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Date: 4 March 2013

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## Service Hotline

### Equity Derivative Trading System – Market Consultation Session

Further to Market Notice **F5753** published on 12 December 2012, the JSE is investigating a new trading system for the **Equity Derivative Market** (EDM) and is in talks with the current Equity Market Software Provider (MillenniumIT). During a due diligence process with MillenniumIT, principle differences were identified between the current and new proposed trading solutions. As a result, the JSE would like to consult with all stakeholders in an effort to design the best solution for the Equity Derivative Markets:

|                         |                                                                                                   |
|-------------------------|---------------------------------------------------------------------------------------------------|
| <b>Date:</b>            | Friday, 8 March 2013                                                                              |
| <b>Time:</b>            | 11h30 – 14h00 SAST                                                                                |
| <b>Venue:</b>           | JSE Atrium                                                                                        |
| <b>Booking Details:</b> |                                                                                                   |
| <b>RSVP:</b>            | By 6 March 2013 at <a href="mailto:derivativestrading@jse.co.za">derivativestrading@jse.co.za</a> |

Appendix A to this service hotline explains the high level points to be discussed at this market consultation meeting.

If you have any queries, please feel free to contact [derivativestrading@jse.co.za](mailto:derivativestrading@jse.co.za).

#### Markets / Service (s):

- Equity Derivative Trading System

#### Environment(s):

- Production

#### Additional Information:

#### Contact:

For further information please contact Derivatives Trading on [derivativestrading@jse.co.za](mailto:derivativestrading@jse.co.za).

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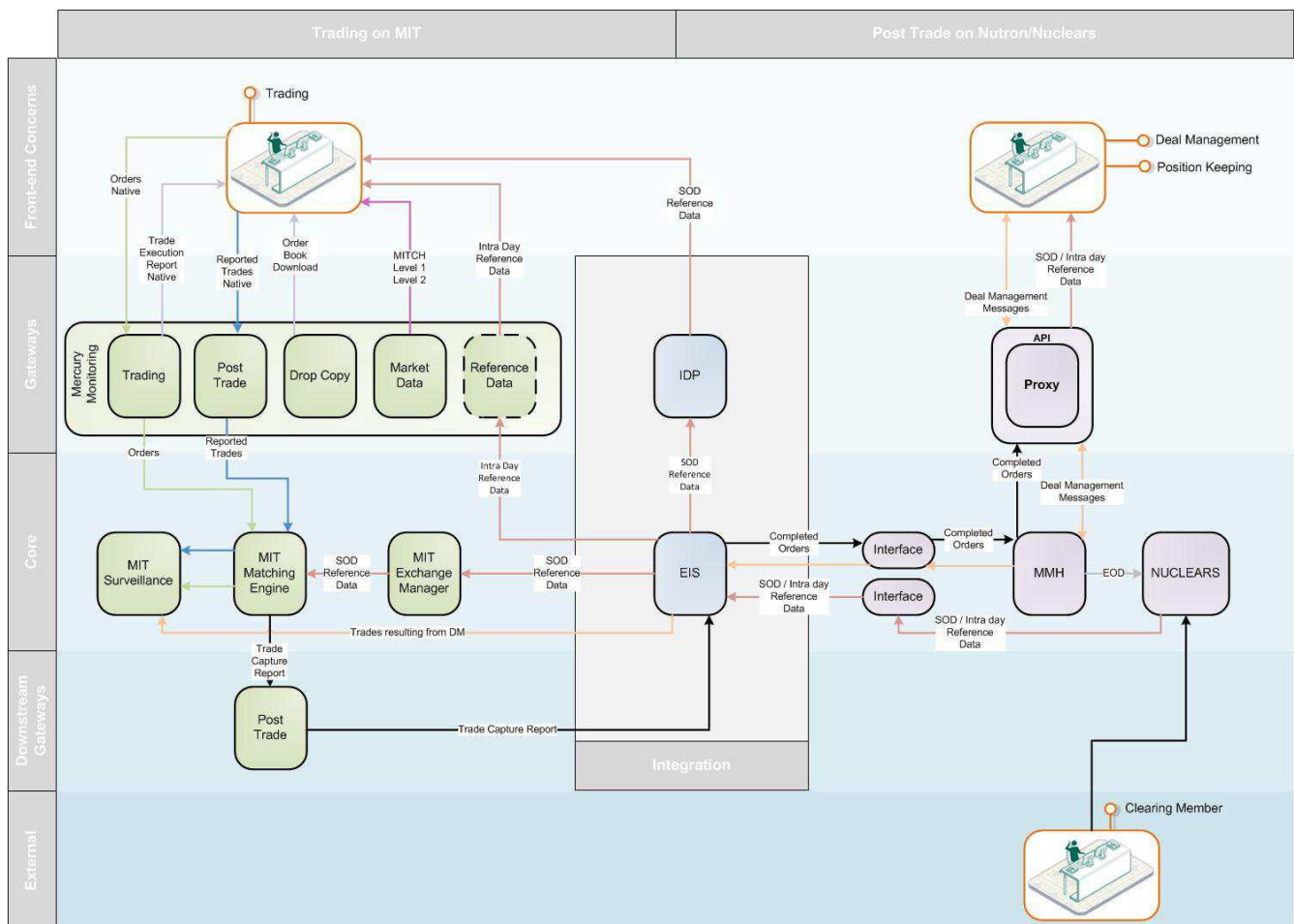
## Appendix A

### 1. Conceptual Design of the new proposed solution

The EDM market can be separated into 3 high level areas:

- Trading – Central order book matching and Report only trades
- Post Trading Activity – Deal and position management
- Clearing and Settlement – End of day margin calls and balancing between Clearing Members

The trading component would be replaced by this project. The new proposed solution can be depicted by the diagram below:



### 2. Trading Front Ends

Currently the JSE provides a vanilla Front End (Nutron) for trading and post trading activity. This frontend is built by STT, the existing technology supplier of both the trading and clearing software used by the JSE. The new trading engine solution called Millennium Exchange does not come with a trading front-end and therefore the JSE needs to evaluate the impact of this on the market participants. Participants use a mixture of independent trading front-ends and the JSE Nutron front-end. There are a number of possible strategies to address this

problem ranging from continuing to provide a basic trading front-end to not providing a trading front end at all. **The JSE will however continue to provide a front-end for post-trading activities.**

The strategy to address the trading front-end issue will impact both trading and clearing members as much functionality, like bulk uploads of trade reports, currently resides in the Nutron Front End. Master dealers are also currently managed by the Exchange but on the new solution, such permission management functionality will have to be handled at the front-end level and now configured by members.

### 3. Bandwidth

Currently all data via the Nutron Trading solution is disseminated via TCP/IP. This connectivity protocol is unfortunately bandwidth intensive as it results in a separate link to the JSE for public and private data for each front-end connection, even though the API. With the new solution the JSE will be disseminating public data via a UDP multicast protocol. Even though multicast is less bandwidth intensive, the connection to the exchange would require more bandwidth for a firm with 1-3 users than the current solution. The bandwidth requirement does not however increase in direct relation to the number of users on the same link. The bandwidth impacts below were calculated on an assumption of 500 orders per second from 10 users in a member firm.

**Current:** 256k per user connection i.e. member would require 2,56 Mbps bandwidth

**New Solution:** Two compulsory multicast public data feeds (A and B Feed) at 0.45 Mbps each. One compulsory TCP/IP private feed at 0.04 Mbps. In total the new requirement for would be:

$$(2 \times 0.45) + 0.04 = 0.94 \text{ Mbps}$$

Important to note:

- Subsequent users from the same firm utilising the same line would only require private feed bandwidth.
- The Equity Derivative Market would also follow the Shared Infrastructure Provider (SIP) policy as implemented in the Equities Market. The SIP could potentially also ease bandwidth requirements for smaller to medium sized members as the SIP receives one copy of the public data on behalf of potentially many members i.e. infrastructure and telecommunications costs are shared.

### 4. Position Management

Currently the Nutron trading engine calculates member's positions by combining transactions from both trading and post trading activities. This is very unique to South Africa and research has indicated that international trading engines do not calculate positions. Positions are either calculated by the trading member themselves or by the clearing solutions. With the proposed new solution the Position Management would be managed on the Post Trade and Clearing components. The trading engine would not calculate positions on this solution.

It is important to note that the design of the current solution, where positions are maintained **within the trading engine** is contributing to the volatility in latency experienced by members. The resolution of this behavior is one of the key objectives of this project.

### 5. Difference in public data recovery

Unlike the current solution, with the new proposed solution, if all connections of a member firm were not connected for a period of time, the member would not be able to retrieve all public missed messages during the period they were disconnected. The new solution buffers, for example the last 100,000 messages, and if a system misses more than that, you will not be able to re-request all missed data. However, the new solution has an added recovery mechanism where the member can upon reconnecting post a disconnection; request a snapshot recovery where the current status of the order book is provided instantaneously.



## 6. Difference in order management on disconnect

In the current solution, individual users orders are deleted upon disconnect. In the new proposed solution, groups of traders of a member firm will connect through an Interface User and as a result the orders for an individual user will only be deleted when the Interface User is disconnected.