**3GPP TSG-SA5 Meeting #155 *S5-243191***

Jeju, South Korea, 27 - 31 May 2024 revision of S5-242884

**Source: Nokia**

**Title: Rel-19 pCR TR 28.869 Enhance use case description and add potential requirements for data streaming for cloud-native network functions**

**Document for: Approval**

**Agenda Item: 6.19.6**

# 1 Decision/action requested

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

# 2 References

[1] 3GPP TR 28.869, " Study on cloud aspects for management and orchestration."

# 3 Rationale

There is a need to enhance the use case description and add potential requirements for the "Data streaming for cloud-native NFs" use case (defined in clause 5.2.2 in TR 28.869[1]) to capture the criteria that the reporting option suited to cloud-native NFs may be able to fulfill.

# 4 Detailed proposal

It is proposed that the following changes be made to clause 5.2.2 of TR 28.869 [1].

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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] ETSI GS NFV-IFA 049: "Network Functions Virtualisation (NFV) Release 5; Architectural Framework; VNF generic OAM functions specification.

[3] ETSI GR NFV-EVE 019: "Network Functions Virtualisation (NFV) ;Architectural Framework;Report on VNF generic OAM functions".

[4]  3GPP TR 28.834: "Study on management of cloud-native Virtualized Network Functions (VNF)".

[5] SP-230764 New WID on Management of cloud-native Virtualized Network Functions.

[6] 3GPP TS 28.526: "Telecommunication management; Life Cycle Management (LCM) for mobile networks that include virtualized network functions; Procedures".

[7] 3GPP TS 28.531: "Management and orchestration; Provisioning".

[8] ETSI GS NFV-IFA 013 (V4.5.1) (2023-09): "Network Function Virtualisation (NFV); Release 4; Management and Orchestration; Os-Ma-nfvo reference point - Interface and Information Model Specification".

[9] ETSI GS NFV-IFA 008 (V4.3.1) (2022-05): "Network Function Virtualisation (NFV); Release 4; Management and Orchestration; Ve-Vnfm reference point - Interface and Information Model Specification".

[10] 3GPP TR 28.532: "Management and orchestration; Generic management services".

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

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

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| **Second Change** |

# 3 Definitions of terms, symbols and abbreviations

## 3.1 Terms

For the purposes of the present document, the terms given in 3GPP TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [1].

**example:** text used to clarify abstract rules by applying them literally.

**VNF generic OAM function:** Defined in ETSI GS NFV-IFA 049 [2].

**Message-oriented middle ware:** is software or hardware infrastructure supporting sending and receiving messages between distributed systems.

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| **Third Change** |

### 5.2.2 Use case #2: data streaming for cloud native network function

#### 5.2.2.1 Description

Currently 3GPP management system support WebSocket based data streaming for PM, tracing and analytic [10] which establish point-to-point connection between the streaming data reporting MnS consumer and MnS producer. In cloud native deployment, a NF is realized in many micro-services whose workload instances are running in parallel, dynamically scaled in and out, and maybe distributed across multiple server nodes and cloud sites. In conventional WebSocket based solution, streaming data reporting MnS producer aggregate traffic from many distributed workloads generating large amount of data before streaming it to the streaming data reporting MnS consumer via the connection established. The streaming data reporting MnS consumer receive the aggregated traffic first via the connection before distributing to internal functions of the management system which may be also cloud native. This become a performance bottleneck, inefficient and difficult to be managed. Furthermore, cloud native applications are more sensitive to failures and system down time. If the connection between MnS producer and consumer fails due to any reason e.g. software failure, server hardware failure and transport network failure etc, it impacts the entire coverage area of the cloud.

In cloud native deployment, more efficient, highly scalable, and fault-tolerant streaming solution allowing parallel streaming from the micro-services may be needed. Furthermore, the management of streaming connections, resource allocations, scaling, and resiliency for data streaming in cloud native environment is a complicated task. The 3GPP management system shall evolve to address the challenges considering the use of existing industry solutions.

#### 5.2.2.X Potential requirements

**PREQ-FS\_Cloud-OAM-01** The 3GPP management system should have the capability enabling the MnS consumer to configure the message-oriented middle ware for the production of management data.
Note: The management data corresponds to the performance measurements or KPIs defined in TS 28.552[X] and TS 28.554[Y], respectively.

**PREQ-FS\_Cloud-OAM-02** The 3GPP management system should have the capability enabling the MnS consumer to collect management data from the message-oriented middle ware.

**PREQ-FS\_Cloud-OAM-03** The 3GPP management system should have the capability enabling the MnS consumer to terminate the production of management data from the message-oriented middle ware.

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| **End of Changes** |