**3GPP TSG-SA WG6 Meeting #40-e S6-202116**

e-meeting, 16th – 24th November 2020

**Source: China Mobile**

**Title: New SID for Network Slice Capability Exposure**

**Document for: Approval**

**Agenda Item: 9**

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: Enabler Layer Support Network Slice Capability Exposure for Vertical Application

## Acronym: FS\_NSCEEL

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

Potential target Release: Rel-18.

## 1 Impacts

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

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

### 2.1 Primary classification

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

### 2.2 Parent Work Item

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| Parent Work / Study Items  |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
|  |  |  |  |

### 2.3 Other related Work Items and dependencies

|  |
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| Other related Work Items (if any) |
| Unique ID | Title | Nature of relationship |
| 840035 | Study on enhancements to application layer support for V2X services | eV2XAPP study requiring support on network slice capability exposure |
| 890036 | Enhanced application layer support for V2X services | eV2XAPP stage-2 requiring support on network slice capability exposure |
| 860006 | Architecture for enabling Edge Applications | EDGEAPP study requiring support on network slice capability exposure |
| 820026 | Study on application layer support for Unmanned Aerial System (UAS) | UASAPP study requiring support on network slice capability exposure |
| 820025 | Study on application layer support for Factories of the Future in 5G network | FFAPP study requiring support on network slice capability exposure |

## 3 Justification

Network slicing is the key technology for differentiated network requirements of vertical industries. SA1 defines the relevant requirements of the open network slicing capability API for trusted third parties in TS 22.261 section 6.10, including the need to support the creation, modification, and deletion of slices, support the definition and update of slice capabilities, and support slice-related UE and service information configuration

Based on these requirements, for network slice capability exposure, both SA2 and SA5 have related directions. SA2 has defined the northbound APIs of NEF which already include some slice related exposure abilities at UE/session level. SA5 has already support the exposure capability of MnS related to slices. Besides these existing studies, there’s still gap between management of network slice and verticals. As for the end-to-end network services, application layer and network layer need coordinate and related modification of resource or policies on both sides. So an enabler layer between application and network is needed.

In the existing SA6 specifications, requirements for network slice capability exposure have been already raised. For example, in section 5.13 of TR 23.745, there’s key issue about Capability Exposure related to Private Slice Network Status in future factory scenarios. And in the study of eV2XAPP, in section 5.3 of TR 23.764, there’s also requirements on V2X application support for network slicing. For both these key issues, there’re already some solutions, but most of them are dedicate solutions without a whole enabler or general procedure.

So it’s clear that the requirements of network slice support for vertical applications is needed. Beside the capability of basic network support, verticals also require additional capabilities of network slice. They expect to realize customized ordering, configuration, maintenance, and monitoring of network slicing.SA6 structure needs to be enhanced on network slice capability exposure to support the industry application enabling architecture. Possible functional entities, processes, and APIs involved in the opening of network slicing capabilities need to be clearly defined, and how to combine the vertical application enabling architecture already defined by SA6 with network capabilities exposure requires further research

## 4 Objective

The SA6 objectives include the following:

Study how SA6 should be enhanced for enabling management to vertical on utilizing the customized exposure capabilities of network slice. Which may include:

* Analyze potential use cases and requirements for customized network slice capability exposure to verticals, and investigate the architecture of enable layer;
* Define the enabler layer aspect of detailed procedures of network slice capability utilization;
* Define API definition of network slice capability exposure for vertical applications by enabler layer, and whether reuse the existing API or define new APIs;
* Determine the procedure, information flow and API in the scenario of EAS as the 3rd party using EES to realize the capability of network slice exposure;
* Enhancement on SEAL, using some of existing SEAL abilities to support network slice exposure for vertical application;
* Investigate the architecture of enable layer and discuss if an entity of network slice capability exposure is needed (a new entity or integrating existing CSMF determined in SA5), and define the functions requirements;

Note: The study needs to coordinate with SA5 for the management aspects exposure and SA2 for NEF exposure capability utilization.

## 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 |
| TR | xx | Architecture for network slice capability exposure | TSG#93 | TSG#94 |  |

|  |
| --- |
| **Impacted existing TS/TR** *{One line per specification. Create/delete lines as needed}* |
| TS/TR No. | Description of change  | Target completion plenary# | Remarks |
|  |  |  |  |
|  |  |  |  |

## 6 Work item Rapporteur(s)

Shi, Xiaonan, China Mobile, shixiaonan@chinamobile.com

## 7 Work item leadership

SA6

## 8 Aspects that involve other WGs

SA2 for core network architecture aspects, SA3 for security aspects, SA5 for slicing management aspects.

## 9 Supporting Individual Members

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| Supporting IM name |
| CMCC |
| Huawei |
| Caltta |
| China Unicom |
| Lenovo |
| Motorola Mobility |
| CATT |
| CAICT |
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