Genium INET Commodities Rollback Framework

February-March, 2012

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Rollback Plan

- The Rollback decision by NASDAQ OMX is a consequence of major problems in the new production environment

- Correcting issues and continuing in the new system is always the preferred option

- In case of major problems, Rollback is considered when
  - The fundamental reason of the failure is not clearly known

  - The estimated time to fix the problem is not known

  - The consequences of the incident vary among the members

  - The full impact of the failure is not directly visible

  - Interfaces and databases have become unavailable

- Decision to Rollback has to be taken based on the information available even though it might be partial or inaccurate

- The Genium INET launch manager from each member is also the rollback manager

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Rollback Plan

- The Rollback plan includes the overall framework and activities related to rollback including information like
  - Milestones for external communication

  - Rollback activities documented in checklists

  - Timing and sequence of Rollback activities

- Rollback can occur at:
  - **Pre-launch Rollback:** The systems will be rolled-back and tests performed to verify the previous setup.

  - **Post-launch Rollback:** If the Rollback takes place after trading has started on Genium INET, the previous system will be started and trading on the previous platform will continue the next business day.

- **Post launch rollback can occur during the first five trading days week after launch**, called the Rollback window (this readiness will be required from the participants as well).

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Pre-launch Rollback
During the Launch Weekend

- Pre-launch Rollback decision on Saturday February 3rd, CLICK/SECUR will open for connectivity and login at 12:00 CET at the latest on Sunday morning

- All outstanding orders are removed, CLICK/SECUR system opens with empty order books

- The previous CLICK/SECUR market model, trading hours, rules, routines etc. apply

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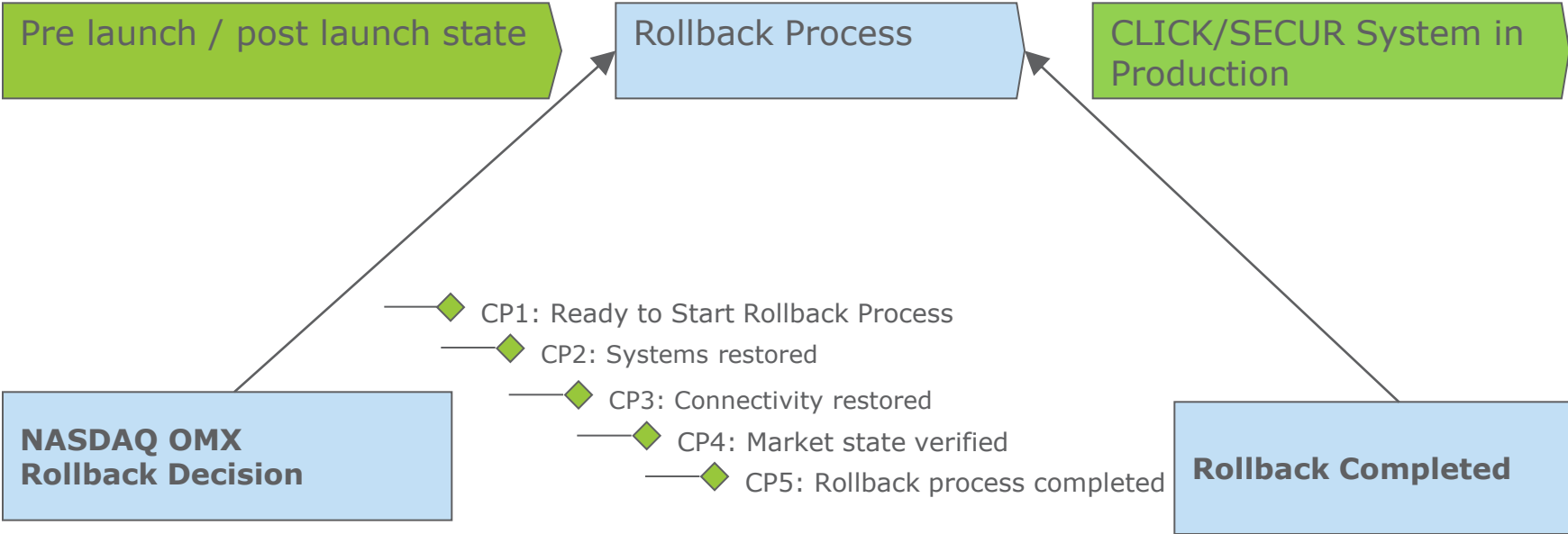
Post-launch Rollback
After Go-Live

- After a go-live decision the Rollback can take place at any time during the Rollback window, and the participants have to be ready for Rollback

- In this scenario, there are existing orders in the order books and already executed trades in the Genium INET system

- No orders, not even partially matched, will be moved back to CLICK/SECUR. CLICK/SECUR will open with empty order books

- Executed trades in Genium INET until Rollback are final

- All other configuration and parameters in the CLICK/SECUR will be as of Friday February 2nd end-of-day last effective business day (unless modified due to e.g. corporate actions, new symbols, changes in trading hours, etc.)

- A connectivity and confidence test to the CLICK/SECUR system will start as soon as possible.

- There will be no intra day roll back supported.

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Rollback Framework

- The Rollback Process starts from the decision to Rollback

- After the Rollback decision is taken, NASDAQ OMX and the participants will start a jointly coordinated Rollback Process

- The Rollback Process will be synchronized using five check-points (CP)

- A check-point is a point in time during which the completion of the check-point related activities will be reviewed (i.e comes at the end of a group of activities not at the beginning)

- The schedule of the check-points will be presented in relation to the Rollback decision

- At each check-point the participants will report their status and readiness to proceed with the Rollback

- At each check-point the overall progress of the process will be reviewed and instructions how to continue will be provided to all participants involved

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Rollback Framework
Rollback Process Overview

Pre launch / post launch state

Rollback Process

CLICK/SECUR System in Production

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Rollback Decision

CP1: Ready to Start Rollback Process

CP2: Systems restored

CP3: Connectivity restored

CP4: Market state verified

CP5: Rollback process completed

Rollback Completed

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Rollback Process
Check-Point 1: Ready to Start Rollback Process

CP1 — CP2 — CP3 — CP4 — CP5

Purpose of the check-point	To verify that all parties involved are ready to start the Rollback process.
Estimated time	One hour after rollback decision
Activities until the check-point	Rollback status meeting IT Notice sent out Individual contacts with the market taken Preparations to start the Rollback process
Activities involving external participants	External participants are informed about the Rollback decision via IT notices External member readiness verified for Rollback (customers contacted) Preparations to start the Rollback process
Conclusion at the check-point	The Rollback decision and the related process has been communicated to all internal and external participants. Readiness to proceed.

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Rollback Process
Check-Point 2: System restored

CP1   CP2   CP3   CP4   CP5

Purpose of the check-point	To evaluate the success of the Rollback activities and acknowledge readiness to start the connectivity test.
Estimated time	21:00 CET Day 1
Activities until the check-point	Nasdaq OMX restores back to CLICK/SECUR
Activities involving external participants	Nasdaq OMX communicates to the market that CLICK/SECUR have been restored. Confirm connection test start time. Basic data download from CLICK/SECUR Necessary reports delivered to participants. Participants report on their Rollback results.
Conclusion at the check-point	All NASDAQ OMX systems have been restored successfully and are ready for connectivity.

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Rollback Process
Check-Point 3: Connectivity restored

CP1　　　CP2　　　CP3　　　CP4　　　CP5

Purpose of the check-point	Market connectivity and system status verified
Estimated time	07:00 CET Day 2
Activities until the check-point	Support participants GCF rollback to CLICK/SECUR as source for the commodities information and startup CLICK/SECUR startup
Activities involving external participants	Test the participant connectivity to all systems Basic data download from GCF Participants report on their connectivity test results
Conclusion at the check-point	Participants have restored the connectivity to the CLICK/SECUR and GCF

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Rollback Process
Check-Point 4: Market state verified

| CP1 | CP2 | CP3 | CP4 | CP5 |

Purpose of the check-point	Communicate connectivity and system status
Estimated time	Depending on result of connectivity tests and system status (CP3)
Activities until the check-point	Support participants
Activities involving external participants	Support the reverse data migration process of the market participants by providing information to help e.g. the reconciliation process Participants report status to NASDAQ OMX
Conclusion at the check-point	The market state in the previous system is consistent

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Rollback Process
Check-Point 5: Rollback process completed

Purpose of the check-point	Verify that everything is ready to open the market for trading
Estimated time	Immediately after Market verified status OK (CP4)
Activities until the check-point	Communication to the market that process is completed and market will be open for trading
Activities involving external participants	Send out a summary of the Rollback process and inform about the details of the coming trading day
Conclusion at the check-point	Ready for production.

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