3GPP TSG SA WG5 Meeting 134-e TDoc S5-205122rev1

**electronic meeting, online, 16th - 25th November 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **32.260** | **CR** | **0407** | **rev** | **1** | **Current version:** | **16.x.0** |  |
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| *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)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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|  | | | | | | | | | | |
| ***Title:*** | Add service based architecture for offline charging | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5GSIMSCH | | | | |  | ***Date:*** | | | 2020-11-05 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
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| ***Reason for change:*** | | Offline charging architecture for IMS service based charging is missing. | | | | | | | | |
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| ***Summary of change:*** | | Adding Offline charging architecture options for IMS service based charging. | | | | | | | | |
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| ***Consequences if not approved:*** | | Offline charging architecture for IMS service based charging architecture options won’t be specified. | | | | | | | | |
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| ***Clauses affected:*** | | 4.2, 4.4, 5.2.2.x (new) | | | | | | | | |
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|  | | **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:*** | |  | | | | | | | | |

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| **First change** |

## 4.2 IMS offline charging architecture

The architecture for IMS offline charging is described in the following figure 4.2.1 and 4.2.2. The Rf interface is described in clause 6.1.1 and Bi in clause 6.1.2.



Figure 4.2.1: IMS offline charging architecture for Rf interface

This IMS offline only charging architecture for service based charging interface depicts in Figure 4.4.1, that service based interface (Nchf) is supported between subset of IMS nodes and CHF.

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| **Second change** |

## 4.4 IMS charging architecture for service based charging interface

This IMS charging architecture for service based charging interface depicts in Figure 4.4.1, that service based interface (Nchf) is supported between subset of IMS nodes and CHF.



Figure 4.4.1: Charging architecture of IMS for service based charging interface

The MRFC, IMS-GWF and AS may support converged charging via Nchf interface. The MRFC and SIP AS may support offline only charging via Nchf interface. The MMTel AS is described in TS 32.275 [35].

Editor’note: whether other IMS Nodes use the Nchf interface is FFS.

The general architecture components can be found in TS 32.240 [2].

Ga is described in clause 5.2.4 and Bx in clause 6.1.2 of the present document, and Nchf is described in TS 32.290 [45].

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| **Third change** |

### 5.2.2.x Applicable offline only charging triggers for IMS charging via service based interface

This clause describes the applicable charging triggers for IMS node using offline only charging service via Nchf interface.

The IMS nodes for which SIP method a charging Data Request is sent shall be operator configurable. The tables below describe all possible Charging Data Requests that might be sent from IMS nodes.

The generation of a Charging Data Request message by the IMS nodes in response to a particular "triggering SIP method" shall be operator configurable (enable or disable).

Table 5.2.2.x: Default Trigger conditions in or MRFC

| Trigger Conditions | | Trigger level | Offline only charging default category | CHF allowed to change category | CHF allowed to enable and disable | Message when "immediate reporting" category |
| --- | --- | --- | --- | --- | --- | --- |
| SIP 2xx acknowledging an SIP INVITE for initiating a multimedia ad hoc conferencing session, and no charging session exists. | | - | Immediate | Not Applicable | Not Applicable |  |
| SIP ACK acknowledging a SIP INVITE to connect an UE to the conferencing session | | - | Immediate | Not Applicable | Not Applicable | Charging Data Request [Update] |
| SIP RE-INVITE or SIP UPDATE[e.g. change in media components] | | - | Immediate | Not Applicable | Not Applicable |
| SIP BYE(NOTE 1) | | - | Immediate | Not Applicable | Not Applicable |
| Expiration of Interim | | - | Immediate | Not Applicable | Not Applicable |
| SIP BYE message (both normal and abnormal session termination cases) (NOTE 2) | | - | Immediate | Not Applicable | Not Applicable | Charging Data Request [Termination] |
| SIP CANCEL | | - | Immediate | Not Applicable | Not Applicable |
| SIP Final Response with error codes 4xx, 5xx or 6xx indicating termination of an ongoing session | | - | Immediate | Not Applicable | Not Applicable |
|  | NOTE 1: This trigger only applies to a user leaving an ongoing conferencing session  NOTE 2: This trigger only applies if this causes the ongoing conferencing session to terminate | | | | | |

Table 5.2.2.y: Default Trigger conditions in or AS

| Trigger Conditions | Trigger level | Offline only charging default category | CHF allowed to change category | CHF allowed to enable and disable | Message when "immediate reporting" category |
| --- | --- | --- | --- | --- | --- |
| SIP INVITE | - | Immediate | Not Applicable | Not Applicable | Charging Data Request [Initial]  Charging Data Request [Initial] |
| SIP 2xx acknowledging a SIP INVITE, RE-INVITE or SIP UPDATE [e.g. change in media components] | - | Immediate | Not Applicable | Not Applicable | Charging Data Request [Update] |
| RE-INVITE or SIP UPDATE [e.g. change in media components, terminating identity change] | - | Immediate | Not Applicable | Not Applicable |
| SIP BYE message (both normal and abnormal session termination cases) | - | Immediate | Not Applicable | Not Applicable | Charging Data Request [Termination] |
| SIP 2xx acknowledging a SIP BYE message (only when last user location information of originating/ terminating party is required by operator for legal purpose). | - | Immediate | Not Applicable | Not Applicable |
| SIP Final Response (4xx, 5xx or 6xx), indicating an unsuccessful SIP session set-up procedure | - | Immediate | Not Applicable | Not Applicable |
| SIP NOTIFY | - | Immediate | Not Applicable | Not Applicable | Charging Data Request [Event] |
| SIP MESSAGE | - | Immediate | Not Applicable | Not Applicable |
| SIP REGISTER | - | Immediate | Not Applicable | Not Applicable |
| SIP SUBSCRIBE | - | Immediate | Not Applicable | Not Applicable |
| SIP REFER | - | Immediate | Not Applicable | Not Applicable |
| SIP PUBLISH | - | Immediate | Not Applicable | Not Applicable |
| SIP Final Response (4xx, 5xx or 6xx), indicating an unsuccessful session-unrelated procedure | - | Immediate | Not Applicable | Not Applicable |

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| **End of changes** |