High Level Overview
Integrated Trading & Clearing (ITaC)

13 May 2014
Agenda

- Context
- Design Principles and Approach
- High Level Proposed Solution
  - Trading and Information Systems
  - Trading Functionality and Trade Reporting
  - Clearing
- Risk Management
- Clearing Operations (including Post Trade Deal Management)
- JSE involvement in Front Ends
Context

Graham Smale
Where we came from

- An isolated local ecosystem
- Product diversity and innovation a key driver to grow the market
- Low penetration of Computer Based Trading (CBT) across many products
- Low costs a key driver for an emergent market
- A bespoke system for the JSE, tailored to the unique requirements of individual markets and participants
The current landscape

- Tightly coupled trading and clearing system
- 3 separate platforms and 2 API specifications
- A proprietary API little known to international players
- Exchange-supplied front-end
- Aging technology stack
- Uncompetitive latency and latency volatility (compared to equities and international markets)
- Inflexible risk management
- Market data limited to local distribution
Global trends we are experiencing

- Technological arms race continues *(speed and latency)*
- We are players on a global market stage and compete with venues even if they are not in SA *(global standards and distribution)*
- Increasing CBT *(robust and flexible technology)*
- Regulatory drive of products onto transparent electronic trading venues *(regulatory change)*
- Increasing sophistication of CCP risk management and collateral services *(risk management technology)*
- Differing strategic paths for trading and clearing *(decoupling of trading and clearing)*
Design Principles and Approach

Graham Smale
Design Principles and Approach

- Vendor choices:
  - Millennium Exchange is the trading and information systems solution partner
  - Cinnober has been selected as the clearing solution partner
- Take advantage of unique opportunity to review the Derivative and Bond Markets
- Leverage economies of scale (bearing in mind deployment risks) and use existing JSE systems where possible
Design Principles and Approach

- Cross market harmonisation where practical
- Use out of box functionality aligned to international standards where possible
- Separation into loosely coupled trading and clearing systems with separate APIs for each
- Certain non trading and non clearing functions to be moved to systems built for purpose i.e. Reference Data, Statistics, Billing
- Phased implementation over a number of years, including clearing for Equities
High Level Proposed Solution
Trading and Information Systems

Leanne Parsons
High Level Proposed Solution
Trading and Information Systems

Order Management Gateways
- Trading Gateway (Native)
- Drop Copy Gateway (FIX)

Post Trade
- Post Trade Gateway (FIX)

Reference Data
- Reference Data (FTP via IDP)

Information Subscribers
- MDG Level 1 MITCH
- MDG Level 2 MITCH
- Market Data Gateways per market (EDM, CDM, IRC*)

Trading System

Derivatives Trading System

JSE Downstream Systems

* IRC includes Spot Bonds, Bond Derivatives & Currency Derivatives
User Structure

JSE TRADING SYSTEM

INTERFACE USERS

INFORMATION SUBSCRIBERS

TRADERS

Market User who receives news and market data updates (including Indices) from the Exchange

Interface Users may login to multiple interfaces simultaneously, other than the Trading Gateways

Submits orders to the Exchange by means of routing the order through an interface user
Some High Level Solution Changes

- Allows for separate On Book (Central Order Book) vs Off Book Trading
- Separate Gateways for Order Management, Trade Reporting and Market Data
- Only allowing Native Trading Gateway (no FIX) where all order management is conducted which helps reduce bandwidth requirements
- Drop Copy – allows for a drop copy of all order management functions performed
- Off Book Trade Reporting is facilitated through the Post Trade Gateway (FIX)
- SOD Reference Data will be provisioned through file downloads via IDP on the evening of the previous business day (current equities process)
Some High Level Solution Changes contd.

- Real Time reference data i.e. new option strikes will be provisioned through requests through the Order Management gateways
- Trader doesn’t log onto the solution but the interface User does (CompID)
- Cancel on disconnect happens at the Interface User level
- Internationally recognised open APIs for trading and clearing
- Message routing for branch members facilitated through Independent Software Vendor (ISV) solutions
- Provision of “production like” customer testing service
Market Data Design Principles and Approach

- Real time market data feeds should be as uncluttered as possible to ensure performance
- Use of UDP (Multicast) for bandwidth efficiency
- Equal treatment in provision of public data for non-members and Trading Members
- Optimum flexibility for market data product development and segmentation
- Reference data, non real time (e.g. Valuations) and EOD data to be provisioned through file downloads
Publication of Market Information

- Publication of market information via Information Dissemination System (IDP)
  - MTM
  - Valuations
  - Deal Management Volume
  - JIBAR
- Publication of Open Interest mechanism under discussion
High Level Proposed Conceptual Design
High Level Proposed Solution
Trading Functionality and Trade Reporting

Magnus De Wet
Trading Enhancements

- Order Types
- Market-Maker protection mechanisms
- Trading Strategies

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- Strategies published via both strategy and individual leg...

- All of above is configurable so market consultation not required at this stage
Trade Reporting Models

- 3 Trade report models exist on Nutron today
  - Single Party – One party reports both legs
  - Dual Party (Allege/Confirm) trade report – One party reports and counterparty Accepts/Rejects
  - Dual Party (Independent) trade report – Both parties report legs independently
    - Used in both Bond and Equity Derivative markets
    - Currently supported in Nutron but not in current Millennium Exchange solution

- Market Consultation session scheduled with ISVs and Members developing their own software: Tuesday 20 May 2014 10h00-12h00 at the JSE
Trade Reporting Publication

- Nutron currently does NOT publish any reported trades to the market on any of the JSE’s Derivative Markets
- The new solution will provide:
  - Immediate publication of all On Book trades with all relevant details
  - Publication of certain Off Book trade types to the market with all relevant information unless delayed publication is required for certain large trade sizes
  - No publication of certain Off Book trade types
- On EDM only certain information is published for Option Trades and therefore market consultation is required to confirm if Option Off Book Trades will be published immediately with all information or delayed publication with all information is required
- **Market Consultation session scheduled with EDM Options participants:** Tuesday 20 May 2014 07h00-09h00 at JSE
High Level Proposed Solution
Clearing
Leila Fourie
General Clearing Approach & Vision

- The JSE aims to achieve its Integrated Clearing vision through ITaC.
- The vision is based on three pillars:
  - Centralised risk management
  - Efficient asset utilisation
  - Consolidated clearing operations

- The JSE has selected Cinnober as its partner for the development of a new multi-asset clearing technology platform:
  - Proven, high-performance real-time Clearing solution
General Clearing Approach & Vision
Current vs. New Clearing Solution Architecture

ITaC Phases 1, 2 & 3

TradExpress Real Time Clearing System
- Centralised Risk Management
- Efficient Asset Utilisation
- Consolidated Clearing Operations

Nutron/Nuclears
- Equity Derivatives
- Commodity Derivatives
- Interest Rate & Currency Derivatives
- Cash Bonds

ECS
- Equities
General Clearing Approach & Vision
Centralised Risk Management

- Identification and management of risks centrally and holistically across markets
  - Management of concentration risk of participants across multiple markets
- Intraday risk management
- Ability to clear transactions in real time
- Compliance with international standards
  - (G20), CPSS IOSCO, EMIR, B3
- Stress testing and back testing
- Default fund harmonisation where applicable
General Clearing Approach & Vision
Efficient Asset Utilization

- Cross-market and cross-product margin offset where opportunities exist
- Cross-collateralization and non-cash collateral (Securities and Foreign Currency)
- Multilateral netting of settlements
- Reduced capital requirements for clients
- Improved liquidity
General Clearing Approach & Vision
Consolidated Clearing Operations

- Central cross market operations and risk management
- Simplified and integrated operational processing
- Improved and consistent valuation processes
- Aggregation of data across markets and ability to perform analytics and exception reporting in support of improved operations
Risk Management

Terence Saayman
Risk Management
Intraday Risk Management

- In order to protect the stability of the markets and comply with regulatory pressures, the JSE is moving towards more proactive and real time management of risk
- Implementation of intraday risk management
  - A risk engine calculates the impact of each additional trade on the riskiness (exposure) an entity’s portfolio
  - Provides exposure data and alerts to assist the JSE, Clearing Members and Members in proactively monitoring and managing risk
Risk Management
Intraday Risk Management - Process

- As Trading and Deal Management activity proceeds, exposures are calculated
  - At the Clearing Member, Member and Client levels
- Exposures are compared to predefined limits and posted collateral
  - Limits are set by the Clearing Member for Members and by the Member for Clients
  - Limits include portfolio exposure, position and concentration limits
- If exposure less posted collateral is within a percentage of or breaches the limit
  - Members and Clearing Members will be alerted
  - A business process follows in which the Clearing, Member, Member, Client, and JSE as appropriate, liaise, requesting the participant to reduce positions / post collateral / allocate deals
Risk Management
Pre-trade Risk Management

- Initial Margin per Order / Reported Trade limit
  - Due to latency considerations different solutions for managing this risk are being considered. The JSE will be reviewing this in consultation with Clearing Members.

- Clearing Price bands
  - On-book orders that breach price bands are rejected (as currently)
  - Clearing Member acceptance / rejection of reported trades that breach price bands is being reviewed. The JSE will be consulting with Clearing Members.
Clearing Operations

Alex Comninos
Clearing Operations
Monitoring, Acceptance & On-behalf Activity

- Monitoring of Member orders
  - If required will be possible via the MIT Drop Copy gateway
- Acceptance / rejection of reported trades that breach price bands
  - Proposed solution subject to Clearing Member consultation
    - As mentioned this is being reviewed – potential process changes
- Cancellation of orders on behalf of Members
  - Ability for Clearing Members to cancel Member orders is no longer supported
  - ‘Cancel on disconnect’ functionality (at the interface user level) is available for operational risk
- Entry of "on behalf of" reported trades
  - Members report trades (including trade cancellations) via the MIT Post Trade Gateway
Balancing on initial and variation margin, booking fees and physical delivery fees between JSE and Clearing Members

- Basic process unchanged
- Different interfaces for downloading input data
- Process changes related to the acceptance of non-cash collateral
- Consideration is being given to scheduled intraday margin calls
  - If introduced, variation margin called intraday would be taking into account the EOD margin run
New Clearing Architecture & Interfaces

Deal Management & Clearing Front Ends/Systems

- Acceptance of Reported Trades (TBC)
- Orders
- Open Interest
- Trades, Deals, Positions
- New Strikes/Contracts
- MTMs, Rates
- Deal Management
- Client Maintenance
- Ref Data
- MTMs, Rates
- Daily A/c Summary
- Fees Invoice
- Fee Structures
- EOD Stats

Information Delivery Portal (FTP)

MIT API

Trading System

Cinnober RTC API

Clearing System

Post Trade G/W

Drop Copy G/W

Market Data G/W

Deal Management & Clearing G/W

Trades, Deals, Positions

MTMs, Rates

Open Interest

Orders

Open Interest

Trades

Acceptance of Reported Trades (TBC)
Clearing Member Consultation Session

- A Clearing Member detail session is scheduled for:
  - Monday, 19 May 2014
  - 13h00 – 15h00
  - At JSE
JSE Involvement in Front Ends

Graham Smale
Front End Solutions?

- To date the JSE has provided a front-end for trading and deal management
  - It was absolutely necessary in the early stage of market development
  - This will be discontinued under this project
- Establish a competitive environment in which Independent Software Vendors (ISVs), who specialise in this area, can participate
  - Allows experts to elect to deliver customised, superior and/or differentiated solutions
- Increasing JSE concerns in the provision of front ends
  - Liability risk
  - Testing obligations
- Highlights the importance of in-house development and ISV teams in making this project a success
  - JSE is providing substantial lead time by informing the market of the JSE decision
Questions?