October 2018

HKEX

香 港 交 易 所

INFORMATION PAPER

HKEX ORION TRADING PLATFORM
- CHINA STOCK CONNECT

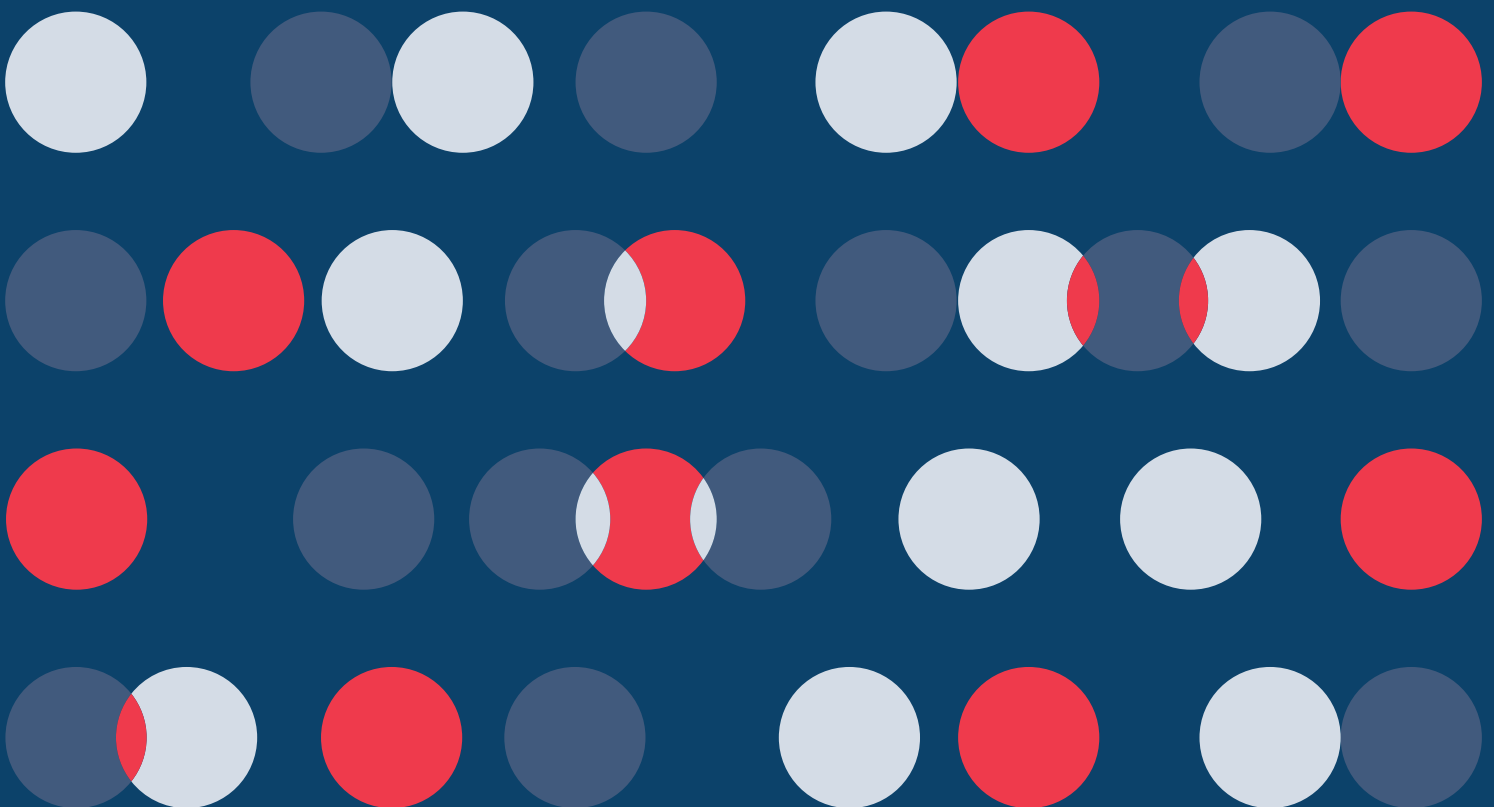# TABLE OF CONTENTS

Version Date: 5 Oct 2018

SECTION 1: INTRODUCTION

1   Stock Connect is a mutual market access programme connecting the Mainland and Hong Kong stock markets.   Shanghai-Hong Kong Stock Connect was launched in November 2014.   Following the success, Shenzhen-Hong Kong Stock Connect was also launched two years later in December 2016, giving investors in Mainland and Hong Kong direct access to each other's market from their home market.

2   China Stock Connect System (CSC) is the core-backbone infrastructure provided by HKEX to route A-share orders from Hong Kong to the two Mainland exchanges for order matching and execution.   China Connect Exchange Participants (CCEPs) input orders into their Broker Supplied Systems (BSS), which would then send the orders to CSC for routing to Shanghai Stock Exchange (SSE) or Shenzhen Stock Exchange (SZSE) accordingly.

3   HKEX has initiated Stock Connect market transformation in 2016, which aims to revamp its technology infrastructure.   The Stock Connect market transformation is structured as a phased migration from the legacy trading system infrastructure to the target infrastructure as illustrated below:
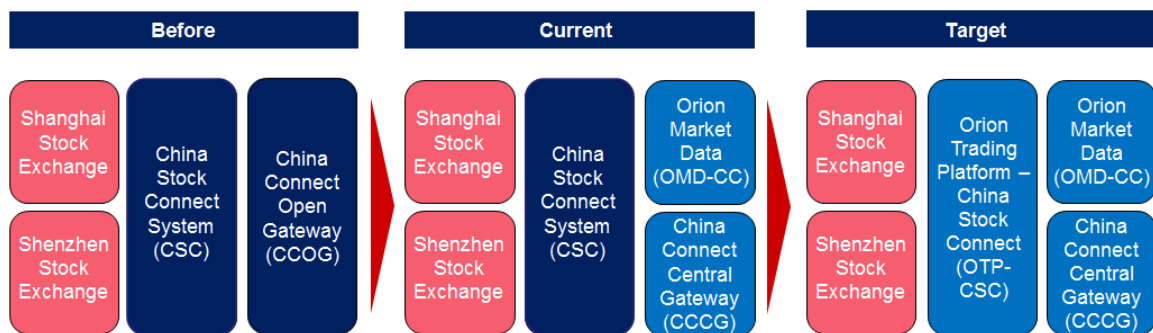
4   The legacy China Connect Open Gateway (CCOG) trading infrastructure has been fully decommissioned through the launch of the following new trading services:

- China Connect Central Gateway (CCCG) – launched in 2017, CCCG provides a centralised trading access point for CCEPs, eliminating costs inherent in the legacy distributed architecture, and adding new functionality such as drop copy session.

- Orion Market Data Platform – China Connect Securities (OMD-CC) – launched in 2017, OMD-CC disseminates updates on market data of instruments eligible for Northbound trading under the Stock Connect.

5   When CSC was launched back in 2014, the core hardware and technology deployed were the same as AMS/3.8 trading infrastructure for the Hong Kong securities market. Following the successful replacement of AMS/3.8 by Orion Trading Platform – Securities Market (OTP-C) in February 2018, OTP-CSC will be implemented to replace CSC running on the legacy proprietary hardware.   OTP-CSC aims to offer a scalable, flexible and high performing trading platform based on open systems technology to meet the evolving business needs and future Northbound volume growth.

6   This information paper presents an overview of OTP-CSC migration, highlights the impact on CCEPs and OMD-CC Clients[1] so that necessary preparations can be made, and provides further high-level implementation details of the initiative.

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[1] "OMD-CC Clients" refers to application service providers and end-users who have entered into a licence agreement with HKEX Information Services (HKEX-IS) to receive market data from OMD-CC.

SECTION 2: OVERVIEW OF OTP-CSC MIGRATION

7   Technically, the migration to OTP-CSC is designed to be a low impact transition for market participants as the rollout mainly involves changes to HKEX's host system. Market participants are shielded from OTP-CSC by OMD-CC and CCCG, whose interfaces will be unchanged.   OTP-CSC is functionally equivalent to CSC.

8   OTP-CSC will be tentatively rolled out in the middle 2019, subject to market readiness and relevant regulatory approvals.   All CCEPs are required to validate their systems in accordance with OTP-CSC implementation timeline.

9   Should there be any new enhancements made on CSC before the rollout of OTP-CSC, such enhancements will also be included in the implementation of OTP-CSC unless otherwise stated.

SECTION 3: IMPACT ON CCEPs AND OMD-CC Clients

10   Migration to OTP-CSC is mandatory to all CCEPs and OMD-CC Clients.   CCEPs and OMD-CC Clients should therefore plan ahead for the necessary testing effort in accordance with the OTP-CSC implementation schedule.

No Change to CCCG Interface, Throttling Mechanism and Capacity

11   OTP-CSC upgrade will not introduce any changes to CCCG in terms of its interface with CCEPs, the throttling mechanism, and the capacity per CCCG order flow session.

No Change to OMD-CC Interface

12   OTP-CSC upgrade will not introduce changes to OMD-CC interface.

Participation in Testing

13   All CCEPs should participate in all conformance tests to ensure their systems interfacing with CCCG will function properly with OTP-CSC.   Both CCEPs and OMD-CC Clients are required to participate in the market rehearsals to ensure their systems interfacing with CCCG and OMD-CC will remain intact upon the launch of OTP-CSC.   The details of the test arrangements are explained in Section 4.

SECTION 4: IMPLEMENTATION

CCCG and OMD-CC Offline Simulation Tests

14   Testing with offline CCCG and OMD-CC simulators are not required as there are no changes in the CCCG and OMD-CC interfaces.

End-to-End (E2E) Test

15   All CCEPs having BSS connecting to CCCG should participate in the E2E test session to validate their BSS software's ability to interact with OTP-CSC.   An E2E testing environment of CCCG and OMD-CC connecting with OTP-CSC will be offered in Q1 2019 tentatively.   CCEPs can connect their systems to the E2E testing environment, an environment similar to the target production environment, to verify their systems against OTP-CSC.   Details of E2E testing and the test environment connectivity document will be provided at a later stage.
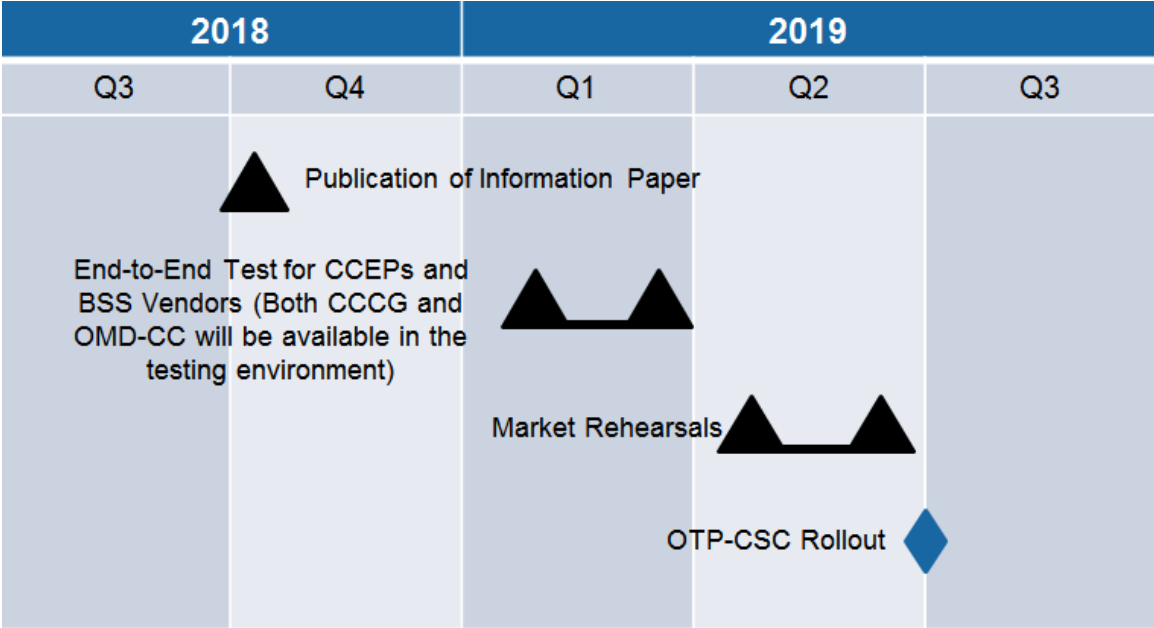
Market Rehearsals

16   As the final preparation and verification of readiness before production rollout, market rehearsals will be conducted over a number of weekends after the completion of E2E test.   All CCEPs and OMD-CC Clients are required to join the market rehearsals to verify their system compatibility with OTP-CSC.

Rollout of OTP-CSC and the Stabilisation Period

17   OTP-CSC will be tentatively rolled out in the middle of 2019.   As in all other major system upgrades, there will be a stabilisation period for OTP-CSC after launch.   During the stabilisation period, in case of emergency, fallback from OTP-CSC to CSC may be required.

Implementation Schedule

18   The tentative implementation schedule of OTP-CSC is summarised as follows:

2018		2019		
Q3	Q4	Q1	Q2	Q3

▲ Publication of Information Paper

End-to-End Test for CCEPs and BSS Vendors (Both CCCG and OMD-CC will be available in the testing environment) ▲ ▲

Market Rehearsals ▲ ▲

OTP-CSC Rollout ◆

SECTION 5: ENQUIRIES

19   For queries and further clarification on the HKEX Orion Trading Platform – China Stock Connect (OTP-CSC), please email OTPC@hkex.com.hk or write to:

> Hong Kong Exchanges and Clearing Limited
>
> 6th Floor, Two Exchange Square
>
> 8 Connaught Place
>
> Central
>
> Hong Kong
>
> Re: Information Paper on HKEX Orion Trading Platform – China Stock Connect (OTP-CSC)

20   CCEPs and BSS vendors are welcomed to contact the HKEX BSS Support Team (BSSSupport@hkex.com.hk) for clarification on CCCG Interface Specifications.

21   For enquiries about OMD-CC, please contact HKEX-IS (IVSupport@hkex.com.hk).

22   For future project updates, please refer to OTP-CSC project corner at HKEX website https://www.hkex.com.hk/otpcsc.