

June 2017



**HKATS AND DCASS
UPGRADE**

HKEX
香港交易所

DISCLAIMER

The information contained in this presentation is for general informational purposes only and does not constitute an offer, solicitation, invitation or recommendation to subscribe for or purchase any securities or other products or to provide any investment advice of any kind. This presentation is not directed at, and is not intended for distribution to or use by, any person or entity in any jurisdiction or country where such distribution or use would be contrary to law or regulation or which would subject Hong Kong Exchanges and Clearing Limited (“HKEX”) to any registration requirement within such jurisdiction or country.

This presentation contains forward-looking statements which are based on the current expectations, estimates, projections, beliefs and assumptions of HKEX about the businesses and the markets in which it and its subsidiaries operate or aspires to operate in. These forward-looking statements are not guarantees of future performance and are subject to market risk, uncertainties and factors beyond the control of HKEX. Therefore, actual outcomes and returns may differ materially from the assumptions made and the statements contained in this presentation. The implementation of these initiatives is subject to a number of external factors, including government policy, regulatory approval, the behaviour of market participants, competitive developments and, where relevant, the identification of and successful entry into agreements with potential business partners. As such, there is no guarantee that the initiatives described herein will be implemented, or that they will be implemented in the form and timeframe described herein.

Although the information contained in this presentation is obtained or compiled from sources believed to be reliable, HKEX does not guarantee the accuracy, validity, timeliness or completeness of the information or data for any particular purpose, and shall not accept any responsibility for, or be liable for, errors, omissions or other inaccuracies in the information or for the consequences thereof. The information set out in this presentation is provided on an “as is” and “as available” basis and may be amended or changed. It is not a substitute for professional advice which takes account of your specific circumstances and nothing in this document constitutes legal advice. HKEX shall not be responsible or liable for any loss or damage, directly or indirectly, arising from the use of or reliance upon any information provided in this presentation.



AGENDA

1

BACKGROUND

2

HKATS & DCASS UPGRADE

3

MARKET DATA

4

PROJECT TIMELINE

5

WHAT'S NEXT

6

ENQUIRIES

7

APPENDICES



BACKGROUND

- Since last HKATS & DCASS Upgrade in October 2013, low latency Central Gateways (CGs) have been introduced in accordance of HKEX technology roadmap
- HKEX has retained the Network Gateways (NGs) as a transitional arrangement only in 2013, with a plan to decommission the NGs by 2017
- As of May 2017, over 80% of HKATS & DCASS OAPI connections have been migrated to CGs
- To support ongoing development in the derivatives market, HKEX plans to upgrade its HKATS & DCASS to the vendor's latest product release in Q3 2018
- NG will be decommissioned along with HKATS & DCASS Upgrade in Q3 2018



HKATS & DCASS UPGRADE

Infrastructure Changes

- *Follows the overall HKEX infrastructure roadmap*
- *NGs will be decommissioned*
- *CLICK and DCASS Servers / Terminals offering will be terminated*
- *All HKATS and DCASS OAPI connections will be made via HKEX's CGs*

New Browser Frontend

HKATS

- *For contingency arrangement*
- *For block trade facilities*

DCASS

- *Replace DCASS Servers / Terminals*

Reports

- *Reports / data files to be retrieved by Participants*

System Changes

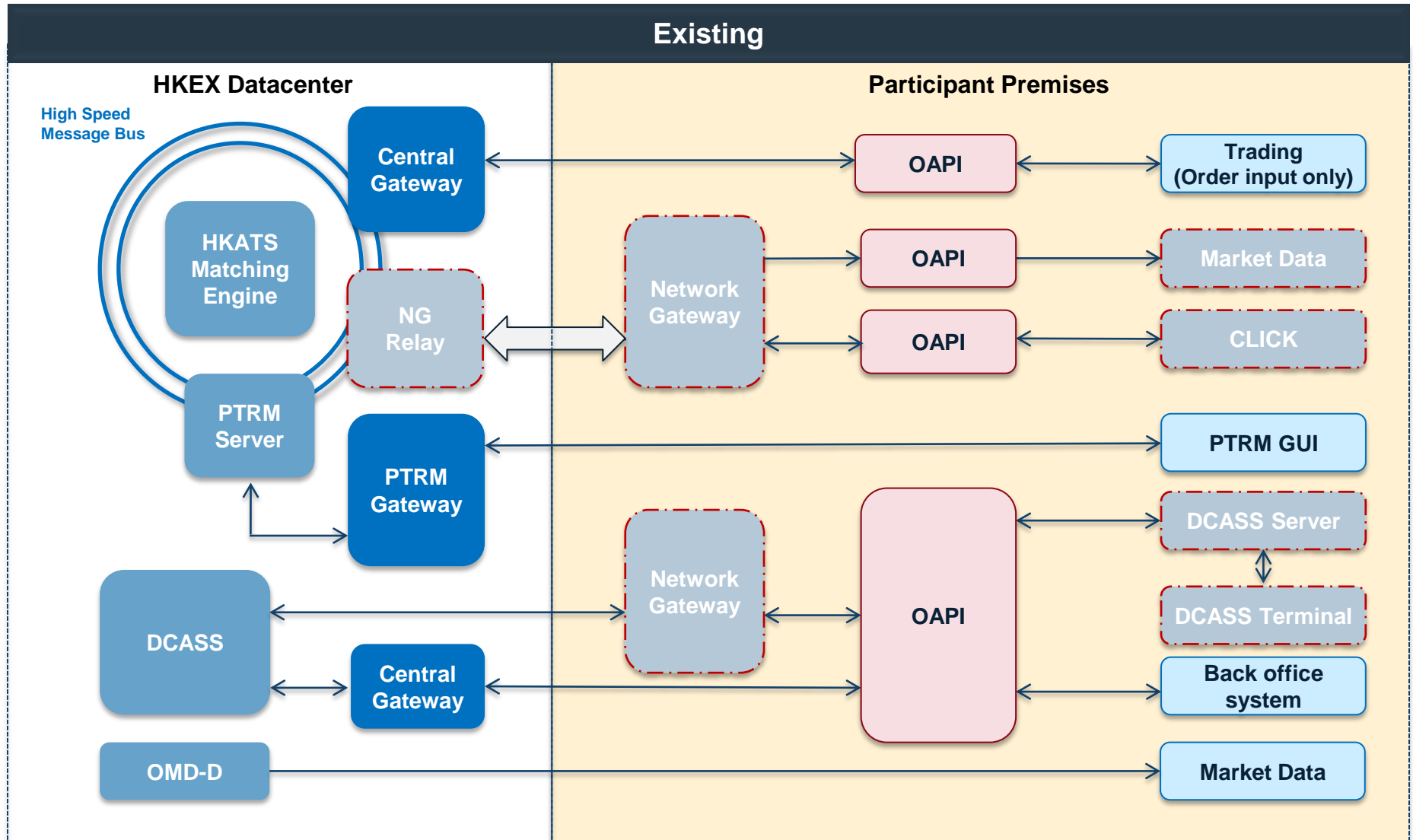
- *Preparation for new business initiatives*

Market Data

- *Market data solutions to be offered under OMD-D¹*
- *Use of information vendors' market data services*



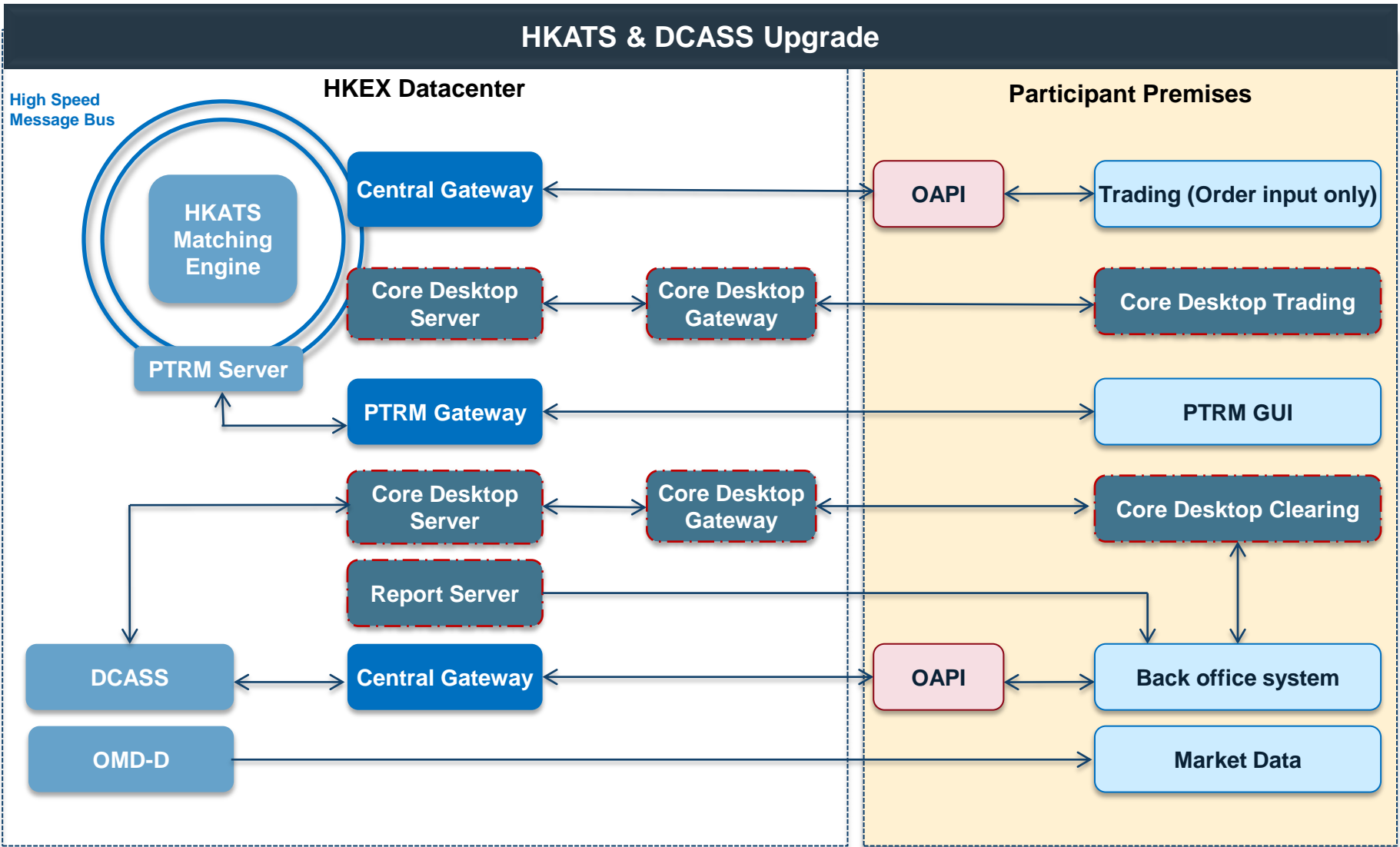
INFRASTRUCTURE - EVOLUTION



Legend : infrastructure changes upon the Upgrade



INFRASTRUCTURE - EVOLUTION



Legend : infrastructure changes upon the Upgrade



INFRASTRUCTURE

- DECOMMISSIONING OF NG, CLICK AND DCASS SERVER

- CG as the only channel access to HKATS & DCASS
- Only CG connections will be supported during Market Rehearsals (MR), tentatively scheduled in Q2/Q3 2018
- Participants are advised to complete the migration of NG connections to CGs by Q2 2018 to avoid changing their network configurations back and forth between NGs & CGs during MR period
- From April 2018 onwards, CG connections migrated from NGs will be charged at a concession rate of HK\$1,750 until the launch of the Upgrade
- Upon the launch of the Upgrade, all CG connections will be charged at the standard rate, i.e. HK\$2,600
- Subject to approval, the indicative connection fee for Core Desktop will be HK\$2,600



NEW FRONTEND

- CORE DESKTOP TRADING & CLEARING

A new browser-based frontend will be introduced for HKATS & DCASS connection directly to HKEX's Core Desktop Gateways via SDNet/2:

- **Core Desktop for Trading**
 - for contingency purpose
 - support EPs to perform block trade facilities
- **Core Desktop for Clearing**
 - replace DCASS Servers & DCASS Terminals



REPORTS

New Report Servers installed at HKEX premises

- Participants will retrieve reports / data files (including PTRM & DCASS) directly from HKEX's Report Servers
- Participants are reminded to make necessary planning and review on the capacity and security setting for local storage of the retrieved reports / data files
- Participants are reminded to liaise with their accredited vendors for QoS¹ setting to avoid unnecessary interruptions to normal trading and clearing activities
- Exact technical arrangement is to be announced in Q4 2017



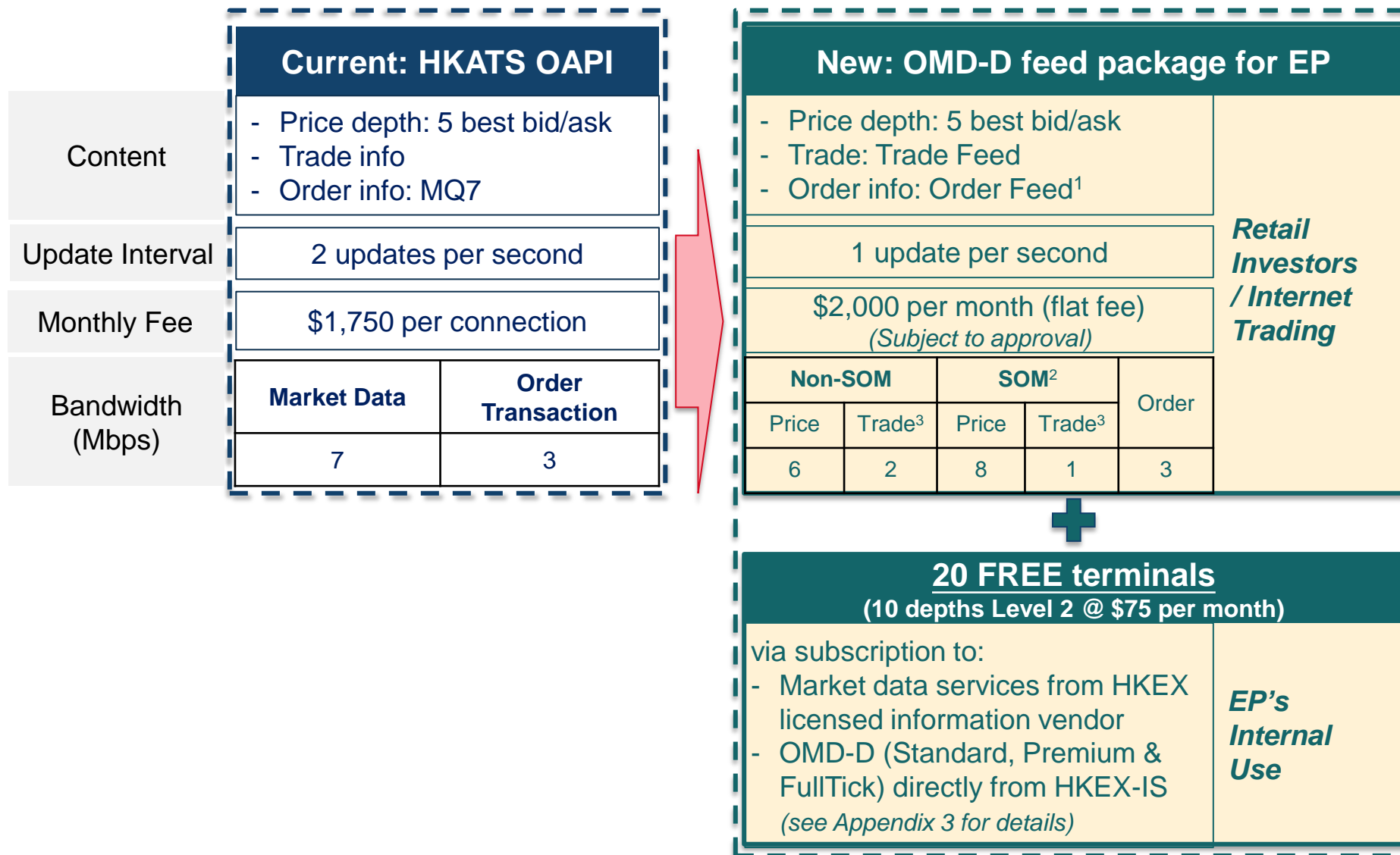
SYSTEM CHANGES

- HKATS root symbol field will be increased from 3 to 5 characters for new product launch
 - existing HKATS root symbol will remain unchanged
 - HKATS new product may use HKATS root symbol with up to 5 characters
- extended “exchange info” field at order level, *reserved for HKEX’s future use*
- allow SEOCH CPs to input an exercise parameter¹ for Stock Options Market
- support contracts with flexible expiry date (weekly / daily expiry contracts)
- facilitate trading and clearing during Hong Kong holidays
- enhance margin offset capability
 - *as a result, risk parameter file (RPF) will be revised accordingly*



MARKET DATA

- SOLUTION TO EP FOR DECOMMISSIONING OF NG



Note : 1. Contains only active series that are eligible for Volatility Control Mechanism

2. SOM refers to Stock Options Market

3. The bandwidth for Non-SOM plus SOM is 2 Mbps



MARKET DATA

- NEW OMD-D FEED PACKAGE FOR EP

- HKEX will offer a new conflated market data feed (Price Depth Feed) on the OMD-D platform with the following features to EPs:
 - Price depth 5 best bid/ask
 - Updating interval ~ 1 second
 - Subscription fee \$2,000 per month, subject to approval
- In addition, a new complimentary feed to provide information of all outstanding orders of active series¹ (Order Feed) will be offered to interested EPs without extra subscription fee
- Moreover, EPs can also opt to subscribe to the existing OMD-D Trade Feed (Trade Feed) to obtain trade information without extra subscription fee
- The approximate bandwidth requirements for the above feeds are as below :

Feed	Price Depth Feed		Order Feed	Trade Feed	
	Non SOM	SOM ²		Non SOM	SOM
Product	Non SOM	SOM ²	-	Non SOM	SOM
Bandwidth (Mbps)	6	8	3	2	1

- The above offerings are for EPs' internal use and for redistribution to clients. EPs will need to sign a Market Data Vendor Licence Agreement for redistributing the data.



MARKET DATA

- HIGH LEVEL TIMELINE FOR THE NEW OMD-D FEED PACKAGE FOR EP

Activity	Tentative Schedule
HKEX-IS to send a letter to EPs which mainly covers the followings: <ul style="list-style-type: none">• Enrolment information• Technical documents• Implementation schedule	Early July 2017
HKEX-IS to hold a market data briefing on the market data solutions for EPs	17 July 2017
Availability of Readiness Test Environment and Canned Data	Q3 - Q4 2017
Market Rehearsal	Q1 2018
Rollout	Q2 2018

MARKET DATA

- CHANGES TO EXISTING OMD-D DATAFEED

Changes to existing OMD-D datafeed will be done in **two** phases:

Phase 1

1. Phase 1 change is for enrichment to OMD-D reference data where additional information such as the HKEX root symbol, e.g. HSI and the tick size for each product class will be provided
2. Extra fillers will be inserted to provide for possible addition of new data fields from the Upgrade
3. A Client Notice will be issued by end of June 2017 to provide more details and the revised OMD-D Interface Specification to OMD-D Clients
4. The data enrichment also applies to the new OMD-D feed package for EP
5. Implementation schedule will follow the timeline stated in the previous slide, i.e. slide 14

Phase 2

1. Phase 2 change is mainly for addition of new data fields and information from the Upgrade, if any
2. Revised OMD-D Interface Specification is expected to come out in September 2017
3. The change will also apply to the new OMD-D feed package for EP
4. Implementation schedule will follow the Upgrade project timeline, i.e. next slide



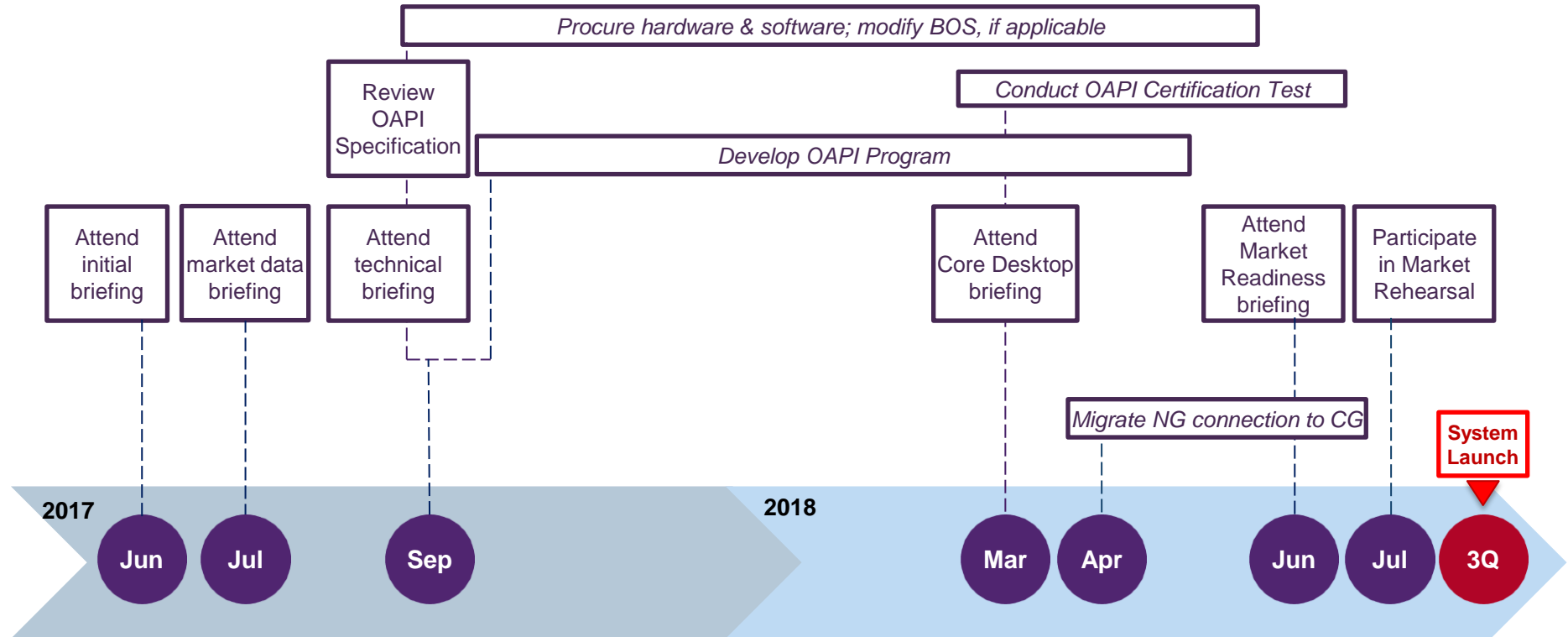
PROJECT TIMELINE

HKEX

TODAY



Participants



Note : Please refer to high level timeline on slide 14, for market data related activities

WHAT'S NEXT



Nominate the Upgrade Project Coordinators, from Trading, Clearing & IT, and provide contact details to HKEX

By 30 Jun 2017



Attend technical briefing and assess the API specifications

~ Sep/Oct 2017



Secure necessary resources and budget in accordance to the project timeline

ASAP



Source and determine the source of Market Data to replace the retrieval of market data from HKATS via NG, briefing session will be arranged for 17 July 2017

After Briefing



Assess and determine SDNet/2 bandwidth requirement and plan for CG migration

ASAP

ENQUIRES

HKATS Hotline: 2211 6360

Email: clicksupport@hkex.com.hk

DCASS Hotline: 2979 7222

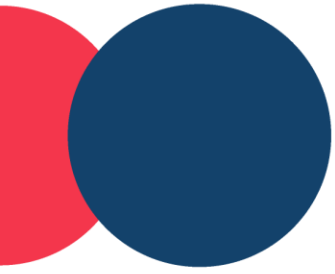
Email: ClearingPSD@hkex.com.hk

Web Corner:

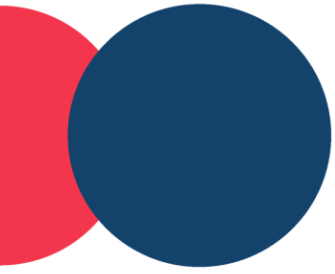
http://www.hkex.com.hk/eng/market/dv_tradinfra/DMTradInfra.htm

(to be available in early July 2017)





Questions and Answers



APPENDICES

APPENDIX 1

PRELIMINARY BANDWIDTH REQUIREMENTS

The minimum bandwidth requirements for HKATS & DCASS are listed below:

Per Connection		Bandwidth Requirement	
		HKATS only	DCASS only
Central Gateway	OAPI	3 Mbps ¹	3 Mbps
	Core Desktop	0.4 Mbps	0.4 Mbps
	Report Retrieval	N/A	1 Mbps
PTRM Gateway		1 Mbps	

Note : 1. 3 Mbps is optimal for support up to 250 TPS with 2 copies of firm based broadcast (BO5)



APPENDIX 2

HARDWARE & SOFTWARE REQUIREMENTS

The requirements for Core Desktop and Report Retrieval are listed below:

Core Desktop (Trading / Clearing)	Minimum Requirement
Processor	Intel Core i3-550 3.2GHz or higher
RAM	4GB
Storage	3GB
Network adapter	100Mbps full-duplex
Monitor	21" with 1280 x 1024 resolution
Operating System	Microsoft Windows 7 (64 bit)
Layered software	Anti-virus software
Supported Browser	Windows Internet Explorer (IE) 11

Report Retrieval	Recommended Installation Requirement
Operating System	<i>To be provided</i>
Software for Report Download	<i>To be provided</i>
Network Circuit	<ul style="list-style-type: none"> - via SDNet/2 connection for report retrieval - Firewall/Services Ports configuration, if necessary for report retrieval



APPENDIX 3

MARKET DATA SOLUTION TO EP ON EXISTING OMD-D DATAFEED PRODUCTS

1. The current OMD-D offerings include the followings:

Feature	OMD-D Datafeed Product		
	Derivatives Standard (DS)	Derivatives Premium (DP)	Derivatives Full Book (DF)
Price depth	10 best bid/ask	10 best bid/ask + 11 th for remaining orders	Full order book
Updating interval	~ 0.25 second	Streaming	Streaming
Bandwidth (Mbps)	30	60	60
Subscription fee	Please refer to the HKEX website		

Note: The Price Depth Feed of the OMD-D Feed Package for EP is a replica of DS with different price depth and updating interval

2. EPs subscribing OMD-D DS directly from HKEX for internal use would enjoy fee waivers on the End-User License Fees and Connection Fee.

Interested EPs may request for more information by sending request to marketdata@hkex.com.hk



APPENDIX 4 INFRASTRUCTURE - EVOLUTION

