**3GPP TSG-SA5 Meeting #143-e *S5-223323***

e-meeting, 9 - 17 May 2022

**Source: Huawei, China Mobile**

**Title: pCR TR 28.910 Add key issue for enhancement of ANL for network optimization**

**Document for: approval**

**Agenda Item: 6.5.1.1**

# 1 Decision/action requested

***The group is asked to discuss and approval.***

# 2 References

[1] 3GPP draft TR 28.910: “Management and orchestration; Study on enhancement of autonomous network levels v0.1.0”.

# 3 Rationale

This contribution proposes to add key issues for the enhancement of generic autonomous network level for network optimization and enhancement of autonomous network level for radio network coverage optimization with the following aspects:

- The following Generic autonomy capability description for management system for level 4 is documented in clause 7.1.3, however, the corredsponding MnS requirements for such generic autonomy capability (i.e. Additional MnS requirements to support autonomous network level 4) is missing.

***/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Extracted from TS 28.100\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/***

***7.1.3 Generic autonomy capability description for management system***

***Level 4 for Network Optimization:*** *The 3GPP management system has the following autonomy capabilities:*

*- Determine or update network optimization policies according to network optimization intent based on specified intent translation control information.*

*- Evaluate network optimization intent fulfilment result based on specified intent evaluation control information.*

***7.1.4 Generic MnS requirements***

##### 7.1.4.4 Additional MnS requirements to support autonomous network level 4

The aadditional MnS requirements for level 4 are not specified in the present document.

***/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Extracted from TS 28.100\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/***

- Update the solution for coverage optimization (documented in TS 28.100 clause A.1.3) with explicit MnS component type A (operation and notification), MnS component type B (Information model) and MnS component type C (management data) to support the MnS requirements.

# 4 Detailed proposal

It proposes to make the following changes to TR 28.910[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".

[2] 3GPP TS 28.310: "Management and orchestration; Energy efficiency of 5G"

[3] 3GPP TR 28.813: "Management and orchestration; Study on new aspects of Energy Efficiency (EE) for 5G"

[XX] 3GPP TS 28.100: "Management and orchestration; Levels of autonomous network"

[X1] 3GPP TS 28.312:" Management and orchestration; Intent driven management services for mobile networks"

[X2] 3GPP TS 28.104: "Management and orchestration; Management Data Analytics"

[X3] 3GPP TS 28.532: "Management and orchestration; Generic management services".

[X4] 3GPP TS 28.541: "Management and orchestration; 5G Network Resource Model (NRM); Stage 2 and stage 3".

[X5] 3GPP TS 28.622: "Telecommunication management; Generic Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS)".

[X6] 3GPP TS 28.552: "Management and orchestration; 5G performance measurements".

[X7] 3GPP TS 28.554: "Management and orchestration; 5G end to end Key Performance Indicators (KPI)".

[X8] 3GPP TS 32.422: "Telecommunication management; Subscriber and equipment trace; Trace control and configuration management".

[X9] 3GPP TS 28.313: "Management and orchestration; Self-Organizing Networks (SON) for 5G networks".

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| **2nd Change** |

## 5.X Key Issue# 5.X: Enhancement of generic autonomous network level for network optimization

5.X.1 Description

The generic autonomous network level for network optimization is defined in Clause 7.1 in TS 28.100 [XX], which includes generic workflow, generic classification of autonomous network level, generic autonomy capability description for management system, generic MnS requirements and solutions for generic MnS requirements.

Based on current definition, the generic autonomy capability description for management system for level 4 is documented in clause 7.1.3 in TS 28.100 [XX]. However, the additional MnS requirements for level 4 are not specified in clause 7.1.4 in TS 28.100 [XX]. So the following additional MnS requirements for level 4 needs to be specified to support generic autonomy capability description for management system for level 4.

**REQ-ANL-NetOpt-Level\_4-MnS-1** The 3GPP management system shall have the capability allowing its authorized consumer to specify the network optimization intent.

**REQ-ANL-NetOpt-Level\_4-MnS-2** The 3GPP management system shall have the capability allowing its authorized consumer to obtain the fulfilment information of the network optimization intent.

5.X.2 Potential solutions

Following solutions for MnS requirements for level 4 needs to be added in TS 28.100 [XX] Table 7.1.5-1: Solutions for generic MnS requirements of autonomous network level for network optimization.

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| **Level4** | **REQ-ANL-NetOpt-Level\_4-MnS-1** | This can be implemented by using generic provisioning MnS (e.g, createMOI) defined in TS 28.532 [4] to specify the network optimization intent defined in TS 28.312 [X1].  |
| **REQ-ANL-NetOpt-Level\_4-MnS-2** | This can be implemented by using generic provisioning MnS (e.g, getMOIAttribbutes) defined in TS 28.532 [4] to obtain network optimization fulfilment information defined in TS 28.312 [X1]. |

## 5.Xa Key Issue# 5.Xa: Enhancement of autonomous network level for radio network coverage optimization

### 5.Xa.1 Description

The solution for MnS requirements for radio network coverage optimization is described in A.1.3, Based on current definition, following aspects needs to be further enhanced:

- The MnS component type A (operation and notification), MnS component type B (Information model) and MnS component type C (management data) to support the MnS requirements for radio network coverage optimization haven't been explicitly described.

5.Xa.2 Potential solutions

Based on the solutions for MnS requirements of autonomous network level for radio network coverage optimization defined in clause A.1.3 in TS 28.100[2], following are the enhanced solutions description for generic MnS requirements of autonomous network level for radio network coverage optimization.

Note: the solutions below are not used to evaluate the autonomous network level, which are MnS solutions to support MnS requirements for 3gpp management system derived from autonomy capability of each level

**Table 5.Xa.2-1: Solutions for generic MnS requirements of autonomous network level for radio network coverage optimization**

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| **ANL** | **Requirements** | **Corresponding solutions** |
| **MnS Component****type A** | **MnS Component****type B** | **MnS Component****type C** |
| **Level1** | **REQ-ANL-NetOpt-Level\_1-MnS-1** | createMOI of provisioning MnS defined in TS 28.532[X3]  | CommonBeamformingFunction IOC in NR NRM defined in TS 28.541[X4] | NA |
| **REQ-ANL-NetOpt-Level\_1-MnS-2** | createMOI of provisioning MnS defined in TS 28.532[X3] | PerfMetricJob IOC and TraceJob IOC defined in TS 28.622[X5] | NA |
| **REQ-ANL-NetOpt-Level\_1-MnS-3** | operations of file data reporting MnS and streaming data report MnS defined in TS 28.532[X3] | NR NRM (e.g. NRCellCU, Beam and NRCellRelation IOC) defined in TS 28.541[X4] | 1. RSRP measurements (e.g. SS-RSRP), RSRQ measurements (e.g. SS-RSRQ) and SINR measurements (e.g. SS-SINR) defined in TS 28.552 [X6].2. RSRPs of the serving cell and neighbour cells, and UE location in MDT reports [X8] |
| **Level2** | **REQ-ANL-NetOpt-Level\_2-MnS-1** | createMOI of provisioning MnS defined in TS 28.532[X3] | MDARequest IOC defined in MDA information model in TS 28.104[X2]. | NA |
| **REQ-ANL-NetOpt-Level\_2-MnS-2** | Operations of file data reporting MnS and streaming data report MnS defined in TS 28.532[X3] | MDARequest IOC defined in MDA information model in TS 28.104[X2] | "CoverageProblemId" of analytics output for coverage problem analysis in TS 28.104[X2]. |
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| **REQ-ANL-NetOpt-Level\_2-MnS-3** | createMOI of provisioning MnS defined in TS 28.532[X3] | MDARequest IOC defined in MDA information model in TS 28.104[X2]. | NA |
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| **REQ-ANL-NetOpt-Level\_2-MnS-4** | Operations of file data reporting MnS and streaming data report MnS defined in TS 28.532[X3] | MDARequest IOC defined in MDA information model in TS 28.104[X2] | "CoverageProblemType" and "CoverageProblemAreas" of analytics output for coverage problem analysis in TS 28.104[X2]. |
| **REQ-ANL-NetOpt-Level\_2-MnS-5** | createMOI of provisioning MnS defined in TS 28.532[X3] | MDARequest IOC defined in MDA information model in TS 28.104[X2] | NA |
| **Level3** | **REQ-ANL-NetOpt-Level\_3-MnS-1** | createMOI of provisioning MnS defined in TS 28.532[X3] | CCOFunction IOC defined in TS 28.541 [X4] and TS 28.313 [X9] as control information for CCO function. | NA |
| **REQ-ANL-NetOpt-Level\_3-MnS-2** | createMOI of provisioning MnS defined in TS 28.532[X3] | CCOFunction IOC defined in TS 28.541 [X4] and TS 28.313 [X9] as control information for CCO function. | NA |
| **Level****4** | **REQ-ANL-NetOpt-Level\_4-MnS-1** | createMOI of provisioning MnS defined in TS 28.532[X3] | "weakRSRPRatioTarget"and "lowSINRRatioTarget" of RadioNetworkExpectation in intent information model in TS 28.312[X2] as expectation targets for radio nework coverage assurance. | NA |
| **REQ-ANL-NetOpt-Level\_4-MnS-2** | getMOIAttributes of provisioning MnS defined in TS 28.532[X3] | "targetfulfillmeInfo" for "weakRSRPRatioTarget"and "lowSINRRatioTarget" of RadioNtworkExpectation in intent information model in TS 28.312[X2]. | NA |

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| **End of Changes** |