**3GPP TSG-CT WG4 Meeting #106-eC4-215**

**E-Meeting, 11th – 15th October 2021**

**Source: China Mobile**

**Title: Pseudo-CR on Service Introduction**

**Spec: 3GPP TS 29.564 v0.1.0**

**Agenda item: 6.1.9**

**Document for: Decision**

**1. Introduction**

<Introduction part (optional)>

**2. Reason for Change**

Service introduction section is still missing.

**3. Conclusions**

<Conclusion part (optional)>

**4. Proposal**

It is proposed to agree the following changes to 3GPP TS 29.564 v0.1.0.

\* \* \* First Change \* \* \* \*

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 23.501: "System Architecture for the 5G System; Stage 2".

[3] 3GPP TS 23.502: "Procedures for the 5G System; Stage 2".

[4] 3GPP TS 29.500: "5G System; Technical Realization of Service Based Architecture; Stage 3".

[5] 3GPP TS 29.501: "5G System; Principles and Guidelines for Services Definition; Stage 3".

[6] OpenAPI: "OpenAPI Specification Version 3.0.0", <https://spec.openapis.org/oas/v3.0.0>.

[7] 3GPP TR 21.900: "Technical Specification Group working methods".

[8] 3GPP TS 33.501: "Security architecture and procedures for 5G system".

[9] IETF RFC 6749: "The OAuth 2.0 Authorization Framework".

[10] 3GPP TS 29.510: "5G System; Network Function Repository Services; Stage 3".

[11] IETF RFC 7540: "Hypertext Transfer Protocol Version 2 (HTTP/2)".

[12] IETF RFC 8259: "The JavaScript Object Notation (JSON) Data Interchange Format".

[13] IETF RFC 7807: "Problem Details for HTTP APIs".

[14] 3GPP TS 23.548: "5G System Enhancements for Edge Computing; Stage 2".

[15] 3GPP TS 29.244: "Interface between the Control Plane and the User Plane Nodes; Stage 3".

[16] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces; Stage 3".

\* \* \* Next Change \* \* \* \*

# 5 Services offered by the UPF

## 5.1 Introduction

The UPF offers the following services via the Nupf interface:

- Nupf\_EventExposure Service

Table 5.1-1 summarizes the corresponding APIs defined for this specification.

Table 5.1-1: API Descriptions

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Service Name** | **Clause** | **Description** | **OpenAPI Specification File** | **apiName** | **Annex** |
| Nupf\_EventExposure | 6.1 | UPF Event Exposure Service | TS29564\_Nupf\_EE.yaml | nupf-ee | A.2 |

## 5.2 Nupf\_EventExposure Service

### 5.2.1 Service Description

The Nupf\_EventExposure service enables the UPF to expose UPF related information to the service consumers, e.g. local NEF, AF. Via Nupf\_EventExposure service the UPF exposes the UPF related information in the following manners:

- Subscribe/Notify:

The NF service consumers create the subscription on the event of interest via SMF. When required, the SMF instructs the UPF to report QoS Monitoring events directly to a local NEF or AF via N4 interface as specified in 3GPP TS 29.244 [15]. Upon the event of interest the UPF sends notification directly to the local NEF or AF via Nupf interface.

The event notification may contain following information:

- QoS Monitoring report, e.g. end to end delay for a specific QoS flow of a PDU session.

NOTE: In the current release direct subscription from NF service consumer to UPF is not supported.

### 5.2.2 Service Operations

#### 5.2.2.1 Introduction

The service operations defined for the Nupf\_EventExposure service are as follows:

- Subscribe: This is a pseudo operation, the actual subscription to the event is created via N4 interface.

NOTE: In the current release OpenAPI 3.0.0 is adopted, with OpenAPI 3.0.0 it is not possible to document a stand-alone callback operation, thus the Notify operation has to be defined in combination with a Subscribe operation.

- Notify: It allows the UPF to send event notifications directly to NF service consumers, e.g. local NEF, AF.

NOTE: Subscribe service operation is not defined in this release.

#### 5.2.2.2 Subscribe

This is a pseudo operation, the UPF does not actually provide Subscribe service operation through Nupf\_EventExposure service. The subscription on the UPF is created via N4 interface.

#### 5.2.2.3 Notify

##### 5.2.2.3.1 General

This service operation is used by the UPF to send the following kinds of event notification:

- Periodic notification on the downlink packet delay, uplink packet delay, and/or the round trip packet delay between the UPF (PSA) and UE;

- Event triggered notification on the downlink packet delay, uplink packet delay, and/or the round trip packet delay between the UPF (PSA) and UE, i.e. when the packet delay exceeds a defined threshold;

- Notification on the downlink packet delay, uplink packet delay, and/or the round trip packet delay between the UPF (PSA) and UE when the PDU session is released.

The subscription corresponding to the notification is created by the SMF via N4 interface, see clause 5.33.5 of 3GPP TS 29.244 [15].

##### 5.2.2.3.2 UPF sends notification on QoS monitoring



Figure 5.2.2.3.2-1: UPF sends notification on QoS monitoring

1. The UPF shall send a POST request to the eventNotificationUri as provided by the SMF during the provisioning of Session Reporting Rule (see clause 7.5.2.9 of 3GPP TS 29.244 [15]).

2a. Upon success, the NF Service Consumer responds with "204 No Content".

2b. On failure or redirection:

- If the NF Service Consumer does not consider the "eventNotificationUri" as a valid notification URI, the NF Service Consumer shall return "404 Not Found" status code with the ProblemDetails IE providing details of the error.

- In the case of redirection, the NF service consumer shall return 3xx status code, which shall contain a Location header with an URI pointing to the endpoint of another NF service consumer endpoint.

\* \* \* End of Changes \* \* \* \*