**3GPP TSG-CT WG3 Meeting #108-eC3-201423**

**E-Meeting, 19th – 28th February 2020 *(revision of C3-201182)***

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **29.513** | **CR** | **0122** | **rev** | **1** | **Current version:** | **16.2.0** |  |
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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:*** | DNN Replacement as PCF discovery factor for the AMF | | | | | | | | | |
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| ***Source to WG:*** | Ericsson, ZTE, Huawei | | | | | | | | | |
| ***Source to TSG:*** | C3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | en5GPccSer | | | | |  | ***Date:*** | | | 14 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***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 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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | TS 23.501 16.3.0 updates PCF discovery and selection for a UE or a PDU session to specify that DNN replacement capability of the PCF can be used as PCF discovery factor. | | | | | | | | |
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| ***Summary of change:*** | | Updated clause 8.2 PCF discovery and selection by the AMF to include the supported features, specifically DNN replacement, as PCF discovery factor. | | | | | | | | |
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| ***Consequences if not approved:*** | | Incomplete PCF discovery and selection by the AMF clause. | | | | | | | | |
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| ***Clauses affected:*** | | 8.2 | | | | | | | | |
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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:*** | |  | | | | | | | | |

**Additional discussion(if needed):W**

**Proposed changes:**

\*\*\* 1st Change \*\*\*

## 8.2 PCF discovery and selection by the AMF

The AMF selects the PCF for a UE.

The AMF may utilize the Nnrf\_NFDiscovery service of the NRF to discover the candidate PCF instance(s). In addition, PCF information may also be locally configured on AMF. The AMF selects a PCF instance, or two when roaming, based on the available PCF instances (obtained from the NRF or locally configured in the AMF), depending on operator's policies.

In the non-roaming case, the AMF selects a PCF instance for AM policy association and selects the same PCF instance for UE policy association. In the roaming case, the AMF selects a V-PCF instance for AM policy association and selects the same V-PCF instance for UE policy association. The following factors may be considered at PCF discovery and selection for Access and Mobility policies and UE policies:

- SUPI; the AMF selects a PCF instance based on the SUPI range the UE's SUPI belongs to or based on the results of a discovery procedure with NRF using the UE's SUPI as input for PCF discovery.

- S-NSSAI(s).

- PCF Set ID.

- PCF Group ID of the UE's SUPI.

NOTE 1: The AMF can infer the PCF Group ID the UE's SUPI belongs to, based on the results of PCF discovery procedures with NRF. The AMF provides the PCF Group ID the SUPI belongs to other PCF NF consumers as described in TS 23.502 [3].

- The features supported by the PCF (e.g. the PCF supporting the "DNNReplacementControl" feature is selected by the AMF supporting DNN replacement).

In the following scenarios, information about the PCF that has been selected by the AMF (e.g. the selected PCF instance Id) can be forwarded to another NF and used instead of performing PCF selection as described above (discovery may still be needed depending on what level of information is sent by the AMF, e.g. the address of the PCF instance may not be present):

- During AMF relocation, the target AMF may receive a resource URI of AM Policy association and/or a resource URI of UE Policy association from the source AMF and if available the PCF Group ID to enable the target AMF to reuse the same PCF instance (i.e. reuse the resource of the AM Policy association and/or UE Policy association), and the target AMF may decide based on operator policy either to use the same PCF instance or select a new PCF instance.

- In the roaming case, the AMF may, based on operator policies, e.g. roaming agreement, select the H-PCF in addition to the V-PCF for a UE by performing the PCF discovery and selection as described above. The AMF sends the selected H-PCF instance Id to the V-PCF during the UE Policy association establishment procedure.

In the case of delegated discovery and selection in the SCP, the following applies:

- The selected PCF instance may include the PCF Group ID in the response to the AMF.

NOTE 2: The selected (V-)PCF instance can include the binding indication, including the (V-)PCF ID and possibly PCF Set ID in the response to the AMF.

- The SCP discovers and selects a (V-)PCF instance for AM policy association. The AMF uses the selected (V-) PCF instance Id for the AM policy association and available binding information for the request to establish the UE policy association. The SCP selects the corresponding (V-)PCF instance for UE policy association.

- During AMF relocation, the AMF may receive a resource URI of AM Policy association and/or a resource URI of UE Policy association from the source AMF and if available a PCF Group ID from the source AMF to enable the target to reuse the same PCF instance. The AMF may decide based on operator policy either to use the old PCF instance or select another PCF instance (i.e. reuse the resource of the AM Policy association and/or UE Policy association). If the AMF decides to use the old PCF instance, the AMF includes the resource URI, and if available the PCF Group ID as received from the source AMF in the AM policy update request and/or UE policy update request to the PCF via the SCP.

- In the roaming case, the AMF performs discovery and selection of the H-PCF from NRF as described in this subclause. The AMF may indicate the maximum number of H-PCF instances to be returned from NRF, i.e. H-PCF selection at NRF. The AMF uses the selected V-PCF instance Id for AM Policy association and available binding information received during the AM policy association procedure to send the UE policy association establishment request, which also includes the selected H-PCF instance Id, to the SCP. The SCP discovers and selects the V-PCF instance. The V-PCF sends an UE policy association establishment request towards the HPLMN, which includes the selected H-PCF instance Id as a discovery and selection parameter to the H-PCF via the SCP.

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