**3GPP TSG-WG SA2 Meeting #137E e-meeting S2-2001903r04**

**Elbonia, February 24 – 27, 2020** (revision of xx-yyxxxx)

**Source: China Mobile**

**Title: New WID on N7/N40 Interfaces Enhancements to Support GERAN and UTRAN**

**Document for: Approval**

**Agenda Item: 9.1**

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: N7/N40 Interfaces Enhancements to Support GERAN and UTRAN

## Acronym: NIESGU

## Unique identifier: *{A number to be provided by MCC at the plenary}*

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 |  |
| **No** | X | X | X |  | X |
| **Don't know** |  |  |  |  |  |

## 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) |
|  |  |  |  |

### 2.3 Other related Work Items and dependencies

|  |  |  |
| --- | --- | --- |
| Other related Work Items (if any) | | |
| Unique ID | Title | Nature of relationship |
|  |  | *{optional free text}* |

**Dependency on non-3GPP (draft) specification**:

## 3 Justification

To simplify the network architecture and network management when 5GS is deployed and 2G or 3G still exists in their network, operators would like to be able to deploy a combined node serving as both SMF+PGW-C and PGW-C, to simultaneously serve 2G/3G/4G/5G users.

However, as shown in Table 1, per current 3GPP specification, the policy control interface and charging interfaces differ.

Table 1: Policy control interface and charging interface as defined in the current specification

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scenario | Entity | Policy Control Reference Point | Charging Reference Point | Note |
| 4G and 2/3G | PGW | Gx | Ga (Offline Charging)  Gy (Online Charging) | Diameter based interface using the DRAs for diameter signalling routing |
| 4G and 5G | PGW-C+SMF | N7 | N40 (Converged Charging) | Service based interfaces Nchf using NRFs for 5GC NFs discovery and selection |

To simplify the network deployments and reduce CAPEX and OPEX for operators, it is beneficial to enable the use of the N7 interface for policy control in 2/3/4/5G accesses, and enable the use of the N40 interface for charging in 2/3/4/5G accesses, the main impact being that PGW supports N7 and N40 interfaces.

This will beneficially allow PCF and CHF to handle UEs using 2G/3G and therefore separate PCRF and OCS/OFCS are not required. This will also allow the PCF and CHF to be used to handle UEs roaming onto 2G/3G access in a different PLMN.

It is not the aim of the WID to change how LBO currently works.

## 4 Objective

This work item aims at specifying a mechanism that would allow to extend the interfaces on N7/N40 reference points to support 2G/3G. The work may contain the following aspects:

* Support of RAT Type for 2G/3G on interface extension for N7/N40 reference points.
* Support of location change report of RAI, and SGSN level for 2G/3G on interface extension for N7/N40 reference points.
* Selection of PGW supporting N7 vs. those supporting Gx/Gy without impact on UE.
* Creation of PDU Session ID for the UE by the PGW.

Interworking between 2G/3G and 4G/5G is out of scope.

New inter PLMN interfaces or extensions, in particular on Nchf, are out of scope.

The expected time for completing this work is 0.7 TU.

## 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 |
| 23.060  23.401  23.503  23.203 |  | TSG#88 | This will be handled as “TEI17”. |

## 6 Work item Rapporteur(s)

Aihua, Li, China Mobile, liaihua@ chinamobile.com

## 7 Work item leadership

SA2.

## 8 Aspects that involve other WGs

The Charging aspects will be covered by SA5.

## 9 Supporting Individual Members

|  |
| --- |
| Supporting IM name |
| China Mobile |
| Ericsson |
| China Unicom |
| Orange |
| Huawei |
| CATT |
| ZTE |
| Samsung |
| CAICT |
| Deutsche Telekom |
| Matrixx |
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