**3GPP TSG-CT3 Meeting #132eC3-240049**

**e-meeting, 22nd** **– 24th November 2023**

**Source: Nokia, Nokia Shanghai Bell**

**Title: Pseudo-CR on defining the resources and data model clauses of the NSCE**\_**NSAllocation API**

**Spec: 3GPP TS 29.435 V 0.1.1**

**Agenda item: 18.49 (NSCALE)**

**Document for: Agreement**

**1. Introduction**

As specified in clause 9.14 of TS 23.435, the NSCE\_NSAllocation\_Request Service API was defined in order to support the functionality of Network slice allocation in a NSaaS framework by the NSCE server based on the VAL server provided Network slice service profile.

The stage 3 definition of this API in this specification needs hence to be started.

**2. Reason for Change**

Update the definition of the new NSCE\_NSAllocation\_Request API resources and data model in the new TS 29.435.

**3. Conclusions**

N/A

**4. Proposal**

It is proposed to agree the following changes to 3GPP TS 29.435 V 0.1.1.

\* \* \* \* Start of changes \* \* \* \*

# 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".

[2] 3GPP TS 29.122: "T8 reference point for Northbound Application Programming Interfaces (APIs)".

[3] 3GPP TS 29.501: "5G System; Principles and Guidelines for Services Definition; Stage 3".

[4] OpenAPI: "OpenAPI Specification Version 3.0.0", <https://spec.openapis.org/oas/v3.0.0>.

[5] 3GPP TR 21.900: "Technical Specification Group working methods".

[6] 3GPP TS 23.222: "Common API Framework for 3GPP Northbound APIs; Stage 2".

[7] 3GPP TS 29.222: "Common API Framework for 3GPP Northbound APIs; Stage 3".

[8] 3GPP TS 33.122: "Security aspects of Common API Framework (CAPIF) for 3GPP northbound APIs".

[9] IETF RFC 6749: "The OAuth 2.0 Authorization Framework".

[10] IETF RFC 9113: "HTTP/2".

[11] IETF RFC 8259: "The JavaScript Object Notation (JSON) Data Interchange Format".

[12] IETF RFC 9457: "Problem Details for HTTP APIs".

[13] 3GPP TS 23.434: "Service Enabler Architecture Layer for Verticals (SEAL); Functional architecture and information flows".

[14] 3GPP TS 23.435: "Procedures for Network Slice Capability Exposure for Application Layer Enablement Service".

[15] 3GPP TS 29.549: "Service Enabler Architecture Layer for Verticals (SEAL); Application Programming Interface (API) specification".

[17] 3GPP TS 28.541: "Management and orchestration; 5G Network Resource Model (NRM); Stage 2 and stage 3".

\* \* \* \* Next changes \* \* \* \*

## 6.18 NSCE\_NSAllocation API

### 6.18.1 Introduction

#### 6.18.1.1 API URI

The request URI used in each HTTP request from the VAL server towards the NSCE server shall have the structure as defined in clause 6.5 of 3GPP TS 29.549 [15] with the following clarifications:

- The <apiName>shall be "nsce-nsa".

- The <apiVersion> shall be "v1".

- The <custOpName> shall be set as described in clause 6.18.1.3.

#### 6.18.1.2 Resources

There are no resources defined for this API in this release of the specification.

#### 6.18.1.3 Custom Operations without associated resources

##### 6.18.1.3.1 Overview

This clause describes the structure for the Resource URIs and the resources and methods used for the service.

Figure 6.18.1.3.1-1 depicts the resource URIs structure for the NSCE\_NSAllocation API.



Figure 6.18.1.3.1-1: Custom operation URI structure of the NSCE\_NSAllocation API

Table 6.18.1.3.1-1 provides an overview of the custom operation and applicable HTTP methods.

Table 6.18.1.3.1-1: Custom operations without associated resources

|  |  |  |  |
| --- | --- | --- | --- |
| Operation name | Custom operation URI | Mapped HTTP method | Description |
| Request | /request | POST | Request the network slice allocation. |

##### 6.18.1.3.2 Operation: Request

###### 6.18.1.3.2.1 Description

The custom operation allows a VAL server to request network slice allocation from the NSCE server.

###### 6.18.1.3.2.2 Operation Definition

This operation shall support the request and response data structures and response code specified in table 6.18.1.3.2.2-1 and table 6.18.1.3.2.2-2.

Table 6.18.1.3.2.2-1: Data structures supported by the POST Request Body for this operation

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| NwSliceAllocReq | M | 1 | Parameters to request network slice allocation |

Table 6.18.1.3.2.2-2: Data structures supported by the POST Response Body for this operation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| NwSliceAllocResp | M | 1 | 200 OK | The successful response to the request, including the network slice allocation information. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection. The response shall include a Location header field containing an alternative URI representing an alternative NSCE server to which the request should be sent.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection. The response shall include a Location header field containing an alternative URI representing an alternative NSCE server to which the request should be sent.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2]. |
| NOTE: The mandatory HTTP error status codes for the POST method listed in table 5.2.6-1 of 3GPP TS 29.122 [2] also apply. | | | | |

Table 6.18.1.3.2.2-3: Headers supported by 307 Response Code for this operation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI representing an alternative NSCE server to which the request should be redirected. |

Table 6.18.1.3.2.2-4: Headers supported by 308 Response Code for this operation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI representing an alternative NSCE server to which the request should be redirected. |

#### 6.18.1.4 Notifications

None.

#### 6.18.1.5 Data Model

##### 6.18.1.5.1 General

This clause specifies the application data model supported by the API.

Table 6.18.1.5.1-1 specifies the data types defined specifically for the NSCE\_NSAllocation API service.

Table 6.18.1.5.1-1: NSCE\_NSAllocation API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Section defined | Description | Applicability |
| NwSliceAllocReq | 6.18.1.5.2.2 | Represents the information associated with requested network slice allocation. |  |
| NwSliceAllocResp | 6.18.1.5.2.3 | Represents the network slice allocation information. |  |

Table 6.18.6.1.4.1-2 specifies data types re-used by the NSCE\_NSAllocation API service.

Table 6.18.1.5.1-2: Re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| LocationArea5G | 3GPP TS 29.122 [2] | Represents a location area. |  |
| NetSliceId | 6.3.6.2.15 | Represents the identification information of a network slice. |  |
| ServiceProfile | 3GPP TS 28.541 [17] | Represents the Network slice service profile. |  |
| SupportedFeatures | 3GPP TS 29.571 [16] | Used to negotiate the applicability of the optional features. |  |
| NOTE: Properties marked with a feature as defined in clause 5.14.6 are applicable as described in clause 5.2.7 of 3GPP TS 29.122 [2]. If no feature is indicated, the related property applies for all the features. | | | |

##### 6.18.1.5.2 Structured Data Types

###### 6.18.1.5.2.1 Introduction

###### 6.18.1.5.2.2 Type: NwSliceAllocReq

Table 6.18.1.5.2.2-1: Definition of type NwSliceAllocReq

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| valServiceId | string | M | 1 | Represents the VAL service identifier. |  |
| valUeIds | array(string) | O | 1..N | Represents the list of VAL UE’s ID. |  |
| locArea | LocationArea5G | M | 1 | Identification of location area to which the request applies. (NOTE) |  |
| snssai | NetSliceId | O | 0..1 | Represents the requested S-NSSAI. |  |
| nwSliceServProf | ServiceProfile | O | 0..1 | Represents the requested Network slice service requirements. |  |
| suppFeat | SupportedFeatures | C | 0..1 | This parameter shall be supplied by the service consumer in the POST request that requests the network slice diagnostics and shall be supplied in the reply of corresponding request. |  |
| NOTE: The network area information within the “locaArea” attribute shall not be included. | | | | | |

###### 6.18.1.5.2.3 Type: NwSliceAllocResp

Table 6.18.1.5.2.3-1: Definition of type NwSliceAllocResp

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| snssai | Snssai | O | 0..1 | Represents the allocated S-NSSAI. |  |
| nwSliceAllocProf | ServiceProfile | O | 0..1 | Represents the allocated Network slice attributes |  |
| suppFeat | SupportedFeatures | C | 0..1 | This parameter shall be supplied by VAL server in the POST request that requests the network slice diagnostics and shall be supplied in the reply of corresponding request. |  |

##### 6.18.1.5.3 Simple data types and enumerations

None.

#### 6.18.1.6 Error Handling

##### 6.18.1.6.1 General

HTTP error handling shall be supported as specified in clause 6.7 of 3GPP TS 29.549 [15].

In addition, the requirements in the following clauses shall apply.

##### 6.18.1.6.2 Protocol Errors

In this Release of the specification, there are no additional protocol errors applicable for the NSCE\_NSAllocation API.

##### 6.18.1.6.3 Application Errors

The application errors defined for NSCE\_NSAllocation API are listed in table 6.18.1.6.3-1.

Table 6.18.1.6.3-1: Application errors

|  |  |  |  |
| --- | --- | --- | --- |
| Application Error | HTTP status code | Description | Applicability |
|  |  |  |  |

#### 6.18.1.7 Feature Negotiation

General feature negotiation procedures are defined in clause 6.8.

Table 6.18.1.7-1: Supported Features

|  |  |  |
| --- | --- | --- |
| **Feature number** | **Feature Name** | **Description** |
|  |  |  |

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