OTS Number Porting

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12/03/2025

Introduction to OTS Porting

To achieve the "quick, easy and reliable switching" requirement from Ofcom, it was agreed amongst the larger consumer providers of fixed line voice services that a new faster number porting process is required.

A proposal was made to introduce a new porting transaction, referred to as SPX (similar to the switch prefix change (PXC) transaction), to support a same day porting process, with the One Touch Switch process providing the authentication and identification aspects of the porting workflow.

After evaluating several potential candidate approaches, a variant was decided on to minimise impacts on existing porting processes and provide the greatest chance of delivery shortly after the main OTS launch.

Further detailed analysis of the porting process has been undertaken to align the porting, 999 and DQ processes and ensure no disruption or changes result in unexpected areas.

The following slides provide a step-by-step view of the new porting process, showing how it fits in with OTS, 999 and DQ to ensure full compatibility with the current porting processes.

Change Control

Date	Comments
10/05/2022	First draft by Dave Stubbs (Virgin)
Various	Multiple updates by Dave Stubbs, Niall Gillespie (BT) with review by Phil Bone (BT).
27/05/2022	Version circulated for cross-industry call on 31/05/2022
03/08/2022	Updated by Niall Gillespie to reflect industry consensus on 1-stage SPX.
18/08/2022	Updated by Niall Gillespie & Dave Stubbs to reflect industry consensus on 1-stage SPX with optional SPQ validation.
23/08/2022	Further updates following cross industry review call on 23/08.
04/10/2022	Updated by Niall Gillespie with detail on possible failures and error handling
17/11/2022	Correction to typos. VMO2 will use CUPID 825 as their single national value for OTS. Addition of SLA for SPQ.
09/12/2022	Added specification of "LCP=<CUPID" for RC60. Added specification that SPQ and SPX must use unique order numbers.
21/07/2024	Updated by Niall Gillespie following cross-industry discussions chaired by OTA2. Changes include revised SLAs and alignment with existing porting desk support hours.
28/11/2024	Updated by Niall Gillespie: For the scenario where the SPQ gets an unexpected warning code 60, changed the recommendation to a simple reject, to avoid the risk of proceeding with data that is suspect.
12/03/2025	Updated by Niall Gillespie: Changes to opt-in at a retail CP level, as well as CUPID.

Overview of OTS Porting

OTS Porting adds two new porting transactions to the existing NPOR and NPAR specifications:

- SPQ (switch port query)
- SPX (switch port execute)

The requestor **<u>must</u>** include the switch order reference (SOR), for audit purposes and for the losing provider to validate if they wish (not mandatory, and likely only in an integrated losing supply chain).

The SOR is a UUID (https://en.wikipedia.org/wiki/Universally_unique_identifier)

- For NPOR transactions, a new field will be added to the NPOR template to hold the SOR.
- The EDI spec for NPAR will be updated with a new field 21A to hold the SOR.
- Note that the SOR will **<u>not</u>** be included in port transactions other than SPQ and SPX – this reduces the risk of any unintended side effects on any voice CP which does not support SPQ/SPX.

Opt-in/out of OTS Porting

The OTS Industry Process includes that the losing retail CP will return the current CUPID:

- This applies when the OTS match request includes NBICS with a number and an action of "port". The current CUPID will be the losing CUPID in any number port.

OTA2 will facilitate co-ordination of a list of RCPIDs and a list of CUPIDs which support OTS Porting:

- RCPs will self-declare to OTA2 that they support OTS Porting.
- Voice CPs (holder of CUPIDs) will also self-declare to OTA2.
- A GRCP wishing to use OTS Porting will check that:
    - the losing RCPID supports OTS Porting;
    - that the LRCP has returned a CUPID;
    - and that **both** the losing CUPID and range holder CUPID support OTS Porting.

Retail CPs will have the following opt-in/out choices:

- If they do not wish to support OTS Porting, do not self-declare to OTA2.
- If they wish to fully support OTS Porting, ensure that their supply chains provide support, ensure they return a correct CUPID in the OTS match responses, and self-declare their support to OTA2 for inclusion on the RCPID list.
- A retail CP with multiple supply chains may have limited support:
    - If they use multiple supply chains with different CUPIDs, ensure they return the correct CUPID, self-declare partial support, and rely on the gaining supply chain check for the CUPID support.
    - If they use multiple supply chains with the same CUPID, ensure that they only return the CUPID when the number is associated with a supporting supply chain, and self-declare partial support.

Note that the principle of **reciprocity** applies:

- A gaining retail CP may only use OTS Porting to import numbers if they (and their supply chain) also support OTS Porting as losing retail CP.

National vs Regional CUPIDs

Any provider that has multiple CUPIDs will nominate a single national CUPID that they will use to standardise transactions. Any provider receiving SPQ and SPX messages would accept the national or regional CUPID as a valid value.

This would apply in porting, DQ and 999 (believed to already be the case in DQ and 999).

Virgin has an extensive list of CUPIDs:

- Virgin will return a single national CUPID (825) in their response to OTS switch match requests which request a number port.
- This value would be used as the CUPID for the losing voice CP if OTS porting is used.
- Note that voice CPs that have recorded a regional VM CUPID (e.g. on a number exported to VM) **must** accept the national CUPID of VM if included in a porting transaction.

OTA2 will maintain a master list of this national / regional mapping, as well as the list of voice provider CUPIDs that support OTS Porting.
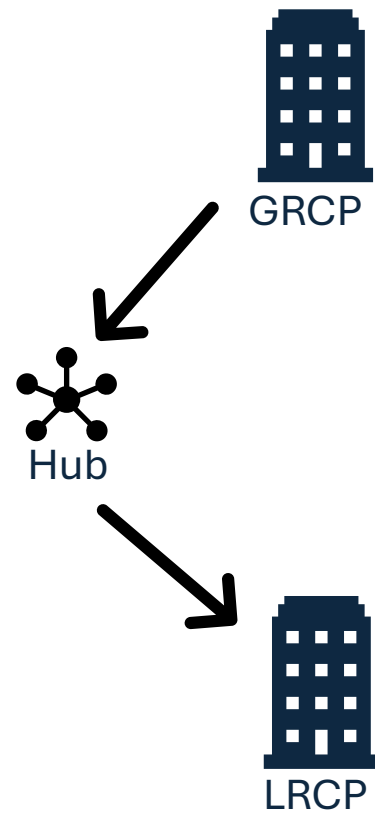
OTS Workflow

Start switch order

Customer contacts GRCP to switch services, specifying they want to retain their existing phone number.

Customer

GRCP

Supply Chain

GVCP

RH

Hub

LRCP

Supply Chain

LVCP

999 / DQ

OTS Workflow

Switch matching

GRCP sends match request to LRCP (via TOTSCo Hub)

OTS Workflow

Get number information

LRCP confirms number in service at the address and obtains the CUPID of current VCP via supply chain (if not already known).

Customer

GRCP

Supply Chain

GVCP

RH

Hub

Requires either the supply chain to expose a new service to perform number lookup for the LRCP to obtain the CUPID, or that the retailer knows the LVCP and can provide the necessary CUPID without a query. LRCP will return CUPID in the match response to the GRCP.
For example, any retailer only using BT to provide their voice lines would simply return 001 as the CUPID, no need to query.

LRCP

Supply Chain

LVCP

999 / DQ

OTS Workflow
Switch match response

CUPID returned in match response to GRCP.
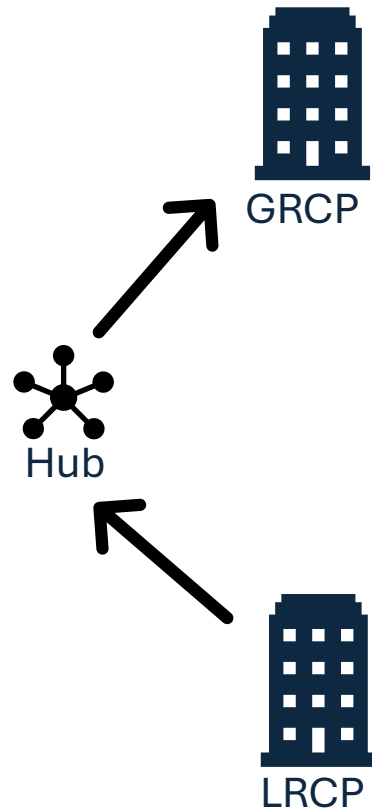
OTS Workflow

Switch order validation

GRCP receives match response and checks with their supply chain (passing CUPID from OTS match response) if all parties support SPX and the number can be ported using OTS Porting.

GVCP indicates SPX is supported, so switch offered with min lead time, otherwise reverts to standard porting lead times (7 working days) and processes.

Customer

GRCP → Supply Chain → GVCP

RH

Hub

May require supply chain and VCP to expose a new service to perform number lookup to establish if portable and obtain lead time to port. This effectively allows point of sale validation of the proposed port.

LRCP

Supply Chain

LVCP

999 / DQ

OTS Workflow
Switch consent

Customer accepts T&Cs and switching implications, and gives "express consent" to the switch.

OTS Workflow

Switch order placed

GRCP places order with supply chain for GVCP to deliver new service.

Customer

GRCP → Supply Chain → GVCP

RH

Hub

To utilise SPX the order into the supply chain must be capable of receiving the CUPID of the losing voice provider received earlier, plus the SOR. This will require a change to the supply chain order processes / APIs.

LRCP

Supply Chain

LVCP

999 / DQ

Design Note – relative timing of OTS and porting order requests

Port orders (before SPX) were generally placed on day 0 (day of customer order placement), with a lead time of 4 or 7 working days.

The SPQ query is optional to send, but **strongly recommended** as a validation step. SPQ query can be sent at any time prior to the SPX and responses are mandatory. SPQ is **not** a port order.

The SPX process is an immediate, 1-stage, same day port request. The GVCP will send the SPX port request when the gaining supply chain is ready to import the number.

Many losing supply chains will need to create order(s) on their systems, and notify downstream CPs (unsolicited ceases), before being able to confirm that the SPX port request has been accepted.

The response to the SPX will confirm that the losing VCPs has accepted the order, and has built internal and unsolicited cease orders as required. The SLA for both SPQ and SPX response will be 95% response within 2 working hours.

The losing VCP will treat the SPX request as both order and activation, and should aim to activate the port as quickly as possible. The long-standing port activation SLA (95% within 15 mins and 99% within 20 mins) will apply from when the response to the SPX order is sent by the LVCP.

Scenario 1 – subsequent port.

GVCP, RH and LVCP are all different – subport

There will be an SPQ and SPX order.

The GVCP will understand the number is in a subport scenario and use the SPQ transaction to query the losing provider to verify the number is available to port.

It is recommended that the SPQ is sent on the day the GVCP receives the order (so that any rejection happens as quickly as possible – this is the sequence shown in these slides), but it is also valid to send it just before the switch of service.

On the day of the port, the GVCP will send an SPX transaction to the RH first to update the routing. This request will indicate the losing CP CUPID and SOR for verification purposes, with the expectation that the RH will simply execute the port and return the CUPID to which they had recorded that their number was exported to.
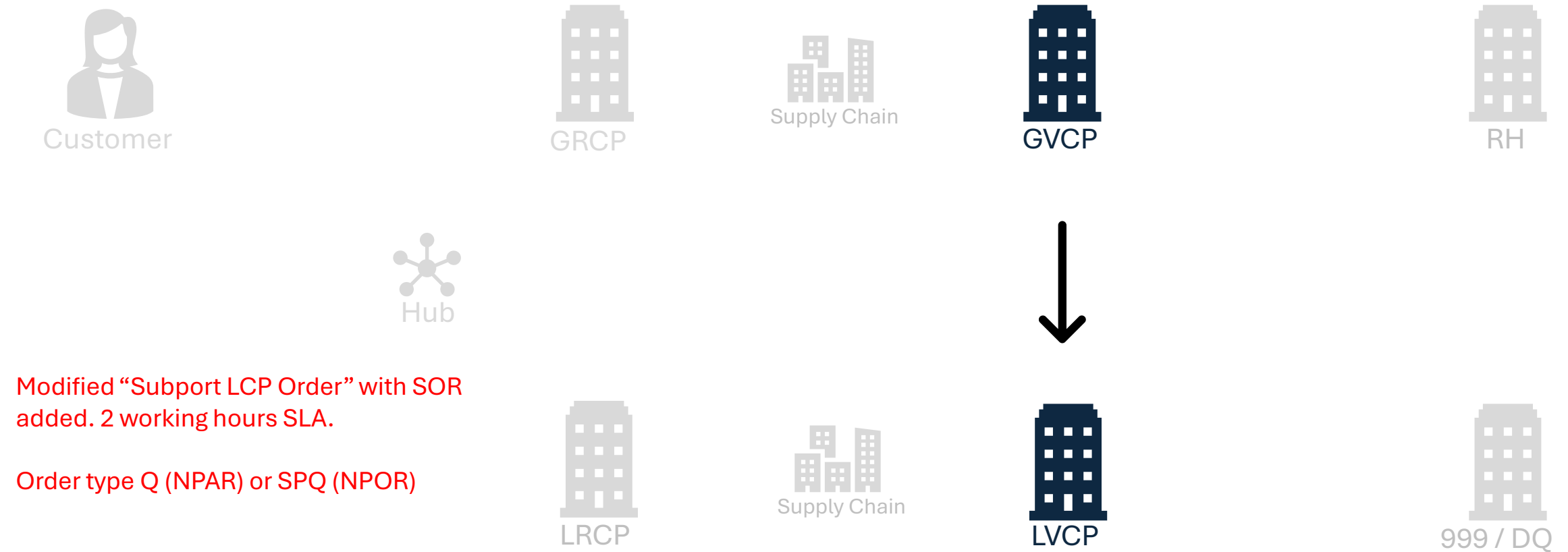
Finally, after getting the RH response, a second SPX request will be sent to the LVCP who then ceases service and releases the 999 and DQ to the GVCP.

OTS Workflow

Porting query (SPQ) raised to LVCP

GVCP sends SPQ to LVCP to validate port.
(Optional to request, but strongly advised for launch)

Customer

GRCP

Supply Chain

GVCP

RH

Hub

Modified "Subport LCP Order" with SOR added. 2 working hours SLA.

Order type Q (NPAR) or SPQ (NPOR)

LRCP

Supply Chain

LVCP

999 / DQ

Design Note

SOR validation for porting

An OTS Porting SPX transaction **must** provide the SOR of the OTS switch order to which it relates for auditing purposes, but it is not mandated that the SOR is validated.

The SOR will be a UUID, and **may be** validated by the LVCP if they have access to the SOR issued in their supply chain, for example where a supply chain is fully integrated.

VCPs **may choose not** to validate the SOR – the responsibility for raising a valid OTS switch order lies with the GRCP and the audit trail on the TOTSCo Hub will support any Ofcom investigations or other queries.

OTS Workflow

LVCP confirms port is valid

LVCP confirms port is valid, responds to GVCP.

(Mandatory to respond to if requested by SPQ)

Customer

GRCP

Supply Chain

GVCP

RH

Hub

Standard NPAA or NPOR response.

Use standard error codes, plus SOR validation error code 61.

LRCP

Supply Chain

LVCP

999 / DQ

OTS Workflow

Activation – new voice service begins

GRCP or supply chain triggers port request.

This can happen on the original requested OTS migration date, or after any delayed provision.

OTS Workflow
Port order (SPX) raised to RH

GVCP raises SPX request to RH including SOR. (Use the "validated by Losing Provider" flag to indicate the knowledge that this request is a subsequent port.)

Customer

GRCP

Supply Chain

GVCP

RH

Hub

Modified "Subport RH Order" with SOR added. 2 working hours SLA.

Order type E (NPAR) or SPX (NPOR)

LRCP

Supply Chain

LVCP

999 / DQ

OTS Workflow

RH confirms port accepted and prefix updated, with response code 60 warning

RH **accepts** SPX with <u>warning</u> code 60, responds to GVCP indicating CUPID of previous VCP.

RH updates routing prefix, within standard activation SLA, measured from response to SPX.

Customer   GRCP   Supply Chain   GVCP   ←   RH

Hub

Standard NPAA or NPOR response.

RH will return warning code 60 and CUPID if the number is exported.

LVCP/RH will return 0 and no CUPID if the number is not exported.

LRCP   Supply Chain   LVCP   999 / DQ

OTS Workflow

Subport order (SPX) raised to LVCP

GVCP then sends SPX to LVCP to create cease order.
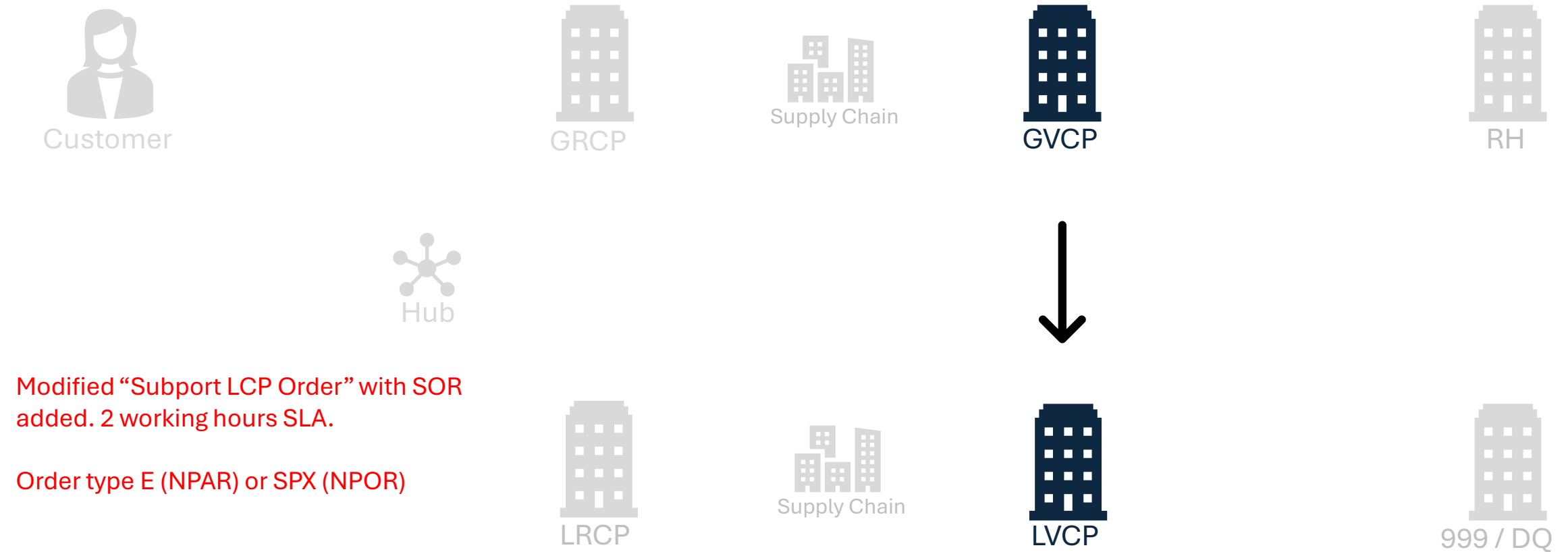
Customer

GRCP

Supply Chain

GVCP

RH

Hub

Modified "Subport LCP Order" with SOR added. 2 working hours SLA.

Order type E (NPAR) or SPX (NPOR)

LRCP

Supply Chain

LVCP

999 / DQ

OTS Workflow

LVCP drives unsolicited cease workflow

LVCP notifies supply chain with unsolicited cease notification, KCI messages etc.

LRCP would currently expect the initial notification of unsolicited cease on day zero, with future port date.

Under SPX, this will all happen on the port date.

Design note

LVCPs and LRCPs should be aware of the possible relative timings:

- An intra-network line transfer may have completed before the gaining supply chain sends the SPX order. This may have triggered cessation of voice service, and the LVCP may have already placed the ceased number into quarantine.
- The OTS trigger may arrive before the SPX number export request, and again may have triggered cessation and quarantine.
  - There is a possible race condition between LRCP sending CP initiated cease request (due to OTS trigger) and LVCP sending unsolicited cease (due to number export) – supply chains must ensure these race conditions are handled.
- If the number is ceased and in quarantine, the SPX order **must** be accepted under "right to port out" rules.
- It is possible that the LVCP may not need to inform the LRCP of an unsolicited cease due to number export where the number is already ceased.
- The LVCP may also choose to delay cessation until receipt of OTS trigger, e.g. where vertically integrated. But they should not delay acceptance of the SPX order (since the gaining supply chain may be awaiting acceptance before sending the OTS trigger – i.e. avoid any risk of a deadlock situation).

OTS Workflow

LVCP ceases service, 999 / DQ Export

LVCP updates DQ & 999 releasing number specifying gaining and losing CUPID; initiates cessation of service; and notifies supply chain.

Customer

GRCP

Supply Chain

GVCP

RH

Hub

No change

LRCP ← Supply Chain ← LVCP → Export → 999 / DQ
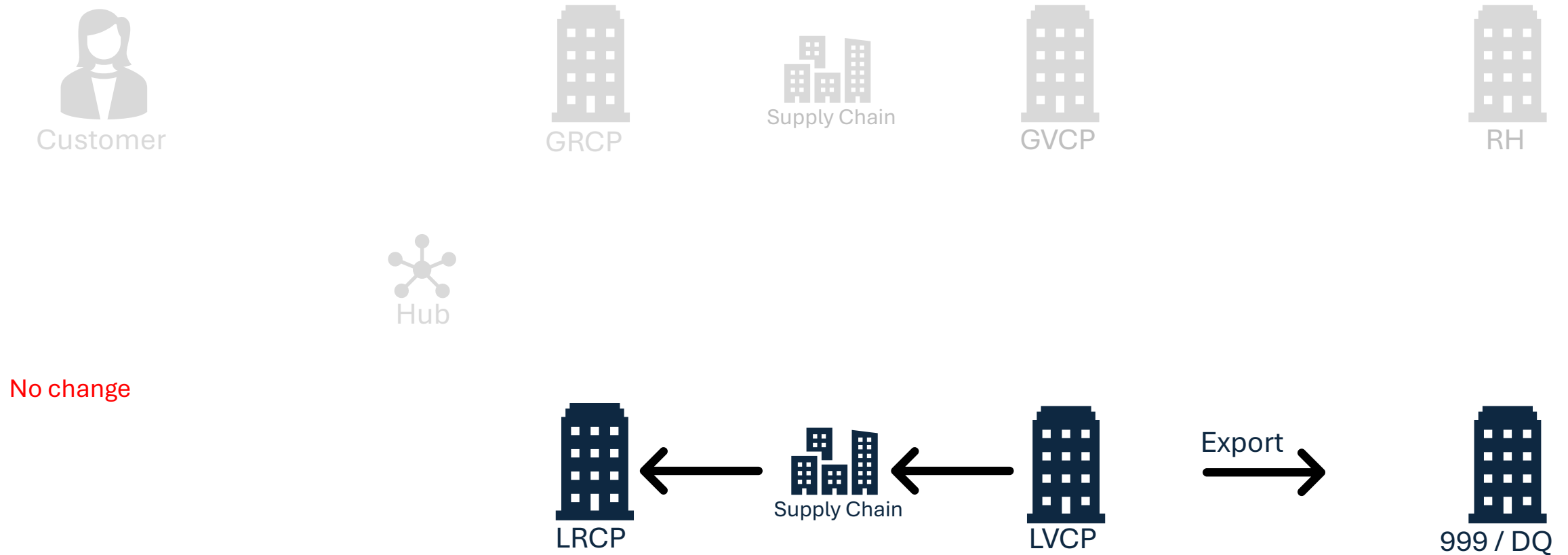
OTS Workflow

LVCP confirms port accepted & either completed or activation in progress.
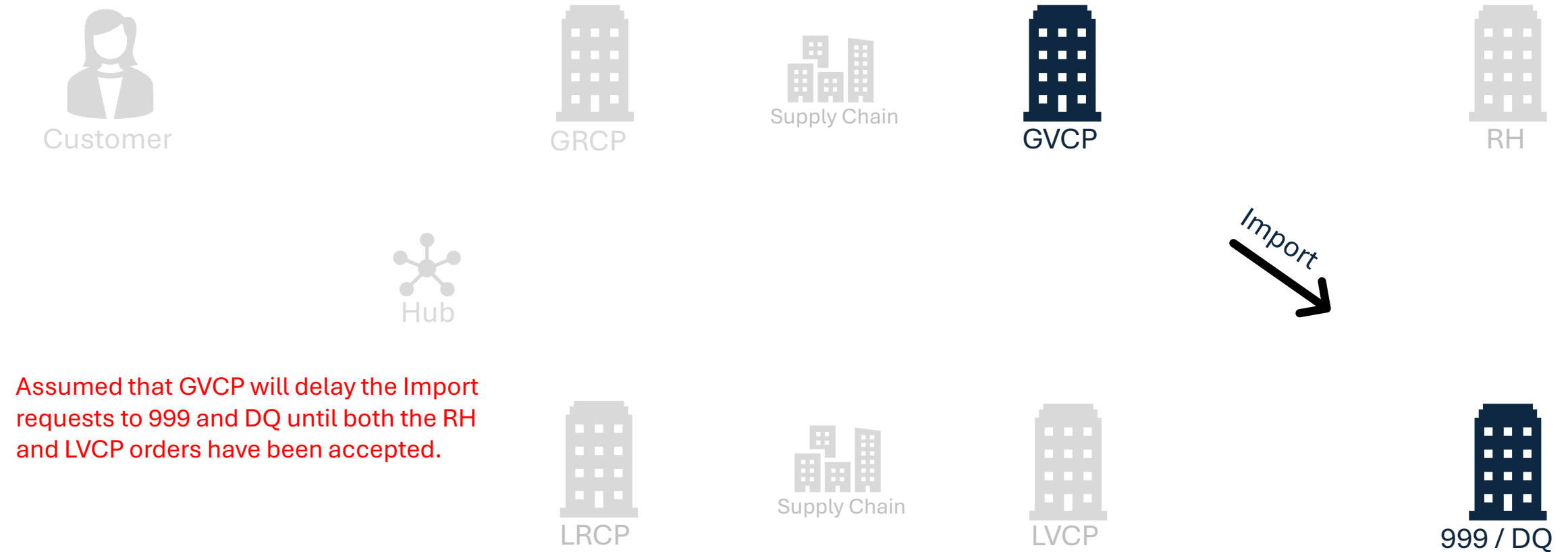
LVCP accepts SPX, responds to GVCP.

LVCP completes cessation of service (and removes any local routing) inside standard activation SLA, measured from response to SPX.

Customer

GRCP

Supply Chain

GVCP

RH

Hub

Standard NPAA or NPOR response.

LRCP

Supply Chain

LVCP
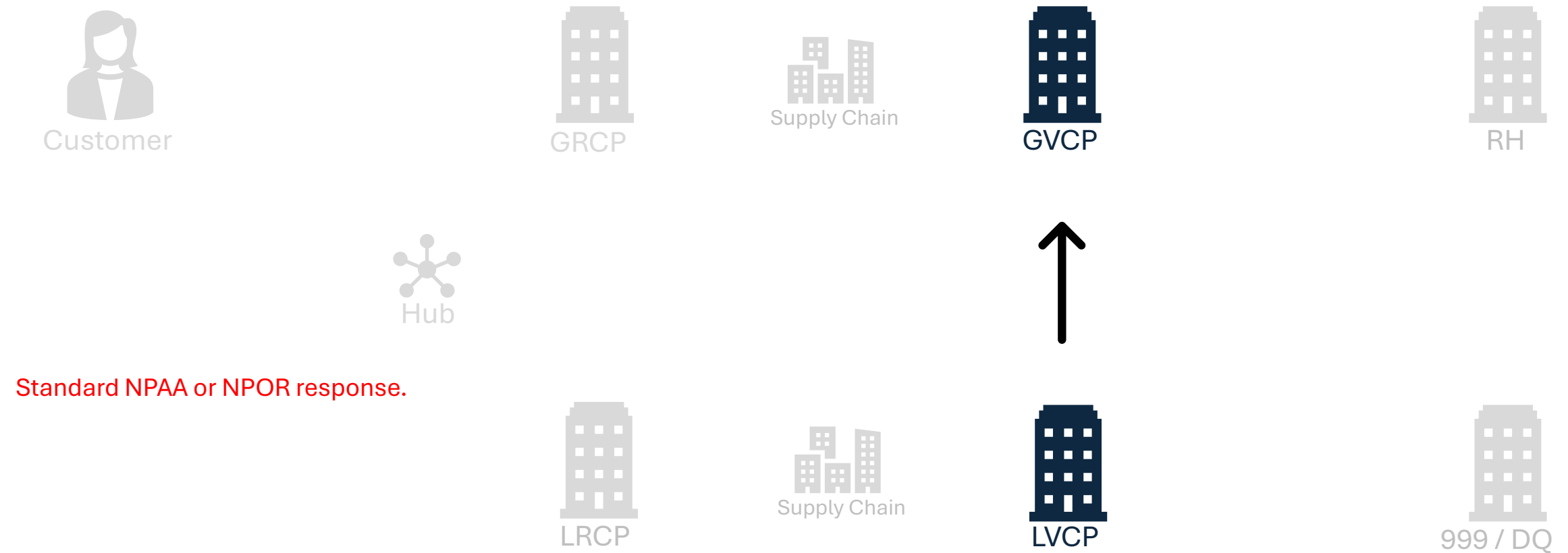
999 / DQ

OTS Workflow
999 / DQ Import

GVCP notifies 999 and DQ of change of supplier, specifying gaining and losing CUPID.

Customer

GRCP

Supply Chain

GVCP

RH

Hub

Import

Assumed that GVCP will delay the Import requests to 999 and DQ until both the RH and LVCP orders have been accepted.

LRCP

Supply Chain

LVCP

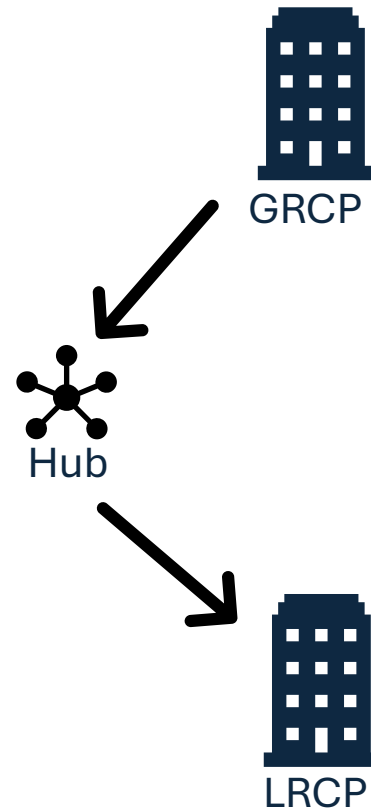999 / DQ

OTS Workflow
Voice provide complete

GVCP informs GRCP that service has been provided.

Gaining supply chain may invoke automated testing of call routing.

OTS Workflow

Losing Provider notified

GRCP notifies LRCP that service has been provided and to stop service and billing, using an OTS trigger message.

Scenario 2 – return to range holder.

GVCP and RH are the same, different LVCP – return to range holder

As the GVCP is the RH, they already know who the LVCP is from their own records.

As the RH they would also update the routing internally, removing the old route to the LVCP as a part of the provisioning processes.

As for scenarios 1 and 3, it is recommended that the GVCP use the SPQ transaction to query the losing provider to verify the number is available to port.
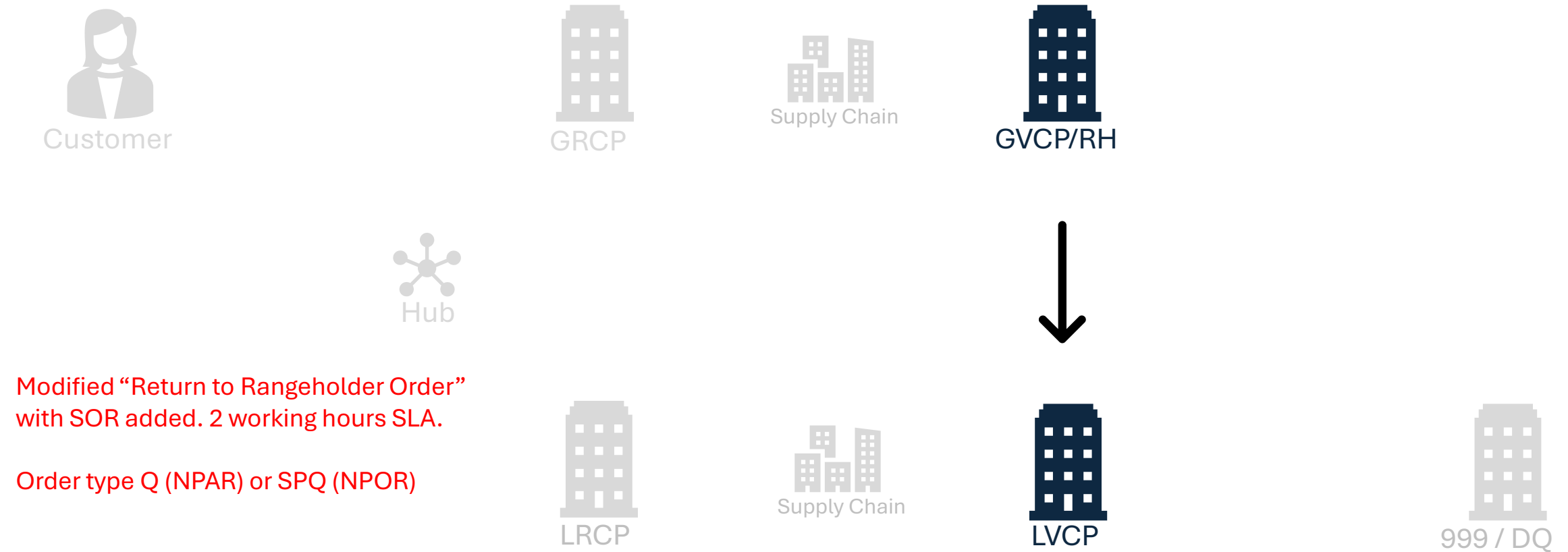
The GVCP generates an SPX to the LVCP when they want the port to be processed.

OTS Workflow

Porting query (SPQ) raised to LVCP

GVCP then sends SPQ to LVCP to validate port.
(Optional to request, but advised for launch)

Customer

GRCP

Supply Chain

GVCP/RH

Hub

Modified "Return to Rangeholder Order"
with SOR added. 2 working hours SLA.

Order type Q (NPAR) or SPQ (NPOR)

LRCP

Supply Chain

LVCP

999 / DQ

OTS Workflow

LVCP confirms port is valid

LVCP confirms port is valid, responds to GVCP.

(Mandatory to respond to if requested by SPQ)

Customer

GRCP

Supply Chain

GVCP/RH

Hub

Standard NPAA or NPOR response.

Use standard error codes, plus SOR validation error code 61.

LRCP

Supply Chain

LVCP

999 / DQ

OTS Workflow

Activation – new voice service begins

GRCP or supply chain triggers port activation request.

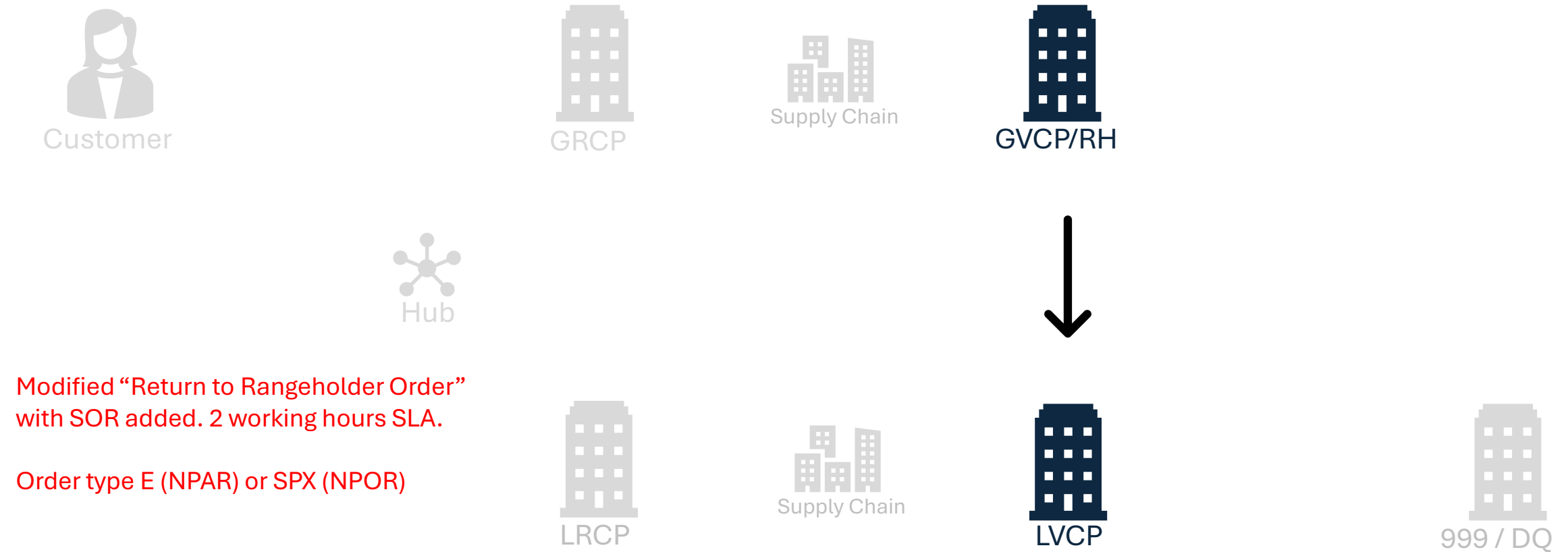This can happen on the original requested OTS migration date, or after any delayed provision.

GVCP/RH removes porting prefix.

OTS Workflow

Return to RH order (SPX) raised to LVCP

GVCP sends SPX to LVCP to create cease order.

Customer

GRCP

Supply Chain

GVCP/RH

Hub

Modified "Return to Rangeholder Order" with SOR added. 2 working hours SLA.

Order type E (NPAR) or SPX (NPOR)

LRCP

Supply Chain

LVCP

999 / DQ

OTS Workflow

LVCP drives unsolicited cease workflow

LVCP notifies supply chain with unsolicited cease notification, KCI messages etc.

Customer

GRCP

Supply Chain

GVCP/RH

Hub

LRCP would currently expect the initial notification of unsolicited cease on day zero, with future port date.

Under SPX, this will all happen on the port date.

LRCP

Supply Chain

LVCP

999 / DQ

OTS Workflow

LVCP ceases service, 999 / DQ Export

LVCP updates DQ & 999 releasing number specifying gaining and losing CUPID; initiates cessation of service; and notifies supply chain.
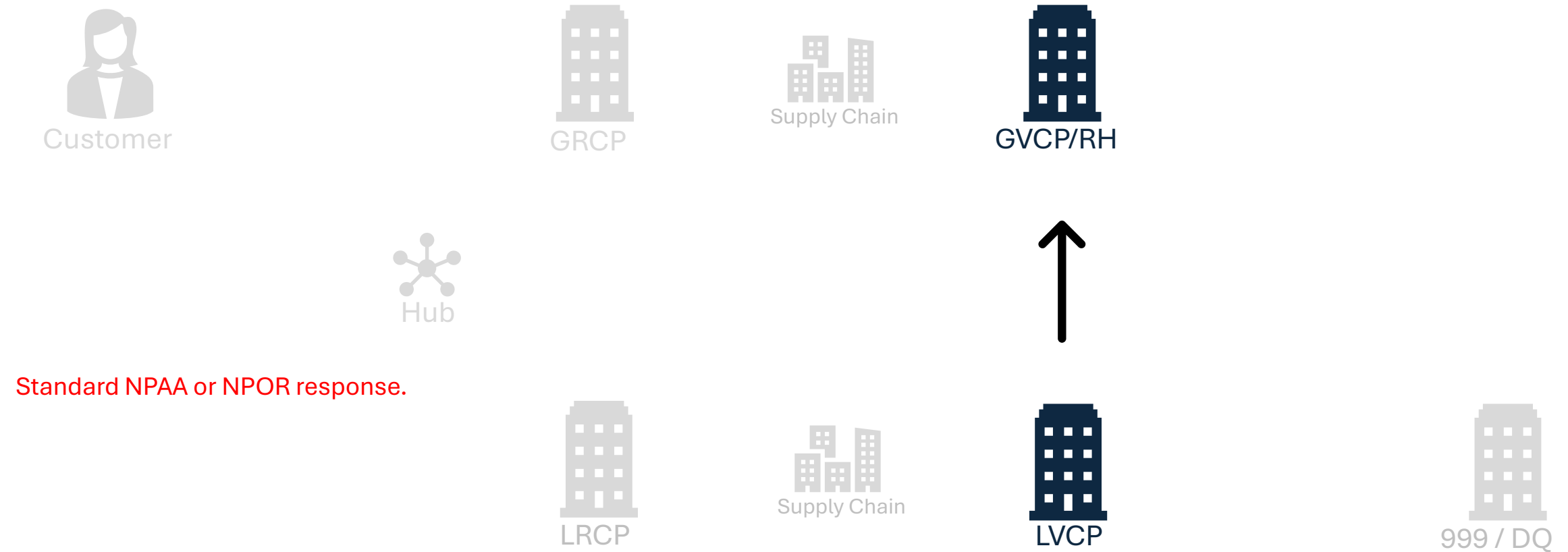
Customer

GRCP

Supply Chain

GVCP/RH

Hub

No change

LRCP ← Supply Chain ← LVCP → Export → 999 / DQ
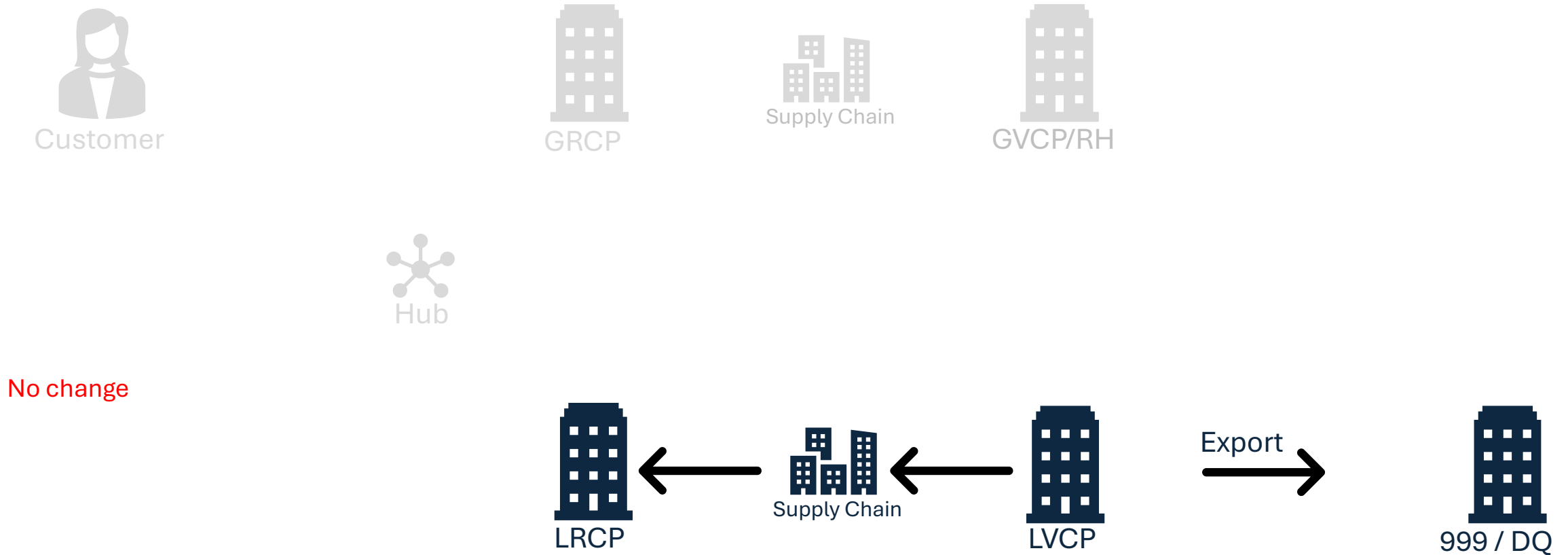
OTS Workflow

LVCP confirms RRH accepted & either completed or activation in progress.

LVCP accepts and completes SPX, responds to GVCP.

LVCP completes cessation of service (and removes any local routing) inside standard activation SLA, measured from response to SPX.

Customer

GRCP

Supply Chain

GVCP/RH

Hub

Standard NPAA or NPOR response.

LRCP

Supply Chain

LVCP

999 / DQ

OTS Workflow

999 / DQ Import

GVCP/RH notifies 999 and DQ of change of supplier, specifying gaining and losing CUPID.

Customer

GRCP

Supply Chain

GVCP/RH

Import

Hub

Assumed that GVCP will delay the Import requests until the LVCP order has been accepted.

LRCP

Supply Chain

LVCP
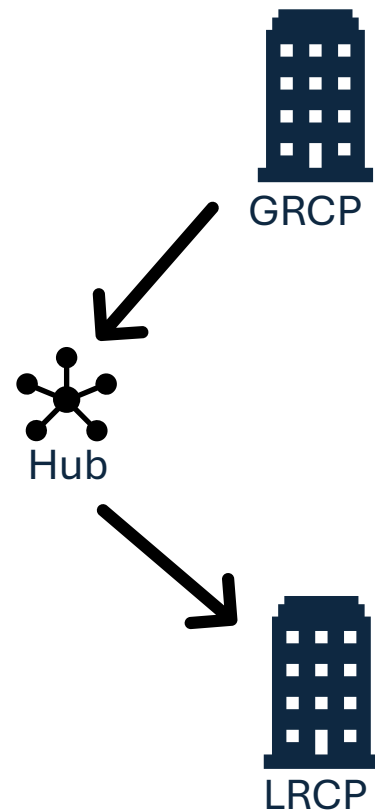
999 / DQ

OTS Workflow

Voice provide complete

GVCP informs GRCP that service has been provided.

OTS Workflow
Losing Provider notified

GRCP notifies LRCP service has been provided and to stop service and billing, using an OTS trigger message.

Customer

GRCP

Supply Chain

GVCP/RH

Hub

LRCP

Supply Chain

LVCP

999 / DQ

Scenario 3 – simple port.

LVCP and RH are the same, different GVCP – simple port

As the RH and LVCP are the same, only one SPX transaction is needed as it will inform of the port and the change of ownership.
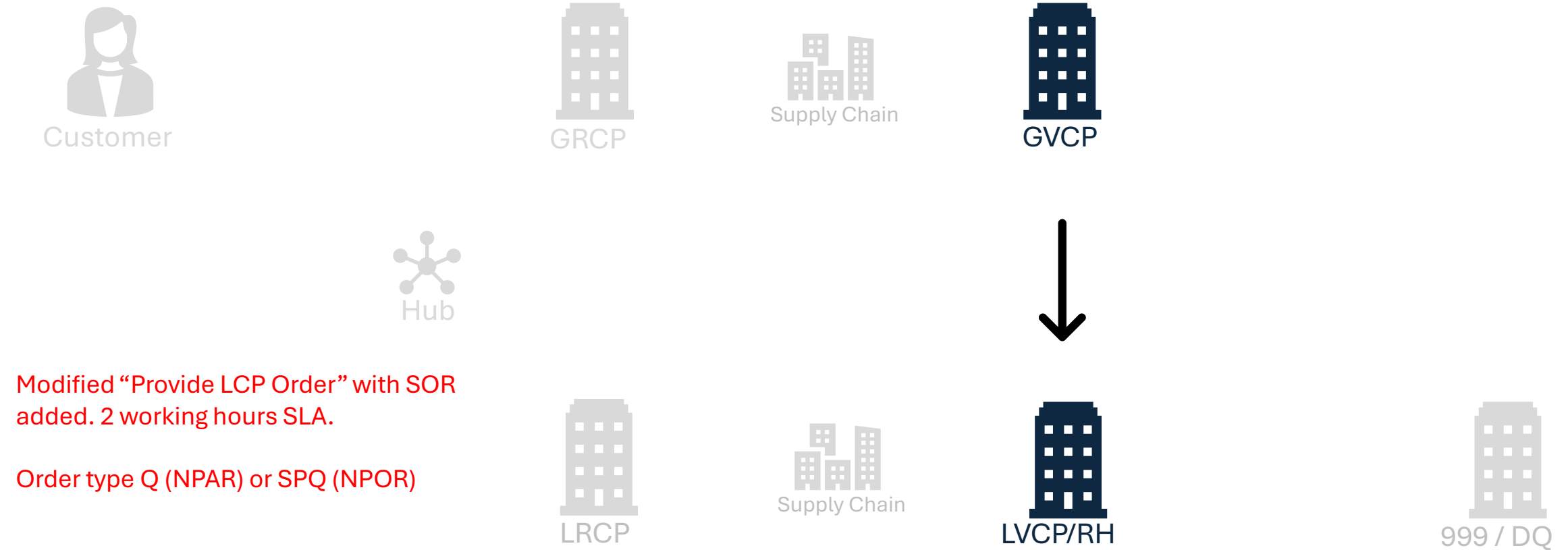
As for scenarios 1 and 2, it is recommended that the GVCP use the SPQ transaction to query the losing provider to verify the number is available to port.

OTS Workflow

Porting query (SPQ) raised to LVCP

GVCP then sends SPQ to LVCP to validate port.
(Optional to request, but advised for launch)

Customer

GRCP

Supply Chain

GVCP

Hub

Modified "Provide LCP Order" with SOR added. 2 working hours SLA.

Order type Q (NPAR) or SPQ (NPOR)

LRCP

Supply Chain

LVCP/RH

999 / DQ

OTS Workflow

LVCP confirms port is valid

LVCP confirms port is valid, responds to GVCP.

(Mandatory to respond to if requested by SPQ)

Customer

GRCP

Supply Chain

GVCP

Hub

Standard NPAA or NPOR response.

Use standard error codes, plus SOR validation error code 61.

LRCP

Supply Chain

LVCP/RH

999 / DQ

OTS Workflow
Activation – new voice service begins

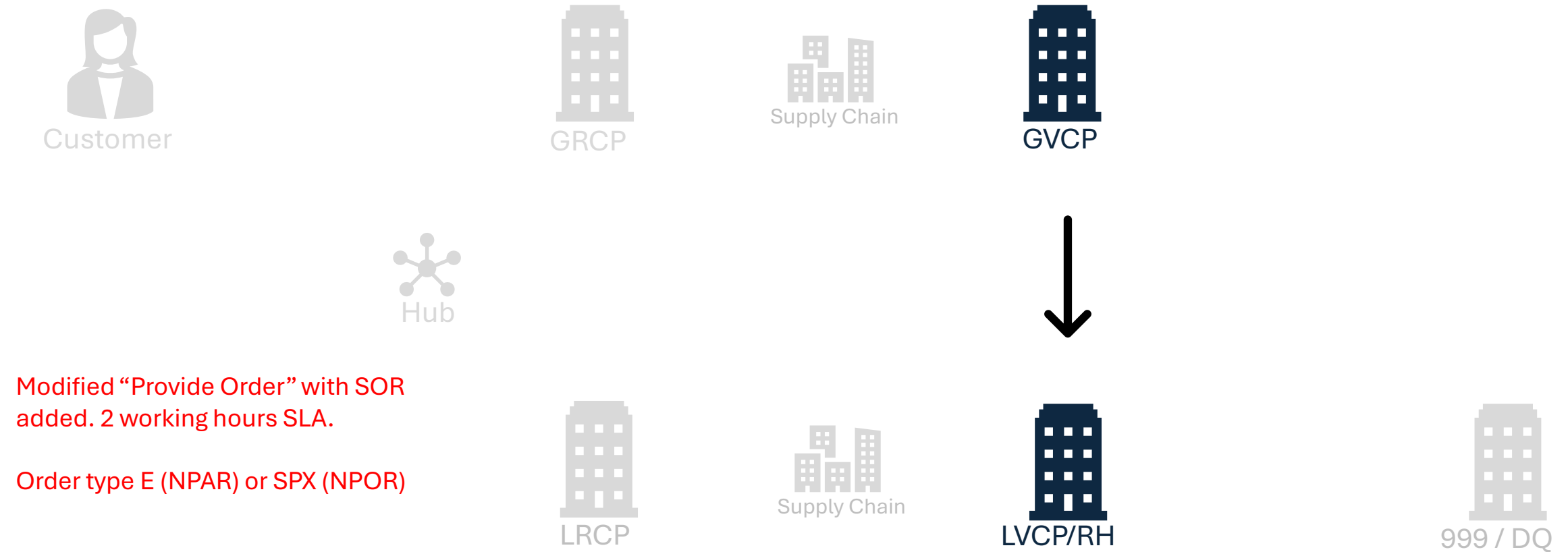GRCP or supply chain triggers port activation request.

This can happen on the original requested OTS migration date, or after any delayed provision.

OTS Workflow

Port order (SPX) raised to LVCP

GVCP sends SPX to LVCP to create cease order.

Modified "Provide Order" with SOR added. 2 working hours SLA.

Order type E (NPAR) or SPX (NPOR)

Customer

GRCP

Supply Chain

GVCP

Hub

LRCP

Supply Chain

LVCP/RH

999 / DQ

OTS Workflow

LVCP drives unsolicited cease workflow

LVCP notifies supply chain with unsolicited cease notification, KCI messages etc.

LRCP would currently expect the initial notification of unsolicited cease on day zero, with future port date.
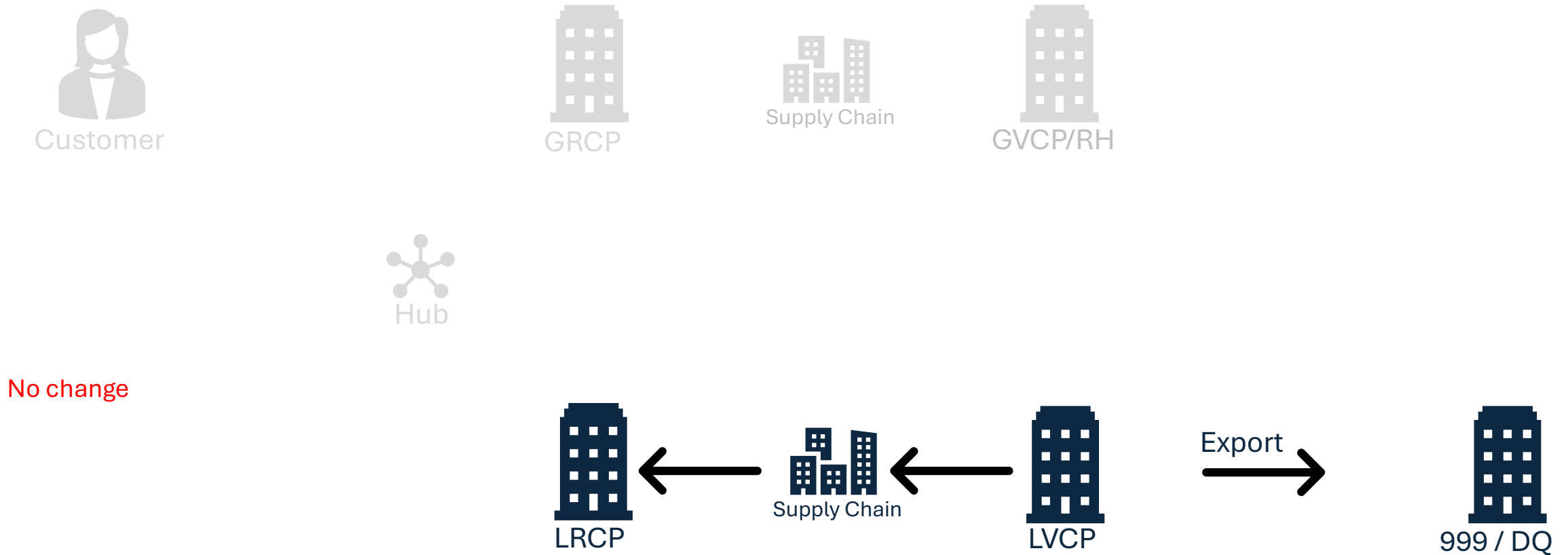
Under SPX, this will all happen on the port date.

OTS Workflow

LVCP ceases service, 999 / DQ Export

LVCP updates DQ & 999 releasing number specifying gaining and losing CUPID; initiates cessation of service; and notifies supply chain.
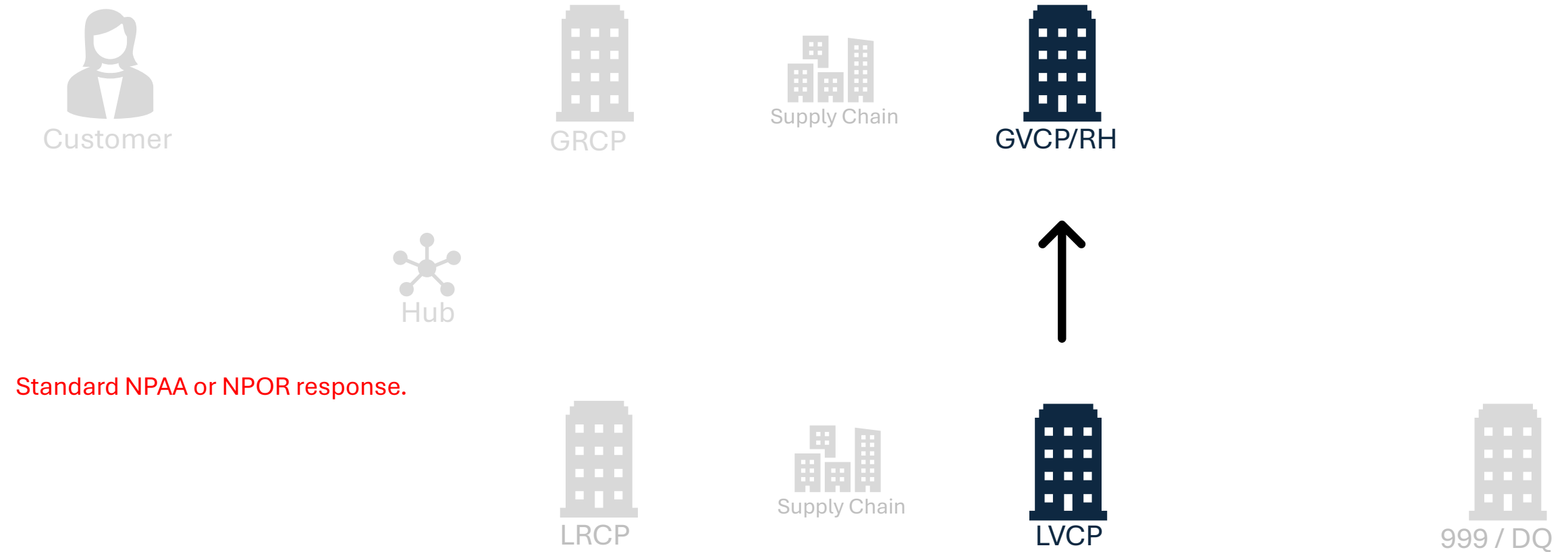
Customer

GRCP

Supply Chain

GVCP/RH

Hub

No change

LRCP ← Supply Chain ← LVCP   Export →   999 / DQ

OTS Workflow

LVCP confirms port accepted & either completed or activation in progress.

LVCP accepts and completes SPX, responds to GVCP.

LVCP completes cessation of service (and removes any local routing) inside standard activation SLA, measured from response to SPX.

Customer

GRCP

Supply Chain

GVCP/RH

Hub

Standard NPAA or NPOR response.

LRCP

Supply Chain

LVCP

999 / DQ

OTS Workflow

999 / DQ Import

GVCP/RH notifies 999 and DQ of change of supplier, specifying gaining and losing CUPID.

Customer

GRCP

Supply Chain

GVCP/RH

Hub

Assumed that GVCP will delay the Import requests until the LVCP order has been accepted.

Import

LRCP

Supply Chain

LVCP

999 / DQ

OTS Workflow
Losing Provider notified

GRCP notifies LRCP service has been provided and to stop service and billing, using an OTS trigger message.

Appendices

OTS Number Porting

Proposed NPOR changes

Two new order types:
- SPQ – switch port query
- SPX – switch port execute

The SOR will be included in a new cell B9 of the NPOR template:

6	dd/mm/yy		
7	hh:mm	Order No.	
9	SOR	xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx	
10			

LCP, GCP and RH should be populated according to the porting scenario.

"LCP accepted for Subsequent Portability" should be set to "Yes" in the SPX call to the RH for a subport scenario (after the SPQ validation by the LVCP).

Proposed NPAR changes

Two new order types:
- Q – switch port query
- E – switch port execute

The EDI spec has been updated with a new field 21A to hold the SOR.

Note that the NPAR data record does not have an equivalent field for LCP acceptance of a subport – instead field 25 should populated as per "Note 2" in the EDI spec.

SPQ and SPX should have unique order numbers

Although SPQ is effectively a pre-order validation, it will use NPAR and NPOR order mechanisms.

SPQ and SPX are thus both considered to be main order types, and should be generated by the GRCP with unique order numbers.

This means that any BAU duplicate order detection does not need to be changed for express porting.

Proposed new response codes

App G3 and App G6 on the OTA website document response codes 01 – 56 (with some gaps). The following new response codes are proposed:

- 60 – When the RH receives an SPQ or SPX which refers to a number that is currently exported, they will return response code 60 as a **warning**. This is instead of error code 30, and must be accompanied by the CUPID of the LVCP – for both NPAR and NPOR, the notes should contain:
  LCP=<CUPID>
- 61 – Where an LVCP is capable of validating the SOR (e.g. an integrated losing supply chain), this **error** code would be returned when the SOR fails validation (e.g. does not exist, is expired, or does not authorise the export of the number). If the LVCP does not validate the SOR, error code 61 would never be returned by that LVCP.

Other response codes remain valid for SPQ/SPX, but it is expected that the pre-validation of the OTS match, plus the level of automation, should means that other rejections are rare.

No commercial charging for SPQ

The commercial charging for SPX will the same as for the equivalent standard porting orders.

SPQ is **not** a port order, and must **not** be subject to any charging. Most SPQ validations will be followed by an SPX order which will be chargeable.

Virgin (VMO2) CUPIDs

Virgin has approximately 139 CUPIDs used for geographic number porting. At least two of these are also currently classified as "national CUPIDs". The number range information held by BT maps to regional CUPIDs, and at least one other VCP uses the current national CUPIDs.

Virgin will nominate a single "national CUPID" (825) which as LRCP they will return in the OTS match response, to support the gaining supply chain in checking if all parties support SPX.

BT will hold a flat table build of Virgin CUPIDs (similar idea to the list already held in TDM for 999 updates). If the CUPID returned by the OTS match and the CUPID derived from the RH lookup differ, but are both Virgin CUPIDs, the port will **not** be treated as a sub-port. The SPQ will likely use the OTS match CUPID and the SPX may use the CUPID derived from the number range data. Virgin have confirmed that they will accept port requests against any of their CUPIDs, so this will not be an issue.

If another RH's number is exported to Virgin, when they return warning code 60, the CUPID that they have recorded may be one of the current several national CUPIDs (we have live examples of Sky returning both 135 and 825 with code 30). Again BT can detect that both CUPIDs represent Virgin, the CUPIDs used on SPQ and SPX to Virgin may differ, and Virgin will accept any of their CUPIDs.

Other VCPs may choose to adopt a similar pattern, and VMO2/BT will share the table data.

Possible failures and error handling – slide 1

The LRCP is expected to return a meaningful CUPID of the current VCP in the OTS match response, to support the gaining supply chain in checking if all parties support SPX. It is also expected that gaining supply chains have quality number range information to determine the RH.

However, we have a fear about how well all LRCPs will meet this obligation, and so we need defensive logic between the VCPs. (Failure scenarios are numbered for ease of external reference to this slide pack.)

1. SPQ returns warning code 60 from RH with CUPID
The SPQ is intended to be sent to the LVCP, but it is possible that the recipient is the RH and they return warning code 60 advising that the number is currently exported.

Any attempt to proceed with the port by interacting with a different LVCP is risky, so the GVCP should reject the port request.

2. SPQ returns fatal code from LVCP
If the recipient of the SPQ is the LVCP, but they return a fatal error, the GVCP should reject the port request.

The rejection should follow existing patterns for the supply chain, e.g. the rejection may go for manual checking within the GVCP, or it may be immediately sent back to the GRCP.

Possible failures and error handling – slide 2

3. LVCP accepts SPQ, but RH returns different CUPID
Another possibility for a sub-port is that the SPQ is accepted by the LVCP, and the SPX to the RH returns code 60 with a CUPID that differs from the LVCP who accepted the SPQ.

The recommended approach is to trust the acceptance of the SPQ, assume the records of the RH must be incorrect so ignore the different CUPID returned by the RH, and send SPX request to RH and to the LVCP which accepted the SPQ.

This could also arise when the GVCP is the RH, and their own records record the number as being exported to a different CUPID to the one returned in the OTS match.

(As mentioned on an earlier slide, VCPs should also ignore the difference when both CUPIDs belong to Virgin.)

Possible failures and error handling – slide 3

4. Long gap between OTS and SPX, with change of status of the number

Given the reliance on the LRCP to return an accurate CUPID, and the possible gap between OTS match and switch order, and between order placement and migration date, there are some failures that are theoretically possible, and which the implementation teams should consider:

- 4A. Expected subport, LVCP validates the SPQ, but SPX to RH returns code 0 (no code 60 and no CUPID).
  - Possibly the DN was returned to RH after SPQ and before SPX.
  - Suggested that GVCP carry on with SPX to LVCP (which may fail and lead to manual investigation).
- 4B. Not expected as subport, LVCP validates the SPQ, but SPX returns 60 plus CUPID.
  - Possibly the DN was exported after generation of the OTS SOR.
  - Suggested that GVCP fails the port order when SPQ (or SPX) returns an unexpected 60.
- 4C. Number was working at time of OTS match, but is ceased by time of SPX
  - The SOR validated the port of the number, and EECC "Right to Port" also applies. So the LVCP must accept the SPX if the cease was within the last 31 days, but can reject the SPX if raised after 31 days.

It is also suggested that all supply chains retain logs for a sufficient period to investigate any failure that might arise.