

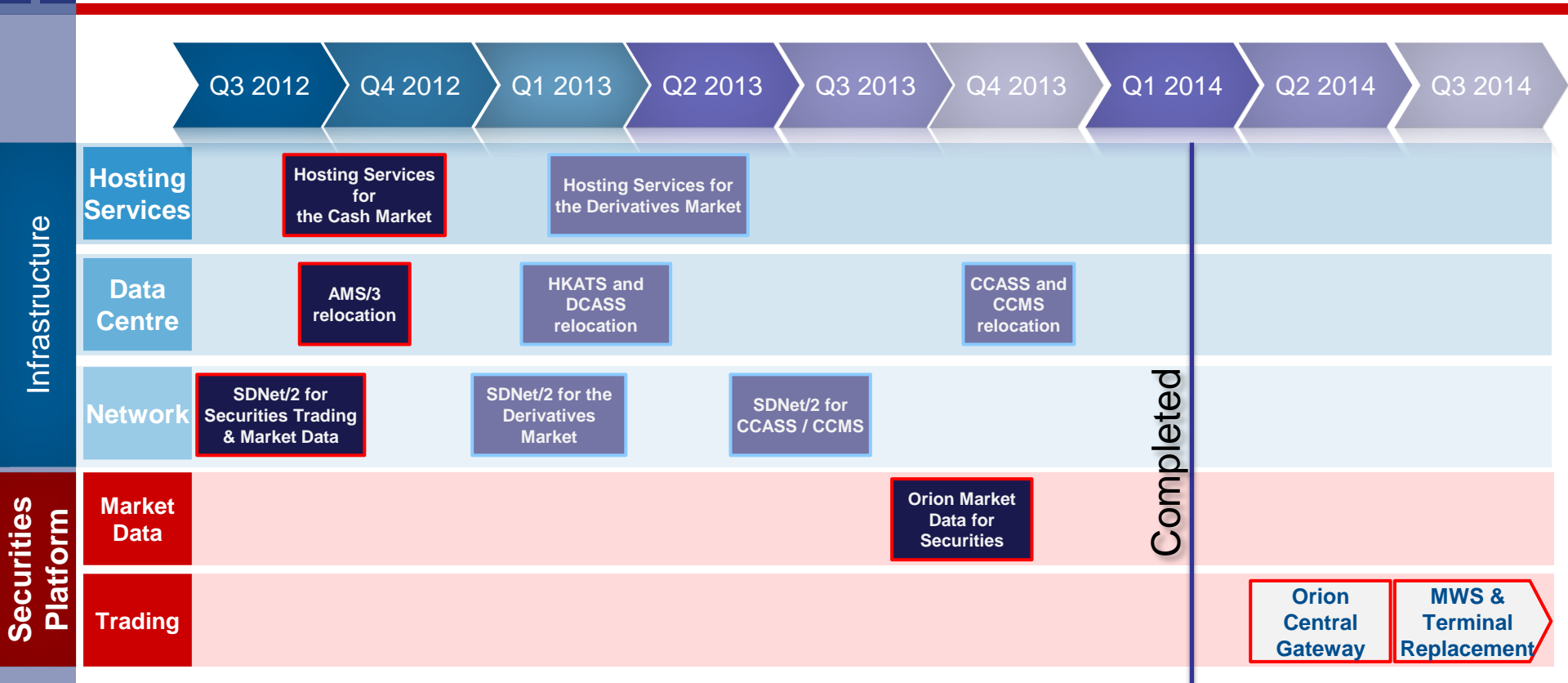
Update on Cash Market Development

20 March 2014

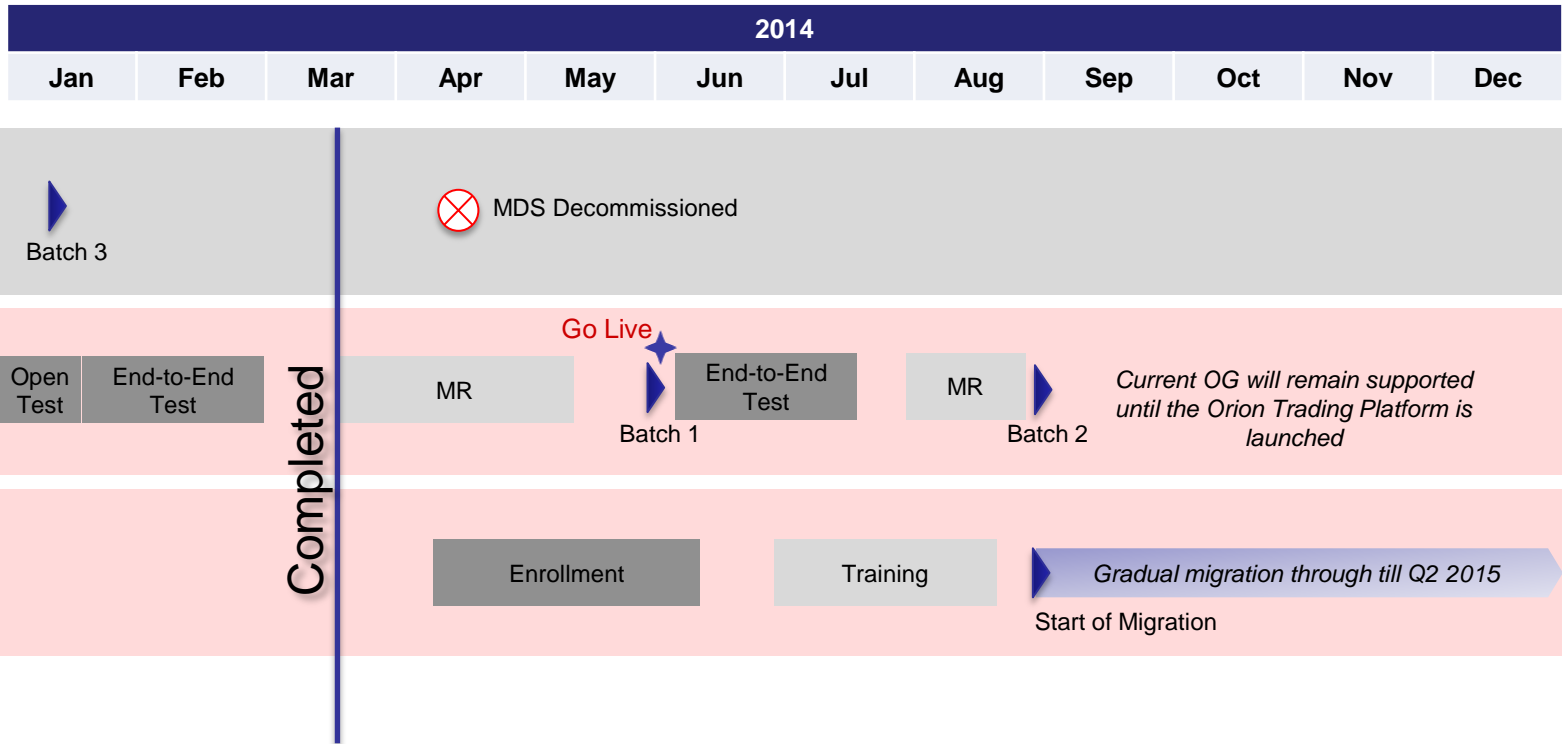
Cash Trading, Global Markets Division



Orion Programme for Cash Market



In-Flight Projects Timeline



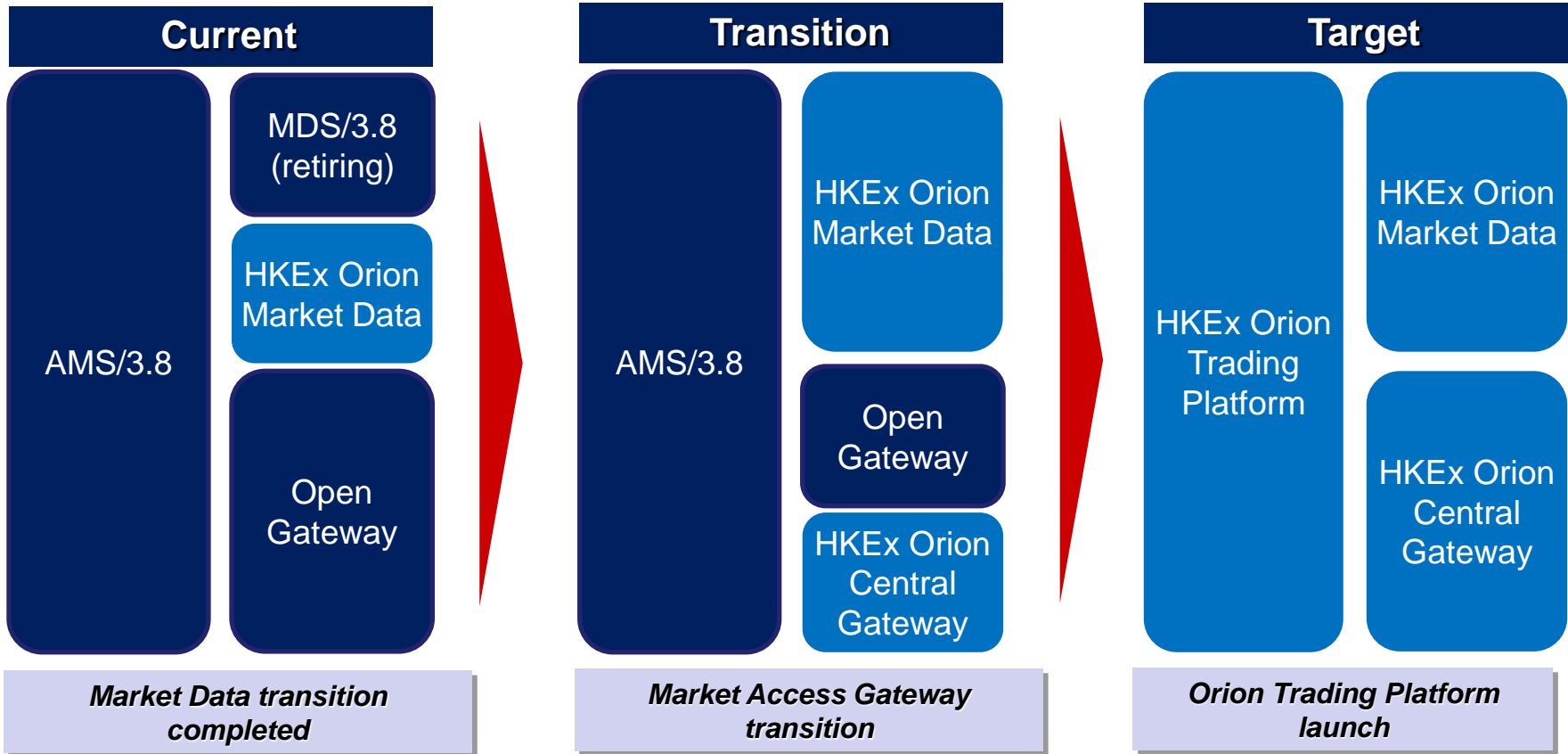
Note: All dates illustrated above are tentative for indication only. Confirmed dates will be issued by circular.

"MR" = Market Rehearsal

Orion Central Gateway (OCG)

<http://www.hkex.com.hk/OCG>

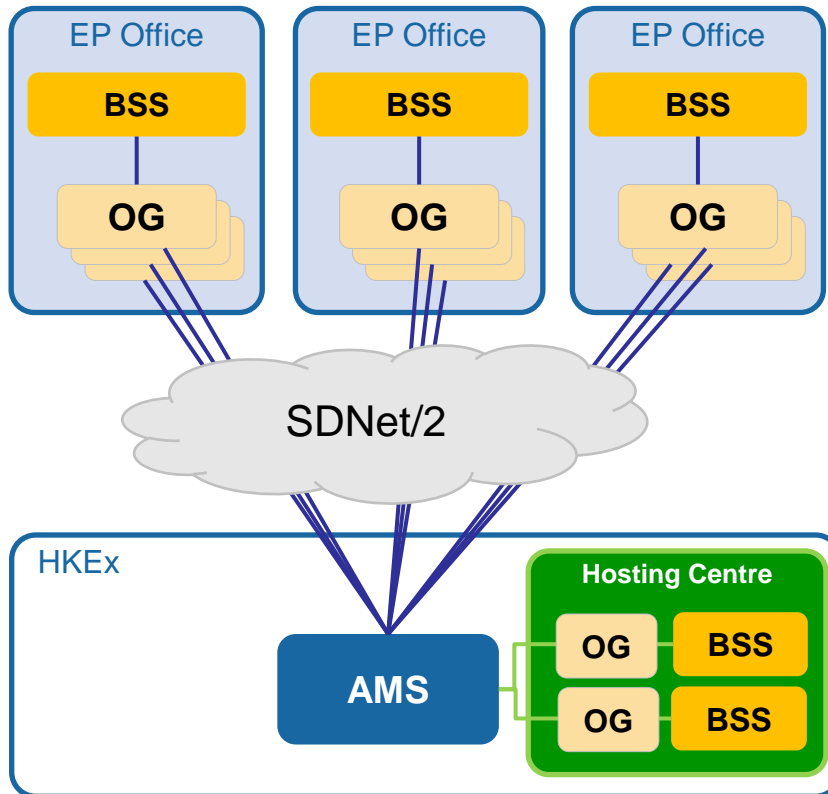
Securities Market Platform Migration



Phased approach to minimize participant impact

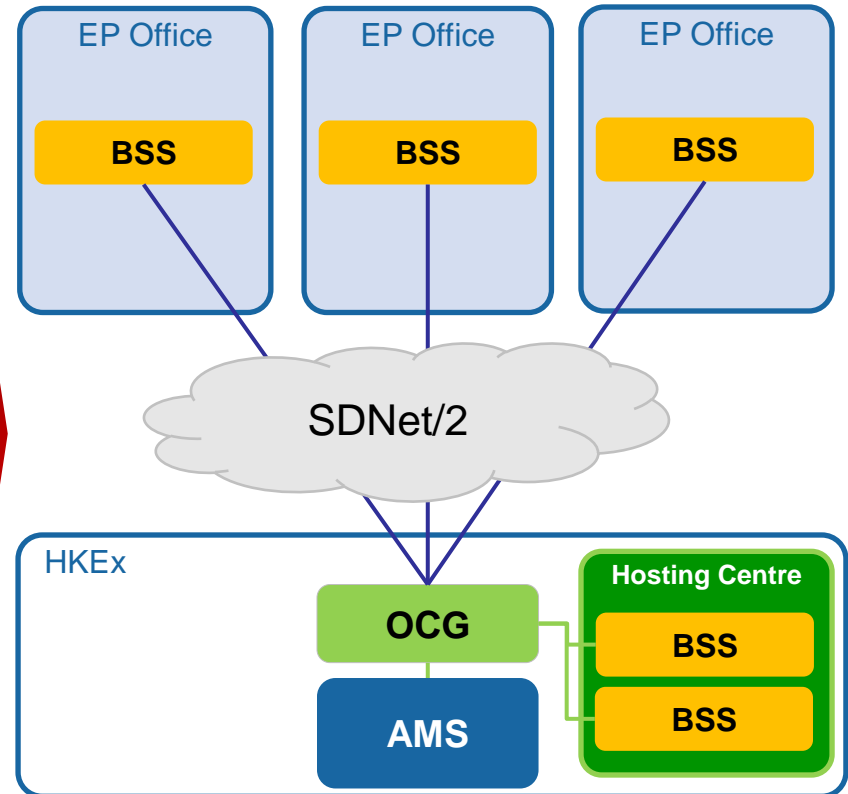
Gateway Architecture

Today's Open Gateway (OG) Architecture



- Access via OG Connection
- Gateway device in EP office, maintained by EP
- One pair of SDNet/2 circuits **per OG**

Future Orion Central Gateway (OCG) Architecture



- Access via "OCG Session"
- Gateway device in HKEx, maintained by HKEx
- One pair of SDNet/2 circuits **per location**

Comparison of OG and OCG



| Key Feature | OG | OCG |
|----------------------|------------------------------------------------------------------------------------|------------------------------------------|
| Hardware | By EP | By HKEx |
| Resilience | High Availability (HA) requires HA OG Disaster Recovery (DR) requires Backup OG | HA and DR resilience built in |
| Interface | AMS/3 open message protocol | FIX or Binary protocol |
| Capacity | Max 60 Throttles (Trading) Max 30 Throttles (Market Making) | Max 250 Throttles per OCG Session |
| SDNet Circuit | Separate circuit for each OG | Circuits consolidation for each location |
| Market Data | Via OG | Via Orion Market Data Platform |
| Trade Data | Central Trade Feed (CTF) | Drop Copy Service* |

* Real-time consolidated trade-only / order and trade reporting

OCG Benefits to EP

Cost Savings

- Eliminate OG hardware
- Support SDNet circuit consolidation
- Eliminate monthly Backup Throttle charges

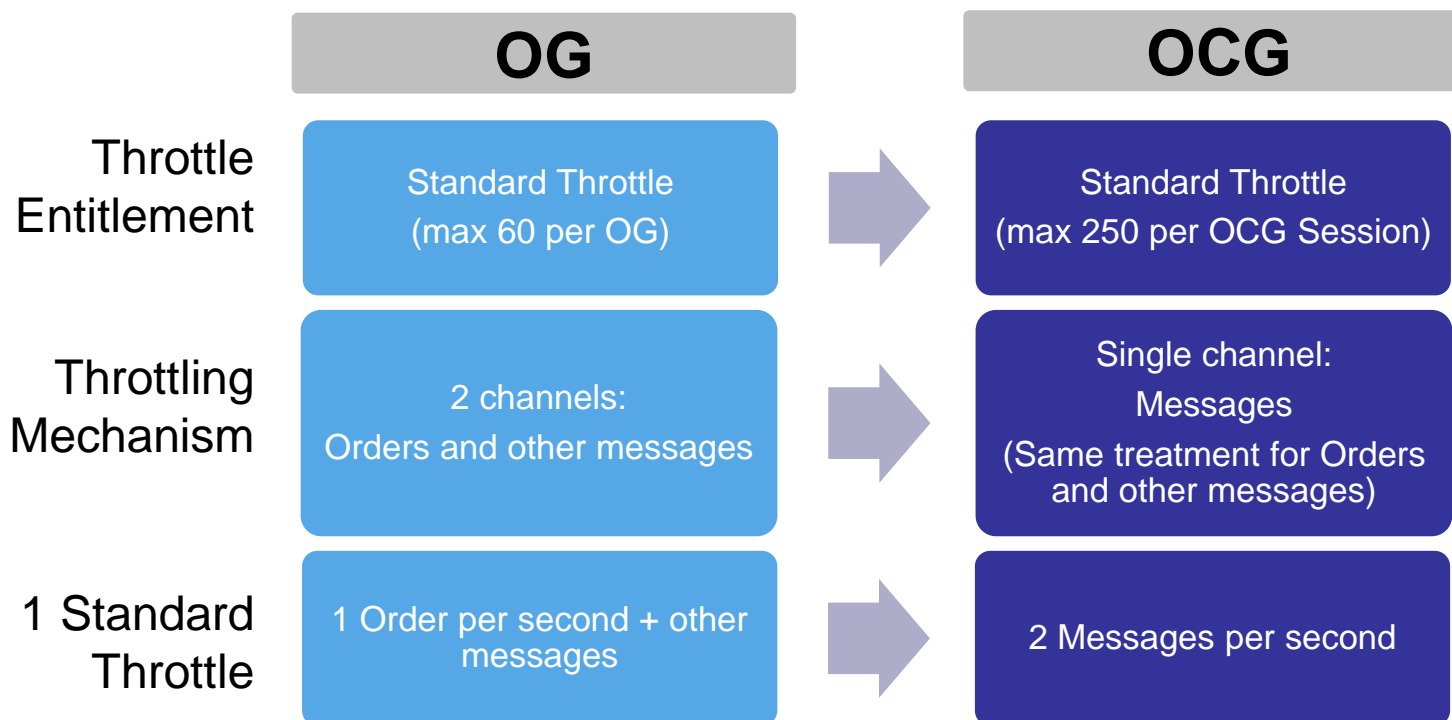
New Functionality

- Support FIX and Binary protocol compatible with future Orion Trading Platform
- Introduce Drop Copy service
- Introduce Cancel on Disconnect

Reliability & Efficiency

- Provide HA and DR to all OCG users
- Faster onboarding time for new OCG Session
- Low latency
- Decouple Trading and Market Data to reduce duplication and bandwidth
- High Capacity Session supports throttle consolidation for better utilization
- One Standard Throttle permits 2 Messages per second

Change in Throttling Mechanism



- **Simplified throttling mechanism**
- **Additional Order throughput (up to 2 Orders/second per throttle) and flexibility for EPs**

OCG Status Updates



OCG Upcoming Activities



| <u>Batch 1 Activity</u> | <u>Date</u> |
|-------------------------|-------------|
| Connectivity Tests | Mar 2014 |
| Rollout Tests | Apr 2014 |
| OCG Launch for Batch 1 | Q2 2014 |

| <u>Batch 2 Activity</u> | <u>Date</u> |
|------------------------------|-----------------|
| Batch 2 Enrollment | 28 Mar 2014 |
| Revised OCG Specification | 28 Mar 2014 |
| Batch 2 Simulator Test | Apr to May 2014 |
| Test line installation | Apr to May 2014 |
| Batch 2 End-to-End Test | Jun to Jul 2014 |
| Production line installation | Jun to Jul 2014 |
| Batch 2 Rollout Test | Q3 2014 |
| Batch 2 Rollout | Q3 2014 |

Project Manager's Report

Project on schedule to launch in June.

EPs can rollout new OCG session after Batch 1 if the BSS version has already completed End-to-End Test in Batch 1.

Enhancement for semi-automatic matching (Odd Lot and Special Lot) is planned for roll out in Q3 2014 along with Batch 2 rollout.

The new messages for semi-automatic matching are optional. Batch 1 EPs are required to perform End-to-End Test and Rollout Test in Batch 2 only if they plan to use these messages.

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MWS and Terminal Replacement New Securities Trading Device (NSTD)

<http://www.hkex.com.hk/NSTD>

History

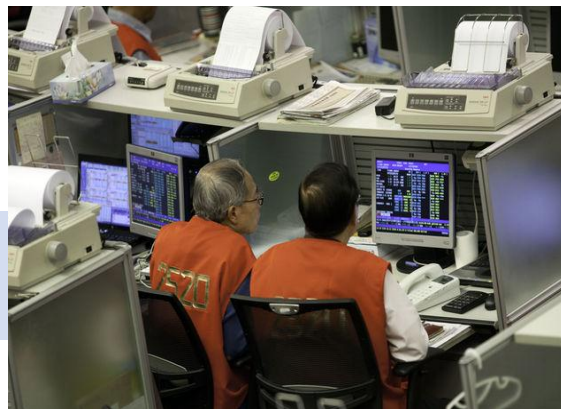
... 1990

2000

2010

CATS

1986
Computer
assisted terminal



AMS/1

1993
On-Floor
"First Terminals"

AMS/2

1995
Off-Floor
"Second Terminals"

AMS/3

2000
"Broker Supplied System" (BSS)
Through Open Gateway (OG)

2000
"Multi-Workstation System" (MWS)
Through Open Gateway (OG)



Why Do This Project?

We cannot do nothing...

| | |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Archaic Design and Architecture | <ul style="list-style-type: none">■ Terminals date back to 1993, and MWS to 2000, and have not changed |
| Obsolescence | <ul style="list-style-type: none">■ The MWS servers and the Windows 2003 operating system reach “end of support” in 2015 |
| Future Compatibility | <ul style="list-style-type: none">■ Terminals / MWS need to connect to the Orion Central Gateway (OCG) to be compatible with Orion Trading Platform (OTP) |

We fundamentally believe that the terminal market is better served by vendors, and that HKEx should not participate in this space

The plan...

| | |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Approach | <ul style="list-style-type: none">■ Adopt an outsource model with an Independent Software Vendor for a 5 year term |
| Arrangement | <ul style="list-style-type: none">■ ET Trade(交易通) (with group company ET Net(經濟通)) will provide the new trading device “ET Trade Speed Station” and support services to EPs at a fixed price■ HKEx will manage the migration with ET Trade for EP■ HKEx will monitor the software and service quality of the vendor |
| Long Term | <ul style="list-style-type: none">■ After 5 years, if the solution is proven, HKEx will step back |

Key Features of ET Trade Speed Station

Compatible with existing devices



New functions

Support HKEx customized keyboard and similar input sequence

Same look and feel



| MARKET | STOCK | PRICE | QTY | CLIENT |
|--------------------------------|-------------|------------------|-------------|-----------------|
| HKEX | BROKER | | | |
| 388 | HKEX | Security Enquiry | | |
| nominal | | | | |
| chg | 125.600 | | | |
| chg% | +0.200 | 125.500 | | |
| open | +0.160 | | 125.700 | |
| high | 125.600 | (6) | 24K (5) | 11:49:00 |
| low | 126.300 | (7) | 1800 (5) | 11:49:00 |
| prv close | 124.700 | (2) | 1100 (3) | 11:49:00 |
| shares | 125.400 | (4) | 37K (12) | |
| turnover | 371.072K | (4) | 6400 (5) | |
| trades | 46.609M | (6) | 9700 (12) | |
| lot | 298 | (3) | 12K (13) | |
| currency | 100 | (8) | 13K (8) | |
| spread | HKD() | (3) | 16K (18) | |
| | 0.100/0.100 | (9) | 12K (4) | |
| H# MEET ON 6/11/13 FOR RESULTS | | | | |
| HSI | 23220.35 | -29.44 | CEI | 10703.30 +24.61 |
| T/O 23.292B | | | | |
| MAIN MISC LINK CHART | | | | |

Key Features of ET Trade Speed Station

Compatible
with existing
devices

options

New
functions

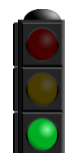
Multiple
windows

All in One
screen

Real-time
charts



NSTD Activities



EP related Activity

| | | |
|--------------------------------|--------------------|---|
| EP General Briefings | Nov 2013 | ✓ |
| NSTD Web Corner | Dec 2013 | ✓ |
| EP Briefings on Migration | Mar 2014 | ✓ |
| Information Paper | Apr 2014 | |
| MWS Migration Confirmation | Apr to May 2014 | |
| Contract signing with ET Trade | May to Jun 2014 | |
| SDNet reconfiguration | July to Aug 2014 | |
| User Training | (1 month before) | |
| MWS Migration (by batch) | Q3 2014 to Q1 2015 | |
| MWS Termination | Q1 2015 | |
| Terminal Migration Enrollment | Sep to Oct 2014 | |
| Terminal Migration (by batch) | Q1 to Q2 2015 | |
| Terminal Termination | Q3 2015 | |

Project Manager's Report

HKEx appointed an Independent Software Vendor (ET Trade) to provide a new securities trading device - **“ET Trade Speed Station”**.

Most of the existing “look-and-feel” will be preserved, while introducing some new improved features (e.g. real-time charts, multiple screens). Development is in progress.

Migration to ET Trade Speed Station is optional, EP can choose to migrate to other BSS solutions or de-install existing MWS/Terminal.

Project on schedule to launch in late Q3.

Note: All future dates above are tentative for indication only. Confirmed dates will be issued by circular or email.

Thank You

Cash Market Participant Enquiry:
trd@hkex.com.hk