**3GPP TSG-CT WG3 Meeting #134 *C3-242285***

**Changsha, China, 15 - 19 April, 2024 *(Revision of C3-242xxx)***

|  |
| --- |
| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  |  | **CR** |  | **rev** | **-** | **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** |

|  |
| --- |
|  |
| ***Title:***  | Definition of the API clause of the NSCE\_ServiceContinuity API |
|  |  |
| ***Source to WG:*** |  |
| ***Source to TSG:*** |  |
|  |  |
| ***Work item code:*** | NSCALE |  | ***Date:*** |  |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** |  |
|  | *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 canbe 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:*** | As specified in clause 9.9 of TS 23.435, 5GS is required to provide suitable APIs to allow a trusted third-party to check whether the serving slice is available and can offer the same performance at the target EDN in edge based NSCE deployments. The NSCE\_ServiceContinuity Service API is being defined and has reached a level that enables the corresponding stage 3 work to start. |
|  |  |
| ***Summary of change:*** | Definition of the API clause of the new NSCE\_ServiceContinuity API. |
|  |  |
| ***Consequences if not approved:*** | Not fullfilled Stage 2 requirements. |
|  |  |
| ***Clauses affected:*** | 6.8 (new) |
|  |  |
|  | **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 does not impact the OpenAPI files. |
|  |  |
| ***This CR's revision history:*** |  |

**Additional discussion(if needed):**

**Proposed changes:**

\*\*\* 1st Change \*\*\*

## 6.8 NSCE\_ServiceContinuity API

6.8.1 Introduction

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

The API URI of the NSCE\_ServiceContinuity 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-esc".

- 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.

6.8.2 Usage of HTTP

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

### 6.8.3 Resources

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

### 6.8.4 Custom Operations without associated resources

#### 6.8.4.1 Overview

The structure of the custom operation URIs of the NSCE\_ServiceContinuity API is shown in Figure 6.8.4.1-1.



Figure 6.8.4.1-1: Custom operation URI structure of the NSCE\_ServiceContinuity API

Table 6.8.4.1-1 provides an overview of the custom operations and applicable HTTP methods defined for the NSCE\_ServiceContinuity API.

Table 6.8.4.1-1: Custom operations without associated resources

|  |  |  |  |
| --- | --- | --- | --- |
| Custom operation name | Custom operation URI | Mapped HTTP method | Description |
| Edge Service Continuity Requirement Request | /request | POST | Enables a service consumer to request Edge service continuity requirement. |
| Edge Service Continuity Negotiation Request | /negotiate | POST | Enables a service consumer to request Edge service continuity negotiation. |

The custom operations shall support the URI variables defined in table 6.8.4.1-2.

Table 6.8.4.1-2: URI variables for this custom operation

|  |  |  |
| --- | --- | --- |
| Name | Data type | Definition |
| apiRoot | string | See clause 6.8.1. |

#### 6.8.4.2 Operation: Edge Service Continuity Requirement Request

##### 6.8.4.2.1 Description

The custom operation enables a service consumer to request Edge service continuity requirement to the NSCE Server.

##### 6.8.4.2.2 Operation Definition

This operation shall support the request data structures specified in table 6.8.4.2.2-1 and the response data structures and response codes specified in table 6.8.4.2.2-2.

Table 6.8.4.2.2-1: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| EdgeSCRequirementReq | M | 1 | Contains the parameters to request Edge service continuity requirement. |

Table 6.8.4.2.2-2: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| n/a |  |  | 204 No Content | The Edge Service Continuity Requirement request is successfully received and processed. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.The response shall include a Location header field containing an alternative target URI located in an alternative NSCE Server.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 target URI located in an alternative NSCE Server.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2] |
| ProblemDetails | O | 0..1 | 403 Forbidden | (NOTE 2) |
| NOTE 1: 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.NOTE 2: Failure causes are described in clause 6.12.7. |

Table 6.8.4.2.2-3: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative target URI located in an alternative NSCE Server. |

Table 6.8.4.2.2-4: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative target URI located in an alternative NSCE Server. |

#### 6.8.4.3 Operation: Edge Service Continuity Negotiation Request

##### 6.8.4.2.1 Description

The custom operation enables a service consumer to request Edge service continuity negotiation to the NSCE Server.

##### 6.8.4.2.2 Operation Definition

This operation shall support the request data structures specified in table 6.8.4.2.2-1 and the response data structures and response codes specified in table 6.8.4.2.2-2.

Table 6.8.4.2.2-1: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| EdgeSCNegotiationReq | M | 1 | Contains the parameters to request Edge service continuity negotiation. |

Table 6.8.4.2.2-2: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| n/a |  |  | 204 No Content | The Edge Service Continuity Negotiation request is successfully received and processed. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.The response shall include a Location header field containing an alternative target URI located in an alternative NSCE Server.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 target URI located in an alternative NSCE Server.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [2] |
| ProblemDetails | O | 0..1 | 403 Forbidden | (NOTE 2) |
| NOTE 1: 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.NOTE 2: Failure causes are described in clause 6.12.7. |

Table 6.8.4.2.2-3: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative target URI located in an alternative NSCE Server. |

Table 6.8.4.2.2-4: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative target URI located in an alternative NSCE Server. |

### 6.8.5 Notifications

6.8.5.1 General

Notifications shall comply to clause 6.6 of 3GPP TS 29.549 [15].

**Table 6.8.5.1-1: Notifications overview**

|  |  |  |  |
| --- | --- | --- | --- |
| **Notification** | **Callback URI** | **HTTP method or custom operation** | **Description****(service operation)** |
| Edge Service Continuity Requirement Notification | {notifUri} | POST | This service operation enables the NSCE Server to notify a previously subscribed service consumer on Edge Service Continuity Requirement. |
| Edge Service Continuity Negotiation Notification | {notifUri} | POST | This service operation enables the NSCE Server to notify a previously subscribed service consumer on Edge Service Continuity Negotiation. |

6.8.5.2 Edge Service Continuity Requirement Notification

6.8.5.2.1 Description

The Edge Service Continuity Requirement Notification is used by the NSCE Server to notify a previously subscribed service consumer on Edge Service Continuity Requirement Subscription.

6.8.5.2.2 Target URI

The Callback URI **"{notifUri}"** shall be used with the callback URI variables defined in table 6.8.5.2.2-1.

**Table 6.8.5.2.2-1: Callback URI variables**

|  |  |
| --- | --- |
| **Name** | **Definition** |
| notifUri | Represents the callback URI encoded as a string formatted as a URI. |

##### 6.8.5.2.3 Standard Methods

###### 6.8.5.2.3.1 POST

This method shall support the request data structures specified in table 6.8.5.2.3.1-1 and the response data structures and response codes specified in table 6.8.5.2.3.1-2.

**Table 6.8.5.2.3.1-1: Data structures supported by the POST Request Body**

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Description** |
| EdgeSCRequirementNotif | M | 1 | Represents the Edge Service Continuity Requirement Notification. |

**Table 6.8.5.2.3.1-2: Data structures supported by the POST Response Body**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Response codes** | **Description** |
| n/a |  |  | 204 No Content | Successful case. The Edge Service Continuity Requirement Notification is successfully received. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.The response shall include a Location header field containing an alternative URI representing the end point of an alternative service consumer where the notification should be sent.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.The response shall include a Location header field containing an alternative URI representing the end point of an alternative service consumer where the notification should be sent.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3]. |
| 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] also apply. |

**Table 6.8.5.2.3.1-3: Headers supported by the 307 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative URI representing the end point of an alternative service consumer towards which the notification should be redirected. |

**Table 6.8.5.2.3.1-4: Headers supported by the 308 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative URI representing the end point of an alternative service consumer towards which the notification should be redirected. |

6.8.5.3 Edge Service Continuity Negotiation Notification

6.8.5.3.1 Description

The Edge Service Continuity Negotiation Notification is used by the NSCE Server to notify a previously subscribed service consumer on Edge Service Continuity Negotiation.

6.8.5.3.2 Target URI

The Callback URI **"{notifUri}"** shall be used with the callback URI variables defined in table 6.8.5.3.2-1.

**Table 6.8.5.3.2-1: Callback URI variables**

|  |  |
| --- | --- |
| **Name** | **Definition** |
| notifUri | Represents the callback URI encoded as a string formatted as a URI. |

##### 6.8.5.3.3 Standard Methods

###### 6.8.5.3.3.1 POST

This method shall support the request data structures specified in table 6.8.5.3.3.1-1 and the response data structures and response codes specified in table 6.8.5.3.3.1-2.

**Table 6.8.5.3.3.1-1: Data structures supported by the POST Request Body**

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Description** |
| EdgeSCNegotiationNotif | M | 1 | Represents the Edge Service Continuity Negotiation Notification. |

**Table 6.8.5.3.3.1-2: Data structures supported by the POST Response Body**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Response codes** | **Description** |
| n/a |  |  | 204 No Content | Successful case. The Edge Service Continuity Negotiation Notification is successfully received. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.The response shall include a Location header field containing an alternative URI representing the end point of an alternative service consumer where the notification should be sent.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.The response shall include a Location header field containing an alternative URI representing the end point of an alternative service consumer where the notification should be sent.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3]. |
| 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] also apply. |

**Table 6.8.5.3.3.1-3: Headers supported by the 307 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative URI representing the end point of an alternative service consumer towards which the notification should be redirected. |

**Table 6.8.5.3.3.1-4: Headers supported by the 308 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | Contains an alternative URI representing the end point of an alternative service consumer towards which the notification should be redirected. |

### 6.8.6 Data Model

#### 6.8.6.1 General

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

Table 6.8.6.1-1 specifies the data types defined for the NSCE\_ServiceContinuity API.

Table 6.8.6.1-1: NSCE\_ServiceContinuity API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Clause defined | Description | Applicability |
| EdgeSCNegotiationNotif | 6.8.6.2.5 | Represents a Edge Service Continuity Negotiation Notification. |  |
| EdgeSCNegotiationReq | 6.8.6.2.4 | Represents the parameters to request Edge Service Continuity Negotiation. |  |
| EdgeSCRequirementNotif | 6.8.6.2.3 | Represents a Edge Service Continuity Requirement Notification. |  |
| EdgeSCRequirementReq | 6.8.6.2.2 | Represents the parameters to request Edge Service Continuity Requirement. |  |
| TriggerAction | 6.8.6.3.3 | Represents the trigger action. |  |

Table 6.8.6.1-2 specifies data types re-used by the NSCE\_ServiceContinuity API from other specifications, including a reference to their respective specifications, and when needed, a short description of their use within the NSCE\_ServiceContinuity API.

Table 6.8.6.1-2: NSCE\_ServiceContinuity API re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| AppReqs | 6.12.6.2.3 | Represents the application QoS requirements. |  |
| EndPoint | 3GPP TS 29.558 [25] | Represents endpoint information. |  |
| NetSliceId | 6.3.6.2.15 | Identifies the S-NSSAI. |  |
| ServArea | Clause 6.16.6.2.5 | Represents a service area. |  |
| ServContReq | 6.12.6.3.3 | Represents the service continuity requirement. |  |
| SupportedFeatures | 3GPP TS 29.571 [16] | Represents the list of supported feature(s) and used to negotiate the applicability of the optional features. |  |
| Uri | 3GPP TS 29.122 [2] | Represents a URI. |  |

#### 6.8.6.2 Structured data types

##### 6.8.6.2.1 Introduction

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

##### 6.8.6.2.2 Type: EdgeSCRequirementReq

Table 6.8.6.2.2-1: Definition of type EdgeSCRequirementReq

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| notifUri | Uri | M | 1 | Contains the URI via which the Edge Service Continuity Requirement Notifications shall be delivered. |  |
| valServId | string | M | 1 | The identifier of the VAL service for which the requirement request applies. |  |
| valUeIds | array(string) | O | 1..N | The list of VAL UE IDs for which the requirement request applies. |  |
| netSliceId | NetSliceId | O | 0..1 | Identifier of the network slice for which is mapped to the VAL application. |  |
| servContReq | ServContReq | M | 1 | Contains the requested service continuity requirement information. |  |
| targetServArea | ServArea | O | 0..1 | Contains the target service area. |  |
| suppFeat | SupportedFeatures | C | 0..1 | Contains the list of supported features among the ones defined in clause 6.8.8.This attribute shall be present only when feature negotiation needs to take place. |  |

##### 6.8.6.2.3 Type: EdgeSCRequirementNotif

Table 6.8.6.2.3-1: Definition of type EdgeSCRequirementNotif

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| valServId | string | M | 1 | The identifier of the VAL service for which the requirement request applies |  |
| valUeIds | array(string) | O | 1..N | The list of VAL UE IDs for which the requirement request applies |  |
| netSliceId | NetSliceId | M | 1 | Identifier of the network slice for which is mapped to the VAL application. |  |
| tgtNsceServId | string | M | 1 | Contains the identifier of the target NSCE Server. |  |
| tgtNsceAddr | EndPoint | M | 1 | Contains the addressing information of the target NSCE Server. |  |
| targetServArea | ServArea | M | 1 | Contains the target service area. |  |

##### 6.8.6.2.4 Type: EdgeSCNegotiationReq

Table 6.8.6.2.4-1: Definition of type EdgeSCNegotiationReq

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| notifUri | Uri | M | 1 | Contains the URI via which the Edge Service Continuity Negotiation Notifications shall be delivered. |  |
| valServId | string | M | 1 | The identifier of the VAL service for which the Negotiation request applies |  |
| valUeIds | array(string) | O | 1..N | The list of VAL UE IDs for which the negotiation request applies |  |
| netSliceId | NetSliceId | M | 1 | Identifier of the network slice for which is mapped to the VAL application. |  |
| servContReq | ServContReq | M | 1 | Contains the requested service continuity requirement information. |  |
| appQoSReqs | AppReqs | O | 0..1 | Represents the requested application QoS requirements. |  |
| triggerAction | TriggerAction | O | 0..1 | Represents the requested proposed trigger action. |  |
| suppFeat | SupportedFeatures | C | 0..1 | Contains the list of supported features among the ones defined in clause 6.8.8.This attribute shall be present only when feature negotiation needs to take place. |  |

##### 6.8.6.2.5 Type: EdgeSCNegotiationNotif

Table 6.8.6.2.5-1: Definition of type EdgeSCNegotiationNotif

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Data type** | **P** | **Cardinality** | **Description** | **Applicability** |
| valServId | string | M | 1 | Represents the identifier of the VAL service to which the notification is related. |  |
| triggerAction | TriggerAction | M | 1 | Represents the determined trigger action. |  |

6.8.6.3 Simple data types and enumerations

6.8.6.3.1 Introduction

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

6.8.6.3.2 Simple data types

The simple data types defined in table 6.8.6.3.2-1 shall be supported.

**Table 6.8.6.3.2-1: Simple data types**

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

##### 6.8.6.3.3 Enumeration: TriggerAction

Table 6.8.6.3.3-1: Enumeration TriggerAction

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| SLICE\_LIFECYCLE\_CHG | Indicates that the trigger action is slice lifecycle change. |  |

### 6.8.7 Error Handling

#### 6.8.7.1 General

For the NSCE\_ServiceContinuity 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\_ServiceContinuity API.

#### 6.8.7.2 Protocol Errors

No specific procedures for the NSCE\_ServiceContinuity API are specified.

#### 6.8.7.3 Application Errors

The application errors defined for the NSCE\_ServiceContinuity API are listed in Table 6.8.7.3-1.

Table 6.8.7.3-1: Application errors

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

### 6.8.8 Feature negotiation

The optional features in table 6.1.8-1 are defined for the NSCE\_ServiceContinuity API. They shall be negotiated using the extensibility mechanism defined in clause 6.8 of 3GPP TS 29.549 [15].

Table 6.8.8-1: Supported Features

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

### 6.8.9 Security

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

\*\*\* End of Changes \*\*\*