**3GPP TSG- Meeting # *rev1***

**Online, , -**

|  |
| --- |
| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  |  | **CR** |  | **rev** |  | **Current version:** |  |  |
|  |
| *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)*.* |
|  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

|  |
| --- |
|  |
| ***Title:***  | Add PGW as consumer of ConvergedCharging service  |
|  |  |
| ***Source to WG:*** | China Mobile Com. Corporation |
| ***Source to TSG:*** | S5 |
|  |  |
| ***Work item code:*** | TEI17\_NIESGU |  | ***Date:*** | 2020-11-06 |
|  |  |  |  |  |
| ***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 canbe 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)* |
|  |  |
| ***Reason for change:*** | For operators deploying a combined node serving as both SMF+PGW-C and PGW-C to provide network services for 2G/3G/4G/5G users, it is beneficial to use N40 interface for charging. Based on the above background, PGW should support Nchf interface and consume Nchf\_ ConvergedCharging service exposed by CHF. |
|  |  |
| ***Summary of change:*** | Add PGW as consumer of Nchf\_ConvergedCharging service. |
|  |  |
| ***Consequences if not approved:*** | PGW cannot consume Nchf\_ ConvergedCharging service. |
|  |  |
| ***Clauses affected:*** | 6.2.1, 6.2.2, 6.2.3, 6.2.4, 6.2.5 |
|  |  |
|  | **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** |

### 6.2.1 General

**Service description:** The ConvergedCharging service provides charging for session and event based NF services. This ConvergedCharging service offers charging:

- With quota management (online; this includes support for both blocking mode and non-blocking mode)

- Without quota management (offline)

- Charging information record generation

The following table shows the CHF Services and CHF Service Operations.

Table 6.2.1-1: NF services provided by the CHF

|  |  |  |  |
| --- | --- | --- | --- |
| Service Name | Service Operations | OperationSemantics | Example Consumer(s) |
| Nchf\_ConvergedCharging | Create | Request/Response | SMF, SMSF, AMF, PGW |
| Update | Request/Response | SMF, PGW |
| Release | Request/Response | SMF, AMF, PGW |
| Notify | Notify | SMF, PGW |

The input and output parameters described in the clauses below are common to all NF Consumers. The usage of these common parameters and additional NF Consumer specific parameters are specified in dedicated charging specifications.

Whether the PGW can be a consumer of Nchf\_ConvergedCharging service is based on operator’s policy in interworking scenarios, as specified in Annex B TS 32.255.

|  |
| --- |
| **Next change** |

### 6.2.2 Nchf\_ConvergedCharging\_Create service operation

**Service operation name:** Nchf\_ConvergedCharging\_Create

**Description:** Provides charging capabilities before service delivery, offers charging with and without quota management, as well as charging information record generation. It is used for both session and event based charging. Provides means for the NF Consumer to create the resource of the charging session. If it is used for session based charging the operation also makes an implicit subscribe to notification of events in CHF that requires re-authorization or abort.

The service operation may be used to request quota authorisation for service delivery and may open a CDR in the CHF, based on the information provided by the NF Consumer.

**Known NF Consumers:** SMF, SMSF, AMF, PGW.

**Inputs, Required:** Subscriber identifier, either service identification or rating group.

**Inputs, Optional:** Requested service units, one-time event, destination address, provider, location information, time and date.

**Outputs, Required:** Result indication.

**Outputs, Optional:** Granted service units, validity time, triggers.

|  |
| --- |
| **Next change** |

### 6.2.3 Nchf\_ConvergedCharging\_Update service operation

**Service operation name:** Nchf\_ConvergedCharging\_Update

**Description:** Provides charging capabilities during service delivery, offers usage reporting and quota management, as well as charging information record generation.

The service operation is used to report usage and may request further quota authorisation, if the trigger conditions occurs, this operation may cause update of the CDR or production of an interim CDR in the CHF.

**Known NF Consumers:** SMF, PGW.

**Inputs, Required:** Subscriber identifier (Optional for emergency session), session identifier, reporting reason.

**Inputs, Optional:** Requested service units, used service units.

**Outputs, Required:** Result indication.

**Outputs, Optional:** Granted service units, validity time, triggers.

|  |
| --- |
| **Next change** |

### 6.2.4 Nchf\_ConvergedCharging\_Release service operation

**Service operation name:** Nchf\_ConvergedCharging\_Release

**Description:** Provides charging capabilities after service delivery, offers usage reporting and charging information record generation. Provides means for the NF Consumer to release the resource of charging session information.

The charging delete request is used to report usage and close the CDR in the CHF if it has been opened.

**Known NF Consumers:** SMF, AMF, PGW.

**Inputs, Required:** Subscriber identifier, session identifier, release reason.

**Inputs, Optional:** Used service units.

**Outputs, Required:** Result indication.

**Outputs, Optional:** None.

|  |
| --- |
| **Next change** |

### 6.2.5 Nchf\_ConvergedCharging\_Notify service operation

**Service operation name:** Nchf\_ConvergedCharging\_Notify

**Description:** Provides notification to NF consumers of the subscribed events.

CHF provides the re-authorization type notificationthat would lead NF consumers to send an Nchf\_ConvergedCharging\_Update reporting the current usage.

CHF provides the abort type notification that would lead NF consumers to send an Nchf\_ConvergedCharging\_ Release to terminate the charging session.

**Known NF Consumers:** SMF, PGW.

**Inputs, Required:** Subscriber identifier, notification type (re-authorization or abort).

**Inputs, Optional:** rating group, service id.

**Outputs, Required:** Result indication.

**Outputs, Optional:** None

|  |
| --- |
| **End of change** |