**3GPP TSG-CT4 Meeting #101-e C4-205488**

**E-Meeting, 3rd Nov 2020 - 13th Nov 2020** *Revision of 5043*

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **29.500** | **CR** | **0165** | **rev** | **1** | **Current version:** | **16.5.0** |  |
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| *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:***  |  |
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| ***Source to WG:*** |  |
| ***Source to TSG:*** | CT4 |
|  |  |
| ***Work item code:*** |  |  | ***Date:*** |  |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** |  |
|  | *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 canbe 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)* |
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| ***Reason for change:*** | CT4 received an LS from CT3 on support of stateless NFs (C4-205019, C3-204386), which highlights ambiguities in clauses 6.5.3.2 and 6.5.3.3 of TS 29.500. This CR offers necessary clarifications as follows. TS 23.527 specifies an NF behaviour when an NF Service Consumer detect that the NF Service Producer has changed (or vice versa, when a Producer detects the Consumer has changed). TS 23.527 clauses 6.5 and 6.6 address both scenarios, when the binding mechanism is used and when it is not used.  |
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| ***Summary of change:*** | References to relevant clauses in TS 23.527 are added and also necessary clarifications are added to existing bullet points in clauses 6.5.3.2 and 6.5.3.3. |
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| ***Consequences if not approved:*** | Ambiguity in the spec remains, which impacts the work done by CT3 and may also cause interoperation problems.  |
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| ***Clauses affected:*** | 6.5.3.2, 6.5.3.3. |
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|  | **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's revision history:*** | Rev1: In both 6.5.3.2 and 6.5.3.3, SCP related statements are moved to new bullet points 9. Few editorial in different revision colors. |

\* \* \* First Change \* \* \* \*

#### 6.5.3.2 Stateless NF as service consumer

1. When the NF service consumer subscribes (explicitly or implicitly) to notifications from another NF service producer, the NF service consumer may provide a binding indication to the NF service producer as specified in clause 6.3.1.0 of 3GPP TS 23.501 [3] and clause 4.17.12.4 of 3GPP TS 23.502 [4], to enable the related notifications to be sent to an alternative NF service consumer within the NF (service) set, in addition to providing the Callback URI in the subscription resource.

2. A NF service producer or SCP may use the Nnrf\_NFDiscovery service to discover NF service consumers within an NF (service) set.

3. An NF service producer may become aware of an NF service consumer change, via receiving an updated binding information or an Error response to a notification, via link level failures (e.g. no response from the NF), or via a notification from the NRF that the NF service consumer has deregistered. The HTTP error response may be a 3xx redirect response pointing to a new NF service consumer.

4. When becoming aware of an NF service consumer change, and if the new NF service consumer is not known, the NF service producer shall select a new NF service consumer as specified in clause 6.6 of 3GPP TS 23.527 [38]. If binding information is available and the binding mechanism is supported by the NF service producer, the reselection should be based on the binding information, as specified in clause 6.6.2 of 3GPP TS 23.527 [38], in clause 6.3.1.0 of 3GPP TS 23.501 [3] and in clause 4.17.12.4 of 3GPP TS 23.502 [4]. If binding information is not available or the binding mechanism is not supported by the NF service producer, the reselection is performed as specified in clause 6.6.3 of 3GPP TS 23.527 [38].

5. When becoming aware of an NF service consumer change, the NF service producer or SCP shall replace the authority part of the Notification URI with the new NF service consumer information and shall use that URI in subsequent communications, as specified in clause 6.6 of 3GPP TS 23.527 [38].

6. When the NF service consumer is changed, and if the new NF service consumer does not support handling notifications as specified in the above bullet 5, the new NF service consumer should update the NF service producers with the new Notification URI. For explicit subscriptions, this is achieved by updating the existing subscription or creating a new subscription, depending on the NF service producer's API. For implicit subscriptions, this is carried out via a service update request message.

7. Each NF service consumer within the NF (service) set shall be prepared to receive notifications from the NF service producer, either by handling the notifications to the Notification URI constructed according to the above bullet 5 with its own address as authority part, by handling the notifications to the Notification URI notified in the above bullet 6, or by replying with an HTTP 3xx redirect pointing to a new NF service consumer or with another HTTP error.

8. The NF service producer shall be prepared to receive updates to resources of the related service from any NF service consumer within the NF (service) set.

9. If an SCP detects that the target NF service consumer of a notification/callback request is not available, the SCP shall select a new NF service consumer based on either Routing Binding Indication, if available and supported by the SCP, or by relying on 3gpp-Sbi-Discovery headers, if available, provided by the NF service producer.

\* \* \* 2nd Change \* \* \* \*

#### 6.5.3.3 Stateless NF as service producer

1. When the NF service producer receives a request to establish a service, it may provide binding information as specified in clause 6.3.1.0 of 3GPP TS 23.501 [3] and clause 4.17.12 of 3GPP TS 23.502 [4] to establish a binding between the NF service consumer and the NF service producer for subsequent related requests.

2. The NF service consumer or SCP may use the Nnrf\_NFDiscovery service to discover NF service producers within an NF (service) set.

3. An NF service consumer may become aware of an NF service producer change, by receiving an updated binding information or an Error response from the old or a selected new NF service producer, via link level failures (e.g. no response from the NF), or via a notification from the NRF that the NF has deregistered. The HTTP error response may be a 3xx redirect response pointing to a new NF.

4. When becoming aware of an NF service producer change, and if the new NF service producer is not known, the NF service consumer shall select a new NF service producer, as specified in clause 6.5 of 3GPP TS 23.527 [38]. If binding information is available and the binding mechanism is supported by the NF service consumer, the reselection should be based on the binding information, as specified in clause 6.12 of this specification (see also clause 6.5.2 of 3GPP TS 23.527 [38]) and in clause 6.3.1.0 of 3GPP TS 23.501 [3]. If binding information is not available or the binding mechanism is not supported by the NF service consumer, the reselection is performed as specified in clause 6.5.3 of 3GPP TS 23.527 [38].

5. When becoming aware of an NF service producer change, the NF service consumer or SCP shall replace the apiRoot of the resource URI with the new NF service producer's apiRoot and shall use that URI in subsequent communications as specified in clause 6.5 of 3GPP TS 23.527 [38].

6. When the NF service producer changes, the new NF service producer may include an updated binding indication in a notification/callback request sent to the NF service consumer. The new NF service producer may otherwise generate a new resource URI and return it to the NF service consumer upon reception of a service request related to the resource from that NF service consumer, e.g. the new NF service producer may reply with an HTTP 3xx redirect status code pointing to the new location of the resource.

7. Each NF service producer within the NF (service) set shall be prepared to receive updates for resources from the NF service consumer, either by handling the updates to the resource URIs constructed according to the above bullet 5 with its own apiRoot, by handling the updates to the resource URIs notified in the above bullet 6, by replying with an HTTP 3xx redirect pointing to a new NF service producer, or by replying with another HTTP error.

8. For a service that includes notifications from the NF service producer, the NF service consumer shall be prepared to receive for that service notifications from any NF service producer within the NF (service) set.

9. If an SCP detects that the target NF service producer is not available, the SCP shall select a new NF service producer based on either Routing Binding Indication, if available and supported by the SCP, or by relying on 3gpp-Sbi-Discovery headers, if available, provided by the NF service consumer.

\* \* \* End of Changes \* \* \* \*