**3GPP TSG-SA5 Meeting #152 *S5-23XXXX***

**Chicago, US, 13-17 November 2023**

**Source: OPPO**

**Title: New WID on charging aspects of AIML in 5GS**

**Document for: Approval**

**Agenda Item: X.Y**

3GPP™ Work Item Description

Information on Work Items can be found at <http://www.3gpp.org/Work-Items>
See also the [3GPP Working Procedures](http://www.3gpp.org/specifications-groups/working-procedures), article 39 and the TSG Working Methods in [3GPP TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm)

Title: Charging aspects of AIML in 5GS

Acronym: 5GAIMLsys\_CH

Unique identifier:

Potential target Release: Rel-18

# 1 Impacts

{For Normative work, identify the anticipated impacts. For a Study, identify the scope of the study}

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Affects: | UICC apps | ME | AN | CN | Others (specify) |
| Yes |  |  |  | X |  |
| No | X | X | X |  |  |
| Don't know |  |  |  |  | X |

# 2 Classification of the Work Item and linked work items

## 2.1 Primary classification

### This work item is a …

|  |  |
| --- | --- |
|  | Study  |
|  | Normative – Stage 1 |
| X | Normative – Stage 2 |
| X | Normative – Stage 3 |
|  | Normative – Other\* |

**\* Other = e.g. testing**

## 2.2 Parent Work Item

For a brand-new topic, use “N/A” in the table below. Otherwise indicate the parent Work Item.

N/A.

|  |
| --- |
| Parent Work / Study Items  |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
|  |  |  |  |

### 2.3 Other related Work Items and dependencies

|  |
| --- |
| Other related Work /Study Items (if any) |
| Unique ID | Title | Nature of relationship |
| 980019 | System Support for AI/ML-based Services | SA2 Rel-18 WID for 5GS System Support for AI/ML-based Services |
|  |  |  |
|  |  |  |

# 3 Justification

The TS 23.501 [6] states: “At the time or during the AI/ML operation. e.g., Federated Learning, the AF may request the serving NEF to provide QoS for a list of UEs, each UE identified by its UE IP address. The AF may subscribe to QoS Monitoring which may include also Consolidated Data Rate monitoring as described in clause 5.45 and in clause 4.15.6.13 of TS 23.502 [7] for those AF requests for QoS that result in a successful resource allocation. The AF provides QoS parameters that are derived from the performance requirements listed in clause 7.10 of TS 22.261 [1].” Furthermore, TS 23.502 [7], clause 4.15.6.13 Multi-member AF session with required QoS defines the procedures for such QoS monitoring, e.g. defines the following: “The AF which controls the Multi-member AF Session with required QoS invokes the Nnef\_AFSessionWithQoS\_Update Request to update the list of UE addresses and/or to update the QoS and/or to update the QoS monitoring and/or to update the Consolidated Data Rate monitoring.”

These procedures might assist the AF e.g. in order to decide which UEs are appropriate for AI/ML operation a.g. Federated Learning operation.

TS 32.254 [3] defines how NEF based charging reporting can be done once NEF is triggered by a new service request received from AF: “converged charging may be performed by the NEF interacting with CHF using Nchf specified in TS 32.290 [4] and TS 32.291 [5]. In order to provide the data required for the management activities outlined in TS 32.240 [2] (Credit-Control, accounting, billing, statistics etc.), the NEF shall be able to perform converged charging for the northbound API access. The Charging Data Request and Charging Data Response are exchanged between the NEF and the CHF, based on PEC, either IEC or ECUR scenarios specified in TS 32.290 [4]. The Charging Data Request is issued by the NEF towards the CHF when certain conditions (chargeable events) are met. The selection of the CHF can be configured in the NEF but may also rely on NRF.”

The Charging Data Request sent by NEF may include NEF API Charging Information for the NEF API specific information. Currently, the list of UEs parameter(s) is not part of NEF API Charging Information. Also, e.g. Consolidated Data Rate, considered as an important information does not exist in the parameters definition.

Therefore, it is needed to enhance NEF API Charging Information in order to support NEF based charging for AI/ML services. Such a NEF charging reporting enhancements will allow Charging Function to be aware of the e.g. AI/ML Federated Learning operation and support e.g. billing, credit control, statistics etc. for the purposes of appropriate engagement between e.g. the Service Provider and e.g. the provider of AI/ML Service.

# 4 Objective

The objective of this work item is to specify NEF based charging enhancements related to AIML implementation in the 5GS.

This work will be based on the Discussion paper S5-236275 presented and endorsed during SA WG5 meeting#151.

# 5 Expected Output and Time scale

|  |
| --- |
| New specifications {One line per specification. Create/delete lines as needed} |
| Type  | TS/TR number | Title | For info at TSG#  | For approval at TSG# | Rapporteur |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

|  |
| --- |
| Impacted existing TS/TR {One line per specification. Create/delete lines as needed} |
| TS/TR No. | Description of change  | Target completion plenary# | Remarks |
| TS 32.254  | Enhancement of the NEF based charging to support AI/ML related parameters | TSG SA#102(Dec 2023) |  |
| TS 32.290 | Services, operations and procedures of charging using Service Based Interface (SBI) | TSG SA#102(Dec 2023) |  |
| TS 32.291 | 5G system, charging service;Stage 3 | TSG SA#102(Dec 2023) |  |
| TS 32.298 | Charging Data Record (CDR) parameter description | TSG SA#102(Dec 2023) |  |
|  |  |  |  |

# 6 Work item Rapporteur(s)

Alla Goldner, OPPO, v-alla.goldner@oppo.com

# 7 Work item leadership

SA5

# 8 Aspects that involve other WGs

None

# 9 Supporting Individual Members

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| --- |
| Supporting IM name |
| OPPO |
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