**3GPP TSG-SA5 Meeting #143-eS5-223274**

**e-meeting, 9 - 17 May 2022**

**Source: Huawei**

**Title: pCR 28.104 Editorial improvements**

**Document for: Approval**

**Agenda Item: 6.6.5**

# 1 Decision/action requested

***For approval***

# 2 References

[1] 3GPP TR 28.104 V1.1.0 Management and orchestration; Management Data Analytics (MDA)

# 3 Rationale

This contribution proposes fixes for the following editorial issues in [1]:

* Clause 7.2.6.1, subclauses are numbered incorrectly
* Clause 7.3.2.2 is missing from the table of contents because an incorrect style is used.
* Table 8.4.2.2.3-1 title is inconsistent with the title of similar tables.
* Table 8.4.2.3.3-1 has an incorrect title.

# 4 Detailed proposal

This contribution proposes to make the following changes in [1].

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| **1st change** |

### 7.2.6 MDA assisted critical maintenance management

#### 7.2.6.1 RAN Node Software Upgrade

##### 7.2.6.1.1 Description

This MDA capability is for network critical maintenance during RAN node software upgrade process.

##### 7.2.6.1.2 Use case

As per the current mechanism of software upgrade at RAN node results in service disruption or huge operational cost. Consider a scenario, when a RAN Node is required to shut down manually to undergo critical maintenance for a very short duration of time. Software upgrade can be one such critical maintenance scenario. In such cases, all the resources (bearer, security functions, mobility management) that are managed by this RAN Node need to be purged and reconfigured at another RAN Node (standby RAN Node) or if another RAN Node is not available then resources will be reconfigured again when former RAN Node comes up after software upgrade. Both the situations lead to additional operational expenses and data loss. Operational expense in terms of all the resources to be released/attached again and data loss for all GBR sessions/bearer.

It is expected to use MDAS to optimize the procedure of software upgrade at RAN Node by providing the right time to execute the required upgrade. The software upgrade should be automatically initiated by the OAM system, once configured, during the time frame when the expected impacts are minimum i.e., at the optimal time when there would be minimum expected operational cost and data loss. The Optimal Time (current or futuristic) can be derived by collecting and analysing the data related to DRBs including GBR/non-GBR, state, modification count, ongoing handover etc. MDAS can utilize historical data and AI/ML (e.g., time series based) algorithm to derive the future optimal time frame for software upgrade.

Note: RAN Node above refers to CU-CP in case of gNB split case.

##### 7.2.6.1.3 Requirements

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| **Requirement label** | **Description** | **Related use case(s)** |
| **REQ-SWA\_MDA-01** | MDA capability for RAN Node software upgrade shall be able to provide the DRB info analytics output describing the DRBs info at a particular RAN Node(s). | RAN Node software upgrade |
| **REQ-SWA\_MDA-02** | MDA capability for RAN Node software upgrade shall be able to provide the DRB info analytics output describing the DRB info based on the following DRB characteristics; type (GBR/non-GBR), state (idle/active), modification count (indicating number of times, this bearer has gone for modification since its creation), handover in-progress (indicates whether the bearer is undergoing handover or not). | RAN Node software upgrade |
| **REQ-SWA\_MDA-03** | MDA capability for RAN Node software upgrade shall be able to provide output describing the DRB info that contain the following information:- Time frame/duration at which the output is generated,- Whether RAN Node is optimal for upgrade at present,- Whether RAN Node will be optimal for upgrade during a future time frame. This will also provide a future frame,- Total number of GBR and non-GBR DRBs at future point of time frame. This will also provide a future frame. | RAN Node software upgrade |

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| **2nd change** |

### 7.3.2 Obtaining MDA Output

#### 7.3.2.1 Description

Following a successful MDA request any authorized MDA MnS consumer can obtain management data analytics from the corresponding MDA MnS producer. The MDA MnS consumer can control the MDA output by modifying the attributes related to the MDA request at any point in time.

#### 7.3.2.2 Use case

The MDA MnS consumer can obtain MDA output when the conditions indicated in the MDA request are met. An MDA output can contain one or more MDA results, which may be: (i) numeric, e.g., average, etc., (ii) recommendation options, e.g., potential handover target cells, or (iii) root cause analysis, e.g., alarm prediction. These results may be related to one or more MDA types, which correspond to MDA capabilities, and can also contain information regarding the time schedule or the validity time of the provided MDA output.

MDA MnS consumers can request and obtain different MDA output results. The MDA MnS consumer may also obtain information regarding the geographic location and/or the target objects, e.g., managed elements, related to the provided MDA result – from the corresponding element.

The MDA MnS consumer may obtain MDA output results either by pulling or pushing mechanisms. Any MDA output may be obtained once it is prepared or when the specified MDA request and control conditions are met.

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| **3rd change** |

##### 8.4.2.2.3 Analytics output

The specific information elements of the analytics output for network slice throughput analysis, in addition to the common information elements of the analytics outputs (see clause 8.3), are provided in table 8.4.2.2.3-1.

Table 8.4.2.2.3-1: Analytics output for network slice throughput analysis

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| **4th change** |

##### 8.4.2.3.3 Analytics output

The specific information elements of the analytics output for network slice traffic prediction analysis, in addition to the common information elements of the analytics outputs (see clause 8.3), are provided in table 8.4.2.3.3-1.

**Table 8.4.2.3.3-1: Analytics output for network slice traffic prediction analysis**

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| **End of changes** |