3GPP TSG CT WG3 Meeting #135 C3-243385

Hyderabad India, 27th – 31st May 2024

|  |
| --- |
| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  |  | **CR** | **0040** | **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)*.* |
|  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

|  |
| --- |
|  |
| ***Title:***  | Update on NSCE\_NetSliceLifeCycleMngt API |
|  |  |
| ***Source to WG:*** | China Mobile Com. Corporation, Huawei |
| ***Source to TSG:*** |  |
|  |  |
| ***Work item code:*** | NSCALE |  | ***Date:*** | 2024-05-20 |
|  |  |  |  |  |
| ***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 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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
|  |  |
| ***Reason for change:*** | The NSCE\_ NetSliceLifeCycleMngt API definition and API File is incomplete.  |
|  |  |
| ***Summary of change:*** | Complete the NSCE\_NetSliceLifeCycleMngt API definition and API File.  |
|  |  |
| ***Consequences if not approved:*** | The NSCE\_NetSliceLifeCycleMngt API will be incomplete.  |
|  |  |
| ***Clauses affected:*** | 2, 6.2.6.1, 6.2.5.3.3, 6.2.5.3.3, 6.2.6.2.9, 6.2.6.2.10, 6.2.6.2.11, 6.2.6.3.3, A.3 |
|  |  |
|  | **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 introduces a new NSCE\_NetSliceLifeCycleMngt API file. |
|  |  |
| ***This CR's revision history:*** |  |

\*\*\*\*\* FIRST CHANGE \*\*\*\*\*

#### 6.2.6.1 General

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

Table 6.2.6.1-1 specifies the data types defined for the NSCE\_NetSliceLifeCycleMngt API.

Table 6.2.6.1-1: NSCE\_NetSliceLifeCycleMngt API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Clause defined | Description | Applicability |
| CollectInfo | 6.2.6.2.8 | The information collected from the interested network slice. |  |
| NSLCMNotif | 6.2.6.2.3 | The Network Slice Lifecycle Management Notification. |  |
| NSLCMRecom | 6.2.6.2.7 | The Network Slice LCM Recommendation. |  |
| NSLCMSubsc | 6.2.6.2.1 | The parameters to request the creation of a Network Slice Lifecycle Management Subscription resource. |  |
| NSLCMSubscPatch | 6.2.6.2.2 | The parameters to request the update of a Network Slice Lifecycle Management Subscription resource. |  |
| QoEMetric | 6.2.6.2.10 | The QoE metric type and the corresponding QoE threshold. |  |
| QoEMetricsResp | 6.2.6.2.5 | The response of QoE Metris Subscription. |  |
| QoEMetricsReport | 6.2.6.2.6 | The QoE Metrics Report. |  |
| QoEMetricsReportNotif | 6.2.6.2.11 | The QoE metrics notification including the QoE Metrics Report. |  |
| QoEMetricsSubsc | 6.2.6.2.4 | The subscription to a previously subscribed service consumer on QoE metrics |  |
| QoEType | 6.2.6.3.3 | The QoE metric type, e.g., latency, throughput, jitter, etc. |  |
| SliceLCMAction | 6.2.6.3.5 | Recommend network slice LCM action. |  |
| TriggerCond | 6.2.6.2.9 | The updated monitored parameters and the corresponding thresholds which could trigger the AppLayer-NS-LCM. |  |
| TriggerType | 6.2.6.3.4 | The monitored parameter type, e.g., Network Slice load, collected Network Slice performance, collected QoE, etc. |  |

Table 6.2.6.1-2 specifies data types re-used by the NSCE\_PolicyManagement API from other specifications, including a reference to their respective specifications, and when needed, a short description of their use within the NSCE\_PolicyManagement API.

Table 6.2.6.1-2: NSCE\_NetSliceLifeCycleMngt API re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| DateTime | 3GPP TS 29.122 [2] | Represents a date and a time. |  |
| NetworkPerfInfo | 3GPP TS 29.520 [29] | Represents the network performance information. |  |
| NetSliceId | 6.3.6.2.15 | Represents the identification information of a network slice. |  |
| NSInfoSet | 6.16.6.2.4 | Represents a Network Slice Information Set. |  |
| PacketLossRate | 3GPP TS 29.571 [16] | Indicates Packet Loss Rate. |  |

\*\*\*\*\* NEXT CHANGE \*\*\*\*\*

##### 6.2.5.3.3 Standard Methods

6.2.5.3.3.1 POST

This method shall support the request data structures specified in table 6.2.5.3.3.1-1 and the response data structures and response codes specified in table 6.2.5.3.3.1-2.

Table 6.2.5.3.3.1-1: Data structures supported by the POST Request Body

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| QoEMetricsSubsc | M | 1 | Represents the QoE metrics Subscription. |

Table 6.2.5.3.3.1-2: Data structures supported by the POST Response Body

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| QoEMetricsResp | M | 1 | 200 OK | Successful case. The QoE metrics Subscribe Notification is successfully received and processed, and immediate QoE metrics reporting related information shall be returned in the response body. |
| n/a |  |  | 204 No Content | Successful case. The QoE metrics Subscription is successfully received and processed, and no content is returned in the response body. |
| 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 [2]. |
| 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 [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 6.2.5.3.3.1-3: 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 6.2.5.3.3.1-4: 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. |

\*\*\*\*\* NEXT CHANGE \*\*\*\*\*

##### 6.2.5.3.3 Standard Methods

6.2.5.3.3.1 POST

This method shall support the request data structures specified in table 6.2.5.3.3.1-1 and the response data structures and response codes specified in table 6.2.5.3.3.1-2.

Table 6.2.5.3.3.1-1: Data structures supported by the POST Request Body

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| NSLCMRecom | M | 1 | Represents the Network Slice LCM Recommendation Notification. |

Table 6.2.5.3.3.1-2: Data structures supported by the POST Response Body

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| n/a |  |  | 204 No Content | Successful case. The Network Slice LCM Recommendation Notification is successfully received and processed, and no content is returned in the response body. |
| 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 6.2.5.3.3.1-3: 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 6.2.5.3.3.1-4: 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. |

\*\*\*\*\* NEXT CHANGE \*\*\*\*\*

##### 6.2.6.2.9 Type: TriggerCond

Table 6.2.6.2.9-1: Definition of type TriggerCond

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| triggerType | TriggerType | M | 1 | Represents the monitored parameter type, e.g., Network Slice load, collected Network Slice performance, collected QoE, etc. |  |
| netSliceId | NetSliceId | O | 0..1 | Represents the identifier of the targeted network slice. |  |
| loadLevelThreshold | integer | O | 0..1 | Indicates that the NSCE shall report the corresponding network slice load level to the NF service consumer where the load level of the network slice identified by netSliceId exceeds the threshold.Should be included when subscribed event is "NETWORK\_SLICE\_LOAD". Minimum = 0. Maximum = 100. |  |
| perfThreshold | integer | O | 0..1 | Indicates that the NSCE shall report the corresponding network slice performance when the performance exceeds the threshold.Minimum = 0. Maximum = 100. |  |
| qoeMetrics | array(QoEMetric) | O | 1..N | Contains the QoE metric type and the corresponding QoE threshold. |  |

\*\*\*\*\* NEXT CHANGE \*\*\*\*\*

##### 6.2.6.2.10 Type: QoEMetric

Table 6.2.6.2.10-1: Definition of type QoEMetric

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| qoeType | QoEType | M | 1 | Represents the QoE metric type, e.g., latency, throughput, jitter, etc. |  |
| latency | Float | O | 0..1 | Contains the threshold average latency in milliseconds. This attribute may be present only if the "qoeType" attribute is set to "LATENCY". |  |
| throughput | BitRate | O | 0..1 | Contains the threshold average throughput.This attribute may be present only if the "qoeType" attribute is set to "THROUGHPUT". |  |
| jitter | Uint32 | O | 0..1 | Contains the threshold average jitter.This attribute may be present only if the "qoeType" attribute is set to "JITTER". |  |
| avgPacketLossRate | PacketLossRate | O | 0..1 | Threshold level of average Loss Rate.This attribute may be present only if the "qoeType" attribute is set to "AVG\_PKT\_LOSS\_RATE". |  |
| maxPacketLossRate | PacketLossRate | O | 0..1 | Threshold level of maximum Loss Rate.This attribute may be present only if the "qoeType" attribute is set to "MAX\_PKT\_LOSS\_RATE". |  |
| NOTE: The attributes "latency", "throughput", "jitter", "avgPacketLossRate" and "maxPacketLossRate" are mutually exclusive. Either one of them may be present. |

\*\*\*\*\* NEXT CHANGE \*\*\*\*\*

##### 6.2.6.2.11 Type: QoEMetricsReportNotif

Table 6.2.6.2.11-1: Definition of type QoEMetricsReportNotif

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| notifCorrId | string | M | 1 | Contains the notification correlation Id for the subscription of QoE Metrics. |  |
| qoEMetricsReport | QoEMetricsReport | M | 1 | Contains the QoE metric report. |  |

\*\*\*\*\* NEXT CHANGE \*\*\*\*\*

##### 6.2.6.3.3 Enumeration: QoEType

Table 6.2.6.3.3-1: Enumeration QoEType

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| LATENCY | Indicates that the QoE type is latency. |  |
| THROUGHPUT | Indicates that the QoE type is throughput. |  |
| JITTER | Indicates that the QoE type is jitter. |  |
| AVG\_PKT\_LOSS\_RATE | Indicates that the QoE type is average Loss Rate. |  |
| MAX\_PKT\_LOSS\_RATE | Indicates that the QoE type is maximum Loss Rate. |  |

\*\*\*\*\* NEXT CHANGE \*\*\*\*\*

# A.3 NSCE\_NetSliceLifeCycleMngt API

openapi: 3.0.0

info:

 title: NSCE Server Network Slice LifeCycle Management

 version: 1.0.0-alpha.1

 description: |

 NSCE Server Network Slice LifeCycle Management.

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externalDocs:

 description: >

 3GPP TS 29.435 V18.1.0; Service Enabler Architecture Layer for Verticals (SEAL);

 Network Slice Capability Exposure (NSCE) Server Service(s); Stage 3.

 url: http://www.3gpp.org/ftp/Specs/archive/29\_series/29.435/

servers:

 - url: '{apiRoot}/nsce-nslcm/v1'

 variables:

 apiRoot:

 default: https://example.com

 description: apiRoot as defined in clause 5.2.4 of 3GPP TS 29.122

security:

 - {}

 - oAuth2ClientCredentials: []

paths:

 /subscriptions:

 post:

 summary: Request the creation of a Network Slice Lifecycle Management Subscription.

 operationId: CreateNetSliceLifeCycleMngtSubsc

 tags:

 - Network Slice Lifecycle Management Subscriptions (Collection)

 requestBody:

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/NSLCMSubsc'

 responses:

 '201':

 description: >

 Created. The Network Slice Lifecycle Management Subscription is successfully created

 and a representation of the created Individual Network Slice Lifecycle Management

 Subscription resource shall be returned.

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/NSLCMSubsc'

 headers:

 Location:

 description: >

 Contains the URI of the newly created resource.

 required: true

 schema:

 type: string

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 callbacks:

 NetSliceLifeCycleMngtNotif:

 '{$request.body#/notifUri}':

 post:

 requestBody:

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/NSLCMNotif'

 responses:

 '204':

 description: >

 No Content. The Network Slice Lifecycle Management Notification is successfully

 received and processed.

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 QoEMetricsSubsNotif:

 '{$request.body#/notifUri}/subscribe-qoe':

 post:

 requestBody:

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/QoEMetricsSubsc'

 responses:

 '200':

 description: >

 OK. The QoE metrics Subscription is successfully received

 and processed, and immediate QoE metrics reporting related information

 shall be returned in the response body.

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/QoEMetricsResp'

 '204':

 description: >

 No Content. The QoE metrics Subscription is successfully received and

 processed, and no content is returned in the response body.

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 NetSliceLCMRecomNotif:

 '{$request.body#/notifUri}/recommend':

 post:

 requestBody:

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/NSLCMRecom'

 responses:

 '204':

 description: >

 No Content. The Network Slice LCM Recommendation Notification

 is successfully received and processed, and no content is

 returned in the response body.

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 /subscriptions/{subscriptionId}:

 parameters:

 - name: subscriptionId

 in: path

 description: >

 Represents the identifier of the Individual Network Slice Lifecycle Management

 Subscription resource.

 required: true

 schema:

 type: string

 get:

 summary: Retrieve an existing Individual Network Slice Lifecycle Management Subscription" resource at the NSCE Server.

 operationId: GetIndNetSliceLifeCycleMngtSubsc

 tags:

 - Individual Network Slice Lifecycle Management Subscription (Document)

 responses:

 '200':

 description: >

 OK. The requested Individual Network Slice Lifecycle Management Subscription

 resource shall be returned.

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/NSLCMSubsc'

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '406':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/406'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 put:

 summary: Request the update of an existing Individual Network Slice Lifecycle Management Subscription resource at the NSCE Server.

 operationId: UpdateIndNetSliceLifeCycleMngtSubc

 tags:

 - Individual Network Slice Lifecycle Management Subscription (Document)

 requestBody:

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/NSLCMSubsc'

 responses:

 '200':

 description: >

 OK. The Individual Management Discovery Subscription resource is successfully updated

 and a representation of the updated resource shall be returned in the response body.

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/NSLCMSubsc'

 '204':

 description: >

 No Content. The Individual Network Slice Lifecycle Management Subscription resource

 is successfully updated and no content is returned in the response body.

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 patch:

 summary: Request the modification of an existing Individual Network Slice Lifecycle Management Subscription resource at the NSCE Server.

 operationId: ModifyIndNetSliceLifeCycleMngtSubsc

 tags:

 - Individual Network Slice Lifecycle Management Subscription (Document)

 requestBody:

 required: true

 content:

 application/merge-patch+json:

 schema:

 $ref: '#/components/schemas/NSLCMSubscPatch'

 responses:

 '200':

 description: >

 OK. The Individual Network Slice Lifecycle Management Subscription resource is

 successfully modified and a representation of the updated resource shall

 be returned in the response body.

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/NSLCMSubsc'

 '204':

 description: >

 No Content. The Individual Network Slice Lifecycle Management Subscription resource

 is successfully modified and no content is returned in the response body.

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 delete:

 summary: Request the deletion of an existing Individual Network Slice Lifecycle Management Subscription resource.

 operationId: DeleteIndNetSliceLifeCycleMngtSubc

 tags:

 - Individual Network Slice Lifecycle Management Subscription (Document)

 responses:

 '204':

 description: >

 No Content. The Individual Network Slice Lifecycle Management Subscription

 resource is successfully deleted.

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

 /subscriptions/{subscriptionId}/notify:

 parameters:

 - name: subscriptionId

 in: path

 description: >

 Represents the identifier of the Individual Network Slice Lifecycle Management

 Subscription resource.

 required: true

 schema:

 type: string

 post:

 summary: Enables the service consumer to send a notification to the NSCE Server on QoE metrics.

 operationId: QoEMetricNotify

 tags:

 - QoE metrics Notification

 requestBody:

 required: true

 content:

 application/json:

 schema:

 $ref: '#/components/schemas/QoEMetricsReportNotif'

 responses:

 '204':

 description: >

 No Content. The QoE metrics notification is successfully received and processed,

 and no content is returned in the response body.

 '307':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/307'

 '308':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/308'

 '400':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/400'

 '401':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/401'

 '403':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/403'

 '404':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/404'

 '411':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/411'

 '413':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/413'

 '415':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/415'

 '429':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/429'

 '500':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/500'

 '503':

 $ref: 'TS29122\_CommonData.yaml#/components/responses/503'

 default:

 $ref: 'TS29122\_CommonData.yaml#/components/responses/default'

components:

 securitySchemes:

 oAuth2ClientCredentials:

 type: oauth2

 flows:

 clientCredentials:

 tokenUrl: '{tokenUrl}'

 scopes: {}

 schemas:

 NSLCMSubsc:

 description: Represents a Network Slice Life Cycle Management Subscription.

 type: object

 properties:

 notifUri:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/Uri'

 triggerConds:

 type: array

 items:

 $ref: '/components/schemas/TriggerCond'

 minItems: 1

 expTime:

 $ref: 'TS29122\_CommonData.yaml#//components/schemas/DateTime'

 suppFeat:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/SupportedFeatures'

 required:

 - notifUri

 NSLCMSubscPatch:

 description: >

 Represents the requested modifications to a Network Slice Life Cycle

 Management Subscription.

 type: object

 properties:

 notifUri:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/Uri'

 triggerConds:

 type: array

 items:

 $ref: '/components/schemas/TriggerCond'

 minItems: 1

 expTime:

 $ref: 'TS29122\_CommonData.yaml#//components/schemas/DateTime'

 NSLCMNotif:

 description: Represents a Network Slice Life Cycle Management Notification.

 type: object

 properties:

 netSliceId:

 $ref: 'TS29435\_NSCE\_PolicyManagement.yaml#/components/schemas/NetSliceId'

 required:

 - netSliceId

 QoEMetricsSubsc:

 description: Represents a QoE Metrics Subscription.

 type: object

 properties:

 notifCorrId:

 type: string

 subscriptionId:

 type: string

 collectInfos:

 type: object

 additionalProperties:

 $ref: '/components/schemas/CollectInfo'

 minProperties: 1

 description: >

 Contains the information collected from the interested network slice.

 The key of the map shall be any unique string encoded value.

 expTime:

 $ref: 'TS29122\_CommonData.yaml#//components/schemas/DateTime'

 required:

 - collectInfos

 QoEMetricsResp:

 description: Represents the response to a QoE Metris Subscription.

 type: object

 properties:

 qoeMetrics:

 $ref: '/components/schemas/QoEMetricsSubsc'

 qoeMetricsReports:

 type: array

 items:

 $ref: '/components/schemas/QoEMetricsReport'

 minItems: 1

 QoEMetricsReport:

 description: Represents the report of QoE Metris.

 type: object

 properties:

 netSliceId:

 $ref: 'TS29435\_NSCE\_PolicyManagement.yaml#/components/schemas/NetSliceId'

 qoeMetrics:

 type: array

 items:

 $ref: '/components/schemas/QoEMetric'

 minItems: 1

 required:

 - netSliceId

 - qoeMetrics

 NSLCMRecom:

 description: Represents the Network Slice LCM Recommendation.

 type: object

 properties:

 netSliceId:

 $ref: 'TS29435\_NSCE\_PolicyManagement.yaml#/components/schemas/NetSliceId'

 sliceLCMActions:

 type: array

 items:

 $ref: '/components/schemas/SliceLCMAction'

 minItems: 1

 sliceInfo:

 $ref: 'TS29435\_NSCE\_NSInfoDelivery.yaml#/components/schemas/NSInfoSet'

 required:

 - netSliceId

 - sliceLCMActions

 CollectInfo:

 description: Represents the information collected from the interested network slice.

 type: object

 properties:

 netSliceId:

 $ref: 'TS29435\_NSCE\_PolicyManagement.yaml#/components/schemas/NetSliceId'

 qoeMetrics:

 type: array

 items:

 $ref: '/components/schemas/QoeMetric'

 minItems: 1

 repPeriod:

 $ref: 'TS29122\_CommonData.yaml#/components/schemas/DurationSec'

 immRepFlag:

 type: boolean

 description: >

 Contains the immediate reporting indication.

 true means that immediate reporting is requested.

 false means that immediate reporting is not requested.

 The default value is false if this attribute is omitted.

 required:

 - netSliceId

 TriggerCond:

 description: >

 Represents the updated monitored parameters and the corresponding thresholds

 which could trigger the AppLayer-NS-LCM.

 type: object

 properties:

 triggerType:

 $ref: '/components/schemas/TriggerType'

 netSliceId:

 $ref: 'TS29435\_NSCE\_PolicyManagement.yaml#/components/schemas/NetSliceId'

 loadLevelThreshold:

 type: integer

 minimum: 0

 maximum: 100

 perfThreshold:

 type: integer

 minimum: 0

 maximum: 100

 qoeMetrics:

 type: array

 items:

 $ref: '/components/schemas/QoeMetric'

 minItems: 1

 required:

 - triggerType

 QoEMetric:

 description: >

 Represents the QoE metric type and the corresponding QoE threshold.

 type: object

 properties:

 qoeType:

 $ref: '/components/schemas/QoEType'

 latency:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Float'

 throughput:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/BitRate'

 jitter:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uint32'

 avgPacketLossRate:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PacketLossRate'

 maxPacketLossRate:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PacketLossRate'

 required:

 - qoeType

 QoEMetricsReportNotif:

 description: >

 Represents the QoE metrics notification including the QoE Metrics Report.

 type: object

 properties:

 notifCorrId:

 type: string

 qoEMetricsReport:

 $ref: '/components/schemas/QoEMetricsReport'

 required:

 - notifCorrId

 - qoEMetricsReport

#

# ENUMERATIONS DATA TYPES

#

 QoEType:

 anyOf:

 - type: string

 enum:

 - LATENCY

 - THROUGHPUT

 - JITTER

 - AVG\_PKT\_LOSS\_RATE

 - MAX\_PKT\_LOSS\_RATE

 - type: string

 description: >

 This string provides forward-compatibility with future

 extensions to the enumeration and is not used to encode

 content defined in the present version of this API.

 description: |

 Represents the QoE metric type, e.g., latency, throughput, jitter, etc.

 Possible values are:

 - LATENCY: Indicates that the QoE type is latency.

 - THROUGHPUT: Indicates that the QoE type is throughput.

 - JITTER: Indicates that the QoE type is jitter.

 - AVG\_PKT\_LOSS\_RATE: Indicates that the QoE type is average Loss Rate.

 - MAX\_PKT\_LOSS\_RATE: Indicates that the QoE type is maximum Loss Rate.

 TriggerType:

 anyOf:

 - type: string

 enum:

 - NETWORK\_SLICE\_LOAD

 - NETWORK\_SLICE\_PERFORMANCE

 - QOE

 - type: string

 description: >

 This string provides forward-compatibility with future

 extensions to the enumeration and is not used to encode

 content defined in the present version of this API.

 description: |

 Represents the monitored parameter type, e.g., Network Slice load,

 collected Network Slice performance, collected QoE, etc.

 Possible values are:

 - NETWORK\_SLICE\_LOAD: Indicates that the trigger type is Network Slice Load.

 - NETWORK\_SLICE\_PERFORMANCE: Indicates that the trigger type is Network Slice Performance.

 - QOE: Indicates that the trigger type is QoE.

 SliceLCMAction:

 anyOf:

 - type: string

 enum:

 - MODIFY\_CONFIGURATION

 - ALLOCATE\_SLICE

 - type: string

 description: >

 This string provides forward-compatibility with future

 extensions to the enumeration and is not used to encode

 content defined in the present version of this API.

 description: |

 Represents the recommended slice LCM action.

 Possible values are:

 - MODIFY\_CONFIGURATION: Indicates that the recommended action is modifying the

 configuration.

 - ALLOCATE\_SLICE: Indicates that the recommended action is allocating a network slice.

 \*\*\*\*\* END OF CHANGES \*\*\*