Virtualization handling & intercept provisioning corner cases

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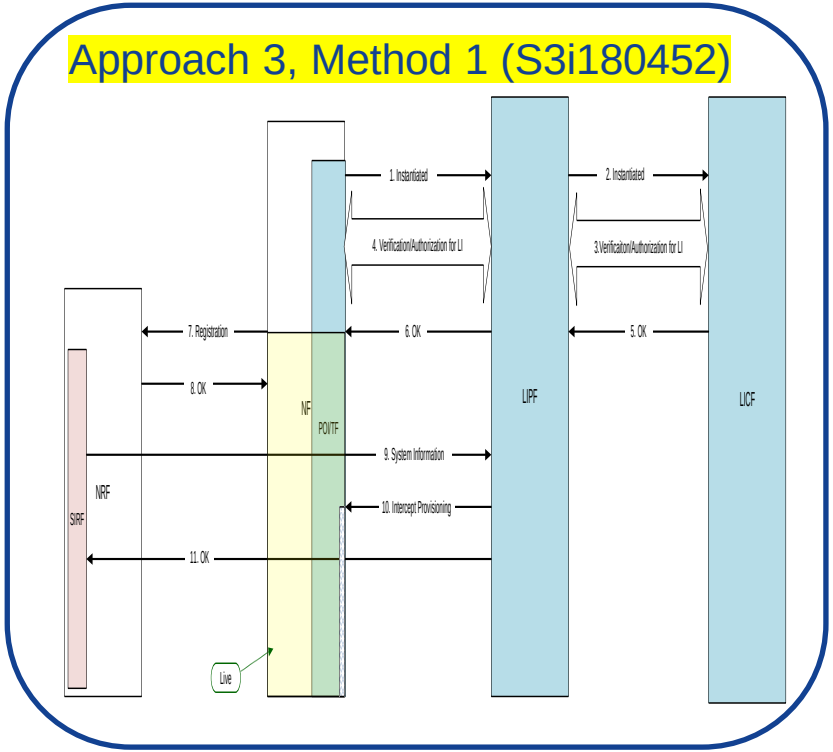
Overview

This presentation is related to S3i180453, S3i180448 & S3i180452

- Uses approach 3 (from S3i180452), method 1.
- Includes:
  - Non-virtualized NF that has LI function (NF-0)
  - Virtualized NFs (two) that have LI function (NF-1, NF-2)
  - Virtualized NF that does not have LI function (NF-3).
- Has two cases:
  - Non-virtualized MDF
  - Virtualized MDF.
- Includes multiple built-in scenarios:
  - No MDF is available when a warrant is issued
  - No MDF is available when a virtualized NF is instantiated.



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Case 1

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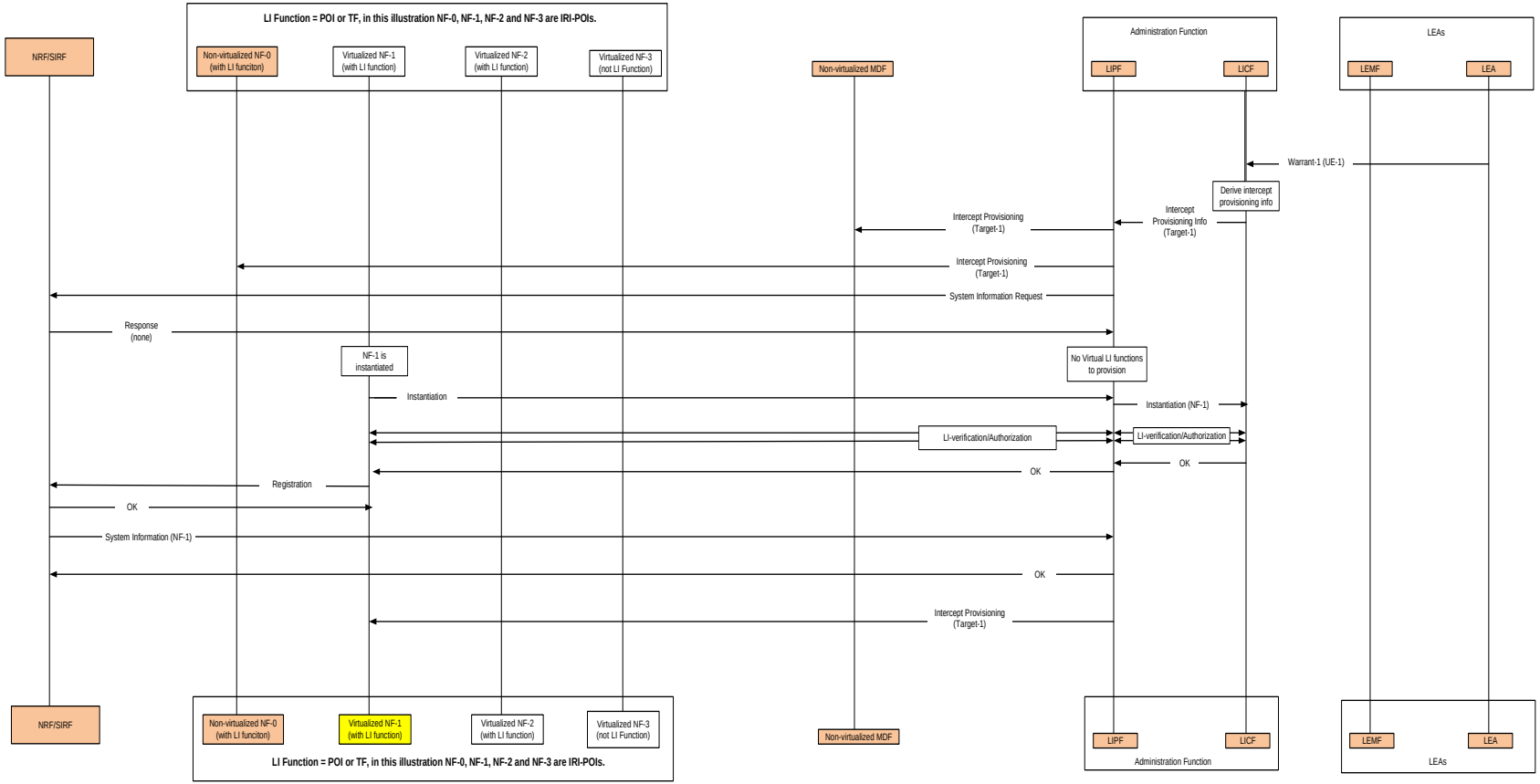
Case 1: Non-virtualized MDF (part 1 of 3)



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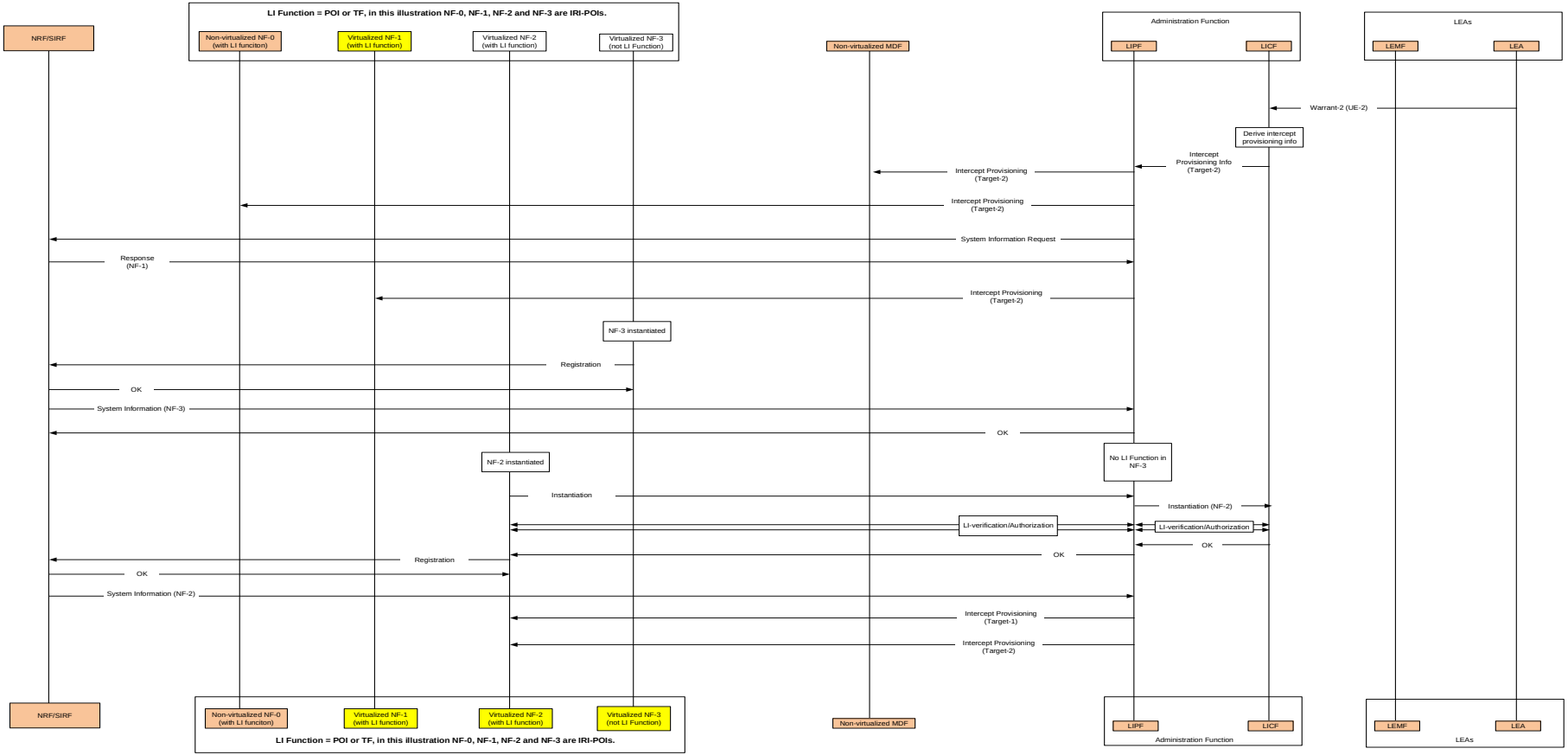
Case 1: Non-virtualized MDF (part 2 of 3)



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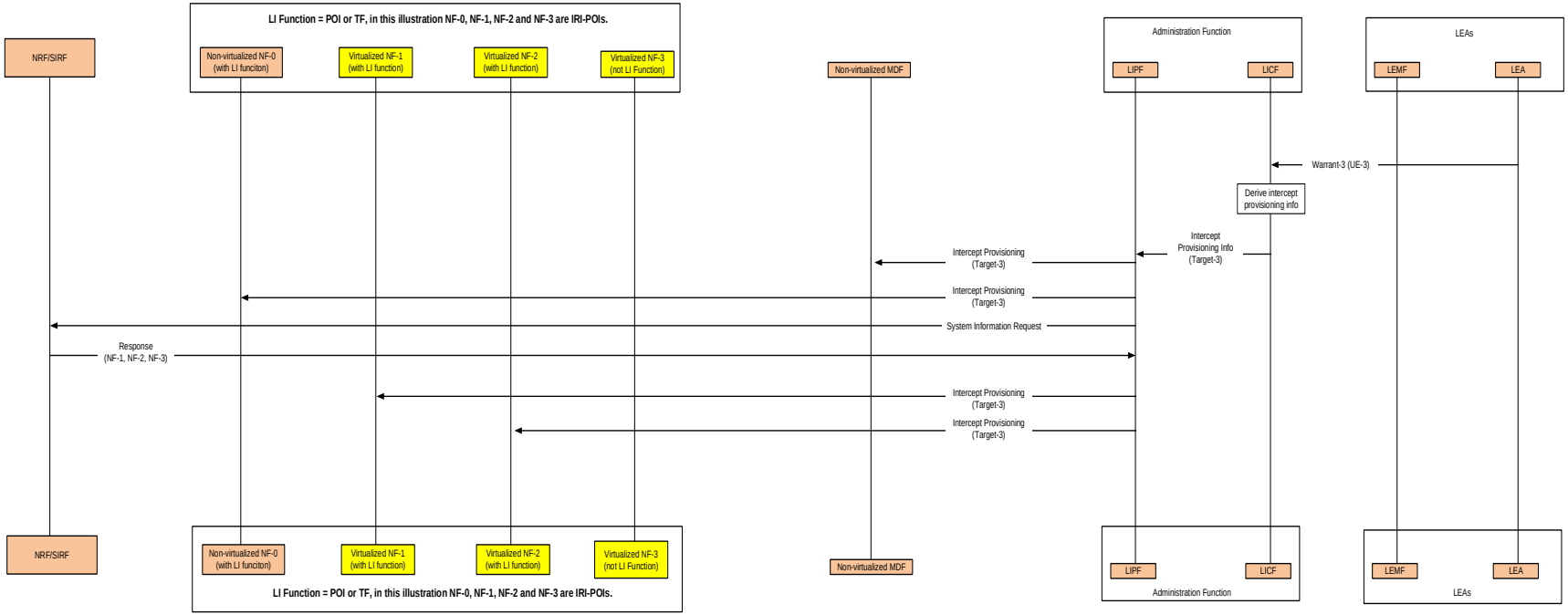
Case 1: Non-virtualized MDF (part 3 of 3)



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Case 2

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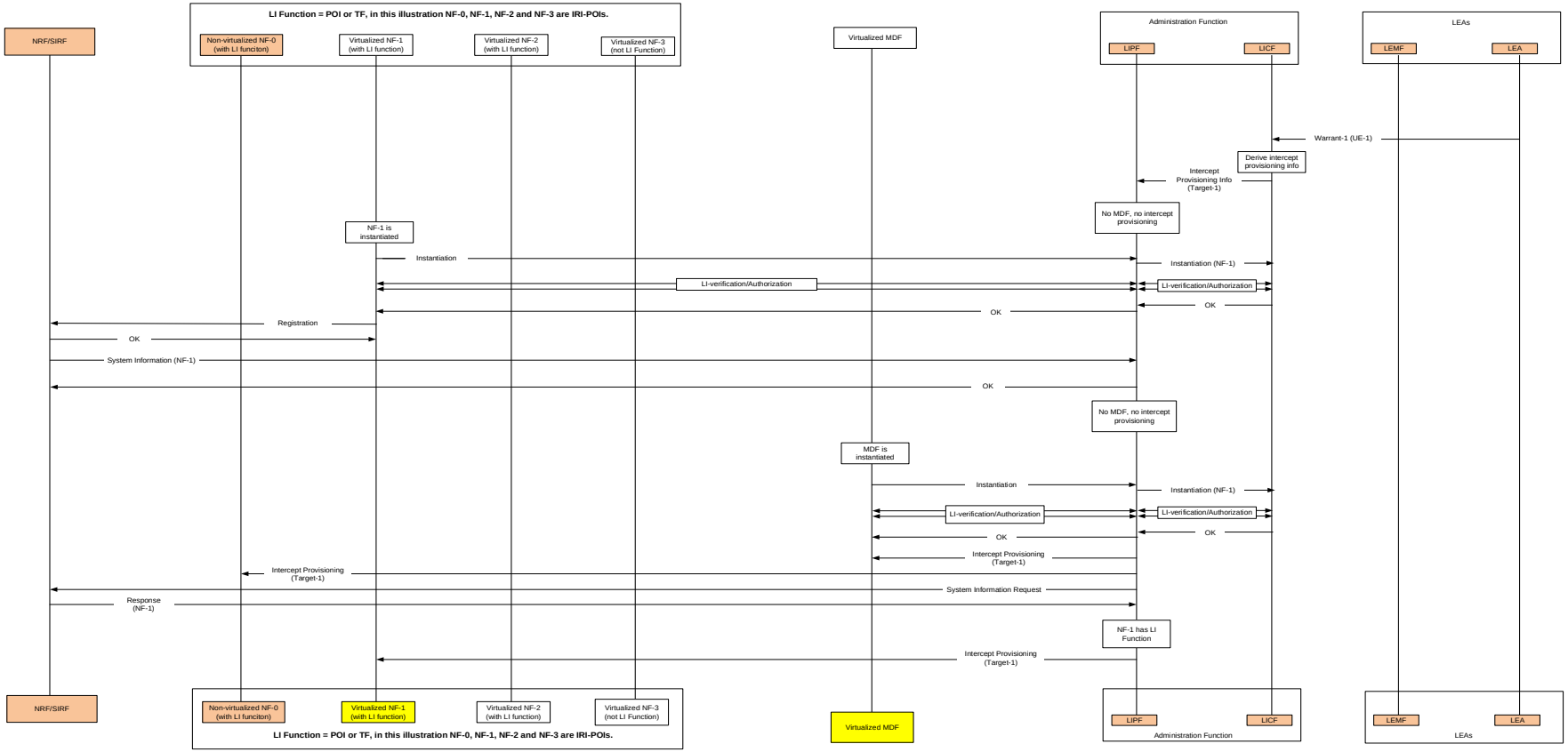
Case 2: Virtualized MDF (part 1 of 3)



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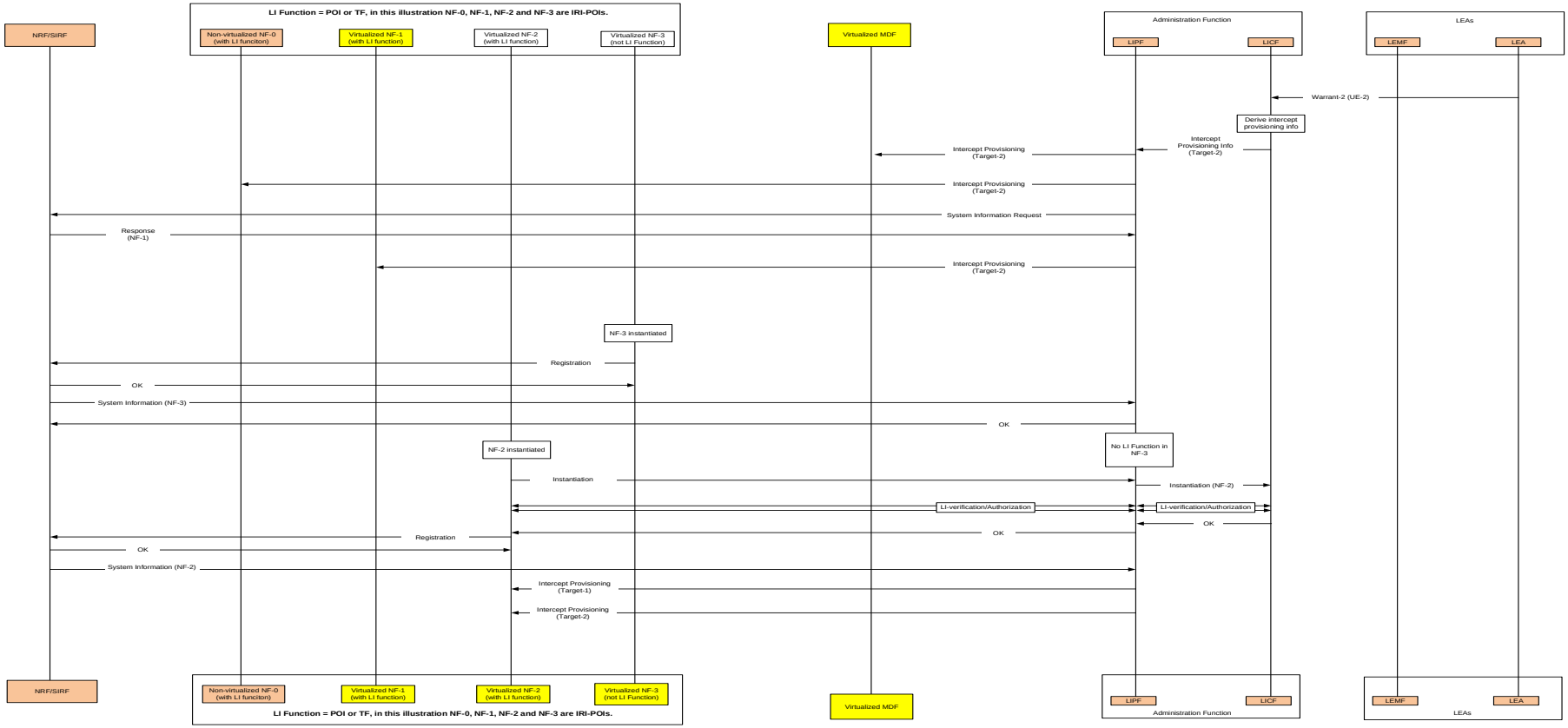
Case 2: Virtualized MDF (part 2 of 3)



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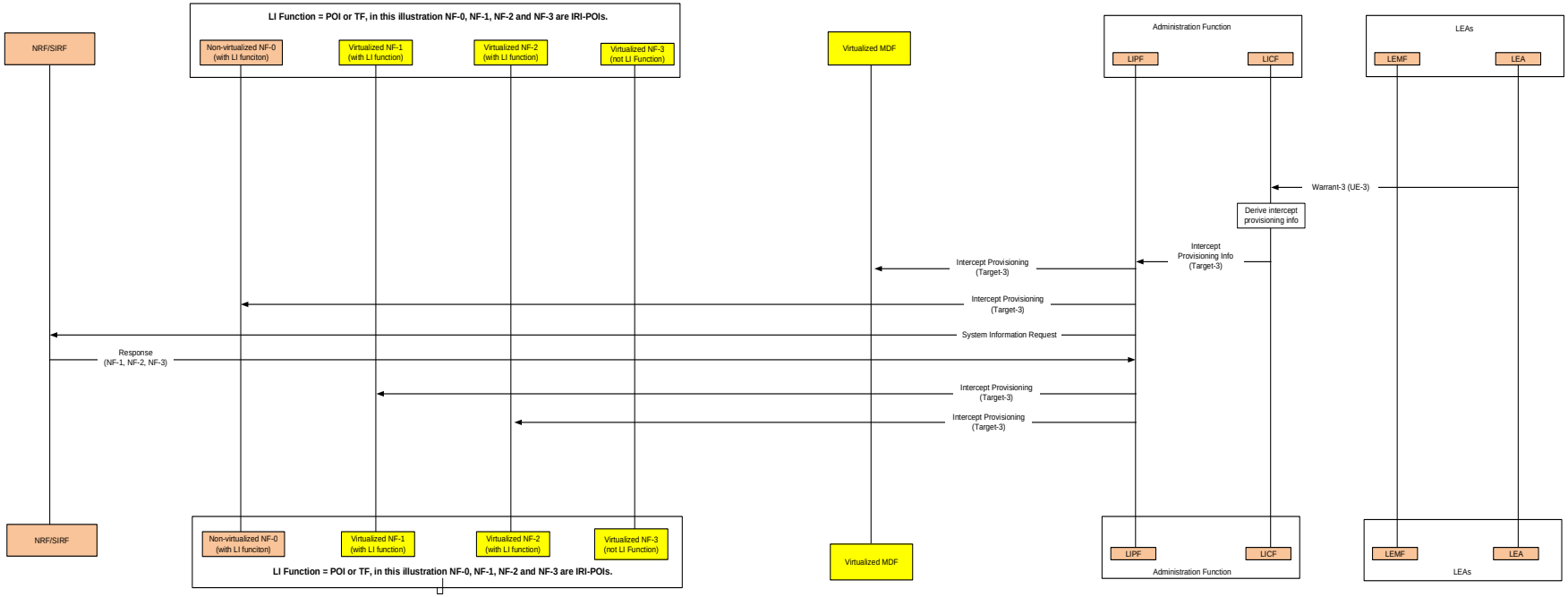
Case 2: Virtualized MDF (part 3 of 3)



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Summary

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Summary

- The handling of instantiation of a NF that has LI function is different from the handling of instantiation of a NF that does not have the LI function.
- Intercept provisioning to the LI function in a NF (virtual or non-virtual) shall be delayed until an MDF is available.
- Post handling of LI verification/authorization of an LI function is different when that LI function is an MDF or in a virtual NF.
- When a warrant information is received, intercept provisioning of LI functions in non-virtual NFs and non-virtual MDF is done immediately.
- When a warrant information is received, intercept provisioning of LI functions in virtual NFs is done only after confirming with the SIRF that the virtual NF is operational and live.
- When a system information is received from the SIRF, the LIPF shall be able to determine whether the associated NF has LI function. If yes, the SIRF shall start provisioning that LI function with the intercept information of all applicable warrants, previously received and active.

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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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