**3GPP SA WG2 Meeting** **#160 S2-2312397**

**Chicago, November 13 – 17, 2023 (was S2-232137)**

**Source: Ericsson**

**Title: KI 1: IMS Event Framework**

**Document for: Discussion/Approval**

**Agenda Item: 19.2**

**Work Item / Release: FS\_NG\_RTC\_Ph2**

*Abstract of the contribution: This contribution proposes a new solution to KI #1.*

# Proposal

It is proposed to accept the following changes to TR 23.700-77

**FIRST CHANGE**

## 6.X Solution # X: Architectural Enhancements in Support of exposure of IMS events.

### 6.X.1 Description

In this solution, trusted and untrusted Application Servers subscribe to events of interest via the NEF. DCSF subscribes to events of interest directly with the IMS AS instance(s) serving the subscriber(s)

Editor’s Note: It is FFS how the DCSF acquires the IMS AS instance serving a subscriber.

To support the above, once an IMS subscriber successfully registers in IMS, the IMS AS registers in HSS the IMS AS instance allocated for the subscriber using an enhanced Nhss\_imsUECM service over N71 for that purpose.

NOTE: IMS AS supporting Data Capability are the ones registering the IMS AS instance in HSS. Operator policy and Configuration can be used to register other IMS AS instances in HSS.

Editor’s Note: The use of Diameter for registering the IMS AS instance in HSS is FFS.

An AF subscribes to NEF for an IMS event for a subscriber via a new service Nnef\_imsEE, over N33. The NEF in turns forwards such a subscription request to HSS via a new service Nhss\_imsEE, over Nxx.

HSS locates the IMS AS instance allocated for every subscriber targeted for the IMS event. HSS subscribes for the event for the identified IMS AS instance via a new service Nimsas\_imsEE, over N71. For unregistered UEs, the HSS keeps the subscription request and subscribes to the requested IMS event when the UE registers in IMS.

Upon detection of the requested IMS event, the IMS AS notifies the event directly to the NEF via a new service Nimsas\_imsEE, over Nyy.

The architecture depicting the solution is shown in Figure 6.X.1-1 below.

Figure 6.X.1-1includes the following reference points:

* N33 is enhanced to enable an AF to subscribe to, and receive notifications about the requested IMS event via the NEF.

- A new reference point between NEF and HSS is introduced to enable NEF to subscribe to HSS for specific IMS events for a specific subscriber. This reference point is labelled Nxx.

* N71 is enhanced to enable HSS to receive registration of an IMS AS instance allocated for a specific subscriber upon initial IMS registration and to subscribe to the IMS AS instance of a specific subscriber for an IMS event.
* A new reference point between IMS AS and NEF is introduced to enable IMS AS to send notifications regarding subscribed IMS events to the NEF. This reference point is labelled Nyy.

Editor’s Note: Handling of exposure of IMS events for a group of IMS subscribers is FFS.

Editor’s Note: The subscription by NEF to the IMS AS instance directly and the acquisition by NEF of the IMS AS instance is another variant of this solution and should be documented in a different solution.



Figure 6.X.1-1 : IMS Event Framework

Editors Note: The inclusion of DCSF subscription aspects is FFS.

### 6.X.2 Procedures

Figure 6.X.2-1 depicts a typical call flow for an AF subscribing to an IMS event for a UE.

1. UE performs initial IMS Registration.
2. S-CSCF performs third party Registration with the IMS AS instance allocated to the registering UE.
3. IMS AS registers in HSS using Nhss\_imsUECM\_Registration operation the IMS AS instance allocated to the UE.
4. AF subscribes to NEF initiating the Nnef\_imsEE\_Subscribe Request for a specific IMS event.
5. NEF subscribes to HSS using the Nhss\_imsEE\_Subscribe Request for a specific IMS event.
6. HSS locates the IMS AS instance(s) serving the UE.
7. HSS subscribes to the IMS AS instance(s) serving the UE using Nimsas\_imsEE\_Subscribe Request for the requested IMS event.
8. IMS AS returns to HSS the Nimsas\_imsEE\_Subscribe Response
9. HSS returns to NEF the Nhss\_imsEE\_Subscribe Response.
10. NEF returns to AF the Nnef\_imsEE\_Subscribe Response
11. At some point, the requested event for the UE is detected by the IMS AS. The IMS AS sends an Nimsas\_imsEE\_Notify Request to NEF
12. NEF sends to AF Nnef\_imsEE Notify Request.



6.X.2.1 AF Subscription to IMS events

Editor’s Note: The mapping of services/operations depicted in the above call flow to modified or new reference points various reference points in Figure 6.X.1-1 is FFS.

### 6.X.3 Impacts on services, entities and interfaces

Editors Note: Additional impacts are FFS.

HSS impacts:

* Stores IMS AS instance serving a UE at initial IMS registration.
* Receive subscription from NEF for a UE for IMS related events.
* Subscribe to an IMS AS instance for a UE for IMS related events on behalf of the NEF.

IMS AS:

* Registering the IMS AS instance serving a UE at IMS initial registration
* Receive subscription from HSS for a UE for IMS related events.
* Send notifications of requested IMS events to the NEF.

NEF:

* Receive subscription from AFs for a UE for IMS related events.
* Subscribe to HSS for a UE or a group of UEs for IMS related events.
* Receive notifications of requested IMS events from the IMS AS.
* Send notifications of requested IMS events to the AF.
* **NEXR CHANGE**

## 6.0 Mapping of Solutions to Key Issues

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| --- | --- | --- | --- | --- |
|  | Key Issues | | | |
| Solutions | 1 |  |  |  |
| X | X |  |  |  |
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**END OF CHANGES**