Japan Exchange Group: ‘Grand Design’ for a new Clearing System

June 29th, 2017
EXTENT Conference, London

Peter Babucke, Clearing Systems, JPX
Set the rules and monitor compliance
Outline the strategic direction

IT Planning Dept.

- Creates system ground design for JPX corporate group
- Sets rules and procedures for system quality assurance

Set the rules and monitor compliance
Outline the strategic direction

TSE

- Develop and maintain TSE systems
- Operate and maintain TSE systems
- Responsible for service delivery

OSE

- Operate and maintain OSE systems
- Responsible for service delivery

IT Development Dept.

IT Services Dept.

IT Services Dept.

IT Development Dept.

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JPX IT Systems Setup

Primary Center
- Trading systems
- Clearing systems
- Other systems

Secondary Center
- Trading systems
- Clearing systems
- Other systems

arrownet
Optical ring network

AP 1

AP 2

AP 3

Dedicated lines, VPN, etc.

Users (Securities cos., etc.)

Tokyo Stock Exchange (Kabutocho)

Osaka Exchange (Kitahama)

Back-up offices

Tokyo Stock Exchange

Osaka Exchange

Trading systems
Clearing systems
Other systems
### 1. Trading System

| TSE | arrowhead (cash trading) | • In-house system developed with Japanese system vendor  
• Stocks (domestic, foreign, preferred, etc.), ETF, REIT, convertible bonds, etc. |
|-----|-------------------------|-------------------------------------------------------------------------------------------------|
|     | ToSTNeT (Off-auction cash trading) | • In-house system developed with Japanese system vendor  
• Off-auction: ToSTNeT trading for stocks, domestic convertible bonds, etc. |
| OSE | J-GATE (Futures/options trading) | • NASDAQ Genium Package  
• Futures: Japanese indices, overseas indices, volatility indices, bonds, etc.  
• Options: Equity options, index options, JGB futures options |

### 2. Market Information System

<table>
<thead>
<tr>
<th>TSE</th>
<th>Market Info. System</th>
<th>• Issues data, price, quote, trading volume, turnover, etc</th>
</tr>
</thead>
</table>
|     | ISC                 | • About 100 indices, statistics  
(Index Statistics Calculation Engine) |
3. Information Systems

**TDnet**
- TDnet facilitates electronic transmission of timely disclosure information of listed companies through the network to media outlets and investors.

4. Clearing Systems

**TSE Clearing Systems**
- JSCC Clearing System (Cash/Derivatives): In-House (Japanese system vendor)
- JGB Clearing System: In-House (Japanese system vendor)
- OTC Clearing System: Calypso

5. Network

**arrownet**
- Cutting-edge network infrastructure connecting JPX's trading, information, etc. systems (such as arrowhead) with trading participants and users.
## Core System Replacement: Master Plan

<table>
<thead>
<tr>
<th>System Type</th>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trading Systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>arrowhead (Cash)</td>
<td></td>
<td>Launch 9.2015</td>
</tr>
<tr>
<td>J-GATE (Futures/Options)</td>
<td></td>
<td>Replace 7.2016 (Scheduled)</td>
</tr>
<tr>
<td>Next J-GATE (Futures/Options)</td>
<td></td>
<td>Launch 2015.9</td>
</tr>
<tr>
<td>ToSTNeT (Off-Auction)</td>
<td></td>
<td>Replace 1.2017 (Scheduled)</td>
</tr>
<tr>
<td>Next ToSTNeT (Off-Auction)</td>
<td></td>
<td>Replace 1.2017 (Scheduled)</td>
</tr>
<tr>
<td>Clearing Systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JSCC Clearing System</td>
<td></td>
<td>Upgrade 10.2015 Respond to new BOJ net</td>
</tr>
<tr>
<td>OTC Clearing System</td>
<td></td>
<td>Upgrade 9.2015 Cross Margin</td>
</tr>
<tr>
<td>JGB Clearing System</td>
<td></td>
<td>Launch 10.2015</td>
</tr>
<tr>
<td>&quot;Grand Design&quot;</td>
<td></td>
<td>Replace Latter half, FY2017 (Scheduled) Renew Derivatives Clearing Function Enhance Risk and Collateral Management Functions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Replace TBD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Replace FY2016 New Products (Scheduled)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Replace FY2017 New Products (Scheduled)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Replace FY2017 (Scheduled)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Replace 5.2018 Shorter Settlement Cycle (Scheduled)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Replace TBD</td>
</tr>
</tbody>
</table>

* Details will be subject to future discussions.
Clearing System after Replacement

As Is

Participant

Terminal

Direct Connection System

Log-in

Custom Specifications

CMF (non-Web base)

JSCC Clearing System

Clearing Function (Listed Cash) / Listed Derivatives)

Fund Settlement Function (Listed Cash)

Collateral Management Function (Listed Cash / Listed Derivatives)

After Change

Participant

Terminal

Direct Connection System

Single Sign On

Can log-in with 1ID

Custom Specifications

CMF (non-Web base)

Web GUI

Clearing Function (Listed Cash)

Fund Settlement Function (Listed Cash)

Collateral Management Function (Listed Cash / Listed Derivatives)

Web GUI

FIX Base(*)

FpML Base(*)

(*) Global standard specifications will be adopted.

Can log-in with 1ID
## Milestones and Test Timeline

<table>
<thead>
<tr>
<th>Major JSCC Project</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4-6</td>
<td>7-9</td>
<td>10-12</td>
</tr>
</tbody>
</table>

- **▲ [Listed Derivatives] Next J-GATE Launch**
- **▲ [GGB OTC] Derivatives Clearing Renewal Project**
- **▲ [JGB T+1]**

### Milestone

- **▲ Publish Outlines**
- **▲ Direct Connection Specifications (Draft)**
- **▲ Direct Connection Specifications (Final)**

### Framework / Operation

- **Discussion on Framework/Practice**
- **Accept Various Operational Notifications**

### System

- **Discussion on System Change**
- **Development Period on Participants’ Side**
- **Accept Various System Notifications**

- **Participants Test (Weekday Test Environment)**
- **Participant Test / Migration Rehearsal (Holiday Test Environment)**

*Individual Follow-up for Participants (to be continued beyond Launch)*

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Peter Babucke  
Vice President – IT Development, Clearing Systems  
Tokyo Stock Exchange, Inc.

Mail: p-babucke@jpx.co.jp 
Phone: +81-50-33-777-666 

2-1 Nihombashi Kabutocho  
103-8220 Tokyo  
Japan