**3GPP TSG-SA5 Meeting #158 *S5-247136***

Orlando, USA, 18 - 22 November 2024

**Source: Nokia**

**Title: Rel-19 pCR TR 28.879 Clean-up the Logging UC by adding the MSEF as the AEF entity**

**Document for: Approval**

**Agenda Item: 6.19.21**

# 1 Decision/action requested

***In this box give a very clear / short /concise statement of what is wanted.***

# 2 References

[1] 3GPP TR 28.879, " Study on OAM for service management and exposure to external consumers".

# 3 Rationale

The pCR proposes to clean-up the logging use case by adding the role of the API exposing function (AEF) functionality of the MSED in logging the management service API invocations to the CAPIF core function (CCF).

# 4 Detailed proposal

It is proposed that the following changes be made to clause 5.1.5 of TR 28.879 [1].

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| **First Change** |

### 5.1.5 Use case #5: Logging the management service API invocations to the CCF

#### 5.1.5.1 Description

When a management service API is invoked by the external MnS consumers over CAPIF-2e interface, it is crucial to monitor information related to the service API invocation. This information include for example, details on what management service APIwas invoked (i.e. the service API name, which service API resource, and the operations), who invoked the API (i.e. the ID of the external MnS consumer), the result of the invocation (e.g. success, or failure) and at what time it was invoked.

Accordingly, the AEF of the CAPIF API provider domain should be able to create the service API invocation log(s) (see clause 8.7 of 3GPP TS 29.222 [13]) with the desired information. Subsequently, the AEF should be able to send the invocation log(s) to the CCF via the CAPIF-3 interface. The stored logs of the service API invocations can be consumed by authorized consumers (e.g. CAPIF API AMF for auditing purposes and the charging functions).

#### 5.1.5.2 Potential requirements

**PREQ-FS\_MExpo-Log-01:** The 3GPP management system should support the capability to create logs based on the management service API invocations by external MnS consumers.

**PREQ-FS\_MExpo-Log-02:** The 3GPP management system should support the capability to log the management service API invocations to the CCF.

#### 5.1.5.3 Potential solutions

##### 5.1.5.3.1 Potential solution #1: Creation and logging of the management service API invocations

5.1.5.3.1.1 Introduction

The potential solution assumes that the MSED has an AEF functionality that interacts with the CCF via the CAPIF-3 interface. Accordingly, this potential solution describes how the AEF functionality of the MSED can create the management service API invocation log. Secondly, the solution describes how the AEF functionality of the MSED can send these logging data to the CCF for authorized consumers to consume (e.g. AMF and charging functions).

5.1.5.3.1.2 Description

To log the management service API invocations to the CCF, the AEF functionality of the MSED should create an invocation log (see clause 8.7 in 3GPP TS 29.222 [13]). Table 5.1.5.3.1.2-1 maps the CAPIF InvocationLog data type and the MnSInfo IOC (see clause 4.3.42 of 3GPP TS 28.622 [3]) attributes.

Table 5.1.5.3.1.2-1 lists the attributes contained in the InvocationLog data type(see clause 8.7.4.2.2 of TS 29.222 [13]) and clarifies how they are related tomanagement service information. See table 8.7.4.2.2-1 of TS 29.222 [13] for the data type, presence indicator, cardinality, description and applicability information for the attributes of type InvocationLog.

Table 5.1.5.3.1.2-1: Relationship of CAPIF InvocationLog data type with management service information.

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| --- | --- | --- |
| Attribute name | Attribute additional information | Comments |
| aefId | The data type of this attribute is defined as "string" and presence qualifier is defined as "M" (see table 8.7.4.2.2-1 of TS 29.222 [13]). | Corresponds to the AEF identifier provided by the CCF upon MSED registration (see clause 5.1.1).  See “aefId” attribute in Table 5.1.2.3.1.2-2. |
| apiInvokerId | The data type of this attribute is defined as "string" and presence qualifier is defined as "M" (see table 8.7.4.2.2-1 of TS 29.222 [13]). | Provided by the external MnS consumer to the AEF functionality of the MSED when invoking the management service API |
| logs | The data type of this attribute is defined as "array(Log)" and presence qualifier is defined as "M" (see table 8.7.4.2.2-1 of TS 29.222 [13]). | See Table 5.1.5.3.1.2-2 |
| supportedFeatures | The data type of this attribute is defined as "SupportedFeatures" and presence qualifier is defined as "O" (see table 8.7.4.2.2-1 of TS 29.222 [13]). |  |

Table 5.1.5.3.1.2-2 lists the attributes of type Log (see clause 8.7.4.2.3 of TS 29.222 [13]) and how the management service information can be mapped. See table 8.7.4.2.3-1 of TS 29.222 [13] for the data type, presence indicator, cardinality, description and applicability information for the attributes of type Log.

Table 5.1.5.3.1.2-2: Mapping of CAPIF Log data type into management service information

| Attribute name | Attribute additional information | Mapping to MnSInfo IOC attributes/Comments |
| --- | --- | --- |
| apiId | The data type of this attribute is defined as "string" and presence qualifier is defined as "M" (see table 8.7.4.2.3-1 of TS 29.222 [13]). | The APF functionality of the MSED receives this attribute from the CCF after publishing the MnS information (see clause 5.1.2).  Thisattributeis known by the AEF functionality of the MSED |
| apiName | The data type of this attribute is defined as "string" and presence qualifier is defined as "M" (see table 8.7.4.2.3-1 of TS 29.222 [13]). | Name of the API that was invoked.  Corresponds to the following MnSInfo IOC attribute: mnsType. |
| apiVersion | The data type of this attribute is defined as "string" and presence qualifier is defined as "M" (see table 8.7.4.2.3-1 of TS 29.222 [13]). | Version of the API that was invoked.which corresponds to the following MnSInfo IOC attribute: mnsVersion. |
| resourceName | The data type of this attribute is defined as "String" and presence qualifier is defined as "M" (see table 8.7.4.2.3-1 of TS 29.222 [13]). | The name of the resource that was invoked.  Corresponds to the {className}, i.e., IOC name of the MOI |
| uri | The data type of this attribute is defined as "Uri" and presence qualifier is defined as "O" (see table 8.7.4.2.3-1 of TS 29.222 [13]). | The URI of the invoked resource  Corresponds to the following URI component in the URI structure of the MnS API: {URI-LDN-first-part}/{className} = {id}. |
| protocol | The data type of this attribute is defined as "Protocol" and presence qualifier is defined as "M" (see table 8.7.4.2.3-1 of TS 29.222 [13]). | Only "HTTP\_1\_1" and "HTTP\_1\_2" are applicable in the context of 3GPP management services. |
| operation | The data type of this attribute is defined as "Operation" and presence qualifier is defined as "C" (see table 8.7.4.2.3-1 of TS 29.222 [13]). | The HTTP method that was invoked on the resource,  Corresponds to one of the HTTP methods listed in the “operations” attribute in Table 5.1.2.3.1.2-4. |
| result | The data type of this attribute is defined as "string" and presence qualifier is defined as "M" (see table 8.7.4.2.3-1 of TS 29.222 [13]). | HTTP status codes. |
| invocationTime | The data type of this attribute is defined as "DateTime" and presence qualifier is defined as "O" (see table 8.7.4.2.3-1 of TS 29.222 [13]). | Date and time at which the API invocation request is received at the AEF functionality of the MSED. |
| invocationLatency | The data type of this attribute is defined as "DurationMs" and presence qualifier is defined as "O" (see table 8.7.4.2.3-1 of TS 29.222 [13]). | The time interval between the reception of the API invocation request and the sending of the API invocation response at the AEF functionality of the MSED. |
| inputParameters | The data type of this attribute is defined as "ANY TYPE" and presence qualifier is defined as "O" (see table 8.7.4.2.3-1 of TS 29.222 [13]). |  |
| OutputParameters | The data type of this attribute is defined as "ANY TYPE" and presence qualifier is defined as "O" (see table 8.7.4.2.3-1 of TS 29.222 [13]). |  |
| srcInterface | The data type of this attribute is defined as "InterfaceDescription" and presence qualifier is defined as "O" (see table 8.7.4.2.3-1 of TS 29.222 [13]). |  |
| destInterface | The data type of this attribute is defined as "InterfaceDescription" and presence qualifier is defined as "O" (see table 8.7.4.2.3-1 of TS 29.222 [13]). |  |
| fwdInterface | The data type of this attribute is defined as "string" and presence qualifier is defined as "O" (see table 8.7.4.2.3-1 of TS 29.222 [13]). |  |

After creating the invocation log, the AEF functionality of the MSED can log these data to the CCF via the CAPIF-3 interface.

#### 5.1.5.4 Evaluation of potential solutions

The proposed solution satisfies the requirement PREQ-FS\_MExpo-Log-01. To fulfil the use case requirement PREQ-FS\_MExpo-Log-02, the proposed solution requires that the MSED providing the AEF functionality implements the CAPIF-3 interface, and the interface operations associated to logging capability.

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| **Second Change** |

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| **End of Changes** |