**3GPP TSG-CT WG1 Meeting #125eC1-205301**

**E-meeting, 20-28 August 2020**

**Source: LG Electronics**

**Title: New WID on CT aspects of Support for Minimization of service Interruption**

**Document for: Approval**

**Agenda Item: 17.1.1**

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: CT aspects of Support for Minimization of service Interruption

## Acronym: MINT-CT

## Unique identifier: TBD

Potential target Release: Rel-17

Note that this field above indicates the proposed Release at the time of submission of the WID to TSG approval. It can later be changed without a need to revise the WID. The updated target Release is indicated in the Work Plan.

## 1 Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Affects:** | UICC apps | ME | AN | CN | Others (specify) |
| **Yes** |  | X |  | X |  |
| **No** | 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 …

|  |  |
| --- | --- |
|  | Feature |
| X | 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) |
| MINT | SA WG1 | 850036 | Stage 1 of Support for Minimization of service Interruption |

### 2.3 Other related Work Items and dependencies

|  |
| --- |
| Other related Work Items (if any) |
| Unique ID | Title | Nature of relationship |
|  |  |  |

## 3 Justification

With introduction of 5G system, 3GPP has emphasized high reliability, low latency and high availability of communication service. These demanding requirements are also applied to mobile services for general public, e.g. POS (Point of Sale) device for mobile payment service and specialized transportation services available only to elderly people or the disabled. In such a hyper-connected society, it is of great importance to ensure that interruption of communication services is minimized. Unfortunately, natural disasters and man-made errors occur without warning and it is impossible to predict scenarios and to prevent them, as evidenced by many accidents in the past.

When a network cannot provide communication service to its users due to certain events (e.g. fire), it is important to minimize the time when the users are out of communication services and to minimize additional impact to other networks. For example, when all users of one network switch to the other network due to the certain events, this should not lead to congestion of the other network due to surge of connection. While one network may provide help to users of neighbouring network, the impact to its home users should be minimized when huge numbers of users request access. Other aspects include restriction imposed on the UE from selecting other network, e.g. the case where UE was previous rejected to other network before the event occurs.

In order to analyse and identify requirements for the scenario above, SA1 performed study and finished normative work on Support for Minimization of service Interruption (MINT) for Rel-17. Relevant stage-1 requirements are specified in TS 22.011 and TS 22.261. Considering the new requirements for MINT, it is needed to update stage 2 aspects regarding network selection and unified access control, which are under CT1 remit, and stage 3 work as well.

This work item will provide the necessary stage-2 requirements and stage 3 implementations for the normative requirements in MINT.

## 4 Objective

The objectives of this WI are to define the stage 2 and the stage 3 aspects for service requirements defined by SA WG1 under their work item MINT.

CT1 defines stage-2 and NAS related stage-3 functionalities:

- Study on the stage-2 of MINT feature whether there is any CN impact required.

NOTE 1: Based on the conclusion, further feedback from SA2, and stage 3 work in CT3 and/or CT4 will be required

- In order to enable a UE to be able to obtain connectivity service from other PLMN(s) when a Disaster Condition applies to the serving PLMN,

- Study how a UE can obtain information of particular PLMN(s) when a Disaster Condition applies;

- Study how a UE and roaming PLMN(s) can be provisioned of the area where a Disaster Condition applies;

- Study how a UE can be aware of the failure of a PLMN when a Disaster condition applies;

- Study how roaming PLMN(s) can indicate to potential Disaster Inbound Roamers whether they can access the PLMN or not;

- Study how a UE and roaming PLMN(s) can be aware of the recovery of a PLMN used to be in the Disaster Condition and reselect the PLMN;

- Study how a UE can access PLMNs in a forbidden PLMN list if a Disaster condition applies; and

- Study how the PLMN providing disaster roaming can minimize congestion caused by the Disaster Roaming; and

- Introduce new access identity for inbound disaster roamer for unified access control.

CT3 defines the following stage-3 functionalities:

- Potential update to collecting charging information for a Disaster Inbound Roamer with information about the applied disaster condition.

CT4 defines the following stage-3 functionalities:

- Potential update to the authentication of a Disaster Inbound Roamer with information about the applied disaster condition.

NOTE 2: Any potential updates in CT3 and/or CT4 will be based on the conclusion of the study phase.

It is proposed to proceed in two steps:

- First, a study phase to analyze any impacts on the CN functions, study on end-to-end call flow, and study on the stage 3 implementation of the objectives required by the stage 1.

- Then, a normative phase to specify the conclusions and solutions agreed during the study phase.

## 5 Expected Output and Time scale

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| --- |
| **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 |
| Internal TR | 24.xxx | Study on the support for Minimization of service Interruption | CT#90(December 2021) | CT#91(March 2021) | Sang Min Park, LG Electronics, sangmin2.park@lge.com |

|  |
| --- |
| **Impacted existing TS/TR** *{One line per specification. Create/delete lines as needed}* |
| TS/TR No. | Description of change  | Target completion plenary# | Remarks |
| 23.122 | Updates to PLMN selection when the disaster condition applies | CT#92(June 2021) | CT1 responsibility |
| 24.501 | Introduce Disaster condition;Updates to Unified Access Control in order to introduce new access identity for disaster inbound roamer; | CT#92(June 2021) | CT1 responsibility |
| 29.513 | Potential updates to collecting charging information for a disaster inbound roamer | CT#92(June 2021) | CT3 responsibility |
| 29.503 | Potential updates to authentication of a disaster inbound roamer | CT#92(June 2021) | CT4 responsibility |

NOTE: Additional CT3 and CT4 impacted specifications might be identified during the study phase.

## 6 Work item Rapporteur(s)

Sang Min Park, LG Electronics (sangmin2.park@lge.com)

## 7 Work item leadership

CT1

## 8 Aspects that involve other WGs

SA3 for the security aspects

RAN2 for the potential updates of SIB information

## 9 Supporting Individual Members

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| Supporting IM name |
| LG Electronics |
| ETRI |
| Hansung University |
| HiSilicon |
| Huawei |
| Innovative Technology Lab |
| KT Corp. |
| LG Uplus |
| Samsung |
| SK Telecom |
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