**3GPP TSG-SA5 Meeting #141-e *S5-221294***

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

**Source: China Mobile**

**Title: pCR 28.104 Add MDA assisted energy saving solution**

**Document for: Approval**

**Agenda Item: 6.4.15**

# 1 Decision/action requested

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

# 2 References

[1] 3GPP TS 28.104 “Management and orchestration; Management Data Analytics (MDA)”.

[2] 3GPP TR 28.809 “Management and orchestration; Study on enhancement of Management Data Analytics (MDA)”.

[3] 3GPP TS 28.552 “Management and orchestration; 5G performance measurements”

[4] 3GPP TS 32.422 “Telecommunication management; Subscriber and equipment trace; Trace control and configuration management”

[5] 3GPP TS 32.423 “Telecommunication management; Subscriber and equipment trace; Trace data definition and management”

[6] 3GPP TS 26.247: "Transparent end-to-end Packet-switched Streaming Service (PSS); Progressive Download and Dynamic Adaptive Streaming over HTTP (3GP-DASH)".

[7] 3GPP TS 26.114: "IP Multimedia Subsystem (IMS); Multimedia Telephony; Media handling and interaction".

[8] 3GPP TS 28.406: "Telecommunication management; Quality of Experience (QoE) measurement collection; Information definition and transport".

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

# 3 Rationale

This pCR is to add the MDA capability for MDA assisted energy saving analysis for TS 28.104 [1].

# 4 Detailed proposal

It proposes to make the following changes to TS 28.104[1].

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| **1st Modified Section** |

### 8.4.X. MDA assisted energy saving

##### 8.4.X.1 MDA type

The MDA type for MDA assisted energy saving is: MDA assisted energy saving. EnergySavingAanalysis.

##### 8.4.X.2 Enabling data

The enabling data for MDA assisted energy saving are provided in table 8.4.X.2-1.

For general information about enabling data, see clause 8.2.1.

Table 8.4.X.2-1: Enabling data for MDA assisted energy saving

|  |  |  |
| --- | --- | --- |
| Data category | Description | References |
| Performance Measurements | The number of UEs in the cell  |  |
| SS-RSRP distribution per SSB (beam) of serving NR cell | SS-RSRP distribution per SSB (clause 5.1.1.22.1 of TS 28.552 [3]). |
| SS-RSRP distribution per SSB (beam) of neighbor NR cell | SS-RSRP distribution per SSB (clause 5.1.1.22.1 of TS 28.552 [3]). |
| RRC connection number | Clause 5.1.1.4 of TS 28.552[3]  |
| The transmitted uplink and downlink PDCP data volume. | Clause 5.1.2.1 and 5.1.3.6 of TS 28.552 [3] |
| Data volume of UPF | Clause 5.4 of TS 28.552 [3] |
| Delay related measurements of UPF | Clause 5.4 of TS28.552[3]. |
| The uplink and downlink PRB utilization rate | clause 5.1.1.2 of TS 28.552[3] |
| UE throughput | Clause 5.1.1.3 of TS 28.552[3] |
| MDT reports | The RSRPs of UE measurements. | RSRPs of M1 measurements in TS 32.422 [4] and TS 32.423 [5]. |
| The RSRQs of UE measuremnets.  | RSRQs of M1 measurements in TS 32.422 [4] and TS 32.423 [5]. |
| The UE location information. | UE location of M1 measurements in TS 32.422 [4] and TS 32.423 [5]. |
| QoE Data | The measurements that are collected are DASH and MTSI measurements. | TS 26.247 [6]), TS 26.114 [7] and TS 28.406 [8] |
| NRM | MOIs of the cells, UPFs and SMFs | TS 28.541 [9] |
|  |  |  |

##### 8.4.X.3 Analytics output

The specific information elements of the analytics output for MDA assisted energy saving, in addition to the common information elements of the analytics output (see clause 8.3), are provided in table 8.4.X.Y.3-1.

Table 8.4.X.3-1: Analytics output for MDA assisted energy saving analysis

|  |  |  |  |
| --- | --- | --- | --- |
| Information element | Definition | Support qualifier | Properties |
| RootCause | The root cause of the energy saving problem. The valua is FFS.  | O | type: FFSmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| TrafficLoadTrends | The predictied valua of the traffic load in a period time, which can be reflected by the key indictors (e.g., PRB utilization rate, RRC connections, etc.).  | O | type: FFSmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| EnergySavingRecommendations | The recommendation shall contain the energy saving policy.- recommended cells to enter energySaving state.- recommended candidate cells with precedence for taking over the traffic of the ES-Cell.- the time to enter and terminate the energy saving state.- the load threshold to enter and terminate the energy saving state for the ES-Cell | M | type: FFSmultiplicity: \*isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |

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| **End of Modified Sections** |