**3GPP TSG-SA5 Meeting #142-e *S5-222229rev1***

**e-meeting, 4th –12th April 2022** Revision of S5-222229

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **32.254** | **CR** | **0** | **rev** | **1** | **Current version:** | **17.0.0** |  |
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| *For* [***HELP***](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:*** | Addition of the 5G VN group management Charging Principles | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5GLAN\_CH | | | | |  | ***Date:*** | | | 2022-04-06 |
|  |  | | | |  | |  | | |  |
| ***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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
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| ***Reason for change:*** | | For the support of 5G LAN service charging, the general description about 5G VN group management and communication charging is introduced. The detailed 5G LAN service membership charging principles is required. | | | | | | | | |
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| ***Summary of change:*** | | Add the description for the support of 5G LAN service membership charging Principles. | | | | | | | | |
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| ***Consequences if not approved:*** | | The support of the 5G LAN is incomplete. | | | | | | | | |
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| ***Clauses affected:*** | | 2, Annex X.2.3(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** |

# 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 TS 32.240: "Telecommunication management; Charging management; Charging architecture and principles".

[2] – [49] Void.

[50] 3GPP TS 32.299: "Telecommunication management; Charging management; Diameter charging application".

[51] 3GPP TS 32.298: "Telecommunication management; Charging management; Charging Data Record (CDR) parameter description".

[52] 3GPP TS 32.297: "Telecommunication management; Charging management; Charging Data Record (CDR) file format and transfer".

[53] 3GPP TS 32.296: "Telecommunication management; Charging management; Online Charging System (OCS): Applications and interfaces".

[54] 3GPP TS 32.295: "Telecommunication management; Charging management; Charging Data Record (CDR) transfer".

[55] – [56] Void.

[57] 3GPP TS 32.290: "Telecommunication management; Charging management; 5G system; Services, operations and procedures of charging using Service Based Interface (SBI)".

[58] 3GPP TS 32.291: "Telecommunication management; Charging management; 5G system; Charging service, stage 3".

[59] – [99] Void.

[100] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[101] – [199] Void

[200] 3GPP TS 23.501:"System Architecture for the 5G System".

[201] 3GPP TS 23.502:"Procedures for the 5G System".

[202] – [229] Void

[230] 3GPP TS 29.122: "T8 reference point for northbound Application Programming Interfaces (APIs)".

[231] – [235] Void

[236] 3GPP TS 29.503: "5G System; Unified Data Management Services; Stage 3".

[237] – [242] Void

[243] 3GPP TS 23.682: "Architecture enhancements to facilitate communications with packet data networks and applications".

[244] – [299] Void

[300] – [399] Void.

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| **Next change** |

### X.2.3 Charging principles and scenarios

#### X.2.3.1 Basic principles

5G VN group management charging is performed by the NEF or CEF interacting with CHF using Nchf specified in TS 32.290 [57] and TS 32.291 [58]. In order to provide the data required for the charging management activities, the converged charging can be performed for each of the following:

- The CEF are able to get the 5G VN group information (e.g. GroupIdentifiers) from UDM via Nudm\_SubscriberDataManagement service, specified in the TS 23.502 [214] and TS 29.503[236]. The Charging Data Request and Charging Data Response are exchanged between the CEF and the CHF, based on PEC scenarios as specified in TS 32.290 [57]. The Charging Data Request is issued by the CEF towards the CHF when certain conditions (chargeable events) are met.

- The NEF are able to report the 5G VN group information (e.g. add/delete 5G VN Group members) to CHF based on the API invocation and API notification chargeable events. The interaction between NEF and CHF are specified in the clause 5.4.

In order to avoid the duplicate charging, the NEF based and CEF based 5G VN group management charging will not be invoked at the same time, which depend on the implementation based on the operator policy.

The 5G VN group management charging information is collected per VN group. The message contents and purpose of each charging event that triggers interaction with CHF, as well as the chargeable events that trigger them, are described in following clauses.

A detailed formal description of the converged charging parameters to CHF defined in the present document can be found in TS 32.291 [58].

A detailed formal description of the CDR parameters defined in the present document can be found in TS 32.298 [51].

#### X.2.3.2 Applicable triggers in 5G VN group management charging

##### X.2.3.2.1 5G VN group management charging via UDM

A set of trigger conditions are defined for the CEF to invoke a Charging Data Request [Event] towards the CHF.

Table X.2.3.2.1-1 summarizes the set of default trigger conditions and their category which shall be supported by the CEF.

Table X.2.3.2.1-1: Default Trigger conditions in CEF

| Trigger Conditions | Trigger level | Default category | CHF allowed to change category | CHF allowed to enable and disable | Message when "immediate reporting" category |
| --- | --- | --- | --- | --- | --- |
| Receive the 5G VN group information from UDM | - | Immediate | Not Applicable | Not Applicable | Charging Data Request [Event] |

##### X.2.3.2.2 5G VN group management charging via NEF

API invocation (i.e. 5GLANParameterProvision API) is used for the NEF to invoke a Charging Data Request [Event] towards the CHF.

When the NEF performs 5G LAN group management charging, the NEF reports 5G VN group management API charging to the CHF after receiving a 5G VN group service invocation message. The CHF performs 5G VN group management charging based on the reporting.

#### X.2.3.3 Message flows

##### X.2.3.3.1 5G VN group management charging via UDM

The following message flow specifies the interaction between the CEF and the CHF for 5G VN group management charging. This interaction is based on Charging Data Request /Response specified in TS 32.290 [57].



Figure X.2.3.3.1-1: Message flow for CEF interation for 5G VN group charging---PEC

1. The CEF decides to get the 5G VN group management information based on the charging requirement.

2. The CEF sends the 5G VN group management information Request to the UDM via Nudm\_SubscriberDataManagement service.

3. The UDM sends the 5G VN group management information successful Response to the CEF, including current VN group information, e.g. the Internal Group ID, External Group ID, and UE Id List.

3ch-a. The CEF sends Charging Data Request [Event] to CHF for 5G VN group management information.

3ch-b. The CHF creates a CDR.

3ch-c. The CHF acknowledges by sending Charging Data Response [Event] to the CEF.

##### X.2.3.3.2 5G VN group management charging via NEF

The message flow specifies the interaction between the NEF and the CHF for 5G VN group management charging is the same with the figure 5.4.2.6 API Invocation - PEC.

The NEF reports the charging information about the 5GLANParameterProvision API invocation for the addition or deletion of the UE(s) from the 5G VN group. The CHF detectes the modification of the 5G VN group and performs the charging for 5G VN group management.

#### X.2.3.4 CDR generation

The CHF CDRs for 5G VN group management charging are generated by the CHF to collect charging information that they subsequently transfer to the Charging Gateway Function (CGF).

A 5G VN group management CHF CDR is used to capture charging information related to 5G VN group management chargeable events and is generated by the CHF for each received Charging Data Request [Event].

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| **End of change** |