**3GPP TSG-RAN Meeting #89 RP-20XXXX**

**Electronic Meeting, September 14 - 19, 2020** (revision of RP-200XXX)

**Source: China Telecom**

**Title: New WID: Enhancement of Private Network Support for NG-RAN**

**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: **Enhancement of Private Network Support for NG-RAN**

## Acronym:

## Unique identifier:

NOTE: For new WIs/SIs leave the Unique identifier empty and make a proposal for an Acronym.

For a revised WI/SI: Take Unique identifier and acronym as shown in 3GPP workplan.

If this is a RAN WID including Core and Perf. part, then Title, Acronym and Unique identifier refer to the feature WI.

Please tick (X) the applicable box(es) in the table below:

Either:

|  |  |
| --- | --- |
| **This WID includes a Core part** | **X** |
| **This WID includes a Performance part** |  |

or:

|  |  |  |
| --- | --- | --- |
| **This WID includes a Testing part** | |  |
| **and it addresses the following 3GPP work area:** | **Radio Access** |  |
| **Core Network** |  |
| **Services** |  |

## 1 Impacts *{ For Normative work, identify the anticipated impacts. For a Study, identify the scope of the study.}*

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

## 2 Classification of the Work Item and linked work items

### 2.1 Primary classification

This work item is a … *{Tick one box. "***Feature** */* **Building Block** */ Work Task" form a hierarchical structure. E.g. no Building Block can be proposed without a corresponding parent Feature. The full structure of all existing Work Items is shown in the 3GPP Work Plan in* [*ftp://ftp.3gpp.org/Information/WORK\_PLAN*](ftp://ftp.3gpp.org/Information/WORK_PLAN) *}*

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

NOTE: Normally, Core/Perf./Testing parts in RAN WIDs are Building Blocks. Only if they are under an SA or CT umbrella, we define them as work tasks. If you are in doubt, please contact MCC.

### 2.2 Parent Work Item

*{Not applicable for* **Feature** *nor for a* **Study Item***}*

*{For a* **Building Block***: list here the parent* **Feature** *}*

*{For a* Work Task*: list here the parent* **Building Block** *}*

|  |  |
| --- | --- |
| Parent Work Items | |
| Unique ID | Title |
|  |  |

NOTE: RAN agreed some time ago, that it describes the feature WI + Core/Perf. part WI or Testing part WI in one WID. Therefore the table above should just include the feature WI Unique ID and title.

### 2.3 Other related Work Items and dependencies

*{List here other Work Items which relate to the proposed one, such as preceding SI or a preceding WI (e.g. if further enhancing a feature).}*

|  |  |  |
| --- | --- | --- |
| Other related Work Items (if any) | | |
| Unique ID | Title | Nature of relationship |
| 830081 | Private Network Support for NG-RAN | *Rel.16 RAN NPN Support WI* |
| 840024 | Study on enhanced support of Non-Public Networks | *The SI handles further architectural aspects of NPN, and SNPN/CAG support where inter-dependencies with RAN exist.* |
|  |  |  |
|  |  |  |

NOTE: Also related or dependent WIs/SIs in other TSGs should be indicated.

## 3 Justification

Rel-16 work on private network support for NG-RAN was initiated in Mar. 2019 and RAN specifications has been modified to support the basic functionality of Standalone NPN(SNPN) and Public Integrated NPN(PNI-NPN) following SA2 Rel-16 work.

In Rel-17, SA2 has already initiated a new SID to enhance NPN (latest SID updates in S2-2002592) and continued to enhance 5GS functionalities that would enable more efficient support of non-public networks and simplification of 5G system for non-public networks.

As SA2 eNPN work will cause impact on RAN, RAN should take the progress of SA2 NPN SI and possible work item into consideration and specify the corresponding functions to support the SA2 enhancement.

## 4 Objective

### 4.1 Objective of SI or Core part WI or Testing part WI

The objective of this work item is to support enhanced non-public network (eNPN) for NG-RAN after checking the RAN impact of SA2 study on enhanced support of NPN with the following functionality and specify the necessary RAN functionality:

* Support SNPN along with subscription / credentials owned by an entity separate from the SNPN including:
  + The broadcasting of information indicating that access using home service provider credentials is supported [RAN2]
  + The cell selection/reselection and connected mode mobility considering connectivity to authorized home service provider etc, if justified [RAN2/RAN3]
  + The necessary modifications over network interfaces (e.g. NG, Xn, F1, E1 etc), if justified [RAN3]
* Support UE onboarding and provisioning for NPN including:
  + The UE onboarding relevant parameter broadcast from SIB [RAN2]
  + The cell selection/reselection, cell access control and the connected mode mobility considering the onboarding authorization, if justified [RAN2/RAN3]
  + The necessary modifications over network interfaces (e.g. NG, Xn, F1, E1 etc), if justified [RAN3]
* Support of IMS voice and emergency services for SNPN [RAN2]
* Support RAN component of SA2 agreed NPN enhancement for Video, Imaging and Audio for Professional Applications, if any [RAN2/RAN3]

### 4.2 Objective of Performance part WI

NOTE: Leave empty if the WI proposal does not contain a RAN performance part.

### 4.3 RAN time budget request (not applicable to RAN5 WIs/SIs)

NOTE: For all new RAN related WIs/SIs which are not led by RAN WG5 the WI/SI rapporteur has to fill out the attached Excel table to request time budgets for corresponding RAN WG meetings.  
The Excel table has to be filled out for all affected RAN WGs and up to the target date of the WI/SI.  
One time unit (TU) corresponds to ~ 2 hours in the meeting.  
If no TU is needed, then leave the field empty otherwise enter a number >0 in the field.

For revisions of already approved WI/SI descriptions: Please remove the Excel table from the WID/SID's zip file. The time budgets are already recorded. If you want to modify them, then this has to be done via the status report and not via a revised WID/SID.

If this WID is covering Core and Performance part, then please fill out one line for each part in the attached Excel table.

**additional comments to the time budget request in the attached Excel table:**

## 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# | Remarks |
|  |  |  |  |  |  |

*{Note 1: Only TSs may contain normative provisions. Study Items shall create or impact only TRs.  
"Internal TR" is intended for 3GPP internal use only whereas "External TR" may be transposed by OPs.}*

NOTE: If this is a RAN WI including Core and Perf. part, then all new Core part specs have to be listed first and then all new Perf. part specs. Indicate "Core part" or "Perf. part" under Remarks for each spec.  
By default a new specs can only be new for one of both parts.

|  |  |  |  |
| --- | --- | --- | --- |
| **Impacted existing TS/TR** | | | |
| TS/TR No. | Description of change | Target completion plenary# | Remarks |
| 38.300 | Introduction of SNPN/CAG concept and support for NG-RAN | RAN#92 | Core part |
| 38.304 | Introduction of SNPN/CAG concept and support for NG-RAN | RAN#92 | Core part |
| 38.331 | Introduction of SNPN/CAG concept and support for NG-RAN | RAN#92 | Core part |
| 38.401 | Introduction of SNPN/CAG concept and support for NG-RAN | RAN#92 | Core part |
| 38.410 | Introduction of SNPN/CAG concept and support for NG-RAN | RAN#92 | Core part |
| 38.413 | Introduction of SNPN/CAG concept and support for NG-RAN | RAN#92 | Core part |
| 38.423 | Introduction of SNPN/CAG concept and support for NG-RAN | RAN#92 | Core part |
| 38.473 | Introduction of SNPN/CAG concept and support for NG-RAN | RAN#92 | Core part |
|  |  |  |  |

NOTE: If this is a RAN WI including Core and Perf. part, then all new Core part specs have to be listed first and then all new Perf. part specs. Indicate "Core part" or "Perf. part" under Remarks for each spec.  
If an existing spec is affected by both (Core part and Perf. part), then it has to be listed twice with appropriate approval dates.

## 6 Work item Rapporteur(s)

## 7 Work item leadership

Primary: RAN WG3

Secondary: RAN WG2

NOTE: For RAN WIs: Section 8 applies only to WGs outside of TSG RAN because RAN WG aspects have to be covered in section 4.

## 9 Supporting Individual Members

*{At least 4 supporting Individual Members are needed. There is an expectation that these companies will provide resources to progress the work. Note that having 4 supporting companies is a necessary but not sufficient condition: the usual TSG approval process by consensus is needed for the WID approval.}*

|  |
| --- |
| Supporting IM name |
| China Telecom |
| Nokia |
| Nokia Shanghai Bell |
| CATT |
| China Unicom |
| Huawei |
| HiSilicon |
| Asia Pacific Telecom |
| Mitsubishi Electric |
| Spreadtrum Communications |
| Fujitsu |
| SoftBank |
| Panasonic |
| Qualcomm |