**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 9.18 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 \* \* \* \*

## 6.18 NSCE\_NSAllocation API

### 6.18.1 Introduction

The NSCE\_NSAllocation service shall use the NSCE\_NSAllocation API.

The API URI of the NSCE\_NSAllocation Service API shall be:

**{apiRoot}/<apiName>/<apiVersion>**

The request URIs used in HTTP requests shall have the Resource URI structure defined in clause 6.5 of 3GPP TS 29.549 [15], i.e.:

**{apiRoot}/<apiName>/<apiVersion>/<apiSpecificSuffixes>**

with the following components:

- The {apiRoot} shall be set as described in clause 6.5 of 3GPP TS 29.549 [15].

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

- The <apiVersion> shall be "v1".

- The <apiSpecificSuffixes> shall be set as described in clause 6.5 of 3GPP TS 29.549 [15].

NOTE: When 3GPP TS 29.122 [2] is referenced for the common protocol and interface aspects for API definition in the clauses under clause 6.18, the NSCE Server takes the role of the SCEF and the service consumer takes the role of the SCS/AS.

### 6.18.2 Usage of HTTP

The provisions of clause 6.3 of 3GPP TS 29.549 [15] shall apply for the NSCE\_NSAllocation API.

### 6.18.3 Resources

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

### 6.18.4 Custom Operations without associated resources

#### 6.18.4.1 Overview

The structure of the custom operation URIs of the NSCE\_NSAllocation API is shown in Figure 6.18.4.1-1.



Figure 6.18.4.1-1: Custom operation URI structure of the NSCE\_NSAllocation API

Table 6.18.4.1-1 provides an overview of the custom operation and applicable HTTP methods defined for the NSCE\_NSAllocation API.

Table 6.18.4.1-1: Custom operations without associated resources

|  |  |  |  |
| --- | --- | --- | --- |
| Operation name | Custom operation URI | Mapped HTTP method | Description |
| Request | /request | POST | Enables a service consumer to request network slice allocation. |

#### 6.18.4.2 Operation: Request

##### 6.18.4.2.1 Description

The custom operation allows a service consumer to request network slice allocation to the NSCE Server.

##### 6.18.4.2.2 Operation Definition

This operation shall support the request data structures specified in table 6.18.4.2.2-1 and the response data structures and response codes specified in table 6.18.4.2.2-2.

Table 6.18.4.2.2-1: Data structures supported by the POST Request Body for this operation

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| NwSliceAllocReq | M | 1 | Contains the parameters to request network slice allocation. |

Table 6.18.4.2.2-2: 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 HTTP POST method listed in table 5.2.6-1 of 3GPP TS 29.122 [2] shall also apply. | | | | |

Table 6.18.4.2.2-3: 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 6.18.4.2.2-4: 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. |

### 6.18.5 Notifications

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

### 6.18.6 Data Model

#### 6.18.6.1 General

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

Table 6.18.6.1-1 specifies the data types defined specifically for the NSCE\_NSAllocation API service.

Table 6.18.6.1-1: NSCE\_NSAllocation API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Clause defined | Description | Applicability |
| NwSliceAllocReq | 6.18.6.2.2 | Represents the network slice allocation request. |  |
| NwSliceAllocResp | 6.18.6.2.3 | Represents the network slice allocation information. |  |

Table 6.18.6.1-2 specifies data types re-used by the NSCE\_NSDiagnostics API from other specifications, including a reference to their respective specifications, and when needed, a short description of their use within the NSCE\_NSDiagnostics API.

Table 6.18.6.1-2: NSCE\_NSDiagnostics API 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. |  |
| Snssai | 3GPP TS 29.571 [16] | Represents the S-NSSAI. |  |
| ServiceProfile | 3GPP TS 28.541 [19] | Represents the network slice service profile. |  |
| SupportedFeatures | 3GPP TS 29.571 [16] | Represents the list of supported feature(s) and used to negotiate the applicability of the optional features. |  |

#### 6.18.6.2 Structured Data Types

##### 6.18.6.2.1 Introduction

This clause defines the data structures to be used in resource representations.

##### 6.18.6.2.2 Type: NwSliceAllocReq

Table 6.18.6.2.2-1: 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 UEs ID. |  |
| locArea | LocationArea5G | M | 1 | Identification of location area to which the request applies. (NOTE) |  |
| sliceId | NetSliceId | O | 0..1 | Represents the requested slice identifier. |  |
| nwSliceServProf | ServiceProfile | O | 0..1 | Represents the requested Network slice service requirements. |  |
| suppFeat | SupportedFeatures | C | 0..1 | Contains the list of supported features among the ones defined in clause 6.18.8.  This attribute shall be present only when feature negotiation needs to take place. |  |
| NOTE: The network area information within the “locaArea” attribute shall not be included. | | | | | |

Editor's Note: The usage of ServiceProfile data type is FFS.

##### 6.18.6.2.3 Type: NwSliceAllocResp

Table 6.18.6.2.3-1: Definition of type NwSliceAllocResp

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| snssai | Snssai | M | 1 | Represents the identifier of the allocated network slice. |  |
| nwSliceAllocProf | ServiceProfile | M | 1 | Represents the allocated network slice attributes. |  |
| suppFeat | SupportedFeatures | C | 0..1 | Contains the list of supported features among the ones defined in clause 6.18.8.  This attribute shall be present only when feature negotiation needs to take place. |  |

Editor's Note: The usage of ServiceProfile data type is FFS.

#### 6.18.6.3 Simple data types and enumerations

##### 6.18.6.3.1 Introduction

This clause defines simple data types and enumerations that can be referenced from data structures defined in the previous clauses.

##### 6.18.6.3.2 Simple data types

The simple data types defined in table 6.18.6.3.2-1 shall be supported.

Table 6.18.6.3.2-1: Simple data types

|  |  |  |  |
| --- | --- | --- | --- |
| Type Name | Type Definition | Description | Applicability |
|  |  |  |  |

### 6.18.7 Error Handling

#### 6.18.7.1 General

For the NSCE\_NSAllocation API, 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 are applicable for the NSCE\_NSDiagnostics API.

#### 6.18.7.2 Protocol Errors

No specific protocol errors for the NSCE\_NSAllocation API are specified.

#### 6.18.7.3 Application Errors

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

Table 6.18.7.3-1: Application errors

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

### 6.18.8 Feature Negotiation

The optional features listed in table 6.18.8-1 are defined for the NSCE\_NSAllocation API. They shall be negotiated using the extensibility mechanism defined in clause 6.8 of 3GPP TS 29.549 [15].

Table 6.14.8-1: Supported Features

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

### 6.14.9 Security

The provisions of clause 9 of 3GPP TS 29.549 [15] shall apply for the NSCE\_NSAllocation API.

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