**3GPP TSG-CT WG4 Meeting #101eC4-205abc**

**E-Meeting, 03rd – 13th November 2020 *was* C4-205083**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.518** | **CR** | **0410** | **rev** | **1** | **Current version:** | **16.5.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **x** |

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| ***Title:*** | Serving Cell Id in N1MessageNotification | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | CT4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_eLCS | | | | |  | ***Date:*** | | | 2020-10-23 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | 1.For support of Event Reporting with no change of LMF during Low Power Periodic and Triggered 5GC-MT-LR Procedure (see clause 6.7.1 of TS 23.273), it mentions that the serving cell ID should be included Namf\_Communication\_N1MessageNotify request from AMF to LMF in step 5 and this serving cell ID can be used to determine UE location in LMF in step 10, see below  *5. The AMF checks the integrity of the NAS message and deciphers its contents. The AMF then invokes an Namf\_Communication\_N1MessageNotify service operation to forward the event report to either the serving LMF or any suitable LMF as described for step 25 for clause 6.3.1. The AMF includes an indication of Control Plane CIoT 5GS Optimisation in the service operation and the serving cell ID.*  *……*  *10. If a location estimate is needed for event reporting, the LMF determines the UE location using the location measurements and/or location estimate received in the event report at step 5 and/or the serving cell ID provided by the AMF at step 5.*  The serving cell ID is missing the current definition of Namf\_Communication\_N1MessageNotify request. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Added the serving cell ID in N1MessageNotify request and data model N1MessageNotification. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Clause 6.7.1 Event Reporting with no change of LMF of TS 23.273 (of Low Power Periodic and Triggered 5GC-MT-LR Procedures) won't be fully supported, and the serving cell ID in the step 5 is missing in current stage 3 defintion. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.2.2.3.5.5, 6.1.6.2.16, A.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **x** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | This CR will introduce backward compatible corrections in the OpenAPI specification file of TS29518\_Namf\_ Communication OpenAPI. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Rev1:   1. Corrected typo "of LMF of LMF" and reference issue (i.e. "see clause 6.7.2 of TS 23.273" - should be changed to 6.7.1) in ***Reason for change:*** on cover sheet. | | | | | | | | |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*The start of changes\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

###### 5.2.2.3.5.5 Using N1MessageNotify in the LCS Event Report, LCS Cancel Location and LCS Periodic-Triggered Invoke Procedures

In the LCS Event Report, LCS Cancel Location and LCS Periodic-Triggered Invoke procedure, the N1MessageNotify service operation is invoked by the AMF, towards the LMF, to notify the N1 UE LCS messages received from the UE.

The requirements specified in clause 5.2.2.3.5.1 shall apply with the following modifications:

1. If the corresponding N1 notification URI is not available, the AMF shall retrieve the NF profile of the NF Service Consumer (e.g. the LMF) from the NRF using the NF Instance Identifier received during corresponding N1N2MessageTransfer service operation (see clause 5.2.2.3.1), and further identify the corresponding service instance if Service Instance Identifier was also received, and fetch N1 Notification URI from the default notification subscription registered with "N1\_MESSAGE" notification type and "LCS" N1 message class (See Table 6.2.6.2.3-1 and Table 6.2.6.2.4-1 of 3GPP TS 29.510 [29]).

2. Same as step 1 of Figure 5.2.2.3.5.1-1, the request payload shall include the following information:

- the N1 Uplink LCS Message;

- LCS correlation identifier;

- indication of Control Plane CIoT 5GS Optimisation if Control Plane CIoT 5GS Optimisation is being used.

and may included serving cell ID if it is available;

NOTE: For the EventReport message and UE initiated CancelDeferredLocation message, the AMF includes the deferred routing identifier received from UE in N1 UL NAS TRANSPORT message as LCS correlation identifier. The LCS correlation identifier can assist a serving LMF in identifying the periodic or triggered location session if the same LMF had assigned the deferred routing identifier or can indicate to the LMF that it is acting as a default LMF.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Next change\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

##### 6.1.6.2.16 Type: N1MessageNotification

Table 6.1.6.2.16-1: Definition of type N1MessageNotification

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description |
| n1NotifySubscriptionId | string | C | 0..1 | Represents the subscription Id for which the notification is generated. The NF Service Consumer uses this to correlate the notification against a corresponding subscription. If the notification is due to an implicit subscription via NRF, then the value shall be set as "implicit".  This IE shall be present if the notification is based on a subscription to N1MessgeNotification. An exception is for the case when initial AMF forwards NAS message to target AMF during AMF re-allocation procedure. |
| n1MessageContainer | N1MessageContainer | M | 1 | Contains the N1 message class and N1 message content. |
| lcsCorrelationId | CorrelationID | O | 0..1 | If the N1 message notified is for LCS procedures, the NF Service Producer (e.g. AMF) may include an LCS correlation identifier. |
| registrationCtxtContainer | RegistrationContextContainer | C | 0..1 | If the N1 message notified is of type 5GMM (i.e. during Registration with AMF re-allocation procedure), the NF Service Producer (e.g. AMF) shall include this IE, if available. |
| newLmfIdentification | LMFIdentification | O | 0..1 | If a new LMF is selected by AMF, this IE may include the new selected LMF Identification. |
| guami | Guami | C | 0..1 | This IE shall be present during UE Assisted and UE Based Positioning Procedure (see clause 5.2.2.3.5.3) or the LCS Event Report, LCS Cancel Location and LCS Periodic-Triggered Invoke Procedures (see clause 5.2.2.3.5.5) and it may be present otherwise.  When present, it shall contain the GUAMI serving the UE. |
| cIoT5GSOptimisation | boolean | C | 0..1 | This IE shall be present when the N1 message class is "LPP/LCS" and the N1 message is received from the UE with Control Plane CIoT 5GS Optimisation. When present, it shall be set as follows:  - true: Control Plane CIoT 5GS Optimisation was used and no signalling or data is currently pending for the UE at the AMF.  - false (default): Control Plane CIoT 5GS Optimisation was not used or signalling or data is currently pending for the UE at the AMF. |
| ecgi | Ecgi | O | 0..1 | When present, this IE shall indicate the identifier of the E-UTRAN cell serving the UE.  This IE may be present if the N1 message notified is for LCS procedures. |
| ncgi | Ncgi | O | 0..1 | When present, this IE shall indicate the identifier of the NR cell serving the UE.  This IE may be present if the N1 message notified is for LCS procedures. |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Next change\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

## A.2 Namf\_Communication API

openapi: 3.0.0

info:

version: 1.1.1

title: Namf\_Communication

description: |

AMF Communication Service

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***(… text not shown for clarity …)***

N1MessageNotification:

type: object

properties:

n1NotifySubscriptionId:

type: string

n1MessageContainer:

$ref: '#/components/schemas/N1MessageContainer'

lcsCorrelationId:

$ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/CorrelationID'

registrationCtxtContainer:

$ref: '#/components/schemas/RegistrationContextContainer'

newLmfIdentification:

$ref: 'TS29572\_Nlmf\_Location.yaml#/components/schemas/LMFIdentification'

guami:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Guami'

cIoT5GSOptimisation:

type: boolean

default: false

ecgi:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Ecgi'

ncgi:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Ncgi'

required:

- n1MessageContainer

***(… text not shown for clarity …)***

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*The end of changes\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*