|  |
| --- |
| 3GPP TR 38.832 V0.1.0 (2020-08) |
| Technical Report  |
| 3rd Generation Partnership Project;Technical Specification Group RAN;NR;Study on enhancement of Radio Access Network (RAN) slicing(Release 17) |
|   |
|  |  |
|  |
| The present document has been developed within the 3rd Generation Partnership Project (3GPP TM) and may be further elaborated for the purposes of 3GPP.The present document has not been subject to any approval process by the 3GPPOrganizational Partners and shall not be implemented.This Specification is provided for future development work within 3GPPonly. The Organizational Partners accept no liability for any use of this Specification.Specifications and Reports for implementation of the 3GPP TM system should be obtained via the 3GPP Organizational Partners' Publications Offices. |

|  |
| --- |
|  |
| ***3GPP***Postal address3GPP support office address650 Route des Lucioles - Sophia AntipolisValbonne - FRANCETel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16Internethttp://www.3gpp.org |
| ***Copyright Notification***No part may be reproduced except as authorized by written permission.The copyright and the foregoing restriction extend to reproduction in all media.© 2020, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).All rights reserved.UMTS™ is a Trade Mark of ETSI registered for the benefit of its members3GPP™ is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational PartnersLTE™ is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational PartnersGSM® and the GSM logo are registered and owned by the GSM Association |

Contents

Foreword 4

1 Scope 5

2 References 5

3 Definitions of terms, symbols and abbreviations 5

3.1 Terms 5

3.2 Symbols 5

3.3 Abbreviations 5

4 General 5

5 Study mechanisms to enable UE fast access to the cell supporting the intended slice 6

5.1 Slice based cell reselection under network control 6

5.1.1 Use case description 6

5.1.2 Solution description 6

5.2 Slice based RACH configuration or access barring 6

5.2.1 Use case description 6

5.2.2 Solution description 6

6 Study necessity and mechanisms to support service continuity 6

6.1 Use case description 6

6.2 Solution description 6

7 Conclusion 6

Annex <A> (informative): Change history 7

# Foreword

This Technical Report has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

x the first digit:

1 presented to TSG for information;

2 presented to TSG for approval;

3 or greater indicates TSG approved document under change control.

y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.

z the third digit is incremented when editorial only changes have been incorporated in the document.

# 1 Scope

The present document provides descriptions of use cases and solutions with regard to enhancement of Radio Access Network (RAN) slicing for NR.

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

# 3 Definitions of terms, symbols and abbreviations

## 3.1 Terms

For the purposes of the present document, the terms given in 3GPP TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [1].

## 3.2 Symbols

For the purposes of the present document, the following symbols apply:

<symbol> <Explanation>

## 3.3 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

<ABBREVIATION> <Expansion>

# 4 General

*Editor Note: capture the general descriptions*

# 5 Study mechanisms to enable UE fast access to the cell supporting the intended slice

## 5.1 Slice based cell reselection under network control

### 5.1.1 Scenario and issue description

*Editor Note: capture the description of scenario and issue.*

**General description for the scenario:**

**• Multiple and different slices can be supported on different frequencies**

**• Multiple and different slices can be supported on the same frequency in different regions.**

Editor Note: Additional scenarios can be discussed as part of the study.

For each scenario we study both IDLE and INACTIVE and determine whether there is need for a solution and possible solutions. Connected mode will also be considered but with a lower priority.

We will investigate whether the R15 mechanism (e.g. dedicated priority mechanism) can solve the above issues and study if some enhancements are needed.

Editor Note: Both cell selection and cell re-selection will be studied.



**Figure 5.1.1-1: An example for slice deployment scenario**

As shown in figure 1, slice1 (e.g. eMBB) is supported in both F1 and F2 everywhere, since the frequency resources are so valuable and the top requirement for all operators’ 5G network is to serve millions or billions of smart phone users. Slice2 (e.g. URLLC) is supported only in F2 in some area, e.g. factory or hospital.

Area 1 is deployed in the factory or hospital. In this area, F1 supports slice1 (e.g. eMBB), while F2 supports both slice 1 and slice 2 (e.g. eMBB and URLLC).

Area 2 is the public area. F1 and F2 all supporting slice1 (e.g. eMBB) for smart phone users, no slice2 (e.g. URLLC) is supported in area 2. And F2 is deployed as hotspot to provide wideband access.

eMBB and URLLC slices are used only as an example of various slices. The deployment of any slice on any frequency band is up to network implementation.

### 5.1.2 Solutions

*Editor Note: Capture the solutions for the scenario and issue.*

## 5.2 Slice based RACH configuration or access barring

### 5.2.1 Scenario and issue description

*Editor Note: capture the description of scenario and issue.*

It will be studied how to enable UE’s fast access for the intended slice with slice-based RACH resources/configuration and RACH parameters prioritization, and whether identified issues can be solved by legacy mechanisms.

### 5.2.2 Solutions

*Editor Note: Capture the solutions for the scenario and issue.*

# 6 Study necessity and mechanisms to support service continuity

## 6.1 Scenario and issue description

*Editor Note: capture the description of scenario and issue.*

## 6.2 Solutions

*Editor Note: Capture the solutions for the scenario and issue.*

# 7 Conclusion

Annex <A> (informative):
Change history

|  |
| --- |
| **Change history** |
| **Date** | **Meeting** | **TDoc** | **CR** | **Rev** | **Cat** | **Subject/Comment** | **New version** |
| 2020-08 | RAN2#111-e | R2-2007419 | - | - | - | Draft skeleton | 0.0.0 |
| 2020-08 | RAN2#111-e | R2-2008549 | - | - | - | Capture the agreements in RAN2#111e | 0.1.0 |