**3GPP TSG-CT WG3 Meeting #134 *C3-242481***

**Changsha, China, 15 - 19 April, 2024**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **29.435** | **CR** | **0001** | **rev** | **1** | **Current version:** | **18.0.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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| ***Title:*** | Slice API management service | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Lenovo | | | | | | | | | |
| ***Source to TSG:*** | C3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NSCALE | | | | |  | ***Date:*** | | | 2024-04-01 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-18 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Clause 9.3 of TS 23.435 has specified a feature for slice API configuration and translation. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Proposed NSCE\_SliceApiManagement service implements slice API configuration and translation as defined in clause 9.3 of TS 23.435. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Stage 3 is not in accordance with stage 2. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

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

## 5.2 NSCE\_SliceApiManagement Service

### 5.2.1 Service Description

The NSCE\_SliceApiManagement service (corresponding to clause 9.3 of 3GPP TS 23.435) exposed by the NSCE Server:

- enables a service consumer e.g., a VAL Server to:

- request to map a VAL application requirement to a slice API for initial slice API configuration;

- request to update a slice API configuration; and

- request for a slice API invocation; and

- notifies the service consumer, slice API information.

### 5.2.2 Service Operations

#### 5.2.2.1 Introduction

The service operations defined for the NSCE\_ SliceApiManagement service are shown in table 5.2.2.1-1.

Table 5.2.2.1-1: NSCE\_SliceApiManagement Service Operations

|  |  |  |
| --- | --- | --- |
| Service Operation Name | Description | Initiated by |
| NSCE\_SliceApiMgmt\_Subscribe | This service operation is used to subscribe to slice API management events. | e.g., VAL Server |
| NSCE\_SliceApiMgmt\_Notify | This service operation is used to notify the subscribed service consumer about the slice API management configuration information. | NSCE Server |
| NSCE\_SliceApiConfig\_Update | This service operation is used to request the update for an existing slice API configuration. | e.g., VAL Server |
| NSCE\_SliceApi\_Invoke | This service operation is used to request for slice API invocation. | e.g., VAL Server |

#### 5.2.2.2 NSCE\_SliceApiMgmt\_Subscribe

##### 5.2.2.2.1 General

This service operation is used by a service consumer e.g., the VAL Server to request the NSCE Server to:

- create the slice API management subscription by providing a VAL application requirement; and

- delete an existing slice API management subscription.

The following procedures are supported by the "NSCE\_ SliceApiMgmt\_Subscribe" service operation:

- Slice API Management Subscription Creation.

- Slice API Management Subscription Deletion.

##### 5.2.2.2.2 Slice API Management Subscription Creation

Figure 5.2.2.2.2-1 shows the scenario where a service consumer requests the NSCE Server for Slice API Management Subscription Creation (as defined in clause 9.3 of 3GPP°TS°23.435°[14]).



Figure 5.2.2.2.2-1: Procedure for Slice API Management Subscription Creation

1. To create the slice API management subscription by providing the VAL application requirement, the service consumer shall send an HTTP POST request with a Request-URI according to the pattern "{apiRoot}/nsce-sam/<apiVersion>/subscription" as defined in clause 6.1.3.2.2 and with a body containing data type SlApiMgmtSub as defined in clause 6.1.6.2.2; and

2. upon receipt of the HTTP POST request, the NSCE Server shall verify the identity of the service consumer and determine if the service consumer is authorized to request for the Slice API Management Subscription Creation:

a. if the service consumer is authorized:

i. if the request is successfully processed, the NSCE Server:

A. shall map the VAL application requirement to a slice API which includes a list of APIs, consumed as part of the service capability exposure;

B. may store the mapped slice API to the service API list per service API information; and

C. shall respond to the service consumer with an HTTP "201 Created" status code, with the response body including the SlApiMgmtSub data structure as defined in clause 6.1.6.2.2; or

ii. if errors occur when processing the request, the NSCE Server shall respond with an appropriate error response as specified in clause 6.1.7; or

b. if the service consumer is not authorized, the NSCE Server shall respond to the service consumer with an appropriate error status code.

##### 5.2.2.2.3 Slice API Management Subscription Deletion

Figure 5.2.2.2.3-1 shows the scenario where a service consumer requests the NSCE Server for Slice API Management Subscription Deletion (as defined in clause 9.3 of 3GPP°TS°23.435°[14]).



Figure 5.2.2.2.3-1: Procedure for Slice API Management Subscription Deletion

1. To delete an existing slice API management subscription, the service consumer shall send an HTTP DELETE request with a Request-URI according to the pattern "{apiRoot}/nsce-sam/<apiVersion> subscription/{subscriptionId}"}" as defined in clause 6.1.3.3.2; and

2. upon receipt of the HTTP DELETE request, the NSCE Server shall verify the identity of the service consumer and determine if the service consumer is authorized to request the slice API deletion:

a. if the service consumer if authorized:

i. if the request is successfully processed, the NSCE Server:

A. shall delete the slice API; and

B. shall respond to the service consumer with an HTTP "204 No Content" status code; or

ii. if errors occur when processing the request, the NSCE Server shall respond with an appropriate error response as specified in clause 6.1.7; or

b. if the service consumer is not authorized, the NSCE Server shall respond to the service consumer with an appropriate error status code.

#### 5.2.2.3 NSCE\_SliceApiMgmt\_Notify

##### 5.2.2.3.1 General

This service operation is used by the NSCE server to notify a subscribed service consumer e.g., the VAL server about the slice API management events.

The procedure which is supported by the "NSCE\_ SliceApiMgmt\_Notify" service operation, is:

- Slice API Management Notification.

##### 5.2.2.3.2 Slice API Management Notification

Figure 5.2.2.3.2-1 shows the scenario where the NSCE Server notifies a subscribed service consumer about the slice API Management Notification (as defined in clause 9.3 of 3GPP°TS°23.435°[14]).



Figure 5.2.2.3.2-1: Procedure for Slice API Management Notification

1. To notify about Slice API Management Notification, the NSCE Server shall send the service consumer, an HTTP POST request with a Request-URI according to the pattern "{notifUri}" as defined in clause 6.1.5.2.2 and with a body containing data type SlApiCnf as defined in clause 6.1.6.2.6; and

2. upon receipt of the HTTP POST request, the service consumer shall verify the identity of the NSCE Server and determine if the NSCE Server is authorized to notify with the information on the slice API configuration:

a. if the NSCE Server is authorized:

i. if the request is successfully processed, the service consumer:

A. shall process the event notification; and

B. shall respond with, a "204 No Content" status code; or

ii. if errors occur when processing the request, an appropriate error response as specified in clause 6.1.7; or

b. if the NSCE Server is not authorized, the service consumer shall respond to the NSCE Server with an appropriate error status code.

#### 5.2.2.4 NSCE\_SliceApiConfig\_Update

##### 5.2.2.4.1 General

This service operation is used by a service consumer e.g., the VAL Server to request the NSCE server to update an existing slice API configuration.

The procedure which is supported by the "NSCE\_ SliceApiConfig\_Update" service operation, is:

- Slice API Configuration Update.

##### 5.2.2.4.2 Slice API Configuration Update

Figure 5.2.2.4-1 shows the scenario where a service consumer requests the NSCE Server for Slice API Management Subscription Creation (as defined in clause 9.3 of 3GPP°TS°23.435°[14]).



Figure 5.2.2.2.3-1: Procedure for Slice API Configuration Update

1. To update the slice API configuration, the service consumer shall send an HTTP POST request with a Request-URI according to the pattern "{apiRoot}/nsce-sam/<apiVersion>/subscription/{subscriptionId}/update" as defined in clause 6.1.3.3.4 and with a body containing data type UpdSlApiReq as defined in clause 6.1.6.2.3; and

2. upon receipt of the HTTP POST request, the NSCE Server shall verify the identity of the service consumer and determine if the service consumer is authorized to update the slice API configuration:

a. if the service consumer is authorized:

i. if the request is successfully processed, the NSCE Server:

A. shall update the mapping of service APIs to the slice API;

B. shall update the subscription or registration to the underlying service; and

C. shall respond to the service consumer with an HTTP "200 OK" status code, with the response body including the UpdSlApiResp data structure as defined in clause 6.1.6.2.4; or

ii. if errors occur when processing the request, the NSCE Server shall respond with an appropriate error response as specified in clause 6.1.7; or

b. is the service consumer not authorized, the NSCE Server shall respond to the VAL server with an appropriate error status code.

#### 5.2.2.5 NSCE\_SliceApi\_Invoke

##### 5.2.2.5.1 General

This service operation is used by a service consumer e.g., the VAL Server to request the NSCE server to invoke a slice API.

The procedure which is supported by the "NSCE\_ SliceApi\_Update" service operation, is:

- Slice API Invocation.

##### 5.2.2.5.2 Slice API Invocation

Figure 5.2.2.5.2-1 shows the scenario where a service consumer requests the NSCE Server for the slice API invocation (as defined in clause 9.3 of 3GPP°TS°23.435°[14]).



Figure 5.2.2.5.2-1: Procedure for Slice API Invocation

1. To request the slice API invocation, the service consumer shall send an HTTP POST request with a Request-URI according to the pattern "{apiRoot}/nsce-sam/<apiVersion>/invoke" as defined in clause 6.1.4.1 and with a body containing data type InvokeReq as defined in clause 6.1.6.2.5; and

2. upon receipt of the HTTP POST request, the NSCE Server shall verify the identity of the service consumer and determine if the service consumer is authorized to request the slice API invocation:

a. if the service consumer is authorized:

i. if the request is successfully processed, the NSCE Server:

A. shall map the requested slice API for invocation to all the service APIs for the further translation to the service API invocations;

B. shall perform all the corresponding service API invocation procedure: and

C. shall respond to the VAL Server with an HTTP "204 No Content" status code; or

ii. if errors occur when processing the request, the NSCE Server shall respond with an appropriate error response as specified in clause 6.1.7; or

b. if the service consumer is not authorized, the NSCE Server shall respond to the service consumer with an appropriate error status code.

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