**3GPP TSG SA WG-2 Meeting #160AHE S2-2400299**

**Emeeting, 22 – 29 January, 2024** **(revision of S2-2312441)**

**Source: China Unicom**

**Title: New WID on Indirect Network Sharing**

**Document for: Approval**

**Agenda Item: 30.2**

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: Indirect Network Sharing

{Free text. It has to be the same as in the "Title:" section above. Studies have to start by "Study on"}

Acronym: TEI19\_NetShare

Unique identifier:

{A number to be provided by MCC at the plenary}

Potential target Release: Rel-19

# 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 |  |
| 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 …

|  |  |
| --- | --- |
|  | Study |
|  | Normative – Stage 1 |
| x | Normative – Stage 2 |
|  | Normative – Stage 3 |
|  | Normative – Other\* |

**\* Other = e.g. testing**

## 2.2 Parent Work Item

|  |  |  |  |
| --- | --- | --- | --- |
| Parent Work / Study Items | | | |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
| NetShare | SA1 | **1000029** | Indirect Network Sharing |

### 2.3 Other related Work Items and dependencies

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

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

# 3 Justification

New network sharing scenarios have been studied for operators who intend to deploy a NG Radio Access Network to complement the existing market, taking operators’ business considerations into account.

The stage 1 requirements of Indirect Network Sharing have been documented in TS 22.261 to support NG-RAN sharing without a direct connection between the shared NG-RAN and the participating operator’s core network.

The work is to define the necessary architectural and functional enhancements to enable support of these stage 1 requirements. The analysis of the 5GS functionalities facilitate fulfilling these requirements via minor changes to core network functions based on certain inputs.

# 4 Objective

Enable support of Indirect Network Sharing according to stage 1 requirements via technical solution based on principles:

* Re-using existing “multiple PLMN support” and “Support of deployments topologies with specific SMF Service Areas” functions/features with potential enhancements to address the Indirect Network Sharing:
  + The definition and architecture of Indirect Network Sharing need to be specified in TS 23.501 and signalling/procedures updates in TS 23.502.
  + The AMF impacts to support enhanced NF selection function as appropriate, including taking into account location aspects of the UE. For example, the SMF selection (i.e., the AMF of hosting operator selects the SMF of participating operator) during the PDU session establishment procedure needs to be evaluated considering the location aspects of the UE.
  + The mobility procedure to add the trigger condition for SMF insertion/removal  for the Indirect Network Sharing case.

NOTE 1: The scope is limited to NR with 5GC only in this network sharing mechanism. The Indirect Network Sharing is based on V-SMF/V-UPF principle keeping a maximum of two SMFs controlling a PDU session.

NOTE 2: The scenario where the participating operator is different from the home network operator of the UE is not supported in this release. As part of this work item it will be documented how to handle the inbound roaming UE of the participating network in the shared area based on roaming agreement (e.g. redirect UE to 4G network of the participating network to receive services using currently available mechanism).

# 5 Expected Output and Time scale



|  |  |  |  |
| --- | --- | --- | --- |
| Impacted existing TS/TR {One line per specification. Create/delete lines as needed} | | | |
| TS/TR No. | Description of change | Target completion plenary# | Remarks |
| 23.501 | -  The definition and feature description of Indirect Network Sharing and the enhancements of impacted functions (e.g., SMF selection). | SA#104 | Dependent on TEI19 WI plan dates |
| 23.502 | Impacts to procedures according to impacts identified in 23.501. | SA#104 |  |

This TEI19\_WID requires 1 TU.

# 6 Work item Rapporteur(s)

Xing, Tianqi, China Unicom, xingtq@chinaunicom.cn

# 7 Work item leadership

SA WG2

# 8 Aspects that involve other WGs

SA5 - Charging, if any identified.

SA3 - security aspect, if any identified.

# 9 Supporting Individual Members

|  |
| --- |
| Supporting IM name |
| China Unicom |
| Ericsson |
| China Telecom |
| CATT |
| Vodafone |
| ZTE |
| Huawei |
| HiSilicon |
| China Mobile |
| BT |
| Cisco |
| Rakuten Mobile |
| Tencent |
| Tencent Cloud |
| DISH Network |
| OPPO |
| vivo |
| Qualcomm |
| Nokia |
| Nokia Shanghai Bell |
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