**3GPP TSG-SA5 Meeting #156 *S5-244818d1***

Maastricht, Netherlands, 19 - 23 August 2024

**Source: Huawei**

**Title: Rel-19 pCR TR 28.866 Add solution for enhancing control plane congestion analysis**

**Document for: Approval**

**Agenda Item: 6.19.2**

# 1 Decision/action requested

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

# 2 References

[1] 3GPP TR 28.866: “Study on Management Data Analytics (MDA) – Phase 3”.

# 3 Rationale

This pCR proposes the potential solution for enhancement of control plane congestion analysis.

# 4 Detailed proposal

It is proposed to make the following changes to TR 28.866 [1].

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| **1st change** |

### 5.7.4 Use case 4: Enhancing control plane congestion analysis

#### 5.7.4.1 Description

The use case for control plane congestion analysis is described in TS 28.104 [2]. It proposes to use MDA to assist control plane congestion analysis in order to detect, prevent or resolve congestion issue happened at the control plane. NWDAF as an MDA MnS consumer may need to take further analysis on control plane congestion issue based on the analytics output from MDAF. Existing MDA analytics output for 5GC control plane congestion analysis only includes 5GC NFs affected by congestion issues, analysis report identifier and the recommended actions, which may need enhancement to support further analytics of NWDAF. Missing attributes include the root cause of the congestion issue and the predicted duration of congestion issue.

The examples of root cause could be the huge amount of UE access network in short period of time. Congestion issues with different root causes need different mitigation solutions. For example, if congestion issue is caused by network failure, it is possible for OAM to resolve the issue with analytics performed by MDAF and may not need NWDAF to take further actions. If congestion issue is caused by signalling overload, the MDA report may include the identified object which is the bottleneck of network and the recommended action to eliminate the bottleneck issue. NWDAF may perform further analytics to recommend actions to eliminate the congestion issue, such as adjusting the backoff timer or controlling the signalling access rate.

Besides, information about predicted duration of identified congestion issue may be also needed by NWDAF. For example, if the congestion is predicted to be self-recovered in a short time, it may not necessary for NWDAF to take actions. If the predicted duration of congestion issue is long, timely actions may need to be taken by NWDAF to resolve the issue.

#### 5.7.4.2 Potential requirements

**REQ-CP\_ANA-ENHANCE-01:** MDA capability for control plane congestion analysis should be able to provide the analytics output including root cause of the congestion issue and the predicted duration of congestion issue to the consumer.

#### 5.7.4.3 Potential solutions

The analytics output for MDA assisted control plane congestion analysis may be enhanced with the following attributes.

- rootCause. This attribute may indicate the root cause of control plane congestion issue, such as network failure, signalling overload, etc.- predictedDuration. This attribute may indicate the predicted time duration of control plane congestion issue.

#### 5.7.4.4 Evaluation of solutions

Only potential solution #1 is proposed, the requirements are satisfied and this solution is feasible for normative work.

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| **2nd Change** |

# 6 Conclusions

## 6.x Use case #x: Fault management related analytics and alarm prediction

The use case, requirements and solution for Use case: Enhancing control plane congestion analysis is described in clause 5.7.4. It is recommended to add new attributes in the MDA analytics output for control plane congestion analysis in TS 28.104 [2] to support providing root cause and predicted time duration of control plane congestion issue in the analytics output. The detailed solution is described in clause 5.7.4.3.

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| **End of Change** |