**3GPP TSG-SA5 Meeting #145e** ***S5-225368rev1***

**15 August – 24 August 2022, E-meeting**

**Source: China Mobile**

**Title: Add potential solution related with number of subscriptions and notifications for NWDAF Data Collection**

**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 28.864-020: " Study on Enhancement of the management aspects related to NWDAF".

[2] 3GPP TS 23.288: "Architecture enhancements for 5G System (5GS) to support network data analytics services".

# 3 Rationale

In [1], the key issue #4 of performance management for NWDAF data collection is proposed. This pCR is to provide the potential solution related with the number of subscriptions for NWDAF data collection.

# 4 Detailed proposal

|  |
| --- |
| **Start of 1st Change** |

## 4.4 Key Issue #4: Performance Measurement for NWDAF Data Collection

### 4.4.1 Description

The Data Collection feature permits NWDAF to retrieve data from various data sources (e.g., NF such as AMF, SMF, PCF, UDM and AF; OAM), as a basis of the computation of network analytics [2].

The retrieval of data has impacts on the performance of both the data source and NWDAF. For the data source, all the data required by NWDAF needs to be generated or prepared accordingly before they are retrieved by NWDAF. And for the NWDAF, it needs to distinguish every piece of data received from different data sources and of data received from the same data source but for different network analytic purposes.

The operator may notice that the data collection is the major task of one NWDAF instance, therefore, less computation resource can be allocated to that NWDAF instance, and more storage and network resources may be allocated if necessary. Or on the extreme cases, a new NWDAF instance needs to be provided or we may find out that deploying a DCCF is the optimum solution. For making a decision, the measurement data is needed, such as how many data is collected by a NWDAF instance or by all NWDAF instances related to some areas of interests, so that the operator could have the understanding and estimation of the working load and working status of the NWDAF instance.

Moreover, it is also beneficial to have the granular measurement of data collection, such as measuring the data collected from different type of data sources. This measurement may provide information about if it is possible to optimize the deployment of NWDAF. For example, the NWDAF instance may be geographically deployed closer to its major data source to reduce the latency and save network resources.

In this key issue, the potential solutions are provided to define the new performance measurement reflecting the data collection performed by NWDAF.

### 4.4.2 Potential solutions

#### 4.4.2.i Potential solution #<i>: number of subscriptions for NWDAF Data Collection

##### 4.4.2.i.1 Introduction

Data collection may be performed via NWDAF (hosting DCCF and/or ADRF). DCCF, MFAF, and NWDAF shall use at least one of the following services from OAM, and NFs (including AFs directly or via NEF) to collect data. The services include (see TS 23.288 [2]):

- the Generic management services, the Performance Management services or the Fault Supervision services, offered by OAM in order to collect OAM global NF data.

- the Exposure services offered by NFs in order to retrieve data and other non-OAM pre-computed metrics available in the NFs.

- Other NF services in order to collect NF data (e.g. NRF)

- DCCF data management service to retrieve data using DCCF.

The number of subscriptions generated by NWDAF for the services can be a potential performance metric for NWDAF Data Collection. If the NWDAF sends subscriptions with different Analytics IDs to the same data sources for data collection, then a DCCF may be recommended to be deployed to prevent data sources from having to handle multiple subscriptions containing the same information. Therefore, counting the number of data collection subscriptions over a period of time can be used to determine whether to allocate more storage resources to the NWDAF or a DCCF may be deployed.

##### 4.4.2.i.2 Description

This proposed performance measurements of the NWDAF are defined as the number of subscriptions generated by NWDAF. Since the Data Source and the services used are different, the number of subscriptions is defined based on the Data Source.

The number of subscriptions generated by NWDAF from NFs for Data Collection can be measured as follows:

- When the NWDAF generates the Nnf\_EventExposure\_Subscribe service operation to NF (See TS 23.288 [2]), each generated subscription is added to the relevant subcounter per data source.

The number of subscriptions generated by NWDAF from AF via NEF for Data Collection can be measured as follows:

- When the NWDAF generates the Nnef\_EventExposure\_Subscribe service operation to NEF (See TS 23.288 [2]), each generated subscription is added to the relevant subcounter per data source.

#### 4.4.2.j Potential solution #<i>: number of notifications for NWDAF Data Collection

##### 4.4.2.j.1 Introduction

The number of notifications received by NWDAF for these services can be a potential performance metric for NWDAF Data Collection, which can reflect the amount of data and how often data is received. If the NWDAF receives notifications with the same or different Analytics ID(s) from the same data sources for data collection, then a DCCF may be recommended to be deployed to prevent data sources from having to send multiple notifications. Therefore, counting the number of data collection notifications over a period of time can be used to determine whether to allocate more storage resources to the NWDAF or a DCCF may be deployed.

##### 4.4.2.j.2 Description

This proposed performance measurements of the NWDAF are defined as the number of notifications received by NWDAF. Since the Data Source and the services used are different, the number of notifications is defined based on the Data Source.

The number of notifications received by NWDAF from NFs for Data Collectioncan be measured as follows:

- When the NWDAF receives the Nnf\_EventExposure\_Notify service operation from NF (See TS 23.288 [2]), each received notifications is added to the relevant subcounter per data source.

The number of notifications received by NWDAF from AF via NEF for Data Collection can be measured as follows:

- When the NWDAF receives the Nnef\_EventExposure\_Notify service operation from NEF (See TS 23.288 [2]), each received notifications is added to the relevant subcounter per data source.

Editor's Note: This clause provides details of the potential solution and any assumptions made.

|  |
| --- |
| **End of Modified Sections** |