**3GPP TSG-SA5 Meeting #140-e *S5-216074***

**e-meeting, 15 - 24 November 2021**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **32.291** | **CR** | **0356** | **rev** | **-** | **Current version:** | **17.0.0** |  |
|  | | | | | | | | |
| *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 |  | Radio Access Network |  | Core Network | **X** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Addition of IMS converged charging announcement | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson LM | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5GSIMSCH | | | | |  | ***Date:*** | | | 2021-11-04 |
|  |  | | | |  | |  | | |  |
| ***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)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Adding the IMS announcement information. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | The initial IMS announcement information. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | IMS announcements cannot be supported by converged charging. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 2, 6.1.6.2.x (new), 6.1.6.2.x.1 (new), 6.1.6.2.x.2 (new), 6.1.6.2.x.3 (new), 6.1.6.2.x.4 (new), 6.1.6.2.x.5 (new), 6.1.6.2.x.6 (new), 6.1.6.3.2, 6.1.6.3.a (new), 6.1.6.3.b (new), 6.1.6.3.c (new), 6.1.6.3.d (new), 6.1.8 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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** |

# 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] - [13] Void.

[14] 3GPP TS 32.254: "Telecommunication management; Charging management; Exposure function Northbound Application Program Interfaces (APIs) charging ".

[15] - [28] Void.

[29] 3GPP TS 32.274: "Telecommunication management; Charging management;Short Message Service (SMS) charging".

[30] 3GPP TS 32.255: "Telecommunication management; Charging management; 5G Data connectivity domain charging; stage 2".

[31] 3GPP TS 32.256: "Telecommunication management; Charging management; 5G connection and mobility domain charging; stage 2".

[32] 3GPP TS 32.260: "Telecommunication management; Charging management; IP Multimedia Subsystem (IMS) charging".

[34] 3GPP TS 32.281: " Telecommunication management; Charging management; Announcement service".

[35] - [49] Void.

[50] - [57] Void.

[58] 3GPP TS 32.290: "Telecommunication management; Charging management; 5G system; Services, operations and procedures of charging using Service Based Interface (SBI).

[59] - [69] Void.[70] 3GPP TS 28.201: "Charging management; Network slice performance and analytics charging in the 5G System (5GS); Stage 2".

[71] 3GPP TS 28.202: "Charging management; Network slice management charging in the 5G System (5GS); Stage 2".

[72] - [99] Void.

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

[101] 3GPP TR 21.900: "Technical Specification Group working methods".

[102] - [199] Void

[200] - [252] Void

[253] 3GPP TS 28.532: "Management and orchestration; Management services".

[254] 3GPP TS 28.541: "Management and orchestration; 5G Network Resource Model (NRM); Stage 2 and stage 3".

[255] 3GPP TS 32.300: "Telecommunication management; Configuration Management (CM); Name convention for Managed Objects".

[256] 3GPP TS 28.554: "Management and orchestration;5G end to end Key Performance Indicators (KPI)".

[257] 3GPP TS 28.623: "Telecommunication management; Generic Network Resource Model (NRM) Integration Reference Point (IRP); Solution Set (SS) definitions".

[258] - [298] Void

[299] 3GPP TS 29.500: "5G System; Technical Realization of Service Based Architecture; Stage 3".

[300] 3GPP TS 29.501: "5G System; Principles and Guidelines for Services Definition; Stage 3".

[301] 3GPP TS 29.594: "5G System; Spending Limit Control Service; Stage 3".

[302] 3GPP TS 29.512: "5G System; Session Management Policy Control Service; Stage 3".

[303] 3GPP TS 24.501: "Non-Access-Stratum (NAS) Protocol for 5G System (5GS); Stage 3".

[304] 3GPP TS 38.413: "NG-RAN; NG Application Protocol (NGAP)".

[305] 3GPP TS 29.510: "Network Function Repository Services; Stage 3".

[306] 3GPP TS 29.520: "5G System; Network Data Analytics Services;Stage 3".

[307] - [370] Void

[371] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces; Stage 3".

[372] - [389] Void

[390] 3GPP TS 33.501: "Security architecture and procedures for 5G System".

[391] - [399] Void

[400] Void.

[401] IETF RFC 7540: "Hypertext Transfer Protocol Version 2 (HTTP/2) ".

[402] IETF RFC 8259: "The JavaScript Object Notation (JSON) Data Interchange Format ".

[403] IETF RFC 6749: "The OAuth 2.0 Authorization Framework".

[404] IETF RFC 5646: "Tags for Identifying Languages".

[405] - [499] Void.

[500] OpenAPI: "OpenAPI 3.0.0 Specification", <https://github.com/OAI/OpenAPI-Specification/blob/master/versions/3.0.0.md>.

[501] - [599] Void.

|  |
| --- |
| **Second change** |

##### 6.1.6.2.x Announcement Specified Data Type

###### 6.1.6.2.x.1 Type ChargingDataRequest

This clause is additional attributes of the type ChargingDataRequest defined in clause 6.1.6.2.1.1 for announcement described in 3GPP TS 32.281 [34].

Table 6.1.6.2.x.1-1: Announcement specified attribute of type ChargingDataRequest

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
|  |  |  |  |  |  |

###### 6.1.6.2.x.2 Type ChargingDataResponse

This clause is additional attributes of the type ChargingDataResponse defined in clause 6.1.6.2.1.2 for announcement described in 3GPP TS 32.281 [34].

Table 6.1.6.2.x.2-1: Announcement specified attribute of type ChargingDataResponse

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
|  |  |  |  |  |  |

###### 6.1.6.2.x.3 Type MultipleUnitUsage

This clause is additional attributes of the type MultipleUnitUsage defined in clause 6.1.6.2.1.5 for announcement described in 3GPP TS 32.281 [34].

Table 6.1.6.2.x.3-1: Announcement specified attribute of type MultipleUnitUsage

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
|  |  |  |  |  |  |

###### 6.1.6.2.x.4 Type MultipleUnitInformation

This clause is additional attributes of the type MultipleUnitInformation defined in clause 6.1.6.2.1.8 for announcement described in 3GPP TS 32.281 [34].

Table 6.1.6.2.x.4-1: Announcement specified attribute of type MultipleUnitInformation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| announcementInformation | AnnouncementInformation | Oc | 0..1 | This field contains the announcement related information. | Announcement |

###### 6.1.6.2.x.5 Type AnnouncementInformation

Table 6.1.6.2.x.5-1: Definition of type AnnouncementInformation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| announcementIdentifier | Uint32 | OM | 1 | the announcement to be played. |  |
| announcementReference | Uri | OM | 1 | the reference to where information regarding the announcement can be found, this can be a URI or URL. |  |
| variableParts | array(VariablePart) | OC | 0..N | the list of elements specifying each variable part to be played. |  |
| timeToPlay | DurationSec | OC | 0..1 | the announcement to be played at the specified time before granted time units are exhausted.  If the value is set to zero, the announcement is to be played at time when time quota is exhausted.  If the field is not present, it indicates that the announcement is to be played immediately. |  |
| quotaConsumptionIndicator | QuotaConsumptionIndicator | OC | 0..1 | an indicates whether the granted quota is to be consumed during announcement setup and played or not.  If the field is not present, the quota consumption is receiver dependent. |  |
| announcementPriority | Uint32 | OC | 0..1 | the priority when multiple announcement information blocks are provided in a single message with the same timeToPlay indicator, where zero is the highest priority.  If the field is not present or several have the same priority, the order is receiver dependent. |  |
| playToParty | PlayToParty | OC | 0..1 | the party served or remote, to which the announcement is to be played.  If the field is not present, it is to be played to served. |  |
| announcementPrivacyIndicator | AnnouncementPrivacyIndicator | OC | 0..1 | indicates if the announcement is private not.  If the field is not present, it is private. |  |
| language | Language | OC | 0..1 | a language tag of the announcement to be played.  If the field is not present, the language is receiver dependent. |  |

###### 6.1.6.2.x.6 Type VariablePart

Table 6.1.6.2.x.6-1: Definition of type VariablePart

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| variablePartType | VariablePartType | M | 1 | the type of the variable part i.e., how the value is to be interpreted. |  |
| variablePartValue | string | M | 1..N | the variable part to be played. |  |
| variablePartOrder | Uint32 | OC | 0..1 | The order in which the variable part shall be played, where zero is the first.  If the field is not present or several have the same priority, the order is receiver dependent. |  |

|  |
| --- |
| **Third change** |

##### 6.1.6.3.2 Simple data types

The simple data types defined in table 6.1.6.3.2-1 shall be supported.

Table 6.1.6.3.2-1: Simple data types

|  |  |  |  |
| --- | --- | --- | --- |
| Type Name | Type Definition | Description | Applicability |
| Diagnostics | integer | A more detailed cause value from SMF |  |
| IPFilterRule | string | Filter rules corresponding to services |  |
| N2ConnectionMessageType | integer | N2 message type received by the AMF |  |
| LocationReportingMessageType | integer | Location reporting message type |  |
| Language | string | Language tag as defined in RFC 5646 [404]. |  |

|  |
| --- |
| **Fourth change** |

##### 6.1.6.3.a Enumeration: VariablePartType

Table 6.1.6.3.a-1: Enumeration VariablePartType

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| INTEGER | Indicates that the value are digits, which shall be announced as a single number, up to 10 digits. |  |
| NUMBER | Indicates that the value are digits, which shall be announced as individual digits, up to 24 digits |  |
| TIME | Indicates that the value is a time of day in the form of HHMM. |  |
| DATE | Indicates that the value is a date in the form of YYYYMMDD. |  |
| CURRENCY | Indicates that the value is monetary in the form of AAAAAABB, where AAAAAA is the inter part and BB is the decimal part. |  |

##### 6.1.6.3.b Enumeration: QuotaConsumptionIndicator

Table 6.1.6.3.b-1: Enumeration QuotaConsumptionIndicator

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| QUOTA\_NOT\_USED | Indicates that the granted quota is not to be consumed during announcement setup and played. |  |
| QUOTA\_IS\_USED | Indicates that the granted quota is to be consumed during announcement setup and played. |  |

##### 6.1.6.3.c Enumeration: PlayToParty

Table 6.1.6.3.c-1: Enumeration PlayToParty

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| SERVED | Indicates that the announcement is to be played to the served party. |  |
| REMOTE | Indicates that the announcement is to be played to the remote party. |  |

##### 6.1.6.3.d Enumeration: AnnouncementPrivacyIndicator

Table 6.1.6.3.d-1: Enumeration AnnouncementPrivacyIndicator

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| NOT\_PRIVATE | Indicates that the announcement can be all parties i.e., not only the PlayToParty. |  |
| PRIVATE | Indicates that the announcement is to be played only to the PlayToParty. |  |

|  |
| --- |
| **Fifth change** |

### 6.1.8 Feature negotiation

The optional features in table 6.1.8-1 are defined for the Nchf\_ConvergedCharging API. They shall be negotiated using the extensibility mechanism defined in subclause 6.6 of 3GPP TS 29.500 [299].

Table 6.1.8-1: Supported Features

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Feature number | | Feature Name | | Description | |
| 1 | | CHFCQM | | CHF-controlled quota management i.e. support for temporary offline | |
| 2 | | AF\_Charging\_Identifier | | Indicates the support of long character strings as charging identifiers. | |
| 3 | | 5GIEPC\_CH | | 5GS interworking with EPC | |
| 4 | | ATSSS | | This feature indicates support of Access Traffic Steering, Switching, Splitting (ATSSS). | |
| 5 | | ETSUN | | This feature indicates support of Enhancing Topology of SMF and UPF in 5G Networks (ETSUN). | |
| 6 | | EnhancedDiagnostics | | Support the enhanced diagnostics | |
| 7 | | AMF\_subs\_PRA | | PRA(s) subscription by CHF in AMF | |
| 8 | | FilterRuleList | | Support of multiple filter rules in the final unit indication | |
| 9 | | TEI17\_NIESGU | | This feature indicates support of GERAN/UTRAN access | |
| 10 | | IMS | | This feature indicates support of IMS. | |
| X | | Announcement | | This feature indicates support of announcements. | |
| 9 | | TEI17\_NIESGU | | This feature indicates support of GERAN/UTRAN access | |
| 10 | | IMS | | This feature indicates support of IMS. | |

|  |
| --- |
| **End of changes** |