**3GPP TSG- WG3 Meeting #**

**Online, 22 - 24 January, 2024**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.549** | **CR** |  | **rev** | **-** | **Current version:** |  |  |
|  | | | | | | | | |
| *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:*** | Slice-specific application performance analytics | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Lenovo | | | | | | | | | |
| ***Source to TSG:*** | C3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | ADAES | | | | |  | ***Date:*** | | | 2023-12-04 |
|  |  | | | |  | |  | | |  |
| ***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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | TS 23.436 adds stage 2 for slice specific application performance analytics for the ADAE service which is a SEAL service. Stage 3 of slice-specific application performance analytics needs to be defined. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | The added changes are:   * Added new SEAL service in the table. * Added SS\_ADAE\_SlicePerformanceAnalytics API * Added resource for individual slice-specific application performance event subscription * Modified data types for SliceAppPerfSubs and SliceAppPerfNoti * Expanded on timeInterval for SliceAppPerfSubs and added timeInterval to SliceAppPerfNotif according to SA6#57. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Stage 3 of SS\_ADAE\_SlicePerformanceAnalytics API does not exist. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.1, 5.X.2 (new), 7.10.2.2.3 (new), 7.10.2.4.1, 7.10.2.4.2.2, 7.10.2.4.2.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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's revision history:*** | |  | | | | | | | | |

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

## 5.1 Introduction of SEAL services

The table 5.1-1 lists the SEAL server APIs below the service name. A service description clause for each API gives a general description of the related API.

Table 5.1-1: List of SEAL Service APIs

|  |  |  |  |
| --- | --- | --- | --- |
| Service Name | Service Operations | Operation Semantics | Consumer(s) |
| SS\_LocationReporting | Create\_Trigger\_Location\_Reporting | Request/ Response | VAL server |
| Fetch\_Location\_Report\_Trigger | Request/Response | VAL server |
| Update\_Trigger\_Location\_Reporting | Request/ Response | VAL server |
| Cancel\_Trigger\_Location\_Reporting | Request/ Response | VAL server |
| SS\_LocationInfoEvent | Subscribe\_Location\_Info | Subscribe/Notify | VAL server |
| Unsubscribe\_Location\_Info | VAL server |
| Notify\_Location\_Info | VAL server |
| SS\_LocationInfoRetrieval | Obtain\_Location\_Info | Request/ Response | VAL server |
| SS\_LocationAreaInfoRetrieval | Obtain\_UEs\_Info | Request/ Response | VAL server |
| SS\_LocationMonitoring | Subscribe\_Location\_Monitoring | Subscribe/Notify | VAL server |
| Unsubscribe\_Location\_Monitoring |
| Notify\_Location\_Monitoring\_Events |
| SS\_LocationAreaMonitoring | Subscribe\_Location\_Area\_Monitoring | Subscribe/Notify | VAL server |
| Notify\_Location\_Area\_Monitoring\_Events |
| Update\_Location\_Area\_Monitoring\_Subscribe |
| Unsubscribe\_Location\_Area\_Monitoring |
| SS\_VALServiceAreaConfiguration | Configure\_VAL\_Service\_Area | Request/Response | VAL server |
| Obtain\_VAL\_Service\_Area | Request/Response | VAL server |
| Update\_VAL\_Service\_Area | Request/Response | VAL server |
| Delete\_VAL\_Service\_Area | Request/Response | VAL server |
| SS\_GroupManagement | Query\_Group\_Info | Request/ Response | VAL server |
| Update\_Group\_Info | Request/ Response | VAL server |
| Create\_Group | Request/ Response | VAL server |
| Delete\_Group | Request/Response | VAL server |
| SS\_GroupManagementEvent | Subscribe\_Group\_Info\_Modification | Subscribe/Notify | VAL server |
| Notify\_Group\_Info\_Modification | VAL server |
| Notify\_Group\_Creation | VAL server |
| SS\_UserProfileRetrieval | Obtain\_User\_Profile | Request/ Response | VAL server |
| SS\_VALServiceData | Obtain\_VAL\_Service\_Data | Request/Response | SEAL server |
| SS\_UserProfileEvent | Subscribe\_User\_Profile\_Update | Subscribe/Notify | VAL server |
| Notify\_User\_Profile\_Update | VAL server |
| SS\_NetworkResourceAdaptation  (NOTE 3) | Reserve\_Network\_Resource | Request/Response | VAL server |
| Request\_Unicast\_Resource | Request/Response | VAL server |
| Update\_Unicast\_Resource | Request/Response | VAL server |
| Request\_Multicast\_Resource | Request/Response | VAL server |
| Notify\_UP\_Delivery\_Mode | Subscribe/Notify | VAL server |
| Discover\_TSC\_Stream\_Availability | Request/Response | VAL server |
| Create\_TSC\_Stream | Request/Response | VAL server |
| Delete\_TSC\_Stream | Request/Response | VAL server |
| Create\_MBS\_Resource | Request/Response | VAL server |
| Update\_MBS\_Resource | Request/Response | VAL server |
| Delete\_MBS\_Resource | Request/Response | VAL server |
| Activate\_MBS\_Resource | Request/Response | VAL server |
| Deactivate\_MBS\_Resource | Request/Response | VAL server |
| SS\_EventsMonitoring | Subscribe\_Monitoring\_Events | Subscribe/Notify | VAL server |
| Notify\_Monitoring\_Events |
| SS\_Events | Subscribe\_Event | Subscribe/Notify | VAL server |
| Notify\_Event | VAL server |
| Unsubscribe\_Event | VAL server |
| Update\_Subscription | VAL server |
| SS\_KeyInfoRetrieval | Obtain\_Key\_Info | Request/Response | VAL server |
| SS\_NetworkSliceAdaptation | Request\_Network\_Slice\_Adaptation | Request/Response | VAL server |
| SS\_NetworkResourceMonitoring | Subscribe\_Unicast\_QoS\_Monitoring\_Data | Subscribe/Notify | VAL server |
| Unsubscribe\_Unicast\_QoS\_Monitoring\_Data | VAL server |
| Notify\_Unicast\_QoS\_Monitoring\_Data | VAL server |
| Obtain\_Unicast\_QoS\_Monitoring\_Data | Request/Response | VAL server |
| Update\_Unicast\_QoS\_Monitoring\_Subscription | VAL server |
| SS\_IdmParameterProvisioning | Provide\_Configuration | Request/Response | VAL server |
| SS\_ADAE\_SlicePerformanceAnalytics API | Subscribe\_Slice\_Performance\_Analytics | Subscribe/Notify | VAL server |
| Notify\_Slice\_Performance\_Analytics |
| Unsubscribe\_Slice\_Performance\_Analytics |
| NOTE 1: The service operations of SS\_Events API are reused by the SS\_LocationInfoEvent, SS\_LocationMonitoring, SS\_LocationAreaMonitoring, SS\_GroupManagementEvent, SS\_UserProfileEvent and SS\_EventsMonitoring for events related services.  NOTE 2: The service APIs exposed by the SEALDD Server and the corresponding service operations, operation semantics and service consumers are specified in clause 5 of 3GPP TS 29.548 [35].  NOTE 3: The "Create\_MBS\_Resource", "Update\_MBS\_Resource", "Delete\_MBS\_Resource", "Activate\_MBS\_Resource" and "Deactivate\_MBS\_Resource" service operations correspond to the stage 2 "Request\_Multicast/Broadcast\_Resource", "Update\_Multicast/Broadcast\_Resource", "Delete\_Multicast/Broadcast\_Resource", "Activate\_Multicast\_Resource" and "Deactivate\_Multicast\_Resource" service operations defined in clause 14.4.2 of 3GPP TS 23.434 [2]. | | | |

Table 5.1-2 summarizes the corresponding APIs defined in this specification.

Table 5.1-2: API Descriptions

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Service Name** | **Clause** | **Description** | **OpenAPI Specification File** | **apiName** | **Annex** |
| SS\_LocationReporting | 7.1 | Report Location Information Service. | TS29549\_SS\_LocationReporting.yaml | ss-lr | A.2 |
| SS\_GroupManagement | 7.2 | Group Management Service | TS29549\_SS\_GroupManagement.yaml | ss-gm | A.3 |
| SS\_UserProfileRetrieval | 7.3 | User Profile Retrieval Service | TS29549\_SS\_UserProfileRetrieval.yaml | ss-upr | A.4 |
| SS\_NetworkResourceAdaptation | 7.4 | Network Resource Adaptation Service | TS29549\_SS\_NetworkResourceAdaptation.yaml | ss-nra | A.5 |
| SS\_Events | 7.5 | Events Notify Service | TS29549\_SS\_Events.yaml | ss-events | A.6 |
| SS\_KeyInfoRetrieval | 7.6 | Key Information Retrieval Service | TS29549\_SS\_KeyInfoRetrieval.yaml | ss-kir | A.7 |
| SS\_LocationAreaInfoRetrieval | 7.1 | Location Area Info Retrieval Service | TS29549\_SS\_LocationAreaInfoRetrieval.yaml | ss-lair | A.8 |
| SS\_NetworkSliceAdaptation | 7.7 | Network Slice Adaptation Service | TS29549\_SS\_NetworkSliceAdaptation.yaml | ss-nsa | A.9 |
| SS\_NetworkResourceMonitoring | 7.4 | Network Resource Monitoring | TS29549\_SS\_NetworkResourceMonitoring.yaml | ss-nrm | A.10 |
| SS\_VALServiceData | 7.3 | VAL Service Data Service | TS29549\_SS\_VALServiceData.yaml | ss-vsd | A.11 |
| SS\_VALServiceAreaConfiguration | 7.1 | VAL Service Area Configuration Service | TS29549\_SS\_VALServiceAreaConfiguration.yaml | ss-vsac | A.12 |
| SS\_ADAE\_SlicePerformanceAnalytics | 7.10 | ADAE slice specific application performance analytics service | TS29549\_SS\_ADAE\_SlicePerformanceAnalytics.yaml | ss-adaespa | A.15 |
| NOTE: The APIs exposed by the SEALDD Server are specified in clause 5 of 3GPP TS 29.548 [35]. | | | | | |

\* \* \* Next Change \* \* \* \*

### 5.X.2 SS\_ADAE\_SlicePerformanceAnalytics API

#### 5.X.2.1 Service Description

##### 5.X.2.1.1 Overview

The SS\_ ADAE\_SlicePerformanceAnalytics API, as defined 3GPP TS 23.436 [38], allows the VAL server via ADAE-S reference point to subscribe to slice specific application performance analytics event.

#### 5.X.2.2 Service Operations

##### 5.X.2.2.1 Introduction

The service operation defined for SS\_ ADAE\_SlicePerformanceAnalytics API is shown in the table 5.X.2.2.1-1.

Table 5.X.2.2.1-1: Operations of the SS\_ADAE\_SlicePerformanceAnalytics API

|  |  |  |
| --- | --- | --- |
| Service operation name | Description | Initiated by |
| Subscribe\_Slice\_Performance\_Analytics | This service operation is used by VAL server to subsribe to the event of the slice-specific application performance analytics. | VAL Server |
| Notify\_Slice\_Performance\_Analytics | This service operation is used by ADAE server to notify about the slice-specific application performance analytics. | ADAE server |
| Unsubscribe\_Slice\_Performance\_Analytics | This service operation is used by VAL server to unsubsribe from the event of the slice-specific application performance analytics. | VAL server |

##### 5.X.2.2.2 Subscribe\_Slice\_Performance\_Analytics

###### 5.X.2.2.2.1 General

This service operation is used by the VAL server for slice-specific application performance analytics event subscription to the ADAE server.

###### 5.X.2.2.2.2 Subscribing to slice-specific application performance analytics event using Subscribe\_Slice\_Performance\_Analytics service operation

To subscribe to slice specific application performance analytics event, the VAL server shall send an HTTP POST request with a Request-URI according to the pattern "{apiRoot}/ss-adae-sspa/<apiVersion>/slice-specific-application-performance" and with a body containing data type SliceAppPerfSubs as defined in clause 7.10.2.4.2.2 with the following attributes:

1. VAL server identifier;

2. analytics identifier for the slice specific application performance event;

3. type of analytics;

4. slice identifier;

5. optionally, the target DNN;

6. optionally, one or more VAL UEs;

7. optionally, the VAL server identifier if the subscriber is not the VAL server;

8. optionally, the confidence level for predictive analytics;

9. optionally, the service area; and

10. optionally, the time interval.

Upon receipt of the HTTP POST request, the ADAES shall:

1. verify the identity of the VAL server and determine if the VAL server is authorized to subscribe to the slice-specific application performance analytics event; and

2. if the VAL server:

a. is not authorized, the ADAE server shall respond to the VAL server with an appropriate error status code; or

b. is authorized, the ADAE server shall create a new "Subscription to the event of slice-specific application performance analytics" resource and respond to the VAL server with an HTTP "201 Created" status code, including a Location header field containing the URI for the created "Subscription to the event of slice-specific application performance analytics" and the response body including the SliceAppPerfSubs data structure containing a representation of the created resource as defined in clause 7.10.2.2.

##### 5.X.2.2.3 Notify\_Slice\_Performance\_Analytics

###### 5.X.2.2.3.1 General

This service operation is used by the ADAE server to send notification to the VAL server with the slice-specific application performance analytics event subscription to the ADAE server.

###### 5.X.2.2.3.2 Notifying slice-specific application performance analytics event using Notify\_Slice\_Performance\_Analytics service operation

To notify slice-specific application performance analytics event, the ADAE server shall send an HTTP POST request with a Request-URI according to the pattern "{apiRoot}/ss-adae-sspa/<apiVersion>/slice-specific-application-performance and with a body containing data type SliceAppPerfNotif as defined in clause 7.10.2.4.2.3 with the following attributes:

1. identity of the slice-specific application performance analytics;

2. predictive or statistical slice-specific application performance analytics;

3. optionally, type of analytics;

4. optionally, the confidence level for predictive analytics; and

5. optionally, the time interval.

Upon receipt of the HTTP POST request, the VAL server shall process the event notification.

##### 5.X.2.2.4 Unsubscribe\_Slice\_Performance\_Analytics

###### 5.X.2.2.4.1 General

This service operation is used by the VAL server to unsubscribe from the slice-specific application performance analytics event.

###### 5.X.2.2.4.2 Unsubscribing from slice-specific application performance analytics event using Unsubscribe\_Slice\_Performance\_Analytics service operation

To unsubscribe from slice-specific application performance analytics event, the VAL server shall send an HTTP DELETE request to the resource representing the event in the ADAE server as specified in clause 7.10.2.2.3.3.1.

Upon receiving the HTTP DELETE request, the ADAE sever shall:

1. verify the identity of the VAL server and check if the VAL server is authorized to unsubscribe from the slice-specific application performance analytics event associated with the resource URI "{apiRoot}/ss-adae-sspa/<apiVersion>/slice-specific-application-performance/{ssAppPerfId}"; and

2. if the VAL server is authorized to unsubscribe from the slice-specific application performance analytics event, the ADAE server shall delete the resource pointed by the resource URI "{apiRoot}/ss-adae-sspa/<apiVersion>/slice-specific-application-performance/{ssAppPerfId}".

\* \* \* Next Change \* \* \* \*

##### 7.10.2.2.3 Resource: Individual slice-specific application performance event subscription

###### 7.10.2.2.3.1 Description

The individual slice-specific application performance event subscription resource represents an individual event subscription of the VAL server.

###### 7.10.2.2.3.2 Resource Definition

Resource URI: **{apiRoot}/ss-adae-sspa/<apiVersion>/slice-specific-application-performance****/{ssAppPerfId}**

This resource shall support the resource URI variables defined in the table 7.10.2.2.3.2-1.

Table 7.10.2.2.3.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 6.5 |
| ssAppPerfId | string | Identifies a slice-specific application performance event subscription |

###### 7.10.2.2.3.3 Resource Standard Methods

7.10.2.2.3.3.1 DELETE

This method shall support the URI query parameters specified in table 7.10.2.2.3.3.1-1.

Table 7.10.2.2.3.3.1-1: URI query parameters supported by the DELETE method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| n/a |  |  |  |  |

This method shall support the request data structures specified in table 7.10.2.2.3.3.1-2 and the response data structures and response codes specified in table 7.10.2.2.3.3.1-3.

Table 7.10.2.2.3.3.1-2: Data structures supported by the DELETE Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| n/a |  |  |  |

Table 7.10.2.2.3.3.1-3: Data structures supported by the DELETE Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| n/a |  |  | 204 No Content | The individual slice-specific application performance event subscription matching the ssAppPerfId is deleted. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection, during resource termination. The response shall include a Location header field containing an alternative URI of the resource located in an alternative ADAE server or an alternative data producer such as A-ADRF, A-DCCF, VAL server, or SEALDD.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection, during resource termination. The response shall include a Location header field containing an alternative URI of the resource located in an alternative ADAE server or an alternative data producer such as A-ADRF, A-DCCF, VAL server, or SEALDD.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3]. |
| NOTE: The mandatory HTTP error status codes for the DELETE method listed in table 5.2.6-1 of 3GPP TS 29.122 [3] also apply. | | | | |

Table 7.10.2.2.3.3.1-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative ADAE server or an alternative data producer such as A-ADRF, A-DCCF, VAL server, or SEALDD. |

Table 7.10.2.2.3.3.1-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative ADAE server or an alternative data producer such as A-ADRF, A-DCCF, VAL server, or SEALDD. |

###### 7.10.2.2.3.4 Resource Custom Operations

None.

\* \* \* Next Change \* \* \* \*

##### 7.10.2.4.1 General

This clause specifies the application data model supported by the API. Data types listed in clause 6.2 apply to this API.

Table 7.10.2.4.1-1 specifies the data types defined specifically for the SS\_ADAE\_SlicePerformanceAnalytics API service.

Table 7.10.2.4.1-1\_SS\_ADAE\_SlicePerformanceAnalytics API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Section defined | Description | Applicability |
| SliceAppPerfSubs | 7.10.2.4.2.2 | Subscription to the slice-specific application performance analytics |  |
| SliceAppPerfNotif | 7.10.2.4.2.3 | Notification information of the slice specific application performance analytics. |  |

Table 7.10.2.4.1-2 specifies data types re-used by the SS\_ADAE\_SlicePerformanceAnalytics API service:

Table 7.10.2.4.1-2: Re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| AnalyticsType | Clause 7.10.1.4.3.3 | Type of analytics for the event of the VAL application performance analytics. |  |
| Dnn | 3GPP TS 29.571 [21] | Used to Identify a DNN. |  |
| DurationSec | 3GPP TS 29.122 [3] | Represents a period of time in units of seconds. |  |
| LocationArea | 3GPP TS 29.122 [3] | Represents location information. |  |
| Snssai | 3GPP TS 29.571 [21] | Used to Identify the S-NSSAI. |  |
| ValTargetUe | Clause 7.3.1.4.2.3 | Used to indicate either VAL User ID or VAL UE ID. |  |

\* \* \* Next Change \* \* \* \*

###### 7.10.2.4.2.2 Type: SliceAppPerfSubs

Table 7.10.2.4.2.2-1: Definition of type SliceAppPerfSubs

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| subscriberId | string | M | 1 | Identity of the VAL server subscribing to the slice specific application performace analytics event. |  |
| analyticsId | string | M | 1 | Identity of the analytics if the subsctipion is for slice specific application performance analytics event. |  |
| analyticsType | AnalyticsType | M | 1 | Identity the type of the slice-specific application performance analytics |  |
| snssai | Snssai | M | 1 | The identifier of the slice or slice instance, to which the application performance analytics subscription is applied. |  |
| dnn | Dnn | O | 0..1 | Associated DNN, for which the slice-specific application performance event subscription, applies. |  |
| valUeIds | array(ValTargetUe) | O | 1..N | A list of identities of one or more VAL UEs, whose slice-specific application performance analytics are subscribed to. |  |
| valServerId | string | O | 0..1 | If the consumer is different from the VAL server, this identifier represents the VAL server, to which the slice-specific application performance analytics subscription is applied. |  |
| confidenceLevel | string | O | 0..1 | Defines the accuracy level for the slice-specific application performance analytics if the slice-specific application performance analytics is prediction.  The value shall be between 0.01 and 1.00 with a step size of 0.01, represented as string.  If not present, confidence level 1.00 applies.  Pattern: '^[0]\.[0-9]{2}|[1.00]$' |  |
| area | LocationArea | O | 0..1 | The geographical or service area, to which the slice specific application performance analytics subscription is applied. |  |
| timeInterval | DurationSec | O | 0..1 | The time interval as the start time and end time, to which the slice-specific application performance analytics subscription or the slice-specific application performance analytics predictive, applies.  If the state time is not identified, the default value is used. |  |

Editor's Note: Detailed definitions for data types are FFS.

\* \* \* Next Change \* \* \* \*

###### 7.10.2.4.2.3 Type: SliceAppPerfNotif

Table 7.10.2.4.2.3-1: Definition of type SliceAppPerfNotif

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| outputId | string | M | 1 | Identifier of the event output. |  |
| analyticsOutput | array(string) | M | 1..N | Predicted or expected change or sustainability of the slice-specific application performance for a VAL server or a VAL session. |  |
| analyticsType | AnalyticsType | O | 0..1 | Identity the type of the slice-specific application performance analytics |  |
| confidenceLevel | string | O | 0..1 | Provides accuracy level if the slice-specific application performance analytics is prediction.  The value shall be between 0.01 and 1.00 with a step size of 0.01, represented as string.  If not present, confidence level 1.00 applies.  Pattern: '^[0]\.[0-9]{2}|[1.00]$' |  |
| timeInterval | DurationSec | O | 0..1 | The time interval as the start time and end time, to which the slice-specific application performance analytics subscription or the slice-specific application performance analytics predictive, applies.  If the start time is not identified, the default value is used. |  |

Editor's Note: Detailed definitions for data types are FFS.

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