**3GPP TSG-SA5 Meeting #155 *S5-242871***

Jeju, South Korea, 27 - 31 May 2024

**Source: Ericsson**

**Title: Inventory of 5G performance specifications**

**Document for: Approval**

**Agenda Item: 6.19.8**

# 1 Decision/action requested

***Approve the pCR.***

# 2 References

[1] 3GPP 28.404 "Telecommunication management; Quality of Experience (QoE) measurement collection; Concepts, use cases and requirements)"

[2] 3GPP 28.405 "Telecommunication management; Quality of Experience (QoE) measurement collection; Control and configuration)"

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

[4] 3GPP 28.520 "Telecommunication management; Performance Management (PM) for mobile networks that include virtualized network functions; Requirements"

[5] 3GPP 28.521 "Telecommunication management; Performance Management (PM) for mobile networks that include virtualized network functions; Procedures

[6] 3GPP 28.522 Telecommunication management; Performance Management (PM) for mobile networks that include virtualized network functions; Stage 2

[7] 3GPP 28.523 Telecommunication management; Performance Management (PM) for mobile networks that include virtualized network functions; Stage 3"

[8] 3GPP 28.550 "Management and orchestration; Performance assurance"

[9] 3GPP 28.552 "Management and orchestration; 5G performance measurements"

[10] 3GPP 28.554 "Management and orchestration; 5G end to end Key Performance Indicators (KPI)"

[11] 3GPP 28.558 "Management and orchestration; UE level measurements for 5G system"

[12] 3GPP 32.401 "Telecommunication management; Performance Management (PM); Concept and requirements"

[13] 3GPP 32.404 "Telecommunication management; Performance Management (PM); Performance measurements; Definitions and template"

[14] 3GPP 32.421 "Telecommunication management; Subscriber and equipment trace; Trace concepts and requirements"

[15] 3GPP 32.422 "Telecommunication management; Subscriber and equipment trace; Trace control and configuration management"

[16] 3GPP 32.423 "Telecommunication management; Subscriber and equipment trace; Trace data definition and management"

# 3 Rationale

One important argument when introducing SBMA was to get away from the fragmented specification structure that IRP architecture has.

The performance information is spread over many TSs. For an implementer it is difficult to know which specifications are applicable to the design that is to be made. It is difficult for non 3GPP PM experts to understand how the performance specifications relate to each other.

# 4 Detailed proposal

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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 28.622: "Telecommunication management; Generic Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS)".

[3] 3GPP TS 28.537: "Management and orchestration; Management capabilities".

[4] 3GPP TS 28.623: "Telecommunication management; Generic Network Resource Model (NRM) Integration Reference Point (IRP); Solution Set (SS) definitions".[5] 3GPP TS 28.541: "Management and orchestration; 5G Network Resource Model (NRM); Stage 2 and stage 3"

[6] 3GPP TS 28.104: "Management and orchestration; Management Data Analytics (MDA) "

[7] 3GPP TS 28.105: "Management and orchestration; Artificial Intelligence/ Machine Learning (AI/ML) management"

[8] 3GPP TS 28.111: "Fault management"

[9] 3GPP TS 28.311: "Management and orchestration; Network policy management for mobile networks based on Network Function Virtualization (NFV) scenarios"

[10] 3GPP TS 28.312: "Management and orchestration; Intent driven management services for mobile networks"

[11] 3GPP TS 28.317: "Management and orchestration; Self-configuration of Rad io Access Network Entities (RAN NEs)"

[12] 3GPP TS 28.318: "Management and Orchestration; Network and services operations for energy utilities"

[13] 3GPP TS 28.319: "Management and orchestration; Access Control for Management services"

[14] 3GPP TS 28.532: "Management and orchestration; Generic management services"

[15] 3GPP TS 28.536: "Management and orchestration; Management services for communication service assurance; Stage 2 and stage 3"

[16] 3GPP TS 28.538: "Management and orchestration; Edge Computing Management"

[17] 3GPP TS 28.556: "Management and orchestration; Network policy management for 5G mobile networks; Stage 2 and stage 3"

[a] 3GPP 28.404 "Telecommunication management; Quality of Experience (QoE) measurement collection; Concepts, use cases and requirements)"

[b] 3GPP 28.405 "Telecommunication management; Quality of Experience (QoE) measurement collection; Control and configuration)"

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

[d] 3GPP 28.520 "Telecommunication management; Performance Management (PM) for mobile networks that include virtualized network functions; Requirements"

[e] 3GPP 28.521 "Telecommunication management; Performance Management (PM) for mobile networks that include virtualized network functions; Procedures

[f] 3GPP 28.522 Telecommunication management; Performance Management (PM) for mobile networks that include virtualized network functions; Stage 2

[g] 3GPP 28.523 Telecommunication management; Performance Management (PM) for mobile networks that include virtualized network functions; Stage 3"

[h] 3GPP 28.550 "Management and orchestration; Performance assurance"

[i] 3GPP 28.552 "Management and orchestration; 5G performance measurements"

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

(k) 3GPP 28.558 "Management and orchestration; UE level measurements for 5G system"

[l] 3GPP 32.401 "Telecommunication management;Performance Management (PM);Concept and requirements"

[m] 3GPP 32.404 "Telecommunication management; Performance Management (PM); Performance measurements; Definitions and template"

[n] 3GPP 32.421 "Telecommunication management; Subscriber and equipment trace; Trace concepts and requirements"

[o] 3GPP 32.422 "Telecommunication management; Subscriber and equipment trace; Trace control and configuration management"

[p] 3GPP 32.423 "Telecommunication management; Subscriber and equipment trace; Trace data definition and management"

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| **2nd Change** |

## 5.x PM investigation

### 5.x.1 Description

One important argument when introducing SBMA was to get away from the fragmented specification structure that IRP architecture has.

The following TSs contain performance information specified for 5G:

28.404 Telecommunication management; Quality of Experience (QoE) measurement collection; Concepts, use cases and requirements) [a]

28.405 Telecommunication management; Quality of Experience (QoE) measurement collection; Control and configuration) [b]

28.406 Telecommunication management; Quality of Experience (QoE) measurement collection; Information definition and transpor [c]

28.520 Telecommunication management; Performance Management (PM) for mobile networks that include virtualized network functions; Requirements [d]

28.521 Telecommunication management; Performance Management (PM) for mobile networks that include virtualized network functions; Procedures [e]

28.522 Telecommunication management; Performance Management (PM) for mobile networks that include virtualized network functions; Stage 2 [f]

28.523 Telecommunication management; Performance Management (PM) for mobile networks that include virtualized network functions; Stage 3 [g]

28.550 Management and orchestration; Performance assurance [h]

28.552 Management and orchestration; 5G performance measurements [i]

28.554 Management and orchestration; 5G end to end Key Performance Indicators (KPI) [j]

28.558 Management and orchestration; UE level measurements for 5G system (k)

32.401 Telecommunication management;Performance Management (PM);Concept and requirements [l]

32.404 Telecommunication management; Performance Management (PM); Performance measurements; Definitions and template [m]

32.421 Telecommunication management; Subscriber and equipment trace; Trace concepts and requirements [n]

32.422 Telecommunication management; Subscriber and equipment trace; Trace control and configuration management [o]

32.423 Telecommunication management; Subscriber and equipment trace; Trace data definition and management [p]

### 5.x.2 Potential requirement

NA.

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| **3rd Change** |

## 6.x PM investigation

**Solution proposal 1**

Do nothing.

Pro: No risk for inconsistencies. No work needs to be done.

Con: Non SA5 PM experts continue to have the problem of understanding how the 3GPP 5G performance TSs relate to each other.

**Solution proposal 2**

Describe the dependencies in a more understandable way in a 900-series TR.

Pro: Non SA5 PM experts have an easier way of understanding how SA5 performance specifications relate to each other. Since this would be a 900-series TR it would be visible to organizations outside 3GPP and kept up-to-date across releases.

Con: As the information is duplicated, it is a risk for not being consistent.

**Solution proposal 3a**

Change the structure of the performance TSs. E.g. One TS could be for RAN NFs, another for Core Network NFs, a third for management system MnFs.

Pro: The understanding for which performance metrics are produced would be better. It would mitigate compliance work.

Con: All dependances might not be visible. It is a very large work.

**Solution proposal 3b**

Change the structure of the Subscriber and Equipment Trace and the Quality of Experience (QoE) measurement collection. The other PM specifications are divided into mechanism and performance data, which is not the case for the Subscriber and Equipment Trace and the Quality of Experience (QoE) measurement collection, so also these specifications can be changed to the structure of separating mechanism and performance data.

Pro: The mechanism is common for different 3GPP systems, while the performance data may differ. It will be very clear on what data is valid for which 3GPP system.

Con: When performance data is used for several 3GPP systems (e.g. NSA), the description of these cases needs to refer to another TS.

**Solution proposal 4**

Augment the “5G specifications overview” [28.533, Annex E] to include the performance components. For example, the column currently headed “Related specifications” could be split into one describing use cases and requirements, and another defining performance data. A separate column could also be added, including not only the TS but the specific performance data definitions defined in it that are related to the management feature. To increase visibility, and promote maintenance, the Annex could be promoted to normative, or even moved into the main body of the TS.

Pro: The mapping between specifications, management features, and performance data definitions would be captured in a single location.

Con: The amount of information in the table could be large and difficult to maintain.

**Solution proposal 5**

Augment the existing specifications containing performance information to indicate a clear “entry point” or “root” NRM component for each management feature. E.g. the “PerfMetricJob” IOC for PM measurements, “TraceJob” IOC for Subscriber and Equipment trace, etc. Each of these would then document the management feature(s) to which it applies and the other IOCs/DTs which comprise the complete solution.
Note: this solution could also be combined with Proposal 4 to reduce the amount of information required in the table.

Pro: Existing information is retained and augmented with more detail. The documentation on dependencies could be kept to the minimal number of ‘root’ NRM components.

Con: Could be difficult for multi-release maintenance when some components (or parts thereof) only apply to specific release(s).

**Solution proposal 6**

Create a new type of document, such as a web/wiki page, to document the performance data dependencies.

Pro: Could be easier to maintain and have least impact on existing specs. Method to introduce different ‘views’ on usage performance information for potentially different audiences. E.g. Rel-17 vs. Rel-18 view, Slice vs. NF mgmt., ORAN centric implementation, etc.

Con: Separation of the information from the actual specs could lead to inconsistencies.

Different solutions proposals can be combined.

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| **End of change** |