**3GPP TSG-SA5 Meeting #156  *S5-244587d1***

**Maastricht, The Netherlands, 19-23 August 2024**

**Title:** LS reply to SA6 LS on API availability support

**Response to:** S5-243810 (LS on API availability support)

**Release:** 3GPP Rel-19

**Work Item:**

**Source:** 3GPP SA6

**To:** 3GPP SA5

**Contact Person:**

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**Attachments:** None

# 1 Overall description

SA5 thanks SA6 for the LS on API availability support.

SA5 would like to provide the following answer to the following SA6 questions:

**Question#1:** In CAPIF, SA6 considers the two status of service APIs provided by AEF, including active and inactive. Is there any other possible status of service APIs?

**Answer to Question #1**: In 3GPP management system, an NF instance is represented with XXXFunction IOC (see clause X.X in TS 28.541), whereas an NF service instance is represented with ManagedNFService IOC (see clause 5.3.236 in TS 28.541). XXXFunction IOC inherits from ManagedFunction (and on first level from ManagedElement). ManagedNFService IOC is name-contained by ManagedFunction IOC.

A NF instance contains one or more NF service instances, each offering a service API; accordingly, a XXXFunction instance (i.e. MOI for XXXFunction IOC) can name-contain one or more ManagedNFService instances (i.e., MOIs for ManagedNFService IOC).

When a NF instance becomes AEF, information on provided service APIs can be represented using ManagedNFService IOC. This IOC has the following attributes related to state:

* administrativeState. It describes the permission to use or prohibition against using the NF service instance. This attribute can be set (by the MnS consumer) with one of the following values: LOCKED, UNLOCKED, SHUTTING DOWN.
* operationalState. It describes if the NF service instance is operable or inoperable. This attribute can be set (by the MnS producer) with one of the following values: ENABLED, DISABLED”
* usageState. It describes whether the NF service instance is actively in use at a specific instant, and if so, whether or not it has spare capacity for additional users at that instance. This attribute can be set (by the MnS producer) with one of the following values: IDLE, ACTIVE, BUSY
* registrationState. It defines the registration status of the managed NF service instance. It shall be supported if the NF service instance is designed for being published and discovered by other NFs, and needs to be registered to a repository function. This attribute can be set (by the MnS producer) with one of the following values: REGISTERED, UNREGISTERED

SA5 understanding is that the ACTIVE/INACTIVE status defined by SA6 for service API corresponds to ENABLED/DISABLED status defined in operationalState.

**Question #2:** In CAPIF, SA6 considers that the API status can be changed from inactive to active, and vice versa (for e.g. to reduce load of the instance or resource waste of the instance), Is there a mechanism available to activate or deactivate certain service APIs.

**Answer to Question #2**: The MnS producer can change value of operationalState attribute (from ENABLED to DISABLED, or viceversa) of the ManagedNFService instance, i.e. the MOI representing that NF service instance.

**Question#3:** Is the service API activation performed at per API granularity by management system? Does it mean that the one or more service API(s) of API provider instance can be activated? Or is the API activation performed at per instance granularity by management system? Or Does it mean that the all service API(s) of API provider instance can be only instantiated together?

**Answer to Question #3**: The 3GPP management system can activate one or more service APIs (i.e., NF service instances) of API provider instance (i.e., NF instance). The fact that one or more ManagedNFService instances can be contained under the same XXXFunction IOC allows the 3GPP management system to have per API granularity. The operations supported in a given service API are listed in the operations attribute in ManagedNFService IOC.

**Question#4:** Are there mechanisms exposed by Management System which enables Consumer entities of Management System to instantiate service API(s) or instantiate AEF(s)? If yes, please share details of its usage.

**Answer to Question #4**: Yes, these mechanisms are available for consumer entities of 3GPP management system for the proposed use case.

Use case #1: AEF instantiation. It is needed to create a XXXFunction instance. This instance represents the NF instance providing service APIs (i.e. the NF instance behaving AEF). To that end, the following applies:

* The consumer entity needs to become Network Function MnS Consumer.
* The consumer sends a createMOI request for XXXFunction IOC to Network Function MnS Producer. This request contains the network function related requirements (see information model for 5GC NRM in clause 5 from TS 28.541).
* The producer fulfils the request, by following the NF creation procedure described in clause 7.19 from TS 28.531.
* Upon fulfilment, the producer sends back to the consumer a createMOI response. This response contains the DN that uniquely identifies the XXXFunction instance.

Use case #2: Service API instantiation within the AEF. It is needed to create one or more ManagedNFService instances. These instances are to be name-contained by XXXXFunction instance resulting from use case #1.

# 2 Actions

**To SA6**

**ACTION:** SA5 kindly request SA6 to take the above responses into consideration, to provide any necessary further feedback.

# 3 Dates of next TSG SA WG 5 meetings

SA5#157 Oct. 14 – 18, 2024 Hyderabad, India

SA5#158 Nov. 18 - 22, 2024 Orlando, USA