**3GPP SA3LI#90 S3i230367**

**Prague; June 27-30, 2023**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
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|  | **33.928** | **CR** | **0002** | **rev** | **-** | **Current version:** | **18.0.0** |  |
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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:***  | More on LIPF logic diagrams: Updates to the top-level and introductor clauses  |
|  |  |
| ***Source to WG:*** | SA3-LI (Nokia, Nokia Shanghai Bell) |
| ***Source to TSG:*** | SA3 |
|  |  |
| ***Work item code:*** | LI18 |  | ***Date:*** | 2023-06-20 |
|  |  |  |  |  |
| ***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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
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| ***Reason for change:*** | More services were introduced to the TS 33.128 after the initial set of LIPF logic diagrams were created. The TR 33.928 should accommodate those aspects as well. This CR provides updates to the introductory clauses to accommodate the changes in the LIPF logic, most importantly, a new branch for RCS. |
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| ***Summary of change:*** | Existing clauses are updated to accommodate the new LIPF logic. RCS is included in the top-level view of Service-based LI provisioning logic. |
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| ***Consequences if not approved:*** | The LIPF logic will not be aligned to the TS 33.128. |
|  |  |
| ***Clauses affected:*** | 5.1, 5.3. 5.4.1, 5.6.1 |
|  |  |
|  | **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:*** |   |

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

## 5.1 Background

According to TS 33.126 [2] clause 6.4, the CSP is expected to only deliver Interception Product relating to specific CSP services which are specified implicitly or explicitly in the warrant. In other words, the CSP is expected to perform the interception only for the services indicated in the warrant. The interception may be performed for more than one services when specified so in the warrant. When no service types are indicated explicitly in the warrant, the interception is done for all services applicable to the target.

NOTE: The term "interception" used in the present document refers to the step that involves actual capturing and then delivery of the Intercept Product to the LEMF.

This clause considers the following possibilities in the analysis:

- The intended target may have subscribed to only a specific service and in this case, by default, the interception would apply only to such service when specified in the warrant. The CSP network would provide the interception as and when the service is accessed by the target.

- The intended target may have subscribed to multiple services and in this case, the interception would have to be done based on the service type(s) specified in the warrant as and when CSP network detects that such services are accessed by the target.

- A NF may be involved in providing only a particular service and in this case, by default, the interception performed by the POI present in that NF would apply to such service when specified in the warrant.

- A NF may be involved in providing multiple services and in this case, the interception performed by the POI present in that NF would have to be based on the service type applicable to the warrant.

- There may be multiple warrants with differing service types active on a target, in this case, all applicable services would have to be intercepted at the POIs, and the MDFs would have to then deliver Interception Product based on the service type (s) applicable to the warrant.

In supporting the above scenarios, as per clause 4.4 of TS 33.128 [4], the LIPF will have to provision the POIs, TFs and the MDF2/MDF3 according to the CSP service type(s) applicable to a warrant.

To cover all the scenarios mentioned above, the service type may have to be part of LI provisioning data sent to the MDFs. Whether a service type will have to be provisioned to the POIs and TFs as an indication will depend on the services provided by the NFs that have such POIs and TFs.

In addition to the CSP service type, a few other factors present in the warrant may influence the LIPF logic in provisioning the POIs, TFs and MDF2/MDF3. Few examples are:

- Delivery type.

- LALS triggering.

- CSP deployment options.

- The target type (local Vs non-local ID).

For the target non-local ID, Voice, RCS and Messaging type of services are supported in the present document. In this case, the other party communicating with the target non-local ID happens to access the service provided by the CSP.

This clause illustrates the LIPF logic through a series of flow-charts in provisioning the POIs and the TFs. The provisioning aspect of MDF2/MDF3 are not shown unless such details provide additional clarity.

### \*\* Next Change \*\*

## 5.3 Top-level view of service-based LI provisioning logic in LIPF

The flow-chart in figure 5.3-1 shows a top-level logic within the LIPF to branch off into separate processes according to the service type defined in the present document.

Figure 5.3-1: Top-level view of LIPF logic in handling the service type

Based on the LI functionality defined in the present document:

- For the service type of Data, it is assumed that the NFs in the packet core network are involved and hence, provide the IRI and CC interception.

- For the service type of Voice, it is assumed that the NFs in the IMS domain are involved and hence, provide the IRI and CC interception.

- For the service type of Messaging (that includes SMS and MMS), the NFs in the packet core network, IMS or MMS Proxy Relay are involved and hence, provide the IRI and CC interception. The interception of SMS has only the IRIs. For, the service type of Messaging, the LI provisioning for the service type RCS is also done (see below) if supported and applicable to the target.

- For the service type of PTC, the PTC Server is involved and hence, provides the IRI and CC interception.

- For the service type of LALS, the LI-LCS Client provides the IRI interception, and the CC interception does not apply to LALS.

- For the service type RCS, the RCS Server, the HTTP Content Server, the File Transfer Localization Function are involved and hence, provide the IRI and CC interception.

When the service type "Messaging" is explicitly specified in a warrant, the provisioning for the service type RCS is also performed by the LIPF, if the latter is supported and applicable to the target. If the warrant explicitly includes both "Messaging" and "RCS" as the service types, the LI provisioning for the service type RCS is done only once.

The UDM and HSS are also the NFs that have the IRI-POI and the provisioning of IRI-POI in UDM and HSS is independent of the service type indicated in the warrant as long as the target is not indicated as a non-local ID. The provisioning of IRI-POI in the UDM and HSS for a target identifier is done only once.

In general, one or more service types may be explicitly specified in a warrant. When no service type is specified explicitly in a warrant, the LIPF assumes that provisioning for all service types that are applicable to the target will have to be made. When multiple service types are applicable for a target identifier, the LIPF may provision the LI function in a NF only once including all the applicable service types. Alternatively, the LIPF may determine the services that need to be intercepted at the LI function present in a NF and then provision that LI function for all services together.

It is presumed that the appropriate target identifiers are provided in the warrant that go with the service type. LIPF may use other means to determine the target identifier values to aid the provisioning process. However, if the target identifier values required for a service are not available, then the provisioning of the LI functions for that service types cannot be made.

### \*\* Next Change \*\*

### 5.4.1 Scope of interception

For the service type of Data, the NFs present in the packet core network provide the LI functions. This clause illustrates the LIPF logic for 5GC and EPC as the two packet core networks.

The interception of service type of Data includes:

- Delivery of IRI, or CC based on the delivery type indicated in the warrant.

- When required, the delivery of packet data header reporting.

- When required, the delivery of LALS reports based on the LALS triggering.

The CSP may have differing implementation options for the packet data header reporting and LALS triggering.

In the case of EPC, the CSP may also have differing deployment options in choosing the NFs (SGW-based Vs PGW-based) that provide the interception.

### \*\* Next Change \*\*

### 5.6.1 Scope of interception

The illustrations shown in this clause for the service type Messaging includes:

- MMS.

- SMS.

The interception for the MMS is done by the IRI-POI and CC-POI present in the MMS Proxy Relay. The interception for the SMS is done by the IRI-POI present in the SMSF and the MME (when MME provides the SMS service) and the IMS domain for SMS over IMS.

A target can be a subscriber of the CSP, an inbound roamer or a non-local ID. In the case where a target is a non-local ID, the party communicating with the target can be non-roaming, inbound roamer or outbound roamer. When a target is non-local ID, provisioning of HSS and LTF are not applicable.

For N9HR/S8HR, the LI functions for the inbound roamers are provided in the LMISF-IRI. To support the interception in LMISF-IRI, the initial configuration for N9HR/S8HR will have to be done as illustrated in clause 5.5.2.

The interception of service type of Messaging includes:

- Delivery of IRI or CC based on the delivery type indicated in the warrant (the delivery of CC is applicable to MMS only).

- Whether a target is non-local ID.

- When required, the delivery of LALS reports based on the LALS triggering (applicable to SMS only).

In view of SMS over IMS, the CSP may have either an LBO based roaming architecture or a home-routed based roaming architecture. The CSP may have differing implementation options for LALS triggering.

Table 5.6.1-1 shows the target identities that are applicable to different type of SMS use.

Table 5.6.1-1: Target IDs as applicable to the interception of service type Messaging

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| SMS method | GPSI | SUPI | PEI | MSISDN | IMSI | IMEI | IMPU | IMPI |
| MMS | YES | n/a | n/a | YES | n/a | n/a | n/a | n/a |
| MMS (target non-local ID) | YES | n/a | n/a | YES | n/a | n/a | n/a | n/a |
| SMS over IMS (local) | YES(NOTE) | As IMPI | As IMEI | YES (NOTE) | As IMPI | YES | YES | YES |
| SMS over IMS (non-local ID) | YES | n/a | n/a | YES | n/a | n/a | YES | n/a |
| SMS over 5GS | YES | YES | YES | As GPSI | As SUPI | As PEI | n/a | n/a |
| SMS over 5GS (target non-local ID) | YES | n/a | n/a | As GPSI | n/a | n/a | n/a | n/a |
| SMS over EPS  | n/a | n/a | n/a | YES | YES | YES | n/a | n/a |
| SMS over EPS (target non-local ID) | n/a | n/a | n/a | YES | n/a | n/a | n/a | n/a |

The target identity PEI collectively represents PEIIMEI and PEIIMEISV. Likewise, SUPI represents SUPIIMSI and SUPINAI whereas GPSI represents GPSIMISDN and GPSINAI. The target identity in the IMPI format may contain a value derived from a SUPI or an IMSI. The target identity in the IMPU format containing a SIP URI or TEL URI may contain a value derived from a GPSI, MSISDN, an E.164 number, or IMSI.

NOTE: The GPSI and MSISDN may also be the target IDs as an IMPU.

A part of LIPF logic is based on the target identity applicability shown in table 5.6.1-1.

### \*\* End of all changes \*\*