**3GPP TSG-SA WG6 Meeting #49-bis-e S6-221561**

**e-meeting, 22nd June – 1st July 2022 (revision of S6-221102)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **23.434** | **CR** | **0104** | **Rev** | **1** | **Current version:** | **18.1.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | SEAL Notification Management service – Functional Model | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Samsung, AT&T | | | | | | | | | |
| ***Source to TSG:*** | S6 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | eSEAL2 | | | | |  | ***Date:*** | | | 2022-06-16 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-18 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Many of the applications requires notification functionality and its becoming a more common functionality. The 3GPP document TS 23.434 has identified many set of common services (e.g., group management, configuration management, location management) which is used by many verticals and provided a functional architecture for SEAL and the procedures, information flows and APIs for each service within SEAL in order to support vertical applications over the 3GPP system. Notification Management service is a base service needed by many verticals and hence SEAL needs to have it enabled. Currently eEDGEAPP requires the notification functionality which is being studied as part of 3GPP TR 23.700-98. We already have a notification service integrated into the MCData service (See TS 23.282 Section 6.4.1, 7.13.3.17.3).  This CR aims to make the notification mechanism as SEAL service so that it can be used by eEDGEAPP and thus offloading the notification logic from the edge enabler layer. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Introduces notifiction management as seal service and in particular this CR introdices functional model and reference points for the notification management. Functional model proposed here in this CR is similar in nature to all other existing SEAL service’s functional model. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Notification service needs to be implemented at every VAL layer which requires notification functionality which is redundant and waste of effort. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 17(New) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

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

# 17 Notification Management

## 17.1 General

The notification management is a SEAL service that offers the notification functionality to one or more verticals. This service enables VAL clients to subscribe and receive notifications from the VAL servers and thereby offloading the complexity of delivery and reception of notifications to the enabler layer. It provides common notification delivery service to vertical applications.

## 17.2 Functional model

### 17.2.1 General

The functional model for the notification management is based on the generic functional model specified in clause 6.2. It is organized into functional entities to describe a functional architecture which addresses the notification management aspects required for vertical applications. Since the notification management is a feature which considers the Uu interfaces, only the on-network functional model is specified in this clause.

### 17.2.2 Functional model description

Figure 17.2.2-1 illustrates the generic functional model for notification management.



Figure 17.2.2-1: Functional model for notification management

The notification management client communicates with the notification management server over the NM-UU reference point. The notification management client provides the support for notification management functions to the VAL client(s) over NM‑C reference point. The VAL server(s) communicates with the notification management server over the NM-S reference point for delivering the notification messages which is targeted for the VAL client(s). Notification management server sends these notification messages to the notification management client either through NM-UU interface for direct delivery (e.g. Long-polling, WebSocket) or through the OEM PUSH server for indirect delivery (e.g. FCM, APNS, OMA PUSH) which is implementation specific and outside the scope of this specification.

### 17.2.3 Functional entities description

#### 17.2.3.1 General

The functional entities for notification management service are described in the following subclauses.

#### 17.2.3.2 Notification Management client

The notification management client functional entity acts as the application client for notification management aspects. It interacts with the notification management server. It handles the notification messages received from the notification management server and deliver it to the corresponding VAL clients residing on the VAL UE.

The notification management client functional entity is supported by the HTTP client functional entities of the signalling control plane.

#### 17.2.3.3 Notification Management server

The notification management server is a functional entity that handles the notification management aspects by interacting with the notification management client and the VAL servers. The notification management server receives the notification messages from the vertical application layer and delivers it to the notification management client.

Editor's note: Notification management server acting as CAPIF’s API exposing function as specified in 3GPP TS 23.222 [8] is FFS.

### 17.2.4 Reference points description

#### 17.2.4.1 General

The reference points for the functional model for notification management are described in the following subclauses.

#### 17.2.4.2 NM-UU

The interactions related to notification management functions between the notification management client and the notification management server are supported by NM-UU reference point. This reference point utilizes Uu reference point as described in 3GPP TS 23.401 [9] and 3GPP TS 23.501 [10].

#### 17.2.4.3 NM-C

The interactions related to notification management functions between the VAL client(s) and the notification management client within a VAL UE are supported by NM-C reference point.

#### 17.2.4.4 NM-S

The interactions related to notification management functions between the VAL server(s) and the notification management server are supported by NM-S reference point.

Editor's note: NM-S reference point using CAPIF-2 reference point as specified in 3GPP TS 23.222 [8] is FFS.

\* \* \* End Change \* \* \* \*