

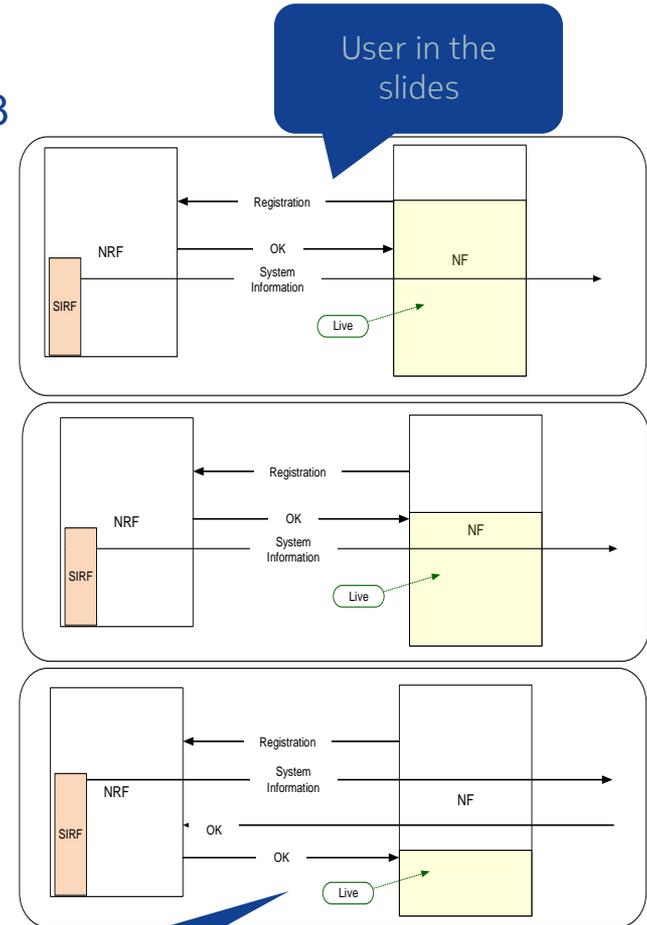
Handling of Virtualization

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Overview

This presentation is related to S3i180450 and S3i180448

- Presents 4 approaches, each with 3 scenarios and each scenario with 2 methods.
- Assumptions:
 - A NF can be active to handle the traffic from/to users, from the moment it sends the Registration to the NRF (denoted in the slides as Live).
 - The above assumption allows to consider the possibility of not having an NRF.
 - Target list can be provisioned into the POI/TF even before the associated NF can become Live.
- The other two possibilities shown on the right are not considered. However, with the last approach, even the approach 4 can be a used.



Even approach 4 can be a candidate

Four approaches are presented

4 approaches:

- Approach 1: Intercept Provisioning is completed before the POI/TF is told that the verification/authorization is done.
- Approach 2: Intercept Provisioning is started after the POI/TF is told that the verification/authorization is done.
- Approach 3: Intercept Provisioning is started after receiving the System Information.
- Approach 4: Registration to NRF is done first ← problematic approach per S3i180448.

3 scenarios:

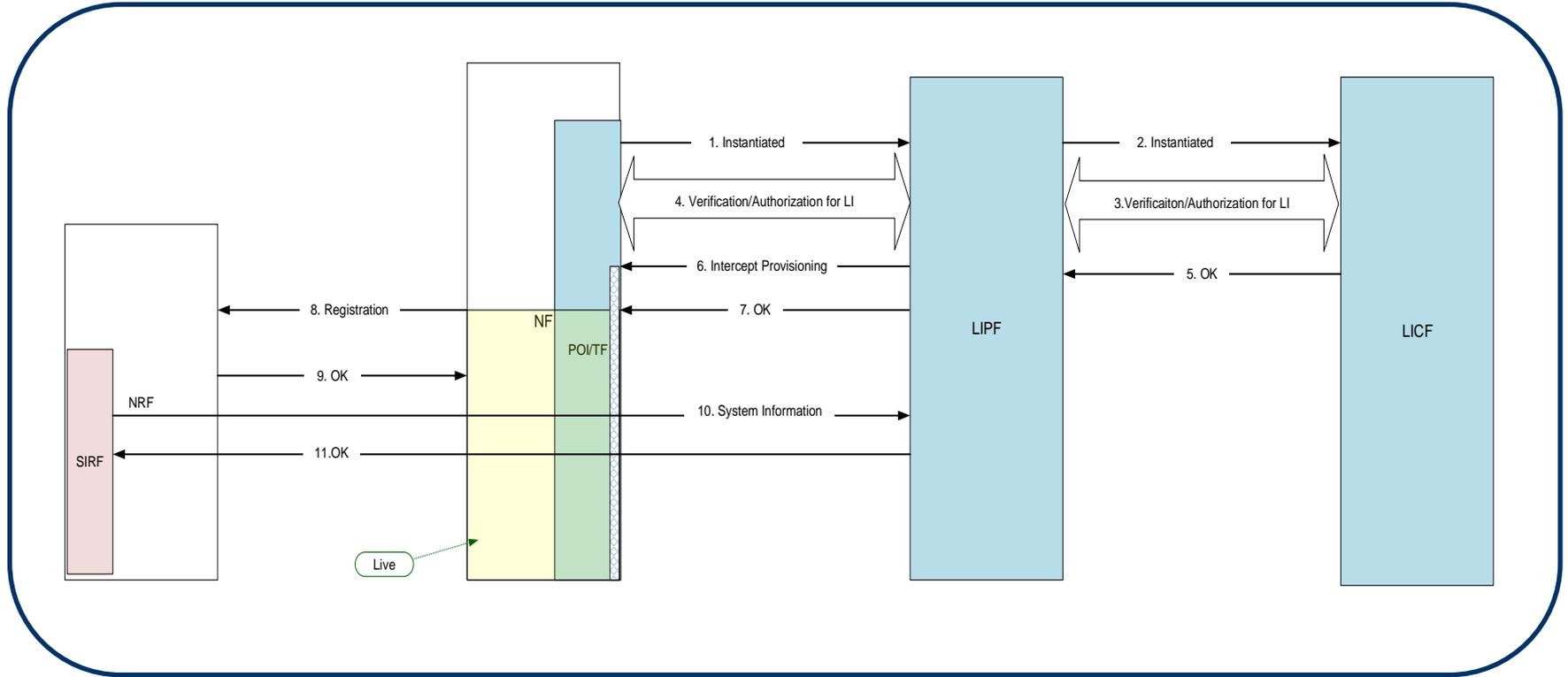
- NF that can have POI (e.g. AMF, SMF)
- NF that does not have POI (e.g. PCF)
- MDF.

2 Methods:

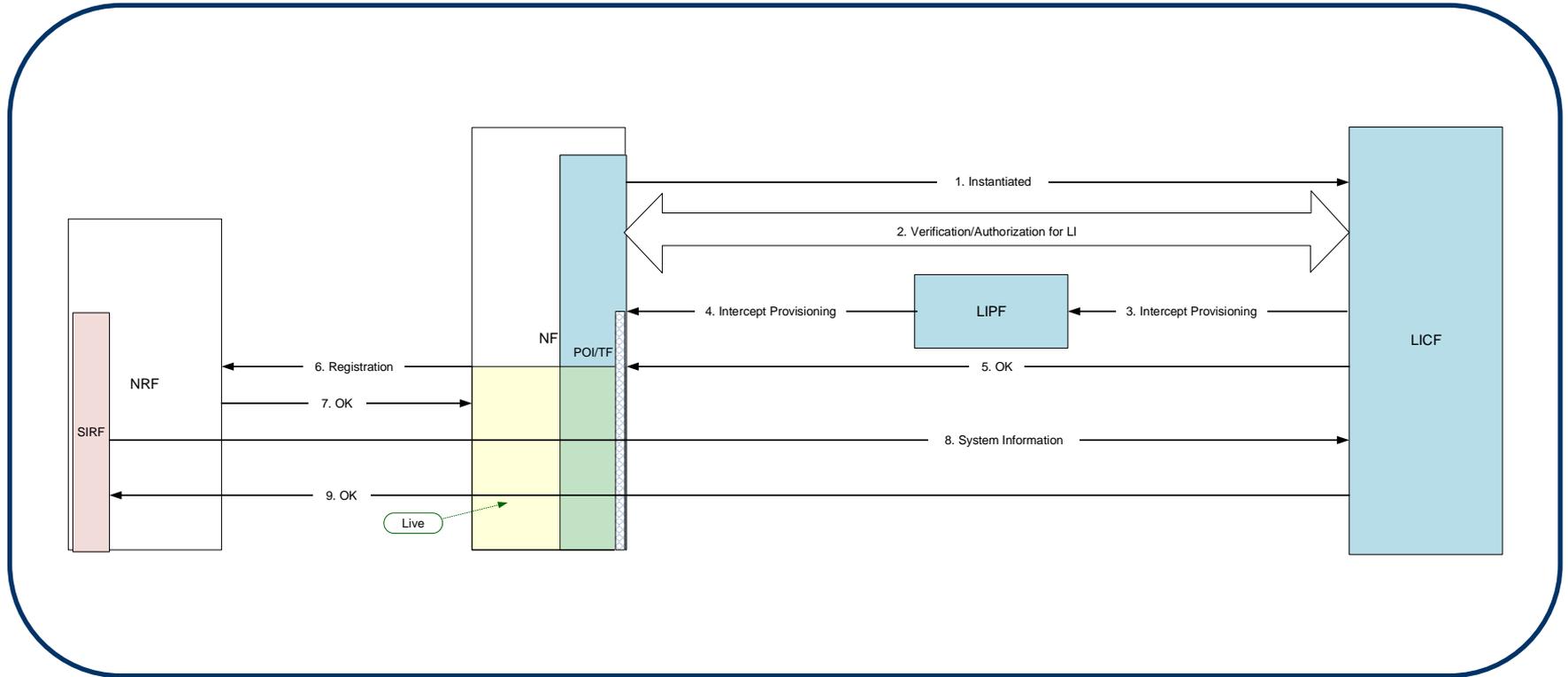
- LI_X0 to LIPF, LI_SI to LIPF ← per draft TS 23.127.v0.0.5a
- LI_X0 to LICF, LI-SI to LICF ← a change.

Approach 1

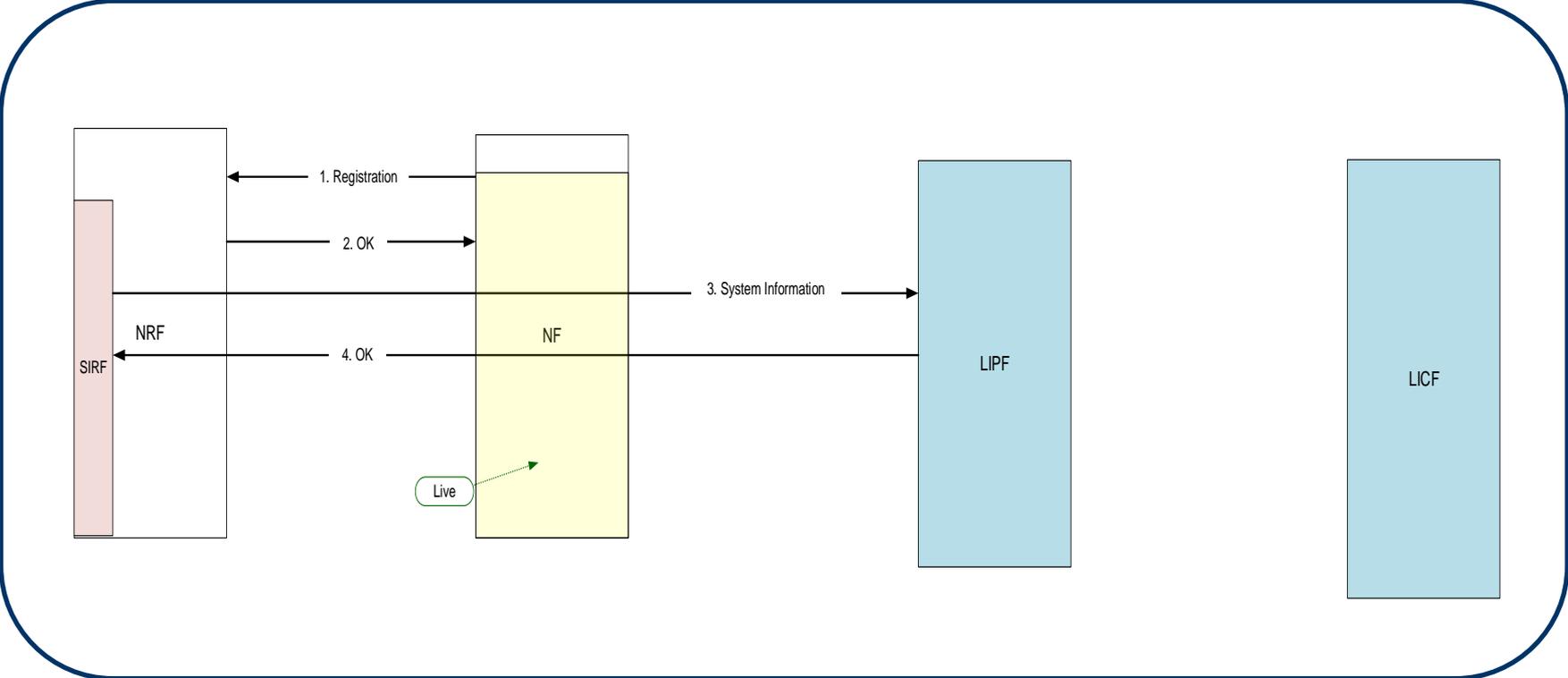
Scenario 1: NF has a POI or TF – method 1



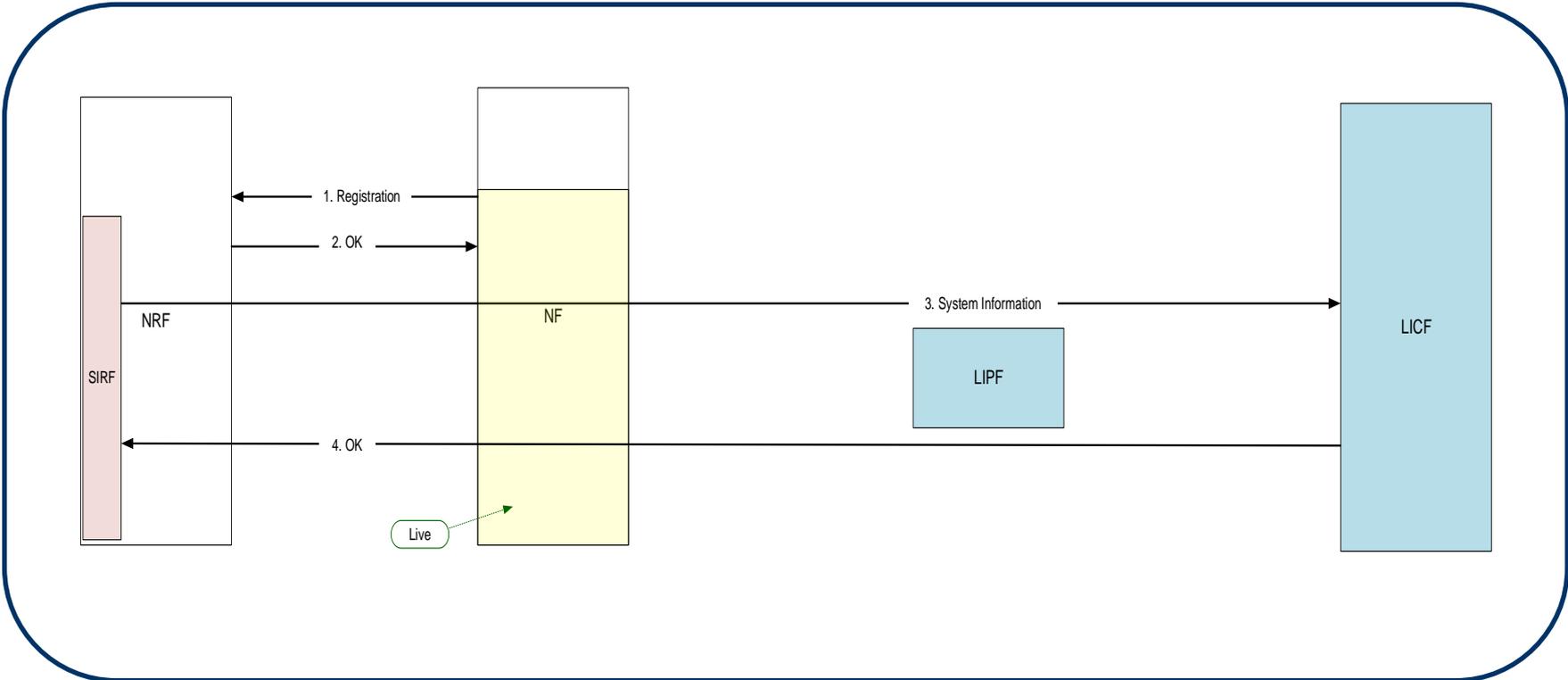
Scenario 1: NF has a POI or TF - method 2



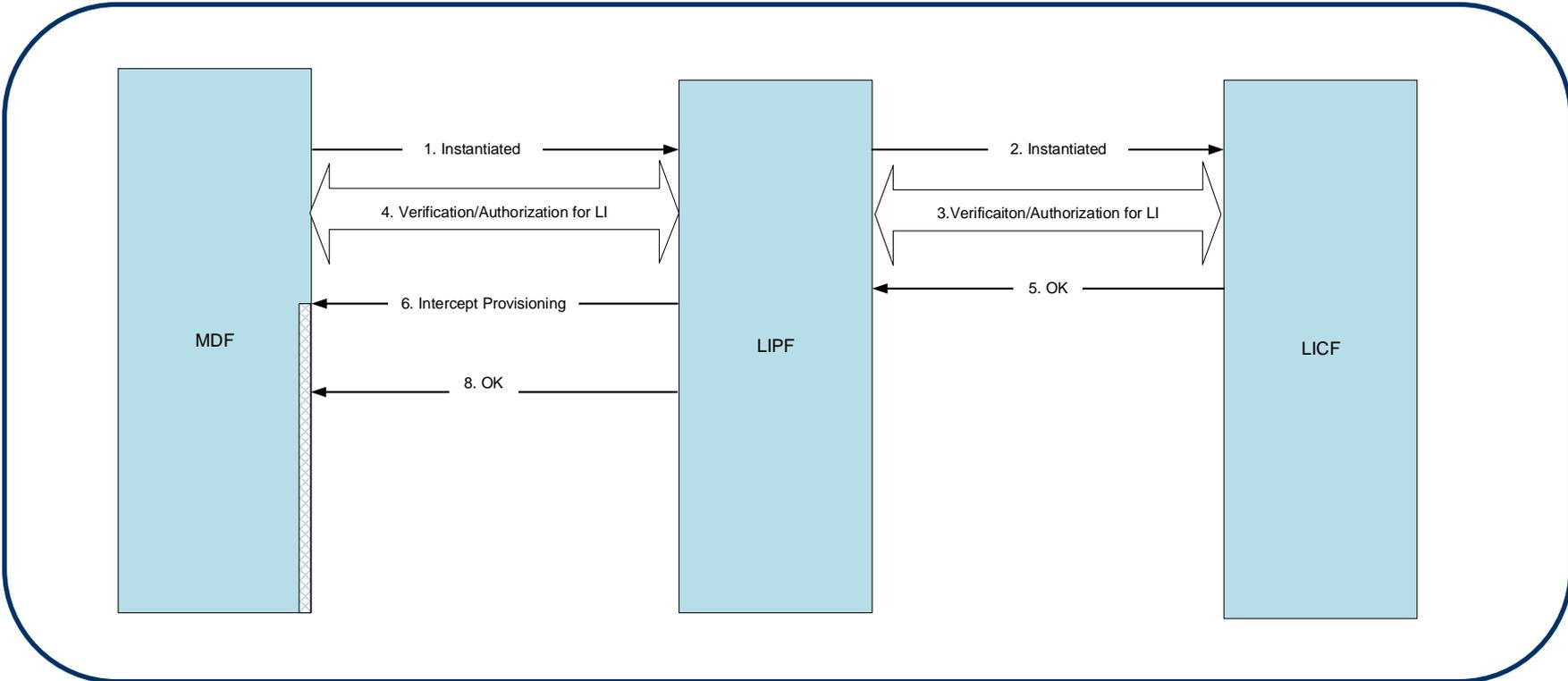
Scenario 2: NF has no POI or TF – method 1



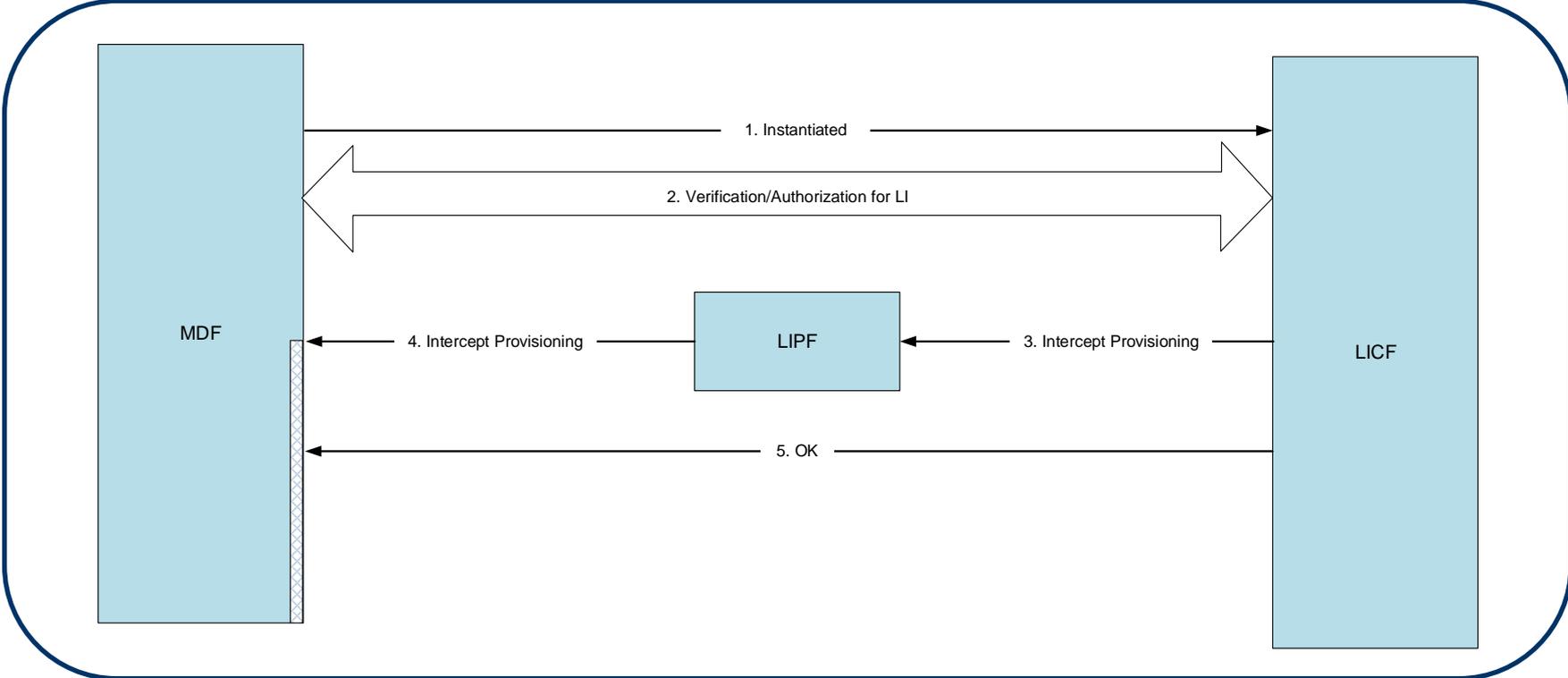
Scenario 2: NF has no POI or TF – method 2



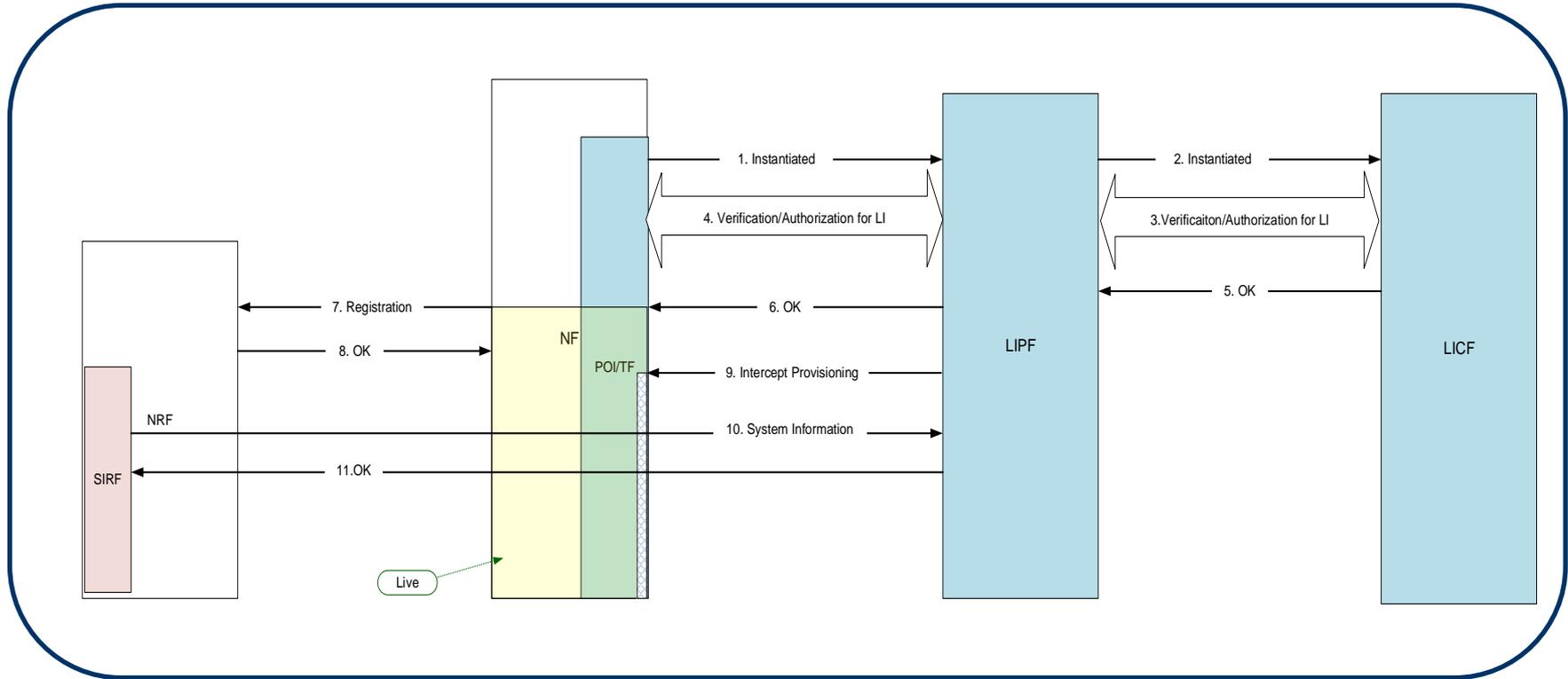
Scenario 3: MDF – method 1



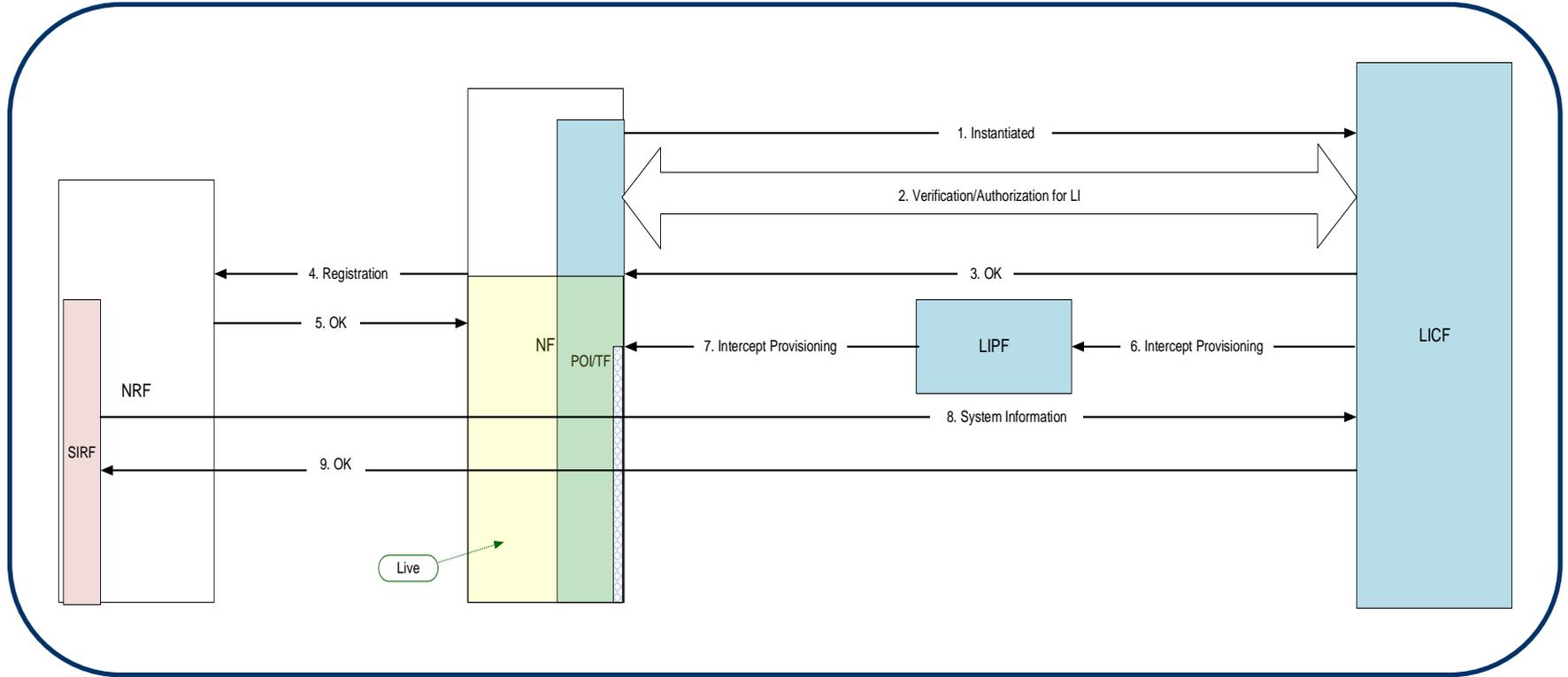
Scenario 3: MDF – method 2



Scenario 1: NF has a POI or TF – method 1

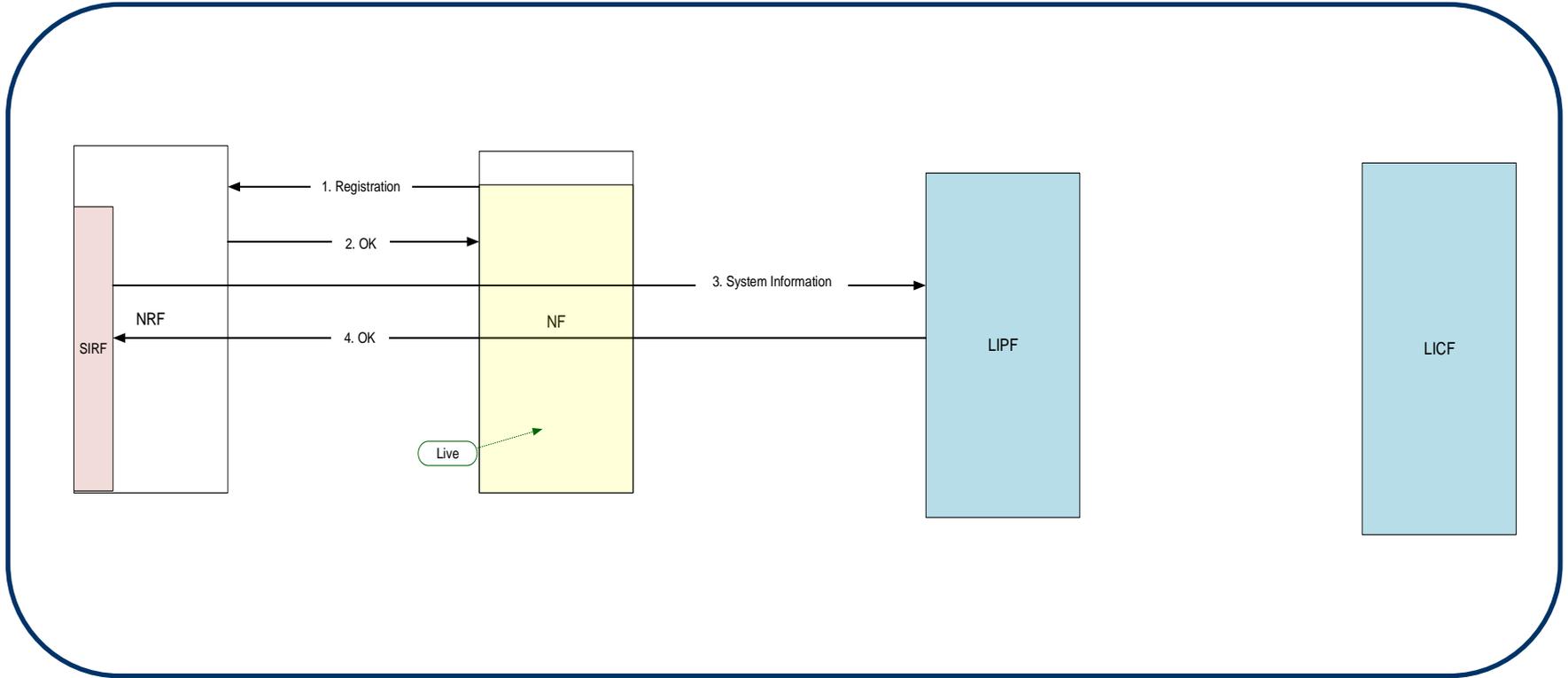


Scenario 1: NF has a POI or TF – method 2



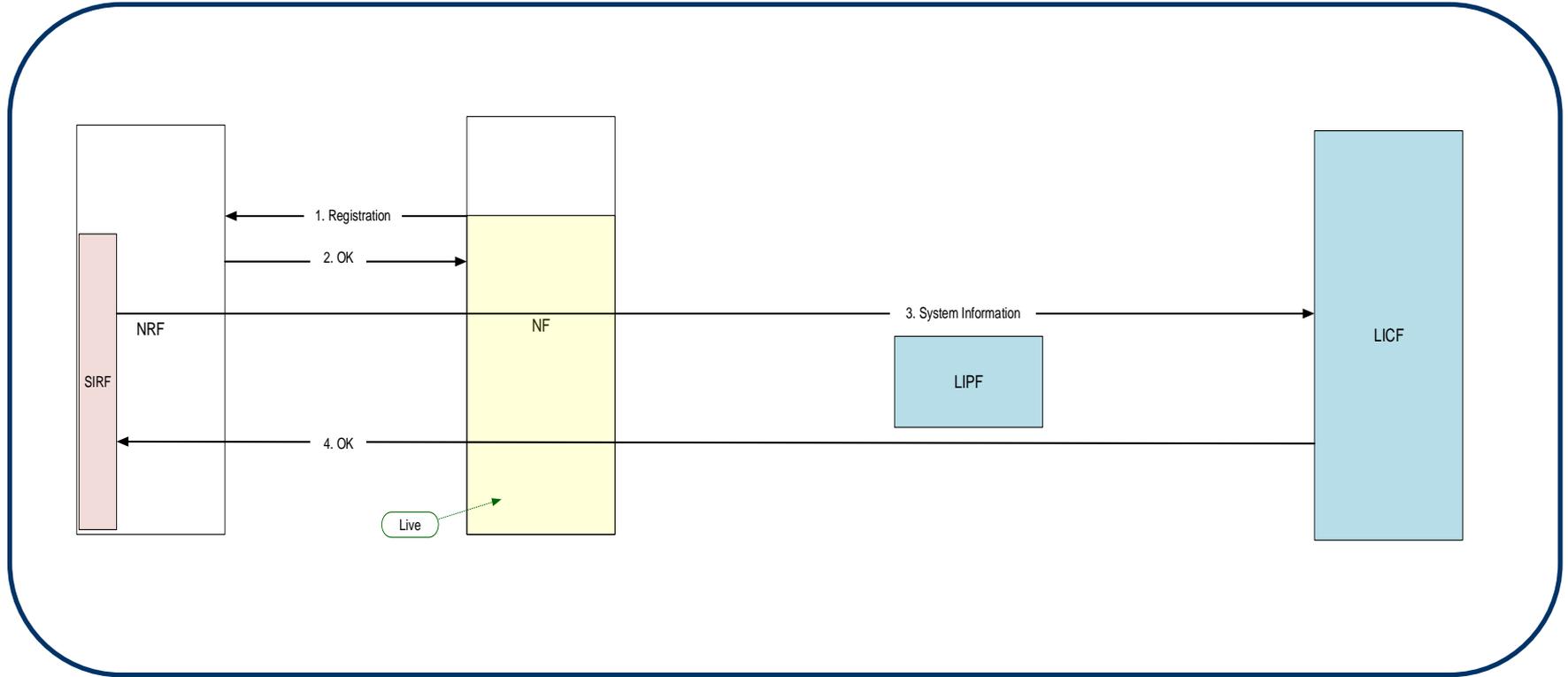
Scenario 2: NF has no POI or TF – method 1

← same approach 1

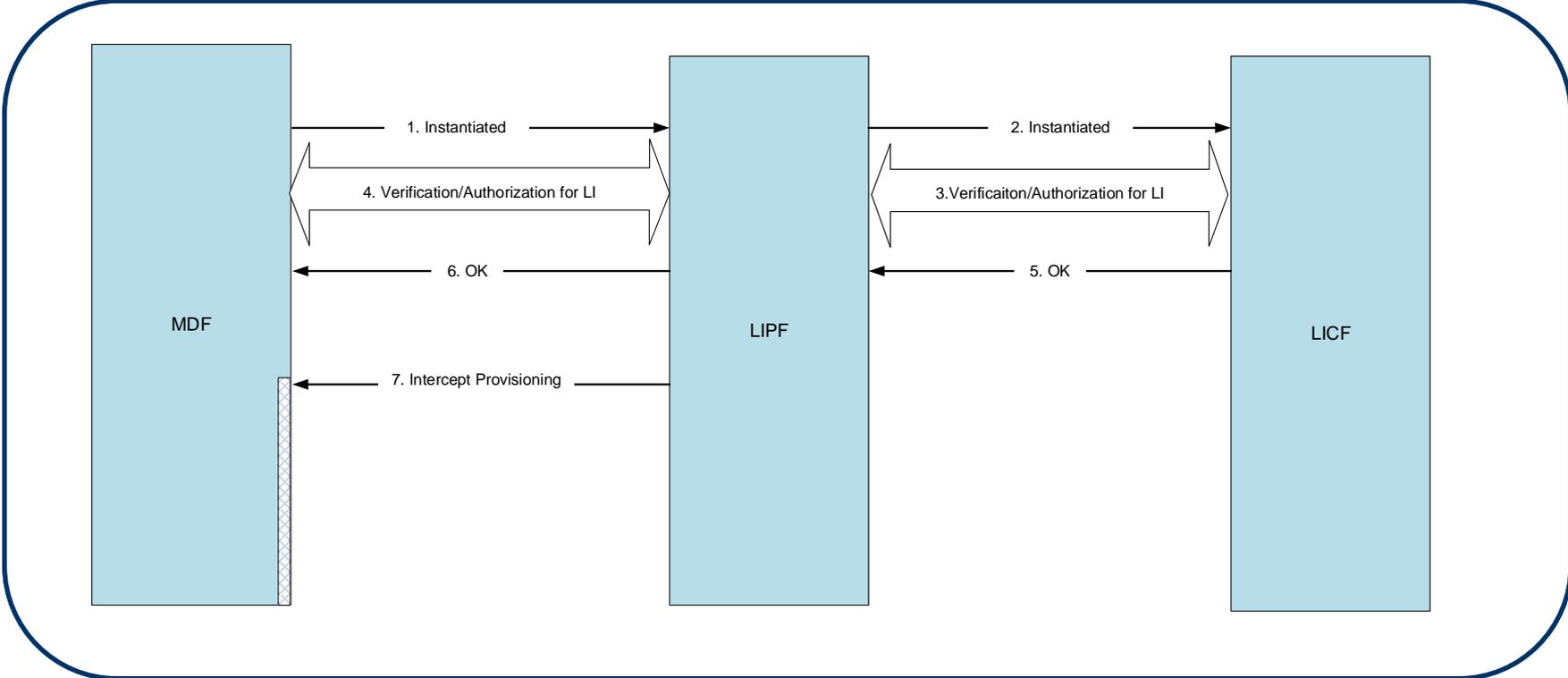


Scenario 2: NF has no POI or TF – method 2

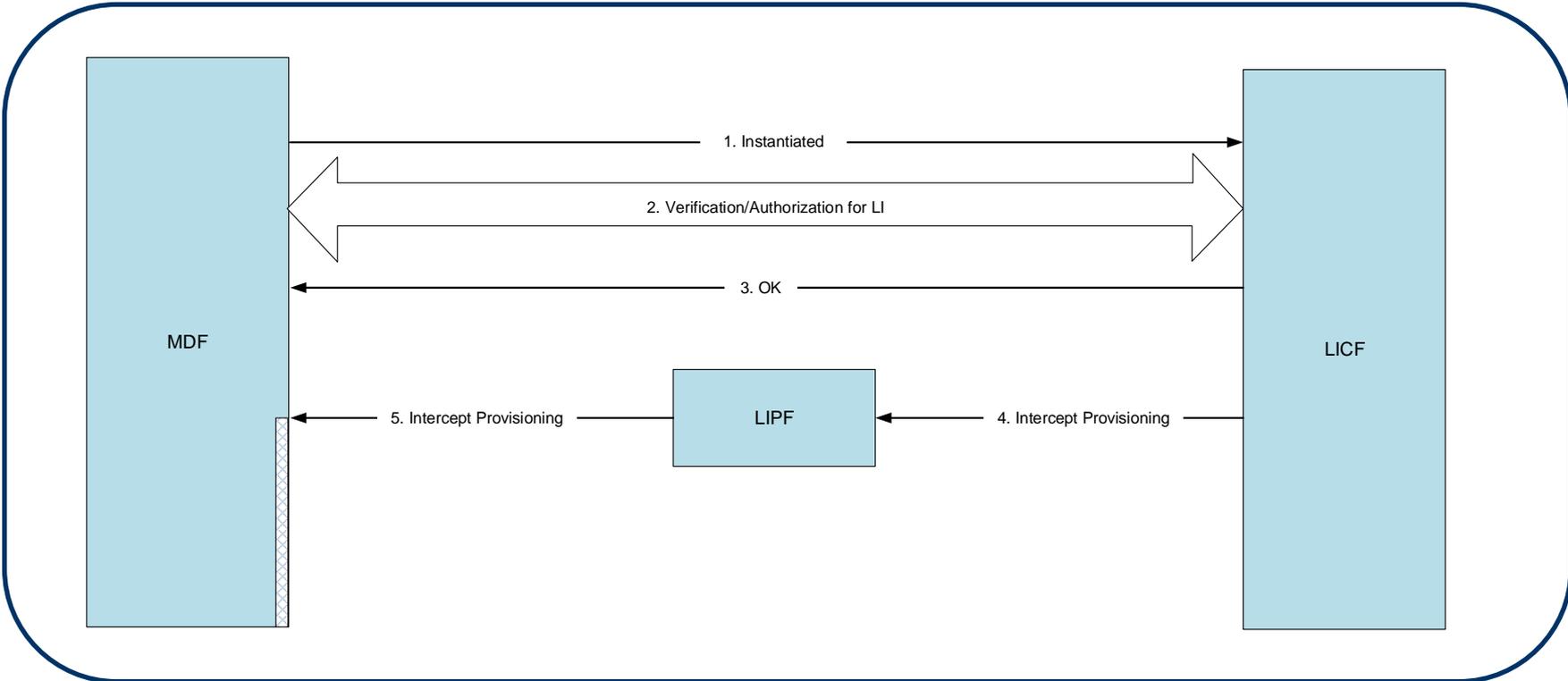
← same approach 1



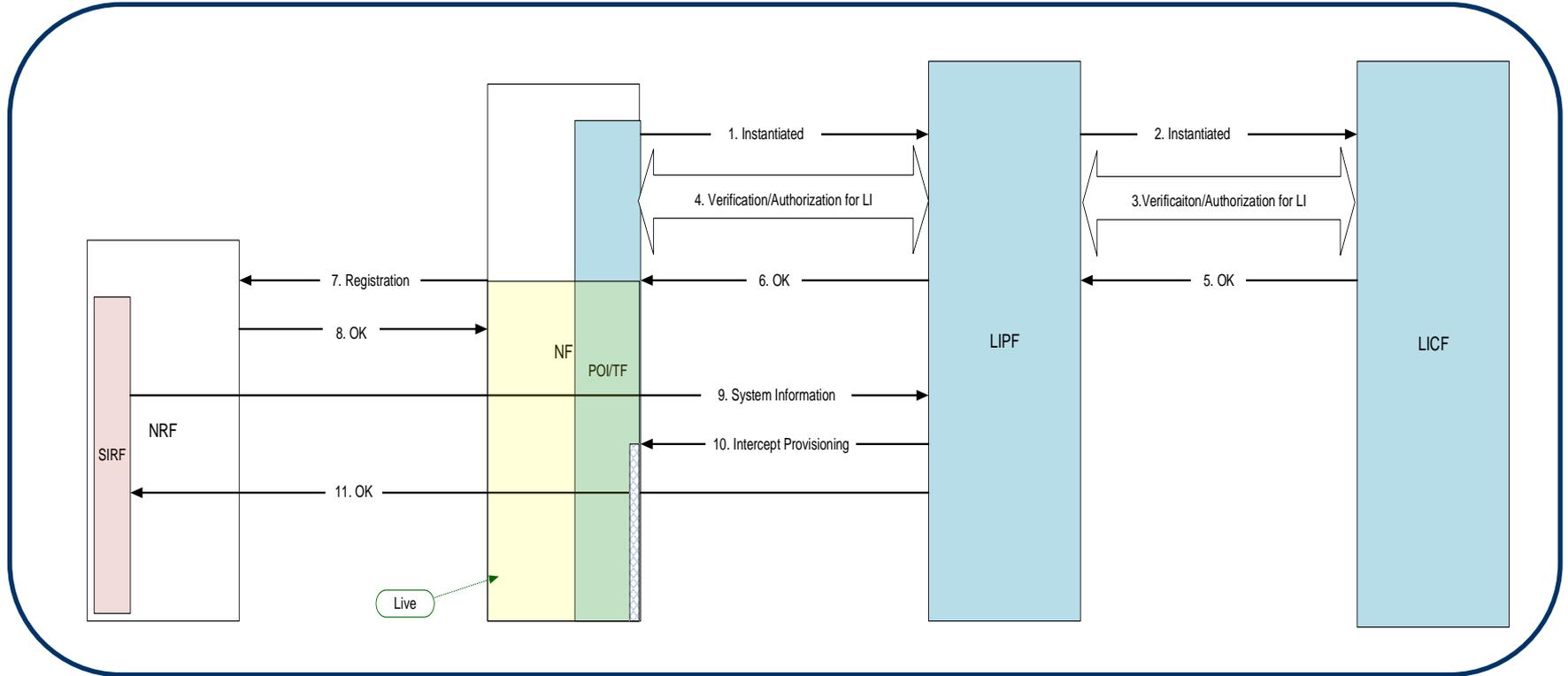
Scenario 3: MDF – method 1



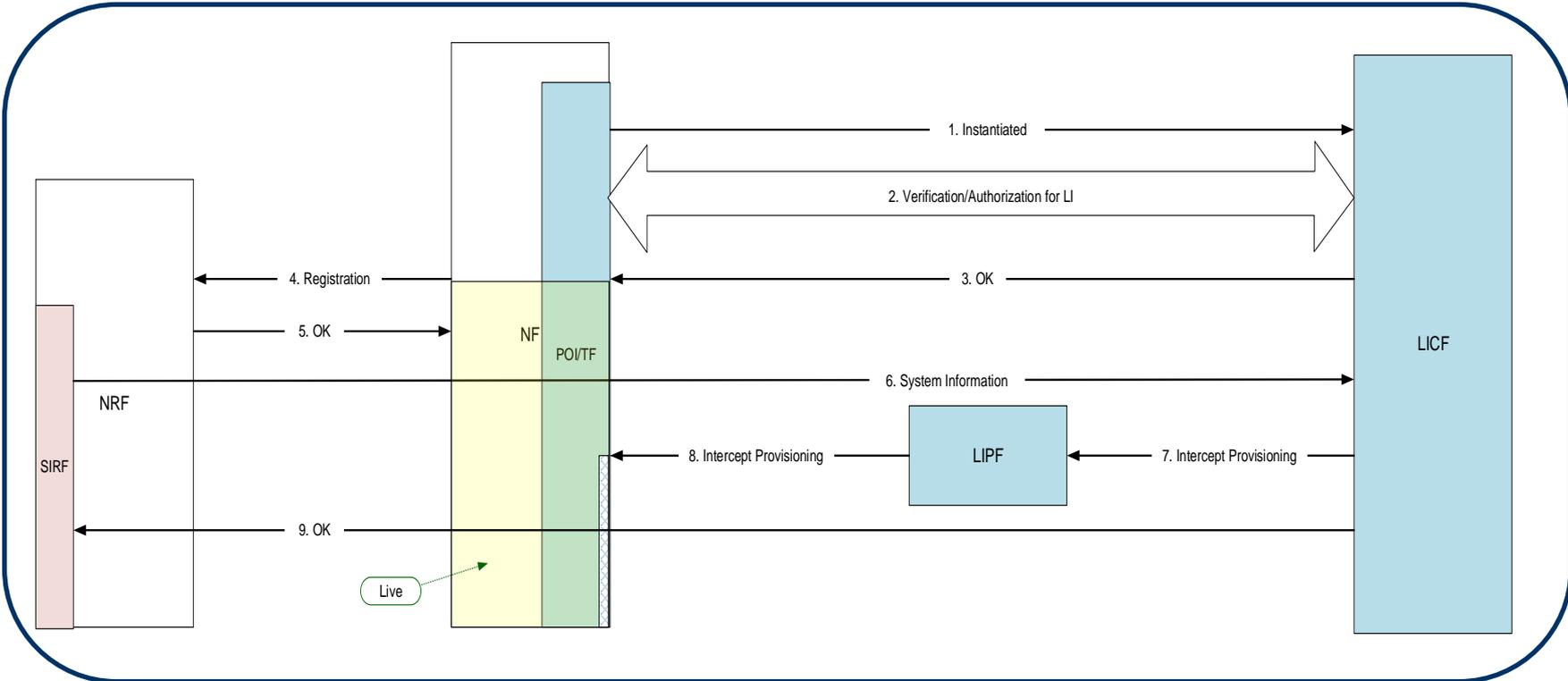
Scenario 3: MDF – method 2



Scenario 1: NF has a POI or TF – method 1

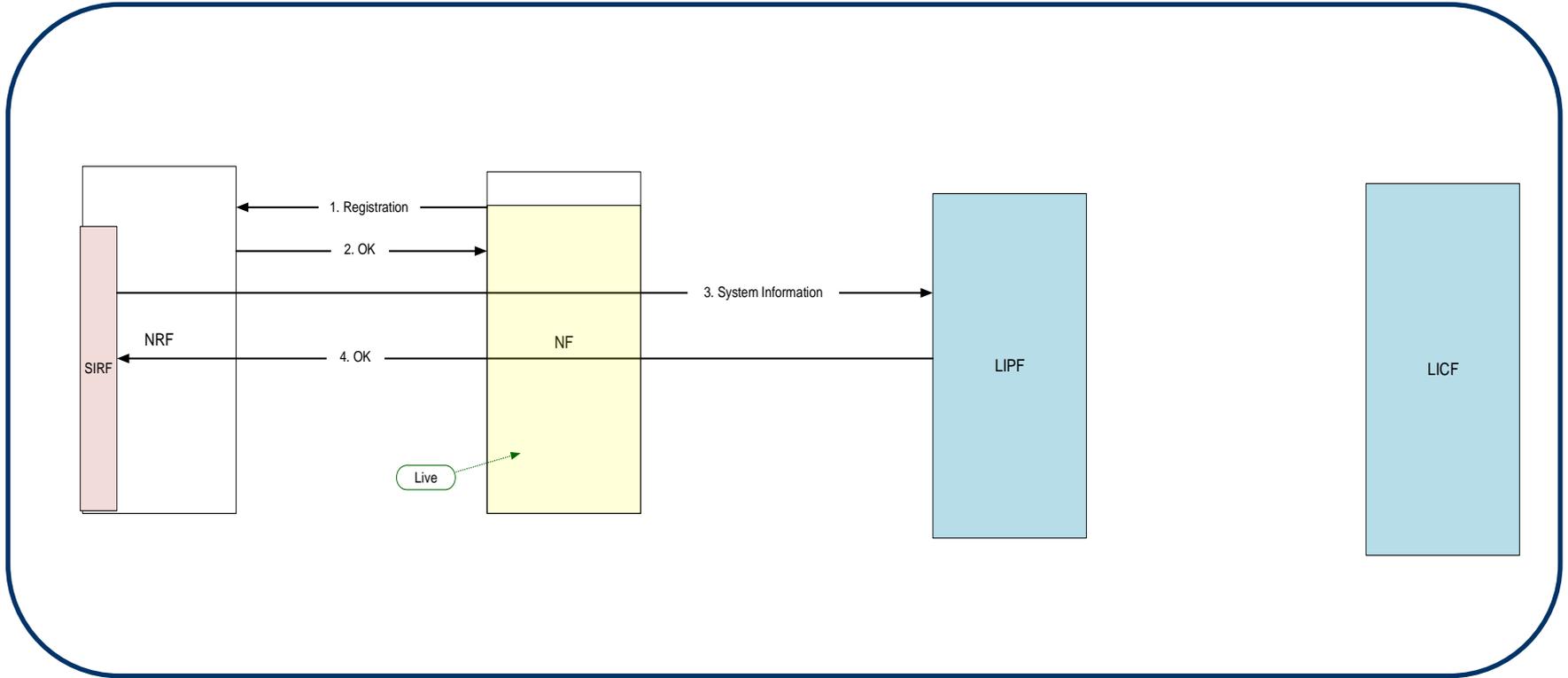


Scenario 1: NF has a POI or TF – method 2



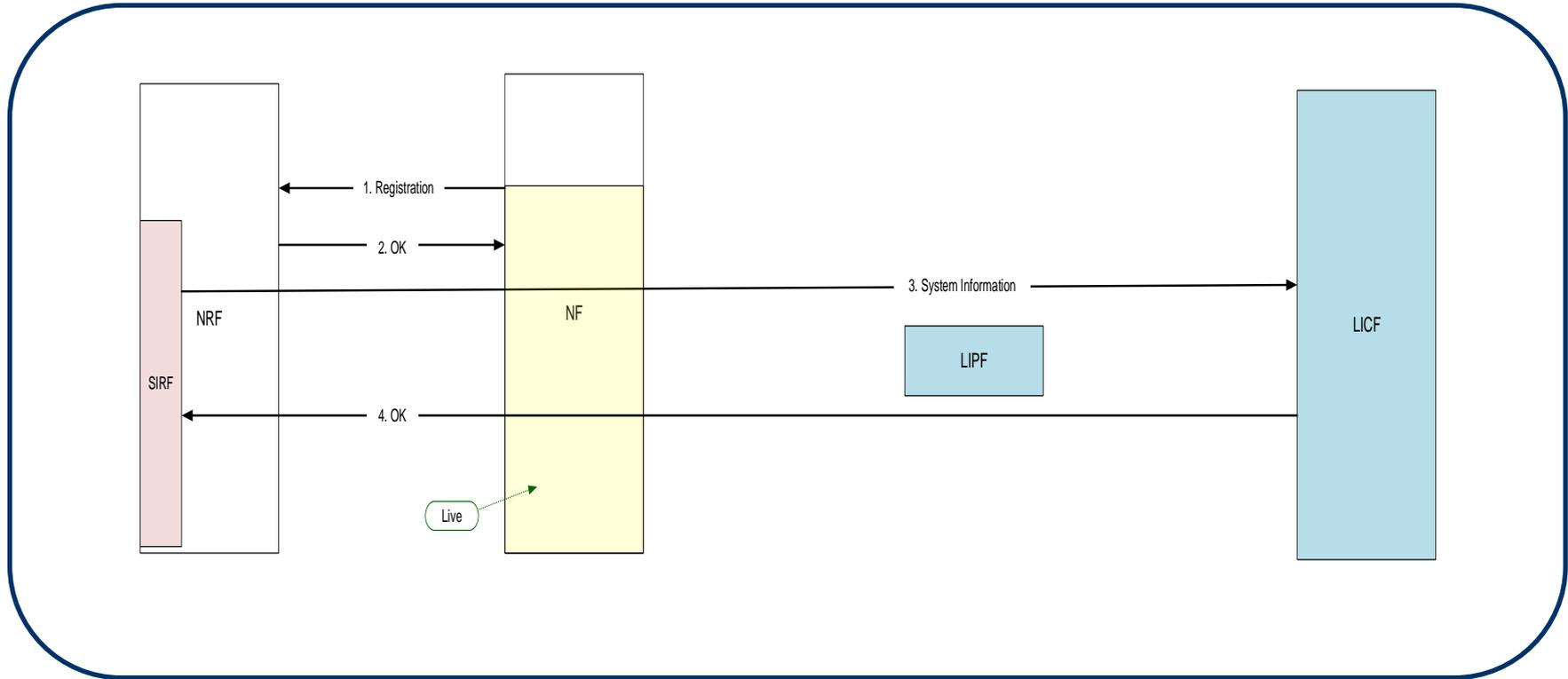
Scenario 2: NF has no POI or TF – method 1

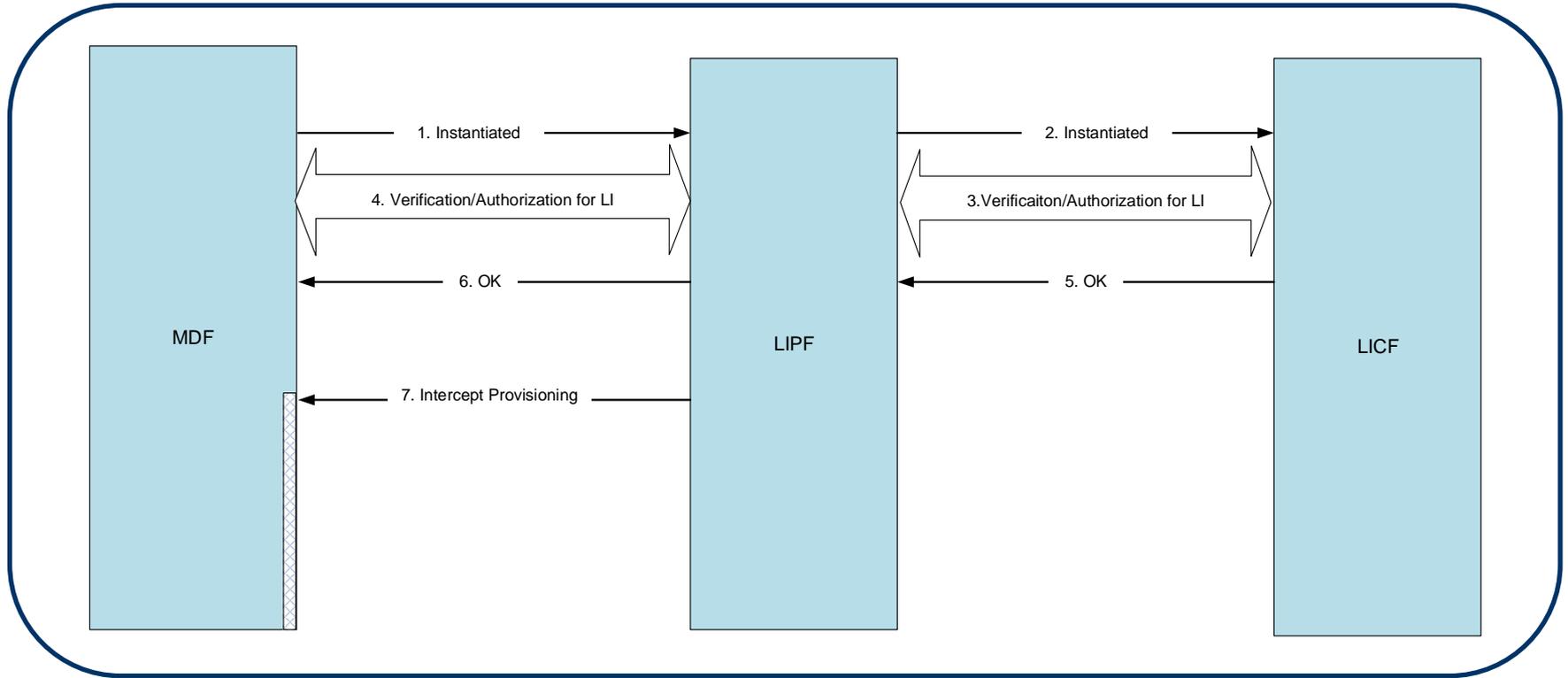
← same approach 1

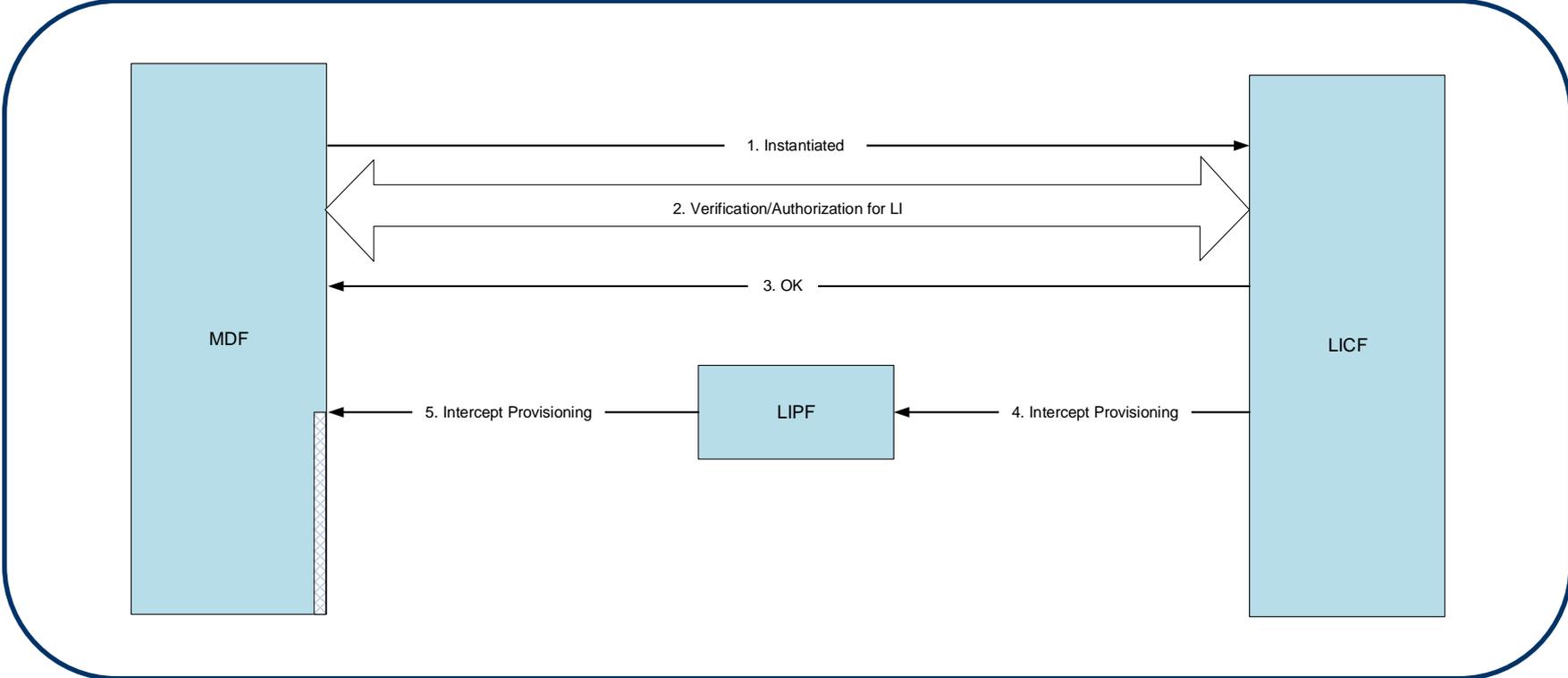


Scenario 2: NF has no POI or TF – method 2

← same approach 1

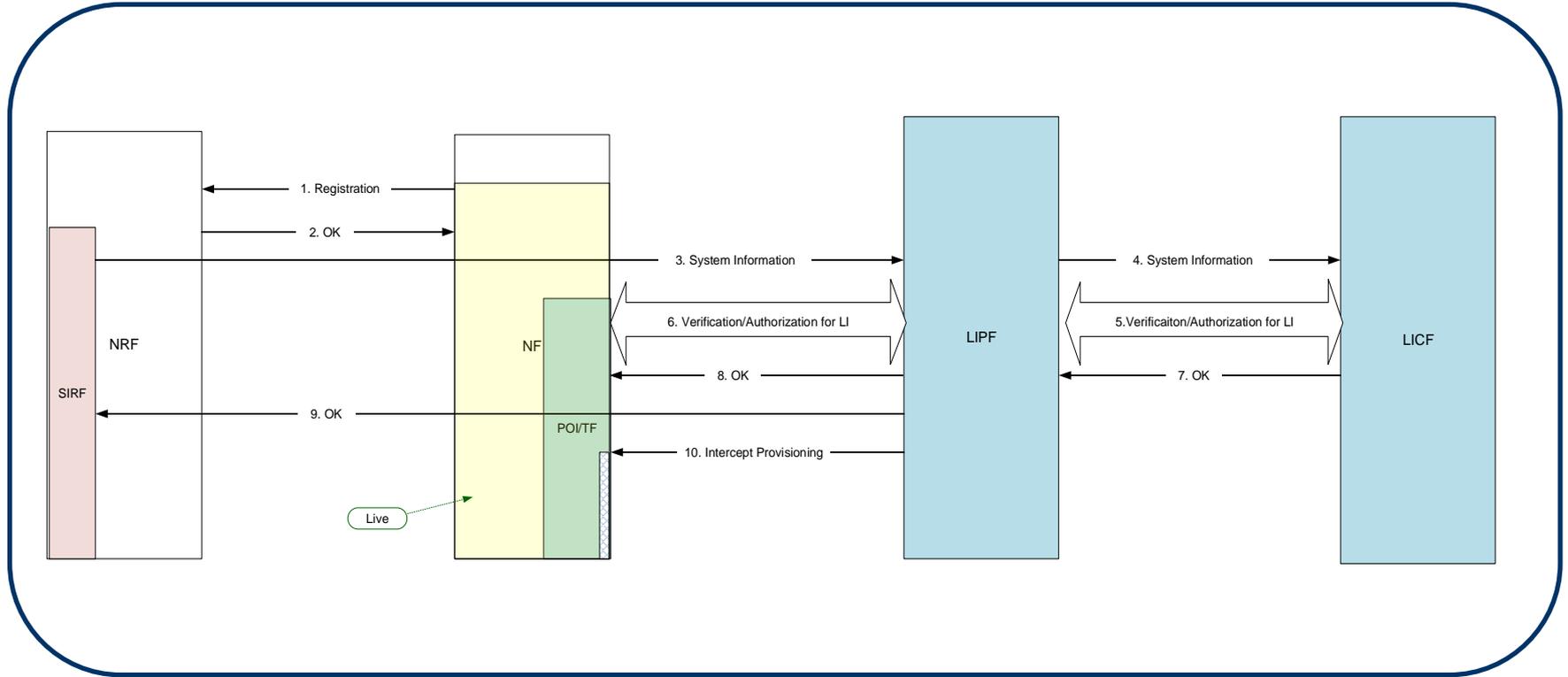




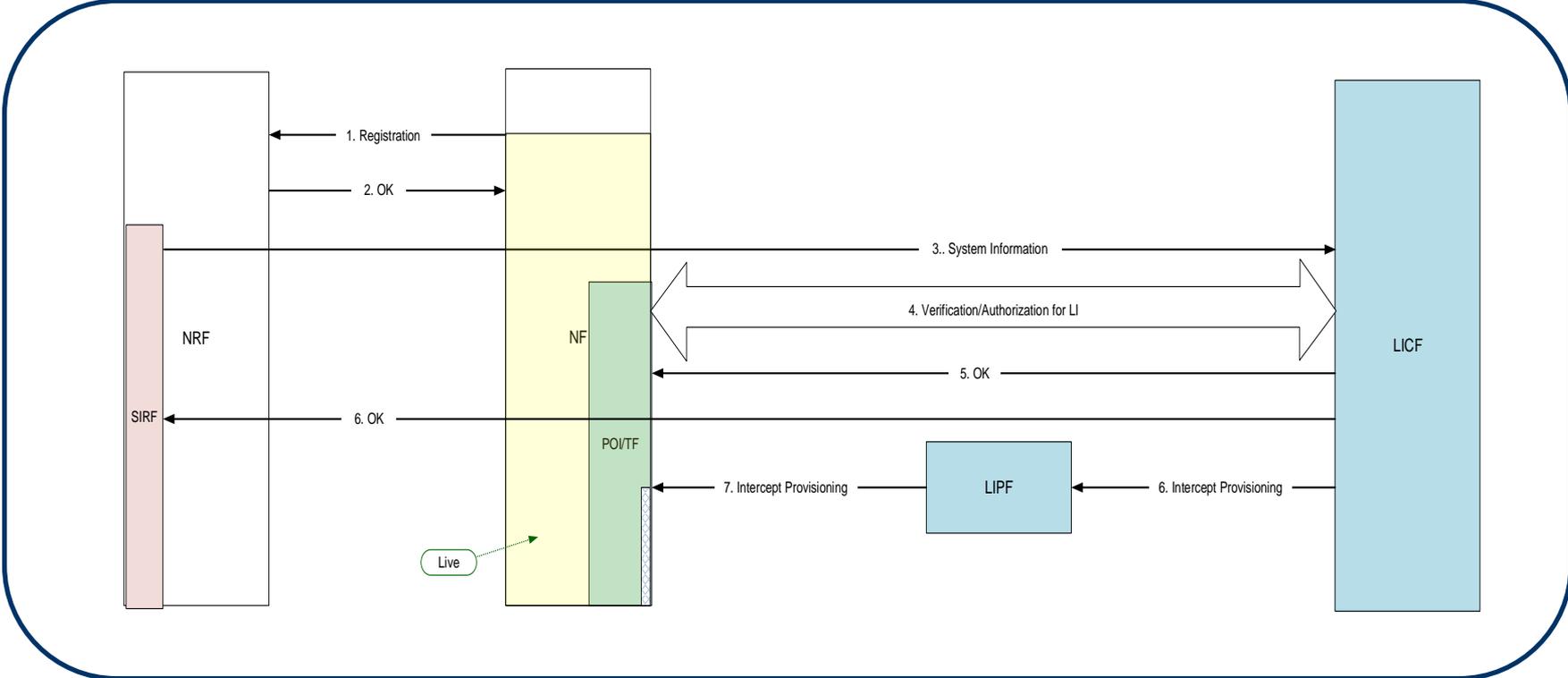


Approach 4

Scenario 1: NF has a POI or TF – method 1

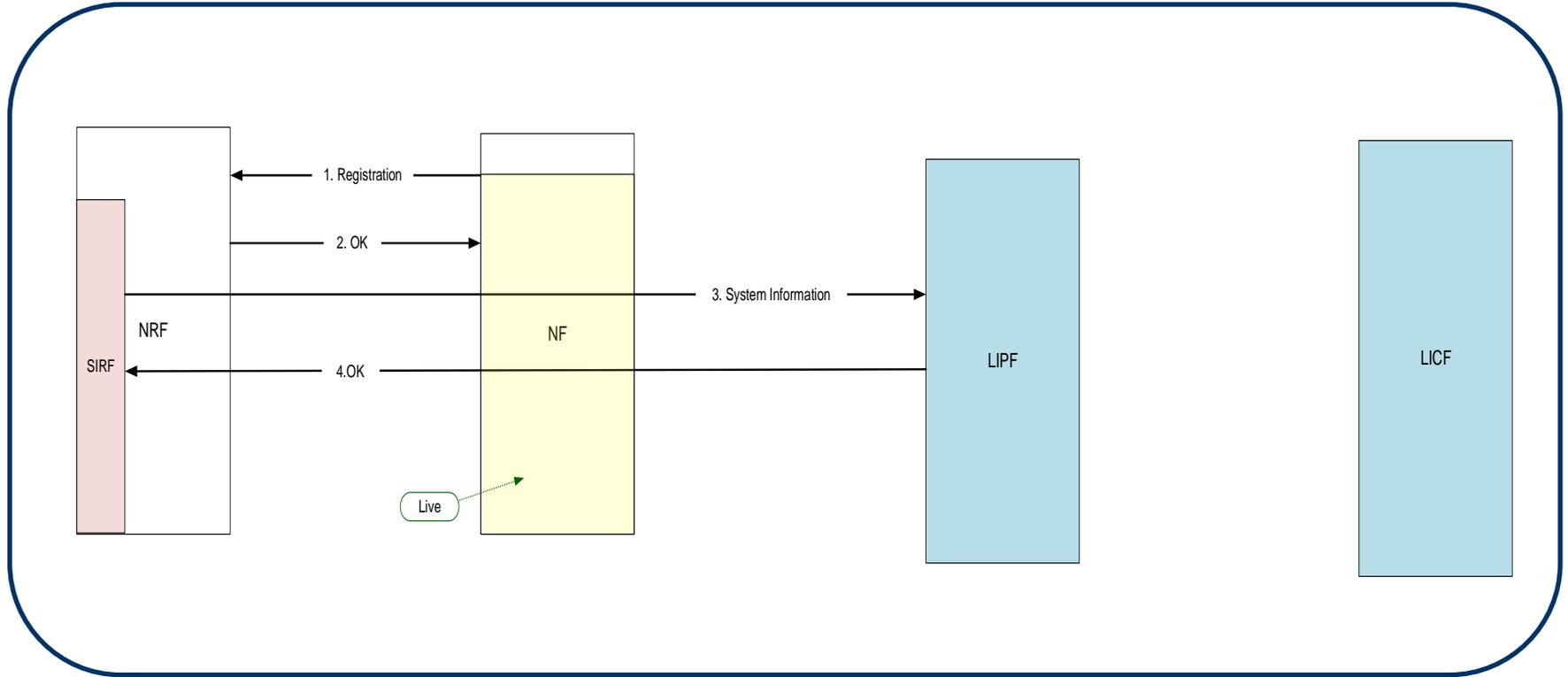


Scenario 1: NF has a POI or TF – method 2



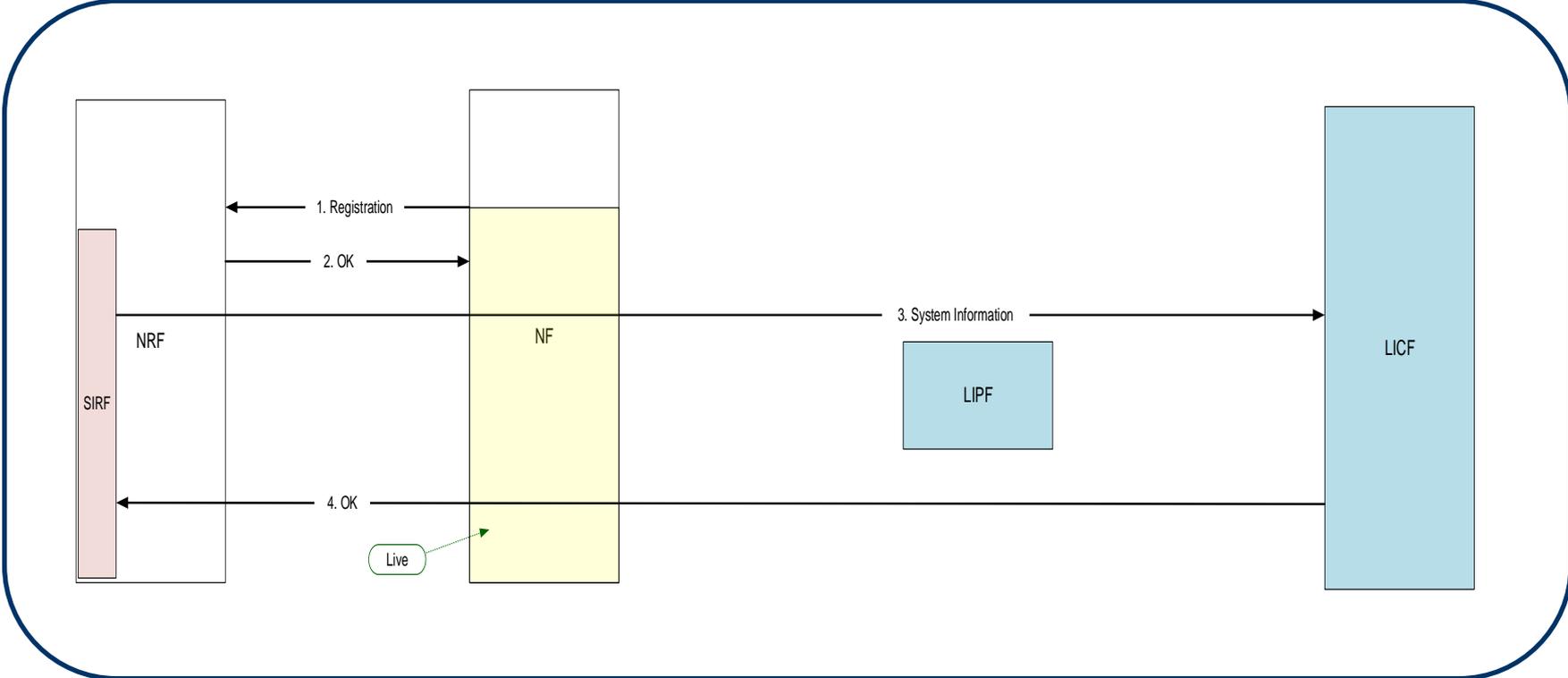
Scenario 2: NF has no POI or TF – method 1

← same approach 1



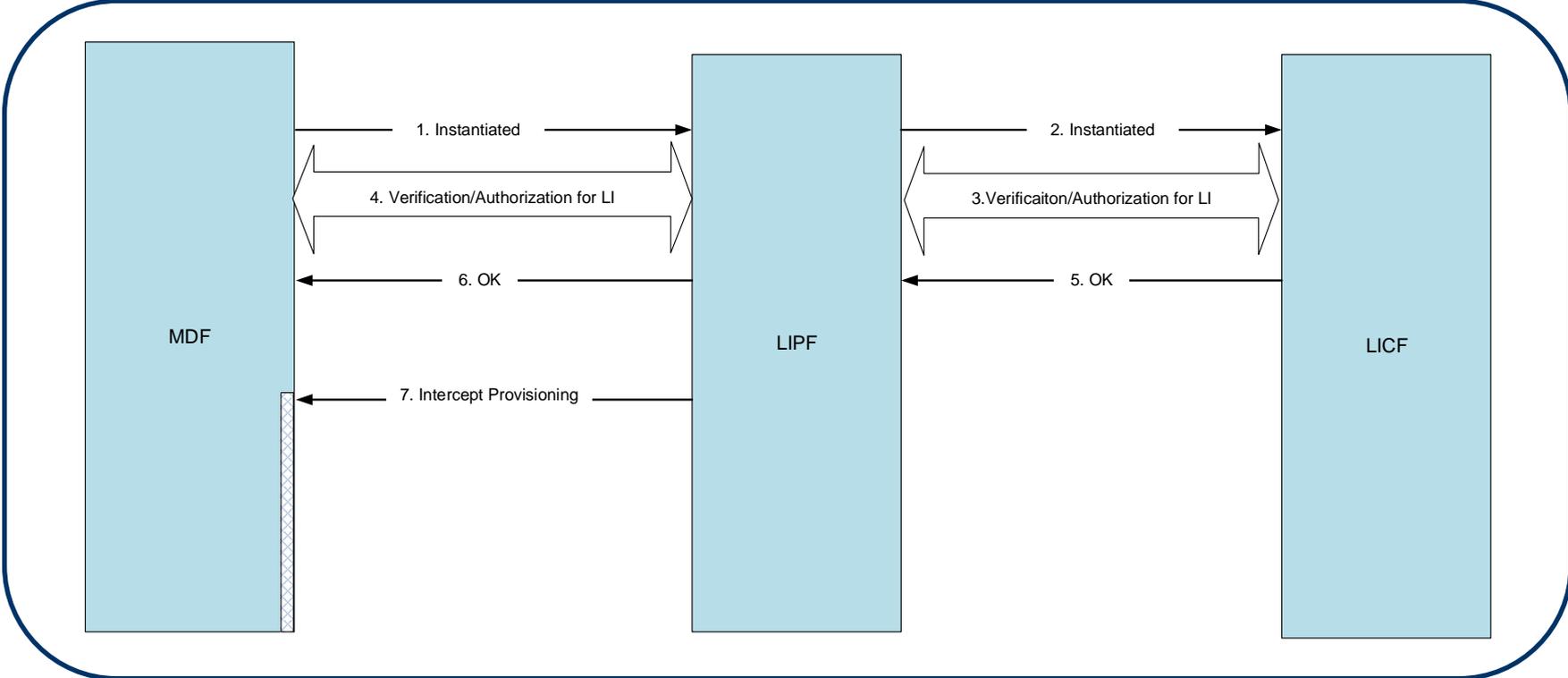
Scenario 2: NF has no POI or TF – method 2

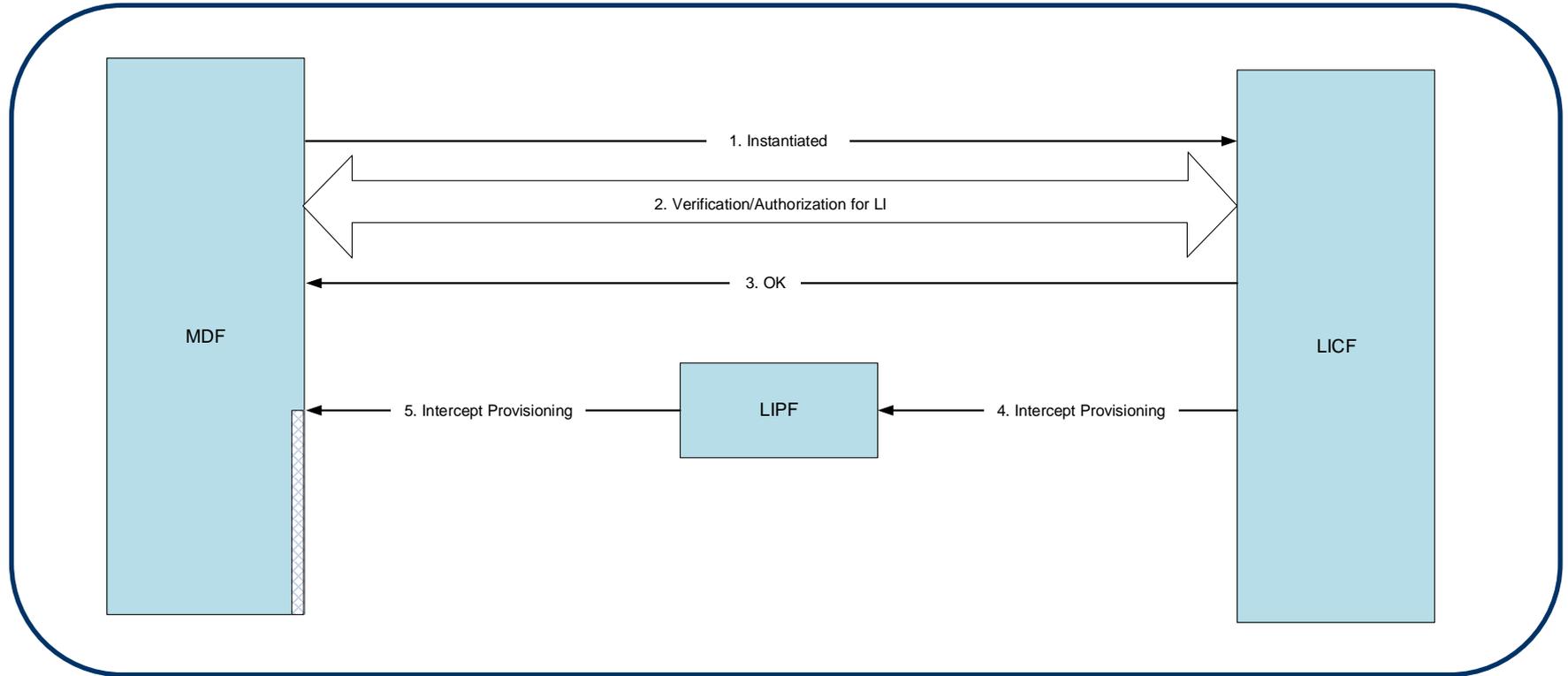
← same approach 1



Scenario 3: MDF – method 1

← same approach 2





Summary

- In all approaches:
 - NF that does not have a POI or TF will register with the NRF. There is no instantiation reporting over LI_X0.
 - MDF will report the instantiation and get the intercept provisioning information. MDF does not register with NRF
- NF that has a POI, CC-TF:
 - In approach 1, 2, 3:
 - Reports its instantiation to LIPF (method 1) or LICF (method 2) and once gets an OK (after the LI verification/authorization) from the LIPF (method 1) or LICF (method 2) registers with the NRF.
 - SIRF sends the System Information to the LIPF (method 1) or LICF (method 2). System Information is also telling the LIPF (method 1) or LICF (method 2) that a NF has gone Live.
 - In approach 1:
 - LIPF provisions the POI/TF as a part of verification process (i.e. sending an OK to POI/TF).
 - In approach 2:
 - LIPF provisions the POI/TF after completing the verification process (i.e. after sending an OK to the POI/TF).
 - In approach 3:
 - LIPF provisions the POI/TF when SIRF sends System Information to LIPF (method 1) or LICF (method 2)

Summary

- NF that has a POI, CC-TF:
 - In approach 4:
 - Registers with the NRF at its instantiation.
 - The SIRF sends the System Information to LIPF (method 1) and LICF (method 2).
 - The LICF initiates the LI verification/authorization when the System information is received.
 - Intercept provisioning is initiated after the LI verification/authorization.
- Method 2 advantages:
 - LIPF can also be considered to be virtual.
 - POI/TF has LI_X1 to LIPF and having another interface LI_X0 also to LIPF looks strange from an architecture perspective.
 - LICF has a control over which NFs have the POIs or TFs, and which NFs are virtualized.
 - Easily viewed as backward compatible. LICF just tells the LIPF to send intercept provisioning information to a POI, or TF or MDF. LIPF need not worry about whether the associated NF is virtualized or non-virtualized.
 - LIPF need not worry about whether it is going to receive System Information or not (if no System Information is received, then that would mean the NF did not go live and therefore, the provisioned interception may have to be removed).

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