**3GPP TSG- Meeting #**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** |  | **rev** |  | **Current version:** |  |  |
|  | | | | | | | | |
| *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:*** | S2 | | | | | | | | | |
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| ***Work item code:*** |  | | | | |  | ***Date:*** | | |  |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | New VFL related services defined in TS 23.288 need to be reflected | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Define the following new services to support VFL: Nnwdaf\_VflInference, Naf\_VflTraining, Naf\_VflInference, Nnef\_VflTraining, Nnef\_VflInference | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Incomplete specification of services and misalignment with TS 23.288 | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 7.2.8, 7.2.12, 7.2.19 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

1st change

### 7.2.8 NEF Services

The following NF services are specified for NEF:

Table 7.2.8-1: NF Services provided by NEF

| Service Name | Description | Reference in TS 23.502 [3] or other TS |
| --- | --- | --- |
| Nnef\_EventExposure | Provides support for event exposure. | 5.2.6.2 |
| Nnef\_PFDManagement | Provides support for PFDs management. | 5.2.6.3 |
| Nnef\_ParameterProvision | Provides support to provision information which can be used for the UE in 5GS. | 5.2.6.4 |
| Nnef\_Trigger | Provides support for device triggering. | 5.2.6.5 |
| Nnef\_BDTPNegotiation | Provides support for background data transfer policy negotiation and optionally notification for the renegotiation. | 5.2.6.6 |
| Nnef\_TrafficInfluence | Provide the ability to influence traffic routing. | 5.2.6.7 |
| Nnef\_ChargeableParty | Requests to become the chargeable party for a data session for a UE. | 5.2.6.8 |
| Nnef\_AFsessionWithQoS | Requests the network to provide a specific QoS for an AF session. | 5.2.6.9 |
| Nnef\_MSISDN-less\_MO\_SMS | Used by the NEF to send MSISDN-less MO SM to the AF. | 5.2.6.10 |
| Nnef\_ServiceParameter | Provides support to provision service specific information. | 5.2.6.11 |
| Nnef\_APISupportCapability | Provides support for awareness on availability or expected level of a service API. | 5.2.6.12 |
| Nnef\_NIDDConfiguration | Used for configuring necessary information for data delivery via the NIDD API. | 5.2.6.13 |
| Nnef\_NIDD | Used for NEF anchored MO and MT unstructured data transport. | 5.2.6.14 |
| Nnef\_SMContext | Provides the capability to create, update or release the SMF-NEF Connection. | 5.2.6.15 |
| Nnef\_AnalyticsExposure | Provides support for exposure of network analytics. | 5.2.6.16 |
| Nnef\_UCMFProvisioning | Provides the ability to configure the UCMF with dictionary entries consisting of UE manufacturer-assigned UE Radio Capability IDs, the corresponding UE radio capabilities, the corresponding UE Radio Capability for Paging and the (list of) associated IMEI/TAC value(s) via the NEF. The UE radio capabilities the NEF provides for a UE radio Capability ID can be in TS 36.331 [51] format, TS 38.331 [28] format or both formats. Also used for deletion (e.g. as no longer used) or update (e.g. to add or remove a (list of) IMEI/TAC value(s) associated to an entry) of dictionary entries in the UCMF. | 5.2.6.17 |
| Nnef\_ECRestriction | Provides support for queuing status of enhanced coverage restriction, or enable/disable enhanced coverage restriction per individual UEs. | 5.2.6.18 |
| Nnef\_ApplyPolicy | Provides the capability to apply a previously negotiated Background Data Transfer Policy to a UE or a group of UEs. | 5.2.6.19 |
| Nnef\_Location | Provides the capability to deliver UE location to AF. | 5.2.6.21 |
| Nnef\_AMInfluence | Provides the ability to influence access and mobility management related policies for one or multiple UEs. | 5.2.6.22 |
| Nnef\_AMPolicyAuthorization | Provides the ability to provide inputs that can be used by the PCF for deciding access and mobility management related policies. | 5.2.6.23 |
| Nnef\_AKMA | AKMA Application Key derivation service. | TS 33.535 [124] |
| Nnef\_Authentication | This service enables the consumer to authenticate and authorize the Service Level Device Identity as described in TS 23.256 [136]. | TS 23.256 [136] |
| Nnef\_TimeSynchronization | Provides the ability to support for (g)PTP or 5G access stratum based time synchronization service. | 5.2.6.25 |
| Nnef\_EASDeployment | EAS deployment service. | 5.2.6.26 |
| Nnef\_UEId | UE Identifier service, which supports the retrieval of an AF specific UE Identifier or GPSI in the form of MSISDN based on the UE address. It also supports MSISDN verification of given UE. | 5.2.6.27 |
| Nnef\_MBSTMGI | Allows AF to request allocation/deallocation of TMGI(s) for MBS Session. | TS 23.247 [129] |
| Nnef\_MBSSession | Allows AF to create, update and delete MBS Session. | TS 23.247 [129] |
| Nnef\_MBSGroupMsgDelivery | Allows AF to request to create, update and delete resource for group message delivery via MBS Session. | TS 23.247 [129] |
| Nnef\_ASTI | Provides the ability to influence 5G access stratum based time distribution configuration. | 5.2.6.28 |
| Nnef\_SMService | Used for SBI-based MO SM transmit through NEF for MSISDN-less MO SMS. | 5.2.6.29 |
| Nnef\_PDTQPolicyNegotiation | Provides support for negotiation for Planned Data Transfer with QoS requirements policy and optionally notification for the renegotiation. | 5.2.6.30 |
| Nnef\_MemberUESelectionAssistance | Provides one or more list(s) of candidate UE(s) (among the list of target member UE(s) provided by the AF) and additional information based on the parameters contained in the request from the AF. | 5.2.6.31 |
| Nnef\_DNAIMapping | Allows AF to obtain DNAI. | 5.2.6.34 |
| Nnef\_TrafficInfluenceData | Used in HR SBO as defined in TS 23.548 [130] to get AF Traffic Influence configuration from the V-NEF. | 5.2.6.35 |
| Nnef\_UEAddress | Enables the service consumer to retrieve the public IPv4address or IPv6 prefix related to a PDU session and GPSI | 5.2.6.36 |
| Nnef\_ECSAddress | This service is defined only for the support of HR-SBO. It allows AF to provide ECS Address Configuration Information for a group of UE or any UE to V-NEF. It allows V-SMF to subscribe and retrieve ECS Address Configuration Information. | 5.2.6.37 |
| Nnef\_VflTraining | This service is provided by an NEF on behalf of an AF or NWDAF acting as VFL client and enables an VFL server as consumer to request the AF to participate in VFL model training | TS 23.288 [86] |
| Nnef\_VflInference | This service is provided by an NEF on behalf of an AF or NWDAF acting as VFL client r and enables an VFL server as consumer to request the AF to participate in VFL inference | TS 23.288 [86] |
| Nnef\_VflNFDiscovery | This service is provided by by an NEF towards an untrusted AF acting as VFL server to enable the AF to discover NWDAFs acting as VFL client | TS 23.288 [86] |
| Nnef\_Inference | This service is provided by an NEF on behalf of an AF acting as VFL server and enables an AnLF as consumer to request the AF to perform VFL inference | TS 23.288 [86] |
| Nnef\_Training | This service is provided by an NEF on behalf of an AF acting as VFL server and enables an NWDAF as consumer to request the AF to train a model | TS 23.288 [86] |

2nd change

### 7.2.12 NWDAF Services

The following NF services are specified for NWDAF:

Table 7.2.12-1: NF Services provided by NWDAF

| Service Name | Description | Reference in TS 23.288 [86] |
| --- | --- | --- |
| Nnwdaf\_AnalyticsSubscription | This service enables the NF service consumers to subscribe/unsubscribe for different type of analytics from NWDAF. | 7.2 |
| Nnwdaf\_AnalyticsInfo | This service enables the NF service consumers to request and get different type of analytics information from NWDAF or enables NWDAF to request transfer of analytics context from another NWDAF. | 7.3 |
| Nnwdaf\_DataManagement | This service enables the NF service consumer to subscribe/unsubscribe and fetch data from NWDAF. | 7.4 |
| Nnwdaf\_MLModelProvision | This service enables the consumer to receive a notification when an ML model matching the subscription parameters becomes available in NWDAF containing MTLF. | 7.5 |
| Nnwdaf\_MLModelInfo | This service enables the consumer to request and get ML Model Information from NWDAF containing MTLF. | 7.6 |
| Nnwdaf\_MLModelMonitor | This service enables the consumer to subscribe/unsubscribe for ML model accuracy information monitored by an NWDAF (i.e. NWDAF containing AnLF). The service also enables the NWDAF containing AnLF registers the use and monitoring capability for an ML model into the model provider NWDAF, i.e. NWDAF containing MTLF. | 7.9 |
| Nnwdaf\_MLModelTraining | This service enables ML model training. | 7.10 |
| Nnwdaf\_MLModelTrainingInfo | This service enables the consumer to request for the information about ML model training based on the ML Model input parameter provided by the consumer. | 7.11 |
| Nnwdaf\_RoamingAnalytics | This service enables the consumer to request or to subscribe/unsubscribe for network data analytics related to roaming UE for NWDAF analytics. | 7.7 |
| Nnwdaf\_RoamingData | This service enables the consumer to subscribe/unsubscribe for input data related to roaming UE for NWDAF analytics. | 7.8 |
| Nnwdaf\_VflTraining Service | This service is provided by an NWDAF acting as VFL client and enables an VFL server as consumer to request the NWDAF participate in VFL training as VFL client. | 7.12 |
| Nnwdaf\_VflInference Service | This service is provided by an NWDAF acting as VFL client and enables an VFL server as consumer to request the NWDAF participate in VFL inference as VFL client. | 7.13 |

3rd change

### 7.2.19 AF Services

The following NF services are specified for AF:

Table 7.2.19-1: NF Services provided by AF

| Service Name | Description | Reference in TS 23.502 [3] or other TS |
| --- | --- | --- |
| Naf\_EventExposure | This service enables consumer NF(s) to subscribe or get notified of the event as described in TS 23.288 [86]. | 5.2.19.2 |
| Naf\_ProSe | This service is for ProSe services as described in TS 23.304 [128]. | TS 23.304 [128] |
| Naf\_Authentication | This service enables the consumer to authenticate and authorize the Service Level Device Identity as described in TS 23.256 [136]. | TS 23.256 [136] |
| Naf\_VflTraining Service | This service is provided by an AF acting as VFL client and enables an VFL server as consumer to request the AF to participate in VFL model training as VFL client. | TS 23.288 [86] |
| Naf\_VflInference Service | This service is provided by an AF acting as VFL client and enables an VFL server as consumer to request the AF to participate in VFL inference as VFL client. | TS 23.288 [86] |
| Naf\_Inference | This service is provided by an AF acting as VFL server and enables an AnLF as consumer to request the AF to perform VFL inference | TS 23.288 [86] |
| Naf\_Training | This service is provided by an AF acting as VFL server and enables an NWDAF as consumer to request the AF to train a model | TS 23.288 [86] |

End of changes