**3GPP TSG-SA2 Meeting #153e *S2-220xyz***

**10 October – 17 October 2022, eMeeting** *revision of*

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| --- |
| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **23.502** | **CR** |  | **rev** |  | **Current version:** | **17.6.0** |  |
|  |
| *For* [***HELP***](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:***  | Supporting traffic influence to service functions |
|  |  |
| ***Source to WG:*** | Lenovo, |
| ***Source to TSG:*** | SA2 |
|  |  |
| ***Work item code:*** | SFC |  | ***Date:*** | 22/09/2022 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-18 |
|  | *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:*** | Addressing agreements made in FS\_SFC study with the following conclusions in section 8 of 3GPP TR 23.700-18 v1.0,0:1. To enable the AF to request pre-defined SFC for traffic flow(s) related with target UEs.a) The Nnef\_TrafficInluence API is enhanced to include additionally an SFC policy identifier corresponding to a pre-defined Service Function Chain policy. The request may include separate SFC policy identifiers for Uplink and Downlink traffic of the subscriber traffic.b) Only following information of Nnef\_TrafficInfluence API are reused with N6 Traffic Routing requirements containing the SFC related additions described in this clause.Table 8-1

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| --- |
| Information Name |
| Traffic Description |
| Target UE Identifier(s) |
| Spatial Validity Condition |
| AF transaction identifier |

c) The AF is aware of SFC policy identifiers based on SLA agreements.d) The PCF maps the SFC policy identifier to a corresponding identifier within the PCC rule. This mapping is defined in the conclusions of KI1.g) Support the N6-LAN traffic steering control and AF-influenced traffic steering control to be applicable to the same traffic simultaneously.h) The procedure for the Nnef\_TrafficInluence service in TS 23.502, clause 4.3.6 is re-used, for example, in case the AF is not providing UE address the NEF stores the AF request information in UDR. |
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| ***Summary of change:*** | The following changes are added:- Clarifying in section 4.3.6.1 that the procedure is also applicable to allow an AF to influence traffic to an SFC identified by an SFC Policy Idenitifer - Clarifying in section 5.2.6.7.2 how SFC policy identifiers are included within an AF request (within N6 traffic routing information). |
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| ***Consequences if not approved:*** | No support of SFC based on FS\_SFC agreements  |
|  |  |
| ***Clauses affected:*** | 4.3.6.1, 5.2.6.7.2 |
|  |  |
|  | **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's revision history:*** |  |

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### 4.3.6 Application Function influence on traffic routing

#### 4.3.6.1 General

Clause 4.3.6 describes the procedures between an Application Function and the SMF to maintain an efficient user plane path for Application Functions that require it and to support steering of subscriber traffic to service functions.

As described in clause 5.6.7 of TS 23.501 [2], an Application Function may send requests to influence SMF routeing decisions for User Plane traffic of PDU Sessions. The AF requests may influence UPF (re)selection and allow routeing of user traffic to a local access (identified by a DNAI) to a Data Network and/or steering of traffic to service functions, identified by SFC policy identifier(s) within N6 traffic routing information. The AF may also provide in its request subscriptions to SMF events.

The following cases can be distinguished:

- AF requests targeting an individual UE by a UE address; these requests are routed (by the AF or by the NEF) to an individual PCF using the BSF. This is described in clause 4.3.6.4.

NOTE 1: Such requests target an on-going PDU Session. Whether the AF needs to use the NEF or not is according to local deployment.

- AF requests described in clause 5.6.7 of TS 23.501 [2] targeting a group of UE(s), or any UE accessing a combination of DNN and S-NSSAI, or targeting individual UE by a GPSI as described in table 5.6.7-1. These AF requests may also affect UE(s) with an established PDU session. For such requests the AF shall contact the NEF and the NEF stores the AF request information in the UDR. PCF(s) receive a corresponding notification if they had subscribed to the creation / modification/ deletion of the AF request information corresponding to UDR Data Keys / Data Sub-Keys. This is defined in clause 6.3.7.2 of TS 23.501 [2] and further described in clause 4.3.6.2.

NOTE 2: Such requests can target on-going or future PDU Sessions.

If the AF interacts with PCF via the NEF, the NEF performs the following mappings where needed:

- Map the AF-Service-Identifier into DNN and S-NSSAI combination, determined by local configuration.

- Map the AF-Service-Identifier into a list of DNAI(s) and Routing Profile ID(s) determined by local configuration.

 The NEF can only provide this mapping when the DNAI(s) being used by the applications are statically defined. When the DNAI(s) where applications are instantiated may vary dynamically, the AF should provide the target DNAI(s) in its request together with either Routing Profile ID(s) or with N6 traffic routing information.

- Map the GPSI in Target UE Identifier into SUPI, according to information received from UDM.

- Map the External Group Identifier in Target UE Identifier into Internal Group Identifier, according to information received from UDM.

- Map the geographical area in Spatial Validity Condition into areas of validity, determined by local configuration.

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##### 5.2.6.7.2 Nnef\_TrafficInfluence\_Create operation

**Service operation name:** Nnef\_TrafficInfluence\_Create

**Description:** Authorize the request and forward the request for traffic influence.

**Inputs, Required:** AF Transaction Id, AF Identifier.

The AF Transaction Id refers to the request.

**Inputs, Optional:** The address (IP or Ethernet) of the UE if available, GPSI if available, DNN if available, S-NSSAI if available, External Group Identifier if available, External Application Identifier or traffic filtering information, AF-Service-Identifier, a list of DNAI(s) and corresponding routing profile ID(s) or N6 traffic routing information, a list of SFC policy identifier(s) within N6 traffic routing information, Indication of traffic correlation, Indication of application relocation possibility, Indication of UE IP address preservation, Early and/or late notifications about UP path management events, Notification Target Address, Temporal validity condition, Spatial validity condition, User Plane Latency Requirements, Information for EAS IP Replacement in 5GC, Indication for EAS Relocation and AF indication for simultaneous connectivity over source and target PSA at edge relocation as described in clause 5.6.7 of TS 23.501 [2].

NOTE: When only one DNAI and corresponding routing profile ID(s) and the Indication for EAS Relocation are available, the presented DNAI is the target DNAI as defined in clause 6.3.7 of TS 23.548 [74].

**Outputs, Required:** Operation execution result indication.

**Outputs, Optional:** None.

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