**SA WG2 Meeting #S2-147ES2-2107271**

**18 - 22 October, 2021, Electronic meeting** (revision of SP-211002)

**Source: China Mobile, AT&T, Vodafone, CATT, Tencent, Deutsche Telekom, SK Telecom, Sandvine, Matrixx**

**Title: New SID on Study on UPF enhancement for Exposure and SBA**

**Document for: Approval**

**Agenda Item: 9.1.3**

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: Study on UPF enhancement for Exposure And SBA

Acronym: FS\_ UPEAS

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 |  | X |
| Don't know |  |  |  |  |  |

# 2 Classification of the Work Item and linked work items

## 2.1 Primary classification

### This work item is a …

{Tick one box. "**Feature** / **Building Block** / Work Task" form a hierarchical structure. E.g. no Building Block can be proposed without a corresponding parent Feature. The full structure of all existing Work Items is shown in the 3GPP Work Plan in <ftp://ftp.3gpp.org/Information/WORK_PLAN>}

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

## 2.2 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

{List here other Work Items which relate to the proposed one, such as a Work Item in an earlier Release if further enhancing the feature from the previous Release)}

|  |  |  |
| --- | --- | --- |
| Other related Work /Study Items (if any) | | |
| Unique ID | Title | Nature of relationship |
| 790007 | Study on Enhancements to the Service-Based 5G System Architecture  (Release 16) | Study of extending SBA to user plane but without standardization |

# 3 Justification

The aim of this study is to support better integration of UPF into the 5GC SBA, by enhancing the following:

1) Avoiding duplicate data transfer and reducing transmission path

* Example 1: PCF services can directly subscribe/unsubscribe on UPF services for QoS monitoring latency report.

2) Retrieving the original status or real-time service flow information from UPF:

* Example 2: NWDAF services can subscribe/unsubscribe to UPF for retrieving real-time service flow information e.g., to facilitate data collection and analysis considering efficient sampling intervals for the different services.

3) UPF event exposure:

* Example 3: 5G IoT solutions would require interfacing of UPF to NEF/Local NEF for network information exposure to an application server.

# 4 Objective

The study item will consider the following aspects to support better integration of UPF into the 5GC SBA:

WT#1: Study UPF event exposure service(s) registration/deregistration, and discovery via the NRF.

WT#2: Study UPF event exposure service(s) that would support, e.g.

- Exposure of UPF services to the, PCF, NWDAF, CHF, NEF, Trusted AF.

- (To support exposure service if needed) Use of SMF services, PCF services, NWDAF services, CHF services, NEF services, Trusted AF services by the UPF.

- Relevant Event IDs.

WT#3: Study and evaluate usage of UPF event exposure service(s) and potential architectural impacts

NOTE 1: SMF is responsible for controlling UPF packet processing.

NOTE 2: The performance of UP traffic handling shall not be degraded due to mechanisms defined in this study.

NOTE 3: The study shall address generic UPF data exposure mechanisms via SBA based mechanisms, and the coordination with other SIDs for this aspect may be needed in study phase.

This study shall maintain the Rel-17 backward compatibility on the N3, N6, N9 interfaces.

## 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 |
| WT#1 | 0.5 | 0.5 | No | WT#1 is self-contained |
| WT#2 | 1.5 | 1 | No | WT#2 is self-contained |
| WT#3 | 1.5 | 0.5 | No | WT#3 is depended on WT#2. |

Total TU estimates for the study phase: 3.5

Total TU estimates for the normative phase: 2

Total TU estimates: 3.5 + 2 =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.abc | Study on UPF enhancement for Exposure And SBA | TSG SA#96  June  2022(TBD) | TSG SA#97  Sep  2022(TBD) | Dan Wang, China Mobile, [wangdanyjy@chinamobile.com](mailto:wangdanyjy@chinamobile.com) |

{Note 1: Only TSs may contain normative provisions. Study Items shall create or impact only TRs.  
"Internal TR" is intended for 3GPP internal use only whereas "External TR" may be transposed by OPs.}

{Note 2: The first listed Rapporteur is the specification primary Rapporteur. Secondary Rapporteur(s) are possible for particular aspect(s) of the TS/TR. In this case, their responsibility has to be provided as "Remarks".}

|  |  |  |  |
| --- | --- | --- | --- |
| Impacted existing TS/TR {One line per specification. Create/delete lines as needed} | | | |
| TS/TR No. | Description of change | Target completion plenary# | Remarks |
|  |  |  |  |
|  |  |  |  |

# 6 Work item Rapporteur(s)

Dan Wang, China Mobile, [wangdanyjy@chinamobile.com](mailto:wangdanyjy@chinamobile.com)

# 7 Work item leadership

SA2

# 8 Aspects that involve other WGs

Charging aspects will be addressed by SA5.

# 9 Supporting Individual Members

|  |
| --- |
| Supporting IM name |
| China Mobile |
| AT&T |
| CATT |
| Deutsche Telekom |
| Sandvine |
| SK Telecom |
| Tencent |
| Vodafone |
| Matrixx |
| Charter Communications |
| Verizon UK Ltd |
| Intel |
| KDDI |
| Samsung |
| Orange |