**3GPP TSG-SA5 Meeting #143-e *S5-223424rev01***

e-meeting, 9 - 17 May 2022

**Source: China Telecom**

**Title: New KI about performance metrics of NWDAF on Efficiency Aspect**

**Document for: Approval**

**Agenda Item: 6.5.6.2**

# 1 Decision/action requested

***The group is asked to discuss and agree on the proposal.***

# 2 References

[1] 3GPP TS 23.288: "Architecture enhancements for 5G System (5GS) to support network data analytics services".

# 3 Rationale

In SP-211435, it is proposed to study the metrics and KPIs of NWDAF performance on the efficiency aspect, such as estimating the usage of compute resource for treating the request/subscription, etc.

# 4 Detailed proposal

This document proposes the following changes in TR 28.864.

Start of 1st Change

# 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 23.288: "Architecture enhancements for 5G System (5GS) to support network data analytics services".

[3] 3GPP TS 28.541: "5G Network Resource Model (NRM)"

[x] ETSI ES 203 539: "Environmental Engineering (EE); Measurement method for energy efficiency of Network Functions Virtualisation (NFV) in laboratory environment".

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

Start of 2nd Change

## 4.Y Key Issue #<A>: Energy Efficiency of NWDAF

### 4.Y.1 Description

As the operator has high demand on the network automation, the use of NWDAFs in the network is expected. The potential requirement on utilizing large amount of compute resource makes NWDAF different from other NFs in 5GC.

Since the utilization of compute resource has a strong relationship with the energy consumption, it is necessary for the operators to monitor the contribution of NWDAF to the total energy consumption.

Moreover, the NWDAF instances can use different AI models for different analytic purpose, the corresponding compute resource utilization may vary. As a result, the energy consumption of the NWDAF instances varies. Considering both the services provided by one NWDAF instances and its energy consumption, the operator may have the observation on how efficient one NWDAF instance is working on providing services and know whether they are working as expectation.

The Useful Output was introduced in [x] as the maximum capacity of the system under test which is depending on the different functions in both data plane/user plane or control plane. Based on Useful Output , in [xa], the Generic 5GC Energy Efficiency (EE) KPI was introduced, and it is calculated as the ratio of Useful Output of 5GC and Energy Consumption of 5GC.

The energy efficiency considering user plane functions in 5GC has been discussed. However, for the NF in the control plane, such as the NWDAF, the energy efficiency is still an open issue.

In this Key Issue, the potential solution(s) is provided on how to derive the Energy Efficiency of NWDAF.

End of Change