**TSG SA Rel-18 Prioritization Workshop SP-211174**

**9-10 December 2021, Electronic meeting (Revision of SP-211159)**

**SA WG2 Meeting #S2-148ES2-2109327**

**15 - 19 November, 2021, E-Meeting (Revision of S2-2108437r02**)

Source: China Telecom, CATT, China Mobile, China Unicom, Ericsson, Huawei, Intel, Oracle, Tencent, vivo, ZTE, CAICT, CEPRI, Inspur, Vodafone, Facebook, Charter, Telstra

Title: New SID on enhancement of 5G AM Policy

Document for: Approval

Agenda Item: 9.1.5

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:

New SID on enhancement of 5G AM Policy

Acronym:

FS\_eAMP

Unique identifier:

{A number to be provided by MCC at the plenary}

Potential target Release: *Rel-18*

# 1 Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 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 …

|  |  |
| --- | --- |
|  | Feature |
|  | Building Block |
|  | Work Task |
| X | Study Item |

## 2.2 Parent Work Item

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

|  |  |  |  |
| --- | --- | --- | --- |
| 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 |
| 910081 | Dynamically Changing AM Policies in the 5GC | Rel-17 SA2 2 work item. |

Dependency on non-3GPP (draft) specification:

# 3 Justification

The access and mobility policy control introduced in 5G encompasses the management of service area restrictions, the management of the RFSP functionalities, the management of the UE-AMBR, the management of the UE Slice-MBR and the management of the SMF selection by PCF.

Some potential enhancements for study in AM policy are identified based on the Rel-17 SA2 issues and requirements:

* AM Policy is only provided by PCF to AMF in 4G/5G interworking scenario and not supported in EPC. In some scenarios, RFSP index may be updated to direct a UE from 5G to 4G, while the subscription data or locally configured policy of the UE is of 5G prioritization. Because the MME is not able to receive RFSP Index update from PCF, the ping-pong issue is likely to happen if the network delivered different RFSP Index in 4G and 5G. Detailed description may refer to Discussion Paper S2-2103936 “Discussion on PCF providing RFSP Index to MME/RAN”. If it keeps the “back to 4G” RFSP index from 5G to 4G, the core network has no way to ask the UE to come back to 5G. As such, mechanism needs to be investigated to support AM policy update for the EPC side.
* As conclusion from DCAMP, the PCF serving a UE may receive notification from AF or from PCF(s) serving a PDU session that specific application traffic starts/stops, and then trigger AM policy check and update. More than one application is likely to be notified as “active” at the same time. However, the solution in R17 is only applicable to non-roaming scenario. In the real network, the AF may not aware the target UE or group of UEs is in roaming state or not. To support AF’s requirement can be applied to a roaming UE, especially in HR scenario where PCF for UE and the PCF for PDU session belong to different PLMN, a dynamic mechanism needs to be investigated for the notification of application detection from H-PCF(SM) to V-PCF(AM).
* In clause 6.1.2 of TS23.503, it mentions:

*The PCF modifies the RFSP Index based on operator policies that take into consideration e.g.* ***accumulated usage****, load level information per network slice instance, the indication that high throughput is desired for a specific application traffic or independently of the application in use and other information.*

Whether the accumulated usage impacts other AM policies is not covered yet. One the other hand, up to R17, it defines how the PCF for PDU session interact with SMF for usage monitoring report for session related policy decisions. However, it does not elaborate on how PCF for UE could retrieve usage monitoring report when PCF for PDU session and PCF for UE are not the same one.

# 4 Objective

**Objective 1:** Study the current mechanisms to provide AM policy control when UE moves from/to 5GC to/from EPC and define enhancements in current mechanism if needed.

**Objective 2:** Investigating the support of DCAMP in roaming scenarios.

**Objective 3:** Study the mechanism to allow PCF for the UE to make AM policy decision based on UE’s accumulated usage other than RFSP index value. The study will cover aspects when the PCF for the UE and the PCF for the PDU Sessions of a UE are different PCFs.

## TU estimates and dependencies

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Work Task ID | TU Estimate  (Study) | TU Estimate  (Normative) | RAN Dependency  (Yes/No/Maybe) | Inter Work Tasks Dependency  Editor’s Note: This column should highlight if WT#x is self-contained, or is depended on completion of other WTs |
| Objective 1 | 1 | 0.5 | No | Self-contained |
| Objective 2 | 1 | 0.5 | No | Self-contained |
| Objective 3 | 1 | 0.5 | No | Self-contained |

Total TU estimates for the study phase: 3

Total TU estimates for the normative phase: 1.5

Total TU estimates: 3+1.5= 4.5

# 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 |
| Internal TR | 23.XXX | Study on enhancement of 5G AM Policy | TSG#96  (June, 2022) | TSG#97  (Sep, 2022) | Zhuoyi Chen, China Telecom (chenzy34@chinatelecom.cn) |
|  |  |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Impacted existing TS/TR {One line per specification. Create/delete lines as needed} | | | |
| TS/TR No. | Description of change | Target completion plenary# | Remarks |
| {e.g. "22.281"} | {Possible values:  - either free text (e.g. “CS aspects to be removed")  - or “Specification to be withdrawn”} | {e.g. "TSG#89"} | {Free text} |
|  |  |  |  |

# 6 Work item Rapporteur(s)

Chen, Zhuoyi, China Telecom, chenzy34@chinatelecom.cn

# 7 Work item leadership

SA2

# 8 Aspects that involve other WGs

None.

# 9 Supporting Individual Members

|  |
| --- |
| Supporting IM name |
| China Telecom |
| CATT |
| China Mobile |
| China Unicom |
| Ericsson |
| Huawei |
| Intel |
| Oracle |
| Tencent |
| vivo |
| ZTE |
| CBN |
| CAICT |
| CEPRI |
| Inspur |
| Vodafone |
| Facebook |
| Charter |
| Telstra |