, 3GPP TS 24.526 [Y], for one or more application traffics per UE.

\* \* \* Next Change \* \* \* \*

## 6.2 On-network procedures

### 6.2.1 General

#### 6.2.1.1 Authenticated identity in HTTP request

Upon receiving an HTTP request from SNSCM-C, the SNSCM-S shall authenticate the identity of the sender of the HTTP request is authorized as specified in 3GPP TS 24.547 [Z], and if authentication is successful, the SNSCM-S shall use the identity of one or more VAL UEs of the HTTP request as authenticated identities.

### 6.2.2 Event triggered network slice adaptation

#### 6.2.2.1 General

These subclauses describes the procedures on the client and server side when a request for network slice adaptation is sent by the client to the server. The network slice adaptation request may be sent by a VAL server for the adaptation of the network slice to the VAL application. The network slice adaptation request may be sent by the SNSCM-C acting as application client requesting for a new slice enablement.

NOTE: The interaction between VAL server and SNSCM-S is out of scope of this specification.

#### 6.2.2.2 Client procedure

##### 6.2.2.2.1 SNSCM client event triggered

In order to request for network slice adaptation, the SNSCM-C shall send an HTTP POST request message according to procedures specified in IETF RFC 7231 [Y]. In the HTTP POST request message, the SNSCM-C:

a) shall set the Request-URI to the URI identifying the SNSCM-C appended with VAL service identity and the value "/UE-triggered-slice-adaptation";

b) shall include the Host header with public user identity of SGM-S;

c) shall include an Authorization header field with the "Bearer" authentication scheme set to an access token of the "bearer" token type as specified in IETF RFC 6750 [r6750]; and

d) shall include the parameters specified in clause A.1.2 serialized into a JavaScript Object Notation (JSON) structure as specified in IETF RFC 7159 [r7159]; and;

e) shall send an HTTP POST request to SGM-S.

#### 6.2.2.3 Server procedure

Upon receipt a request from the VAL server or the SNSCM-C for network slice adaptation, shall determine the identity of the sender of the received HTTP POST request as specified in clause 6.2.1.1, and if the identity of the sender of the received HTTP POST request is not authorized user, shall respond with an HTTP 403 (Forbidden) response to the HTTP POST request and skip rest of the steps;

If the sender is authorized user, the SNSCM-S shall attempt to update and configure the network slice for the one or more VAL UEs for the VAL service by using the information from the HTTP POST request message which may be network slice adaptation cause, new S-NSSAI and new DNN. If the update is successful, the SNSCM-S shall send the updated network slice and the new DNN to the PCF.

The SNSCM-S shall send an HTTP 200 response message containing the successful or failure status of the requested network slice adaptation to the SNSCM-C.

\* \* \* Next Change \* \* \* \*

## 6.3 Off-network procedures

The off-network procedures are out of scope of the present document in this release of the specification.

\* \* \* Next Change \* \* \* \*

Annex <A> (normative):
Parameters for different operations

# A.1 Event triggered network slice adaptation

## A.1.1 General

The information in this annex provides a normative description of the parameters which will be sent by SNSCM-C while sending a network slice adaptation trigger to the SNSCM-S for the VAL application.

## A.1.2 Client side parameters

The SNSCM-C shall convey the following parameters while sending request for network slice adaptation trigger.

Table A.1.2-1: Client side parameters for network slice adaptation trigger

|  |  |
| --- | --- |
| Parameter | Description |
| VAL UE List | REQUIRED. Represents a space-separated list of VAL UE Ids within the VAL service, for which the network slice adaptation trigger applies. |
| VAL service ID | REQUIRED. The VAL service ID of the VAL application |
| Requested S-NSSAI | REQUIRED. The new S-NSSAI which is requested |
| Requested DNN  | OPTIONAL. The new DNN which is requested |
| Slice adaptation cause | OPTIONAL. Indicates the cuase for the slice adaptation. |

\* \* \* End of Change \* \* \* \*