**3GPP TSG-CT WG3 Meeting #113eC3-210257**

**E-Meeting, 25th – 29th January 2020**

(revision of CP-yyxxxx)

**Source: Ericsson**

**Title: New WID on CT aspects on N6 interface Enhancement**

**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 on N6 interface Enhancement

## Acronym: N6Enh

## 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 (DN-AAA Server) |
| **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 …

|  |  |
| --- | --- |
|  | 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) |
|  |  |  |  |

### 2.3 Other related Work Items and dependencies

|  |
| --- |
| Other related Work Items (if any) |
| Unique ID | Title | Nature of relationship |
| 750025 | CT aspects on 5G System - Phase 1 | *Rel-15 stage 3 work item for 5GS* |
| 890070 | PAP/CHAP protocols usage in 5GS | *PAP/CHAP in 5GS and IWK with EPS for DN-AAA server does not support EAP*  |

**Dependency on non-3GPP (draft) specification**: none.

## 3 Justification

TS 29.561 does not include descriptions on how to support EAP based secondary authentication and authorization interworking with the external DN-AAA server, when the UE is under 5GS and EPS interworking scenarios.

Current specifications define EAP based secondary authentication/authorization for the PDU Session, if the UE provides authentication/ authorization information corresponding to a DN-specific identity during the Establishment of the PDU Session, and the SMF determines that authentication/authorization of the PDU Session Establishment is required based on the SMF policy associated with the DN.

SA2 and SA3 define EAP based authentication during PDU Session establishment procedures with higher security than the legacy PAP/CHAP (user-name and user password), so long supported by 5GS and the external DN-AAA server.

While EAP based authentication is only defined for PDU Session establishment procedures in 5GS, it is not defined for PDN connection setup procedures in EPS, legacy PAP/CHAP (user-name and user-password come from PCO) is still optionally used for 4G PDN connection setup (including the 4G access UE with 5G capability).

Hence several issues exist in the 5GS and EPS interworking scenarios:

1. When UE moves from EPC to 5GC, it’s not specified whether EAP based secondary authorization/authentication should be performed or not, and how to be handled between the SMF and the external DN-AAA server which support EAP.
2. If DN-AAA server initiates EAP based re-authorization but UE has moved from 5GC to EPC, such re-authorization will not be supported in current specifications.
3. Some 3GPP vendor specific 5GC special authentication and authorization attributes for 5G PDU Session defined in TS29.561 are not supported in EPS.
4. TS 29.561 still misses the 5GS and EPS interworking scenario description to consistently support the EAP based secondary authentication/authorization with the external DN-AAA server support EAP.

Note：PAP/CHAP authentication in 5GS and interworking with EPS, and SMF interworking with legacy DN-AAA server does not support EAP, can be covered in WID PAP\_CHAP scope.

## 4 Objective

The objective of this work item is to enhance the Stage 3 with protocol and procedures N6 interface enhancement for EAP based secondary authentication/authorization, with 5GS interworking with EPS scenarios, external interworking with the DN-AAA server support EAP with sustainable security, not impacting NAS protocol and procedures. Also extend N6 interface applicable attributes needed by the DN-AAA server.

The following areas of work are expected to be covered:

CT3:

- Interworking between the SMF and the DN-AAA server to enhance the EAP based Authentication/Authorization upon 5GS interworking with EPS scenarios.

- RADIUS and Diameter Authentication and Authorization procedures enhancement to support 5GS interworking EPS scenarios, when EAP is used interworking with the external DN-AAA server.

- Possible SMF extending support EAP based Authentication/Authorization for 5GS interworking with EPS.

- Possible extending the 3GPP vendor specific attributes for interworking with EPS.

- Possible extending the 3GPP vendor specific attributes for N6 interface enhancement.

- Extending some of TS 29.061 reused 3GPP Vendor-Specific attributes for 5G N6 enhancement.

## 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 |
| 29.561 | Interworking between SMF and DN-AAA server to support EAP based Authentication/ Authorization for 5GS interworking with EPS scenarios.Possible extending the 3GPP vendor specific attributes for interworking with EPS.Possible extending the 3GPP vendor specific attributes for N6 interface enhancement. | TSG#95(March 2022) | CT3 responsibility |
| 29.061 | Extending some of the reused 3GPP Vendor-Specific attributes for 5G N6 enhancement. | TSG#95(March 2022) | CT3 responsibility |

## 6 Work item Rapporteur(s)

Maria Tianmei, Liang, Ericsson. maría.liang@ericsson.com

## 7 Work item leadership

CT3

## 8 Aspects that involve other WGs

None.

## 9 Supporting Individual Members

|  |
| --- |
| Supporting IM name |
| Ericsson |
| China Mobile |
| China Telecom? |
| Vodafone? |
| Qualcomm? |
| Huawei? |
| Nokia? |
| Nokia Shanghai Bell? |