**3GPP TSG-SA5 Meeting # *155 S5-243055***

Jeju, South Korea, 27 - 31 May 2024

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **32.256** | **CR** | **0034** | **rev** | **1** | **Current version:** | **18.3.0** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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|  | | | | | | | | | | |
| ***Title:*** | Rel-18 CR 32.256 Correction roaming architecture decision | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson LM | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | CHRACHF | | | | |  | ***Date:*** | | | 2024-05-16 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***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:*** | | There are two charging architectures specified for the roaming case and one or both architectures in figure 4.2.2.2 and figure 4.2.2.3 of TS 32.256. AMF and V-CHF determines which architecture should be selected for a roaming UE based on operator agreement.  To apply N107 or N41, the decision logic can be made by the AMF. It can avoid a scenario where AMF makes decision on N41 and V-CHF makes decision on N107. The AMF can base the decision on wherever the CHF supports INTER\_CHF from the supported feature in the NRF.  When AMF decides to apply N107, AMF may want V-CHF to setup N107 inter-CHF charging session to H-CHF. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Introduce new attribute to enable AMF to request V-CHF or MNO CHF to setup N107 charging session to H-CHF or MVNO CHF, and an attribute to allow the CHF to report if N107 has been setup. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | May lead to interoperability issues if both N41 and N107 were to be used at the same time. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.2.1.5 and 6.2.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | | Revision of S5-242790. | | | | | | | | |

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| **First change** |

6.2.1.5 Definition of inter-CHF information

Specific charging information used for information when the V-CHF have a connection to the H-CHF.

The detailed structure of the inter-CHF Information can be found in table 6.2.1.5.1.

**Table 6.2.1.5.1: Structure of Inter-CHF Information**

|  |  |  |
| --- | --- | --- |
| **Information Element** | **Category** | **Description** |
| Remote CHF resource | OC | This field holds the reference to the Charging Data resource in the CHF not directly connected to the NF (i.e., H-CHF) e.g., the resource URI (NOTE 1) |
| Original NF Consumer Id | OC | This field holds information on the NF triggering the request i.e., AMF (NOTE 2) |
| NOTE 1: The Remote CHF resource is included in the response to the original NF if inter-CHF communication has been used.  NOTE 2: The Original NF Consumer Id is included in the request from the original NF if inter-CHF is expected to be used. | | |

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| **Second change** |

6.2.3 Detailed message format for converged charging

The following clause specifies per Operation Type the charging data that are sent by AMF for 5G connection and mobility converged charging.

The Operation Types are listed in the following order: I (Initial)/T (Termination)/E (Event). Therefore, when all Operation Types are possible it is marked as ITE. If only some Operation Types are allowed for a node, only the appropriate letters are used (i.e. IT or E) as indicated in the table heading. The omission of an Operation Type for a particular field is marked with "-" (i.e. I-E). Also, when an entire field is not allowed in a node the entire cell is marked as "-".

Table 6.2.3.1 defines the basic structure of the supported fields in the *Charging Data Request* message for AMF converged charging.

**Table 6.2.3.1: Supported fields in Charging Data Request message**

| **Information Element** | | **Functionality of AMF** | **Reg.** | | **N2 cnt** | | **Loc. Report.** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Supported Operation Types** | **I/T/E** | | **E** | | **E** | |
| Session Identifier | | | ITE | | E | | E | |
| Subscriber Identifier | | | ITE | | E | | E | |
| NF Consumer Identification | | | ITE | | E | | E | |
| Charging Identifier | | | - | | - | | - | |
| Invocation Timestamp | | | ITE | | E | | E | |
| Invocation Sequence Number | | | ITE | | E | | E | |
| Retransmission Indicator | | | - | | - | | - | |
| One-time Event | | | --E | | E | | E | |
| One-time Event Type | | | --E | | E | | E | |
| Notify URI | | | - | | - | | - | |
| Supported Features | | | I-E | | E | | E | |
| Service Specification Information | | | ITE | | E | | E | |
| Triggers | | | - | | - | | - | |
| Multiple Unit Usage | | | ITE | | - | | - | |
| AMF Identifier | | | ITE | | E | | E | |
| AMF Charging Profile | | | IT-E | | E | | E | |
| Registration Charging Information | | | | | | | | |
| Registration Message type | | | ITE | | - | | - | |
| User Information | | | ITE | | - | | - | |
| UE 5GMM Core Network Capability | | | ITE | | - | | - | |
| MICO Mode Indication | | | ITE | | - | | - | |
| SMS Supported Indication | | | ITE | | - | | - | |
| Access Type | | | ITE | | - | | - | |
| RAT Type | | | ITE | | - | | - | |
| TAI List | | | ITE | | - | | - | |
| User Location Info | | | ITE | | - | | - | |
| PSCell Information | | | ITE | | - | | - | |
| UE Time Zone | | | ITE | | - | | - | |
| Mobility Restrictions | | | ITE | | - | | - | |
| Requested NSSAI | | | ITE | | - | | - | |
| Allowed NSSAI | | | ITE | | - | | - | |
| Rejected NSSAI | | | ITE | | - | | - | |
| NSSAI mapping list | | | ITE | | - | | - | |
| Alternative NSSAI Map | | | ITE | | - | | - | |
| AMF UE NGAP ID | | | ITE | | - | | - | |
| RAN UE NGAP ID | | | ITE | | - | | - | |
| RAN Node Id | | | ITE | | - | | - | |
| SNPN ID | | | ITE | | - | | - | |
| CAG ID List | | | ITE | | - | | - | |
| Satellite Access Indicator | | | ITE | | - | | - | |
| N2 Connection Charging Information | | | | | | | | |
| N2 Connection Message type | | | - | | E | | - | |
| User Information | | | - | | E | | - | |
| User Location Info | | | - | | E | | - | |
| PSCell Information | | | - | | E | | - | |
| UE Time Zone | | | - | | E | | - | |
| RAT Type | | | - | | E | | - | |
| AMF UE NGAP ID | | | - | | E | | - | |
| RAN UE NGAP ID | | | - | | E | | - | |
| RAN Node Id | | | - | | E | | - | |
| Mobility Restrictions | | | - | | E | | - | |
| Allowed NSSAI | | | - | | E | | - | |
| NSSAI mapping list | | | - | | E | | - | |
| RRC Establishment Cause | | | - | | E | | - | |
| Satellite Access Indicator | | | - | | E | | - | |
| Location Reporting Charging information | | | | | | | | |
| Location reporting Message type | | | - | | - | | E | |
| User Information | | | - | | - | | E | |
| User Location Info | | | - | | - | | E | |
| PSCell Information | | | - | | - | | E | |
| UE Time Zone | | | - | | - | | E | |
| Presence Reporting Area Information | | | - | | - | | E | |
| RAT Type | | | - | | - | | E | |
| Satellite Access Indicator | | | - | | - | | E | |
| Inter-CHF information | | | | | | | | |
| Remote CHF resource | | | -T- | | - | | - | |
| Original NF Consumer Id | | | ITE | | E | | E | |

Table 6.2.3.2 defines the basic structure of the supported fields in the *Charging Data Response* message for AMF converged charging.

**Table 6.2.3.2: Supported fields in Charging Data Response message**

| **Information Element** | | **Functionality of AMF** | **Reg.** | | **N2 cnt** | | **Loc. Report.** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Supported Operation Types** | **ITE** | | **E** | | **E** | |
| Session Identifier | | | ITE | | E | | E | |
| Invocation Timestamp | | | ITE | | E | | E | |
| Invocation Result | | | ITE | | E | | E | |
| Invocation Sequence Number | | | ITE | | E | | E | |
| Session Failover | | | I-- | | - | | - | |
| Supported Features | | | I-E | | E | | E | |
| Triggers | | | - | | - | | - | |
| Multiple Unit information | | | - | | - | | - | |
| AMF Charging Profile | | | ITE | | E | | E | |
| |  | | --- | | Location Reporting Charging information | | | | | | | | | |
| Location reporting Message type | | | - | | - | | - | |
| User Information | | | - | | - | | - | |
| User Location Info | | | - | | - | | - | |
| PSCell Information | | | - | | - | | - | |
| UE Time Zone | | | - | | - | | - | |
| Presence Reporting Area Information | | | - | | - | | E | |
| RAT Type | | | - | | - | | - | |
| Inter-CHF information | | | | | | | | |
| Remote CHF resource | | | IT- | | - | | - | |
| Original NF Consumer Id | | | - | | - | | - | |

6.2.3 Detailed message format for converged charging

The following clause specifies per Operation Type the charging data that are sent by AMF for 5G connection and mobility converged charging.

The Operation Types are listed in the following order: I (Initial)/T (Termination)/E (Event). Therefore, when all Operation Types are possible it is marked as ITE. If only some Operation Types are allowed for a node, only the appropriate letters are used (i.e. IT or E) as indicated in the table heading. The omission of an Operation Type for a particular field is marked with "-" (i.e. I-E). Also, when an entire field is not allowed in a node the entire cell is marked as "-".

Table 6.2.3.1 defines the basic structure of the supported fields in the *Charging Data Request* message for AMF converged charging.

**Table 6.2.3.1: Supported fields in Charging Data Request message**

| **Information Element** | | **Functionality of AMF** | **Reg.** | **N2 cnt** | **Loc. Report.** |
| --- | --- | --- | --- | --- | --- |
| **Supported Operation Types** | **I/T/E** | **E** | **E** |
| Session Identifier | | | ITE | E | E |
| Subscriber Identifier | | | ITE | E | E |
| NF Consumer Identification | | | ITE | E | E |
| Charging Identifier | | | - | - | - |
| Invocation Timestamp | | | ITE | E | E |
| Invocation Sequence Number | | | ITE | E | E |
| Retransmission Indicator | | | - | - | - |
| One-time Event | | | --E | E | E |
| One-time Event Type | | | --E | E | E |
| Notify URI | | | - | - | - |
| Supported Features | | | I-E | E | E |
| Service Specification Information | | | ITE | E | E |
| Triggers | | | - | - | - |
| Multiple Unit Usage | | | ITE | - | - |
| AMF Identifier | | | ITE | E | E |
| AMF Charging Profile | | | IT-E | E | E |
| Registration Charging Information | | | | | |
| Registration Message type | | | ITE | - | - |
| User Information | | | ITE | - | - |
| UE 5GMM Core Network Capability | | | ITE | - | - |
| MICO Mode Indication | | | ITE | - | - |
| SMS Supported Indication | | | ITE | - | - |
| Access Type | | | ITE | - | - |
| RAT Type | | | ITE | - | - |
| TAI List | | | ITE | - | - |
| User Location Info | | | ITE | - | - |
| PSCell Information | | | ITE | - | - |
| UE Time Zone | | | ITE | - | - |
| Mobility Restrictions | | | ITE | - | - |
| Requested NSSAI | | | ITE | - | - |
| Allowed NSSAI | | | ITE | - | - |
| Rejected NSSAI | | | ITE | - | - |
| NSSAI mapping list | | | ITE | - | - |
| Alternative NSSAI Map | | | ITE | - | - |
| AMF UE NGAP ID | | | ITE | - | - |
| RAN UE NGAP ID | | | ITE | - | - |
| RAN Node Id | | | ITE | - | - |
| SNPN ID | | | ITE | - | - |
| CAG ID List | | | ITE | - | - |
| Satellite Access Indicator | | | ITE | - | - |
| N2 Connection Charging Information | | | | | |
| N2 Connection Message type | | | - | E | - |
| User Information | | | - | E | - |
| User Location Info | | | - | E | - |
| PSCell Information | | | - | E | - |
| UE Time Zone | | | - | E | - |
| RAT Type | | | - | E | - |
| AMF UE NGAP ID | | | - | E | - |
| RAN UE NGAP ID | | | - | E | - |
| RAN Node Id | | | - | E | - |
| Mobility Restrictions | | | - | E | - |
| Allowed NSSAI | | | - | E | - |
| NSSAI mapping list | | | - | E | - |
| RRC Establishment Cause | | | - | E | - |
| Satellite Access Indicator | | | - | E | - |
| Location Reporting Charging information | | | | | |
| Location reporting Message type | | | - | - | E |
| User Information | | | - | - | E |
| User Location Info | | | - | - | E |
| PSCell Information | | | - | - | E |
| UE Time Zone | | | - | - | E |
| Presence Reporting Area Information | | | - | - | E |
| RAT Type | | | - | - | E |
| Satellite Access Indicator | | | - | - | E |
| Inter-CHF information | | | |
| Remote CHF resource | -T- | - | - |
| Original NF Consumer Id | ITE | E | E |

Table 6.2.3.2 defines the basic structure of the supported fields in the *Charging Data Response* message for AMF converged charging.

**Table 6.2.3.2: Supported fields in Charging Data Response message**

| **Information Element** | | **Functionality of AMF** | **Reg.** | **N2 cnt** | **Loc. Report.** |
| --- | --- | --- | --- | --- | --- |
| **Supported Operation Types** | **ITE** | **E** | **E** |
| Session Identifier | | | ITE | E | E |
| Invocation Timestamp | | | ITE | E | E |
| Invocation Result | | | ITE | E | E |
| Invocation Sequence Number | | | ITE | E | E |
| Session Failover | | | I-- | - | - |
| Supported Features | | | I-E | E | E |
| Triggers | | | - | - | - |
| Multiple Unit information | | | - | - | - |
| AMF Charging Profile | | | ITE | E | E |
| |  | | --- | | Location Reporting Charging information | | | | | | |
| Location reporting Message type | | | - | - | - |
| User Information | | | - | - | - |
| User Location Info | | | - | - | - |
| PSCell Information | | | - | - | - |
| UE Time Zone | | | - | - | - |
| Presence Reporting Area Information | | | - | - | E |
| RAT Type | | | - | - | - |
| Inter-CHF information | | | |
| Remote CHF resource | IT- | - | - |
| Original NF Consumer Id | ITE | E | E |

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| **End of changes** |