**3GPP TSG-SA5 Meeting #144-e *S5-225397***

**e-meeting, 27 June - 1 July 2022**

**Source: Nokia, Nokia Shanghai Bell**

**Title: Add a new key issue to Add mechanism to advertise supported NRM capabilities by the MnS Producer**

**Document for: Approval**

**Agenda Item: 6.8.2.3**

1 Decision/action requested

***The group is requested to discuss and approve the pCR below***

2 References

[1] 3GPP TS 28.831: " Management and orchestration; Study on basic Service-Based Management Architecture (SBMA) enabler enhancements"

3 Rationale

SA5 defines NRMs with IOCs with attributes along with constraints. Different MnS Producers implementing the NRM might have different levels of support for the IOCs defined in SA5. A mechanism for the MnS Consumer to be aware of such conditions, constraints and the attributes supported by the MnS Producer is necessary. MnS producer using YANG-Netconf solution set uses the ietf-yang-library (RFC8525: YANG Library) to advertise supported IOCs, attributes, conditions and constrains to the MnS consumers, whereas MnS producer using OpenAPI such mechanism is currently missing.

This contribution proposes to add a new key issue to study potential solutions for the described problem, for the following objective as described in FS\_eSBMAe SID.

* Investigate if new capabilities should be added to the Provisioning MnS, for example the concept of creating and removing attributes of managed object instances, or filter profiles.

Note: This is a revision of pCR with tDoc number S5-224280 from #144e meeting.

4 Detailed proposal

The following changes are proposed for TR 28.831[1].

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| **1st 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".

[x] RFC8525: YANG Library.

[y] 3GPP TS 28.537: “Management and orchestration; Management capabilities”.[z] 3GPP TS 28.662: "Telecommunication management; Generic Radio Access Network (RAN) Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS) ".

[a] 3GPP TS 28.541: “Management and orchestration; 5G Network Resource Model (NRM); Stage 2 and stage 3”.

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| **2nd Change** |

## 4.x Key Issue #x: Add mechanism to advertise supported NRM capabilities by the MnS Producer

### 4.x.1 Issue description

SA5 defines NRMs with IOCs with attributes along with constraints. Different MnS Producers implementing the NRM might have different levels of support for the IOCs defined in SA5. Depending on the MnS producer capability:

- A MnS Producer might not support an IOC since the underlying functionality is not supported. For example, a MnS Producer supporting a non-split NG-RAN deployment will not support the IOCs relevant only for a 3-split NG-RAN deployment.

- A MnS Producer might not support all attributes of an IOC, or all values of an attribute due to certain constraints, since the underlying functionality is not supported, or the allowed values are dependent on another attribute value, or constraints on the writability aspects. For example, a MnS producer that is not supporting Energy Saving Function or ANR Function or file-based reporting functionality will not support the attributes dependant on supported the function. Another example of this constraint is when the MnS Producer supports only a subset of the attribute values.

- For the IOCs defined without an upper boundary for the cardinality relationship (defined with a \*), the MnS producer might not support an infinite number of instances of an IOC to be created. The MnS producer might have an upper limit defined on the multiplicity of the IOCs that it supports. For example, the maximum number of instances of object GNBCUUPFunctions might be limited to a finite number.

- For the list attributes defined without an upper boundary for multiplicity (defined with a \*), the MnS producer might not support an infinite number elements for attribute. The MnS producer might have an upper limit defined on the multiplicity for the attribute that it supports.

- Additionally, for the IOCs with containment relationship with ProxyClass representing different IOCs, the MnS Producer may support all or only a subset of containment for the IOCs that can exist at different levels in the containment tree. A mechanism for the MnS Consumer to be aware of such conditions, constraints and the attributes supported by the MnS Producer is currently missing.

This clause analyses the current situation and proposes a solution.

### 4.x.2 Current situation

Discovery of Management Services use cases and procedure (defined in clause 5 of TS 28.372[y]), and the related NRMs MnSRegistry (defined in clause 4.3.41 of TS 28.622[z]), This however does not define a mechanism for the MnS Consumer to be aware of the MnS Producer capabilities described in clause 4.x.1, and hence a mechanism to advertise such capabilities and procedures in OpenAPI needs to be studied and specified.

Further, MnS producer using YANG-Netconf solution set uses the ietf-yang-library (reference [x]) to advertise supported IOCs, attributes, conditions and constrains to the MnS consumers.

However, MnS producer based on OpenAPI solution set does not advertise the supported IOCs, attributes, conditions and constrains to the MnS consumers. The MnS consumers may expect that the complete NRM defined in SA5 is supported by the MnS Producer. There is no mechanism currently defined where the MnS Consumer can get this information. Hence, a mechanism to advertise such capabilities and procedures in OpenAPI needs to be studied and specified.

### 4.x.3 Analysis

### 4.x.4 Potential requirements

### 4.x.5 Potential solution

### 4.x.6 CR proposal

### 4.x.7 Conclusion

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| **End of change** |