**3GPP TSG-SA5 Meeting #141-e *S5-221641***

e-meeting, 17 -26 January 2022 (revision of xx-yyxxxx)

**Source: Vodafone, MATRIXX Software, Verizon, Telefonica, Huawei, Deutsche Telekom, Amdocs** **Nokia, Nokia Shanghai Bell, Ericsson**

**Title: New WID on 5G charging for additional roaming scenarios and actors**

**Document for: Approval**

**Agenda Item: 7.5.4**

3GPP™ Work Item Description

Information on Work Items can be found at <http://www.3gpp.org/Work-Items>
See also the [3GPP Working Procedures](http://www.3gpp.org/specifications-groups/working-procedures), article 39 and the TSG Working Methods in [3GPP TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm)

Title: 5G Charging for Local breakout roaming of data connectivity

Acronym: CHROAM

Unique identifier: 9500xx

Potential target Release: Rel-17

# 1 Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Affects: | UICC apps | ME | AN | CN | Others (specify) |
| Yes |  |  |  | X |  |
| No | X | X | X |  |  |
| Don't know |  |  |  |  | X |

# 2 Classification of the Work Item and linked work items

## 2.1 Primary classification

### This work item is a …

|  |  |
| --- | --- |
| X | Feature |
|  | Building Block |
|  | Work Task |
|  | Study Item |

## 2.2 Parent Work Item

|  |
| --- |
| Parent Work / Study Items  |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
| FS\_CHROAM | SA5 |  | Study on 5G charging for additional roaming scenarios and actors |

### 2.3 Other related Work Items and dependencies

|  |
| --- |
| Other related Work /Study Items (if any) |
| Unique ID | Title | Nature of relationship |
| 750019 | Study on Charging Aspects of 5G System Architecture Phase 1 | Roaming LBO started to be studied and left FFS |
| 880030 | Study on charging aspects of Edge Computing | Edge computing may have a need for local breakout charging. |
| 900023 | Study on Charging Aspects for Network Slicing Phase 2 | The local breakout charging needs to support network slicing scenarios. |

# 3 Justification

The Nchf charging framework in 5GS architecture was first specified in Rel-15 based on the conclusions of study described in TR 32.899. This framework has evolved since by adding new NF consumers of Nchf charging services. Only roaming Home Routed case for SMF consumer, considered as a priority has so far been specified, and the support for local breakout was postponed. Also roaming aspects are not fully covered for new added NF consumers.

For traffic that has requirements on low latency especially in the case of edge computing, it is inefficient to route the traffic to the home network, therefore adoption of local breakout in visited network is crucial. This will require the possibility for the visited network to convey charging information towards the home network and the home network to do retail charging of its subscribers in a local breakout scenario.

Additionally, in scenarios where MVNO’s subscribers are to be charged, the MNO must be able to apply wholesale charges towards the MVNO for this to apply retail charging towards its subscribers.

This WID is based on the conclusions and recommendations reflected in the TR 28.827 V1.0.0. where solutions 2.2 and 4a.1 are recommended for normative work in Rel17.

# 4 Objective

The specifications will focus on the following functionality of the local breakout at roaming:

- Collect charging information in the visited MNO network for the purpose of wholesale charging towards the home MNO

- Collect charging information in the visited MNO network, and convey it to the home MNO network for the purpose of retail charging

In addition it will include:

- Collect charging information in the MNO network, non roaming, for the purpose of wholesale charging towards an additional actor with an CHF e.g. MVNO

The specifications will be using the Nchf\_ConvergedCharging service and at least detail the following aspects of the solution:

- Embedded CTF in the vSMF

- Rating groups handling

- Trigger handling

- Failure and error handling

- Roaming charging profile usage

- Quota management applicability

- Charging id generation and exchange

- FBC and QBC applicability

- CHF selection

- Supported features handling.

The focus for the specified solution will be to limit and minimize the impact on and to the CHF and SMF.

# 5 Expected Output and Time scale

|  |
| --- |
| New specifications {One line per specification. Create/delete lines as needed} |
| Type  | TS/TR number | Title | For info at TSG#  | For approval at TSG# | Rapporteur |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

|  |
| --- |
| Impacted existing TS/TR {One line per specification. Create/delete lines as needed} |
| TS/TR No. | Description of change  | Target completion plenary# | Remarks |
| TS 32.240 | CHF architecture for LBO | SA#95e(Mar 2022) |  |
| TS 32.255 | Local Breakout scenarios addition | SA#95e(Mar 2022) |  |
| TS 32.290 | Addition of roaming aspects to services, operations and procedures | SA#95e(Mar 2022) |  |
| TS 32.291 | Roaming aspects for SBI Open API attributes | SA#95e(Mar 2022) |  |
| TS 32.298 | Roaming aspects recorded in CHF CDR | SA#95e(Mar 2022) |  |

# 6 Work item Rapporteur(s)

 Ericsson, Robert Törnkvist (robert dot tornkvist at ericsson dot com)

# 7 Work item leadership

SA5

# 8 Aspects that involve other WGs

None

# 9 Supporting Individual Members

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| --- |
| Supporting IM name |
| Vodafone |
| MATRIXX Software |
| Verizon |
| Telefonica |
| Huawei |
| Deutsche Telekom |
| Amdocs |
| Nokia |
| Nokia Shanghai Bell |
| Ericsson |