**3GPP TSG-SA5 Meeting #155 *S5-243078***

Jeju, South Korea, 27 - 31 May 2024

**Source: AsiaInfo**

**Title: Add solution for edge computing performance analytics**

**Document for: Approval**

**Agenda Item: 6.19.2**

# 1 Decision/action requested

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

# 2 References

[1] 3GPP TR 28.866 v0.1.0 Study on Management Data Analytics (MDA) – Phase 3

# 3 Rationale

This provides solution for edge computing performance analytic.

# 4 Detailed proposal

It proposes to make the following changes to TR 28.866.

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| **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] 3GPP TS 28.104: "Management and orchestration; Management Data Analytics (MDA)".

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

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

[x] 3GPP TS 23.273: "5G System (5GS) Location Services (LCS); Stage 2".

[y] 3GPP TS 28.538: " Management and orchestration; Edge Computing Management (ECM)".

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| **Second Change** |

## 5.2 End-to-End performance analytics including Edge computing domain

### 5.2.1 Use case 1: Edge computing performance analytics

#### 5.2.1.1 Description

For edge applications such as remote control and automation vehicles, the end-to-end performance (e.g., latency) to an end user is contributed by both the network side and the Edge Computing side. We can guarantee the end-to-end latency between UE and EAS to satisfy the consumer requirements for guarantee user service experience. In R18, the MDA capability include E2E latency analysis, including CN latency analysis and RAN latency analysis, but not include latency between UE and EAS.

It is desirable that the end-to-end latency can be predicated by MDA. MDA consumer sends the request for end-to-end latency analytics to MDA producer, MDA producer correlates and analyses multi-fold data (such as EDN NF (e.g. EAS, EES) performance measurements, 5GC NF measurement and alarm related to edge computing performance, together with the geographical and configuration data of edge computing).the MDAS producer provides the analytics report that include predicting end-to-end latency for edge application. The MDAS producer may provide the recommendations that may be for example to adjust the configuration data of EDN NF.

Note: The input of MDA can require consultation with SA6.

#### 5.2.1.2 Potential requirements

**REQ-EDGE-C****ON-1:** MDA capability for edge computing performance analytics should provide the prediction related to E2E latency between UE and EAS.

#### 5.2.1.3 Potential solutions

The solution is to introduce the enabling date for edge computing performance analytics, the enable data are provided in table 5.2.1.3-1

**Table 5.2.1.3-1: Enabling data for edge computing performance analytics**

|  |  |  |
| --- | --- | --- |
| Data category | Description | References |
| Performance measurements | Packet Delay on air-interface | Average delay DL air-interface(clause 5.1.1.1.1 TS 28.552 [4]);(Average delay UL on over-the-air interface(clause 5.1.1.1.3 TS 28.552 [m]) |
| Round-trip GTP Data Packet Delay on N3 interface | Round-trip delay on a N3 interface on PSA UPF(clause 5.4.1.9 TS 28.552[m]) |
| GTP packets delay in UPF | GTP packets delay within the PSA UPF(clause 5.4.5 TS 28.552[m]). |
| Round-trip Packet Delay | Round-trip packet delay between PSA UPF and NG-RAN (clause 5.4.8 TS 28.552 [n]). |
| Integrated uplink/downlink delay in RAN | Integrated downlink delay in RAN (clause 6.3.1.2 in TS 28.554 [n]); Integrated uplink delay in RAN (clause 6.3.1.7 in TS 28.554 [n]). |
| UE location reports | UE location information provided by the LMF services which can be used to correlate with the MDT reports. | The UE location information provided by LMF via service-based interface (see TS 23.273 [x]). |
| EAS Service location | It defines the location where the EAS service should be available  | requiredEASservingLocation（see TS see clause 7.3.3.6 in TS 28.538 [y]） |

The solution is also to introduce a data type for edge computing performance analytics, called edgeComputingPerformanceAnalysis. The data type can be the contents of the analytics report that representing the MDA for edge computing performance correlation analytics

Attributes may configure the analytics context in MDARequest. The context may include attributes.

* An attribute may indicate the EAS identifier that identifies a particular application (e.g. Video, Game, … etc.).
* An attribute may indicate the latency of UE and EAS.