**3GPP TSG-SA5 Meeting #145e *S5-225490rev1***

**15 Aug to 24 Aug 2022, E-meeting**

**Source: China Telecom**

**Title: Add the potential solution for the performance measurement of the NWDAF on the interaction aspect**

**Document for: Approval**

**Agenda Item: 6.7.6.2**

# 1 Decision/action requested

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

# 2 References

[1] 3GPP TR 28.864-030: "Study on Enhancement of the management aspects related to NWDAF".

# 3 Rationale

In the multiple-NWDAFs deployment scenario, a NWDAF instance can be the analytic service producer for the other NFs. For this case, the proformance of NWDAF can be measured based on the numbers of the interaction measured at the analytic service producer NWDAF. And this case is covered by potential solution #1 and #2 of KI#3.

However, the aggregator NWDAF (i.e. the NWDAF with "analytics aggregation capability") in this scenario can act not only as the analtytic service producer, but also as the analytic service consumer to other NWDAFs. Moreover, the additional operations are performed by the aggregator NWDAFs:

- Before the aggregator NWDAF requesting/subscribing the analytics from other NWDAFs, it will first divide the area of interest, if received from the consumer, into sub area of interest based on the serving area of each NWDAF to be requested for analytics.

- After receiving the output analytics provided by other NWDAFs via analytic service response or notifications, the aggregator NWDAF may perform the additional aggregation operation.

Therefore, when the operators measure the performance of the aggregator NWDAF, the addtitional operations mentioned above need to be considered.

In this pCR, we propose to add the potential solution for the performance measurement of NWDAF related to the additional operations introduced by the "analytics aggregation capability".

# 4 Detailed proposal

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| **Start of 1st Change** |

4.3.N Potential requirements

**REQ-NWDAF-COUNTER-1:** the 3GPP management systemshall have a capability to measure the number subscriptions/requests generated by the NWDAF, in the case where this NWDAF act as an Aggregator NWDAF with analytics aggregation capability to request and aggregate the analytics information from other NWDAFs.

**REQ-NWDAF-COUNTER-2:** the 3GPP management systemshall have a capability to measure the number notifications/responses received by the NWDAF, in the case where this NWDAF act as an Aggregator NWDAF with analytics aggregation capability to receive and aggregate the analytics information from other NWDAFs.

4.3.2.X Potential solution #X: number of subscriptions/requests generated by Aggregator NWDAF

4.3.2.X.1 Introduction

In the cases where a NWDAF service consumer requests Analytics ID(s) that requires multiple NWDAFs to collectively serve the request, the Aggregator NWDAF (i.e. the NWDAF with analytics aggregation capability) may be deployed to support requesting the analytics information from other NWDAFs and aggregating this analytics information.

This solution is proposed on how to provide the performance measurements of the NWDAF based on the subscriptions and/or requests sent by Aggregator NWDAF. The proposed performance measurements are defined as the number of subscriptions and/or requests sentby Aggregator NWDAF.

The proposed solution can be a potential solution for the performance measurement of the NWDAF based on the interaction aspect.

4.3.2.X.2 Description

These proposed performance measurements of the NWDAF are defined as the number of subscriptions/requests sent by Aggregator NWDAF. Moreover, since different type of analytics may consume different resource (e.g., virtual CPU resource, virtual memory resource or virtual disk resource) of NWDAF, it is necessary to define the performance measurements of NWDAF based on the granularity of analytics. Therefore, this proposed performance measurements are also defined as the number of subscriptions/requests generated by Aggregator NWDAF based on the analytics ID(s). The analytics ID identifies the requested analytics, which can be obtained from the NWDAF service consumer (see TS 23.288 [2]).

The number of subscriptions sent by the Aggregator NWDAF to the other NWDAFs to subscribe analytics information for analytics aggregation can be measured as follows:

- When the Aggregator NWDAF sends the Nnwdaf\_AnalyticsSubscription\_Subscribe service operations (See TS 23.288 [2]) to the other NWDAFs to subscribe analytics information for analytics aggregation, each subscription is added to the relevant counter.

The number of subscriptions sent by the Aggregator NWDAF to the other NWDAFs to subscribe analytics information for analytics aggregation, based on the analytics ID(s), can be measured as follows:

- When the Aggregator NWDAF sends the Nnwdaf\_AnalyticsSubscription\_Subscribe service operations (See TS 23.288 [2]) to the other NWDAFs to subscribe analytics information for analytics aggregation, each subscription is added to the relevant subcounter per analytics ID.

The number of requests sent by the Aggregator NWDAF to the other NWDAFs to request analytics information for analytics aggregation can be measured as follows:

- When the Aggregator NWDAF sends the Nnwdaf\_AnalyticsInfo\_Request service operation (See TS 23.288 [2]) to the other NWDAFs to request analytics information for analytics aggregation, each request is added to the relevant counter.

The number of requests sent by the Aggregator NWDAF to the other NWDAFs to request analytics information for analytics aggregation, based on the analytics ID(s), can be measured as follows:

- When the Aggregator NWDAF sends the Nnwdaf\_AnalyticsInfo\_Request service operation (See TS 23.288 [2]) to the other NWDAFs to request analytics information for analytics aggregation, each request is added to the relevant subcounter per analytics ID.

4.3.2.Y Potential solution #Y: number of notifications/responses reveived by Aggregator NWDAF

4.3.2.Y.1 Introduction

In the cases where a NWDAF service consumer requests Analytics ID(s) that requires multiple NWDAFs to collectively serve the request, the Aggregator NWDAF (i.e. the NWDAF with analytics aggregation capability) may be deployed to support requesting the analytics information from other NWDAFs and aggregating this analytics information.

This solution is proposed on how to provide the performance measurements of the NWDAF based on the notifications and/or responses received by Aggregator NWDAF. The proposed performance measurements are defined as the number of notifications and/or responses received by Aggregator NWDAF.

The proposed solution can be a potential solution for the performance measurement of the NWDAF based on the interaction aspect.

4.3.2.Y.2 Description

These proposed performance measurements of the NWDAF are defined as the number of notifications/responses reveived by Aggregator NWDAF. Moreover, since different type of analytics may consume different resource (e.g., virtual CPU resource, virtual memory resource or virtual disk resource) of NWDAF, it is necessary to define the performance measurements of NWDAF based on the granularity of analytics. Therefore, this proposed performance measurements are also defined as the number of notifications/responses reveived by Aggregator NWDAF based on the analytics ID(s). The analytics ID identifies the requested analytics, which can be obtained from the NWDAF service consumer (see TS 23.288 [2]).

The number of notifications received by the Aggregator NWDAF from the other NWDAFs to get analytics information for analytics aggregation can be measured as follows:

- When the Aggregator NWDAF receives the Nnwdaf\_AnalyticsSubscription\_Notify service operation (See TS 23.288 [2]) from the other NWDAFs to get analytics information for analytics aggregation, each notification is added to the relevant counter.

The number of notifications received by the Aggregator NWDAF from the other NWDAFs to get analytics information for analytics aggregation, based on the analytics ID(s), can be measured as follows:

- When the Aggregator NWDAF receives the Nnwdaf\_AnalyticsSubscription\_Notify service operation (See TS 23.288 [2]) from the other NWDAFs to get analytics information for analytics aggregation, each notification is added to the relevant subcounter per analytics ID.

The number of responses received by the Aggregator NWDAF from the other NWDAFs to get analytics information for analytics aggregation can be measured as follows:

- When the Aggregator NWDAF receives the Nnwdaf\_AnalyticsInfo\_Request Response service operation (See TS 23.288 [2]) from the other NWDAFs to get analytics information for analytics aggregation, each response is added to the relevant counter.

The number of responses received by the Aggregator NWDAF from the other NWDAFs to get analytics information for analytics aggregation, based on the analytics ID(s), can be measured as follows:

- When the Aggregator NWDAF receives the Nnwdaf\_AnalyticsInfo\_Request Response service operation (See TS 23.288 [2]) from the other NWDAFs to get analytics information for analytics aggregation, each response is added to the relevant subcounter per analytics ID.

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| **End of Modified Sections** |