**3GPP TSG-SA5 Meeting #141-e *S5-221258rev3***

**e-meeting, 17 -26 January 2022**

**Source: AsiaInfo, Alibaba Group**

**Title: Add new solution for MnS discovery service for exposure**

**Document for: Approval**

**Agenda Item: 6.5.2**

# Decision/action requested

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

# 2 References

[1] 3GPP TR 28.824: " Study on network slice management capability exposure " V0.4.0

# 3 Rationale

This contribution proposes to add possible solutions for the use case – MnS discovery service for external customer.

# 4 Detailed proposal

|  |
| --- |
| **First change** |

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] TM Forum TMF622 Product Order API REST Specification

[3] TM Forum TMF641 Service Ordering API

[4] TM Forum TMF652 Resource Order Management API

[5] 3GPP TS 28.531: "Management and orchestration; Concepts, use cases and requirements"

[6] 3GPP TS 28.202: "Charging management; Network slice management charging in the 5G System (5GS); Stage 2"

[7] 3GPP TR23.700-99 “Study on Network Slice Capability Exposure for Application Layer Enablement (NSCALE)”

[8] 3GPP TS23.434 “Service Enabler Architecture Layer for Verticals (SEAL); Functional architecture and information flows.”

[9] 3GPP TS 28.541: "Management and orchestration; 5G Network Resource Model (NRM); Stage 2 and stage 3"

[10] 3GPP TS 28.537: "Management and orchestration; Management capabilities"

|  |
| --- |
| **Second change** |

#### 5.8.2.X Potential solution #2: MnS discovery service for exposure

An exposed MnS can be registered to a supported discovery system. The MnS data for exposed MnS can be accessed by different kinds of discovery service consumers based on different use causes.

In some use cases, the exposure usually goes through BSS. The BSS can obtain MnS data for exposed MnS from the MnS discovery service for external customer on behalf of the NSC.

There are different scenarios where the exposure without going through BSS. The NSC can access MnS discovery service providing discovery service for the exposed MnS after authentication.



Figure 5.8.2.X.1 Procedure for MnS discovery service for exposure via BSS

1. The NSC completes the product order via the interaction with BSS\_NSP.
2. The NSC executes authentication and authorization to consume exposed MnS.
3. The NSC requests to discover the exposed MnS that has been ordered from BSS. The interface used towards the BSS is specified by TM Forum specifications [2].
4. The BSS requests for MnS data for exposed MnS from the MnS discovery service for external customer on behalf of the NSC. The MnS data for exposed MnS may contain the address of the eMnS producer. The interface used towards the BSS is specified by TM Forum specifications [2].

NOTE: MnS discovery service producer providing discovery service for the exposed MnS to external customer. The MnS discovery service producer for external customer can be internal or external of 3GPP management system.

1. The MnS discovery service returns the MnS data for exposed MnS to BSS.
2. The BSS returns the exposed MnS related discovery information to the NSC.
3. The NSC starts using the services included in the product order.
4. The BSS translates the product invocation into exposed MnS. A product invocation may contain multiple MnSes. The BSS consumes the related exposed MnS to SML.
5. SML returns the responses to BSS.
6. The BSS notifies the responses to the NSC. The BSS may transtlate the responses into product description.



Figure 5.8.2.Y.1 Procedure for MnS discovery service for exposure without going through BSS

1. The NSC completes the product order via the interaction with BSS\_NSP. The NSC obtains the address of the MnS discovery service producer for external customers.

NOTE: MnS discovery service producer providing discovery service for the exposed MnS to external. The MnS discovery service producer can be within the OSS or outside the OSS.

1. The NSC executes authentication and authorization for accessing exposed MnS discovery service.
2. The NSC requests for MnS data for exposed MnS from the MnS discovery service. The exposed MnS data for exposed MnS may contain the information of the eMnS instance and the address of the eMnS producer.
3. The MnS discovery service returns the MnS data for exposed MnS to the NSC.
4. The NSC requests the services from the target exposed MnS producer.
5. The target eMnS producer returns the responses, including the exposed MnS to the NSC.

|  |
| --- |
| **Third change** |

Annex A (informative):
Appendix with UML code of the sequence diagrams

A.X UML code for 5.8.2.X.1

@startuml

skinparam sequence {

ArrowColor Black

ActorBorderColor Black

ActorBackgroundColor White

ParticipantBorderColor Black

ParticipantBackgroundColor White

LifeLineBorderColor Black

BackGroundColor <<BSS\_Prov>> Black

}

skinparam NoteBackgroundColor White

skinparam NoteBorderColor Black

skinparam shadowing false

hide footbox

actor NSC

participant BSS\_NSP

participant MnS\_Discovery\_service\_producer

participant OSS\_SML

Ref over NSC, OSS\_SML: 1. procedure of product order

Ref over NSC, BSS\_NSP: 2. authentication and authorization for accessing exposed MnS

NSC --> BSS\_NSP: 3. discovery exposed service

BSS\_NSP --> MnS\_Discovery\_service\_producer: 4. request to obtain MnS data for exposed MnS

MnS\_Discovery\_service\_producer --> BSS\_NSP: 5. response for MnS data for exposed MnS

BSS\_NSP --> NSC: 6. response for exposed service discovery

NSC --> BSS\_NSP: 7. consume services included in the product order

BSS\_NSP ---> OSS\_SML: 8. request to consume an exposed MnS

OSS\_SML ---> BSS\_NSP: 9. response for consume an exposed MnS

BSS\_NSP --> NSC: 10. response for services consumption

@enduml

A.Y UML code for 5.8.2.Y.1

@startuml

skinparam sequence {

ArrowColor Black

ActorBorderColor Black

ActorBackgroundColor White

ParticipantBorderColor Black

ParticipantBackgroundColor White

LifeLineBorderColor Black

BackGroundColor <<BSS\_Prov>> Black

}

skinparam NoteBackgroundColor White

skinparam NoteBorderColor Black

skinparam shadowing false

hide footbox

actor NSC

participant BSS\_NSP

participant MnS\_Discovery\_service\_producer

participant OSS\_SML

Ref over NSC, OSS\_SML: 1. procedure of product order

Ref over NSC, OSS\_SML: 2. authentication and authorization for accessing exposed MnS discovery service

NSC --> MnS\_Discovery\_service\_producer: 3. request to obtain MnS data for exposed MnS

MnS\_Discovery\_service\_producer --> NSC: 4. response for exposed MnS data for exposed MnS

NSC ---> OSS\_SML: 5. request to use an exposed MnS

OSS\_SML---> NSC: 6. response for using an exposed MnS

@enduml

|  |
| --- |
| **End of changes** |