Integrated Trading and Clearing (ITaC) Technical Working Group (TWG) Session

11 March 2016

JSE

Agenda

- ITaC schedule of events for 2016
- ITaC Project 1 status update
- ITaC Project 1a
  - Equity Market Enhancements
  - Summary of changes to Gateways
  - Project 1a Timeline
- Questions?

2016 Technical Working Group (TWG) Schedule

- Proposed 2016 Schedule

Date	Time	Status
Mon, 22 February 2016	14h00 – 15h30 SAST	On track
Fri, 11 March 2016 (CT)	10h00 – 11h00 SAST	Equity Market upgrades presentation in Cape Town
Thurs, 21 April 2016	11h00 – 13h00 SAST	
Wed, 25 May 2016	11h00 – 13h00 SAST	
Thurs, 9 June 2016 (CT)	11h00 – 13h00 SAST	TBC
Thurs, 23 June 2016	11h00 – 13h00 SAST	
Thurs, 21 July 2016	11h00 – 13h00 SAST	
Thurs, 25 August 2016	11h00 – 13h00 SAST	
Wed, 7 September 2016 (CT)	11h00 – 13h00 SAST	TBC
Thurs, 29 September 2016	11h00 – 13h00 SAST	
Wed, 26 October 2016	11h00 – 13h00 SAST	
Wed, 23 November 2016	11h00 – 13h00 SAST	

2016 JSE Market Communication Sessions

- Proposed tentative 2016 Schedule for the overall JSE market communication sessions
- A service hotline will be issued ahead of each of these sessions confirming the agenda items covered in the session

Date	Time	Status
Tues, 5 April 2016	13h00 – 15h00 SAST	TBC
Wed, 8 June 2016	11h00 – 13h00 SAST	TBC
Thurs, 8 September 2016	11h00 – 13h00 SAST	TBC
Wed, 16 November 2016	11h00 – 13h00 SAST	TBC

2016 Software Provider Showcase

JSE

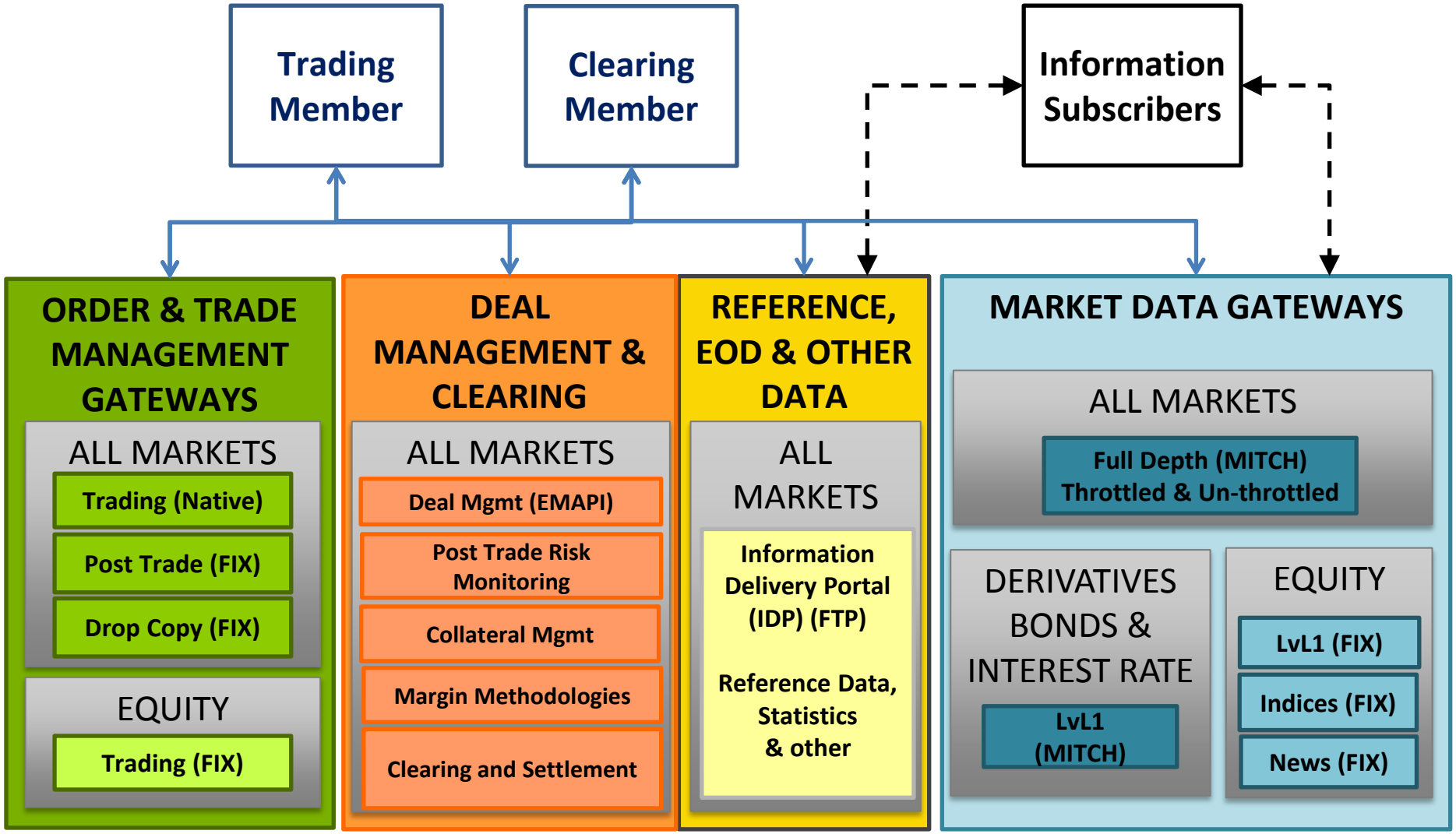
- JSE to schedule a Software provider showcase day
- All clients will need to find a replacement terminal for the current Nutron terminal
- Showcase to be held at the JSE and to provide clients with an opportunity to engage with the software providers on the functionality they will offer across the various JSE markets for trading, clearing and deal management
- Looking to hold this session once draft of the deal management and clearing specifications have been published
- Potentially looking to host this in May/June 2016
- JSE will be in contact with software providers

ITaC Project Status Update

- Project 1a - Equity Market enhancements additional scope
- Project 1b & 1c – Equity Derivative Market and Currency Derivatives Market project activities are on track and work is in progress to finalise scope with our service providers
- First draft of trading specifications have been issued
- First draft of clearing and deal management specifications will be issued March/April 2016
- Good progress being made on internal JSE downstream system changes and integration across systems
- Key focused ITaC sessions to be held with clearing members, CSDPs, Telecommunications providers – dates for these are being finalised
- Fortnightly client meeting appointment reserved with JSE team on Thursdays – available for one on one discussions with clients – email ITaC@jse.co.za to reserve a slot

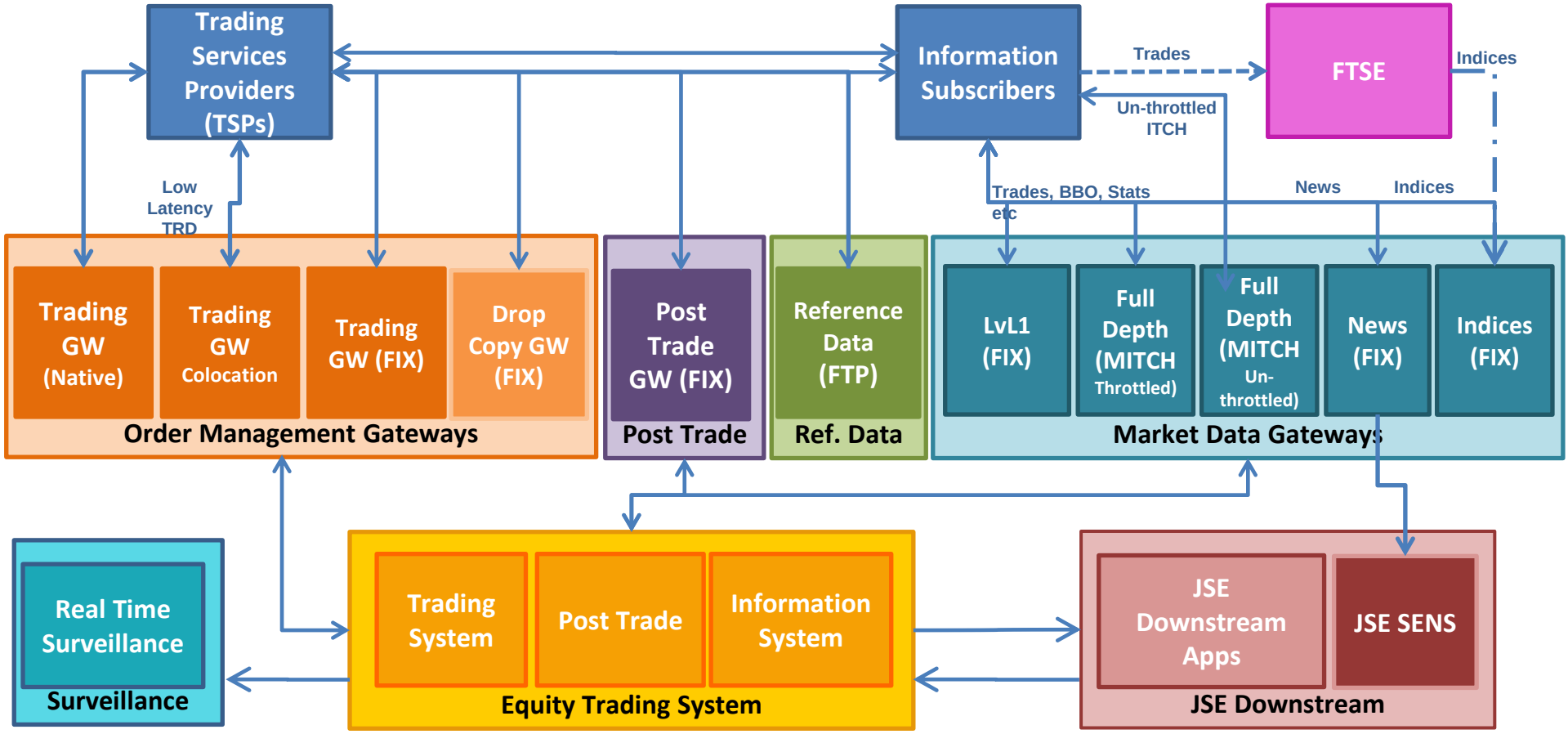
Trading, Clearing and Information Systems

All Markets – High-level



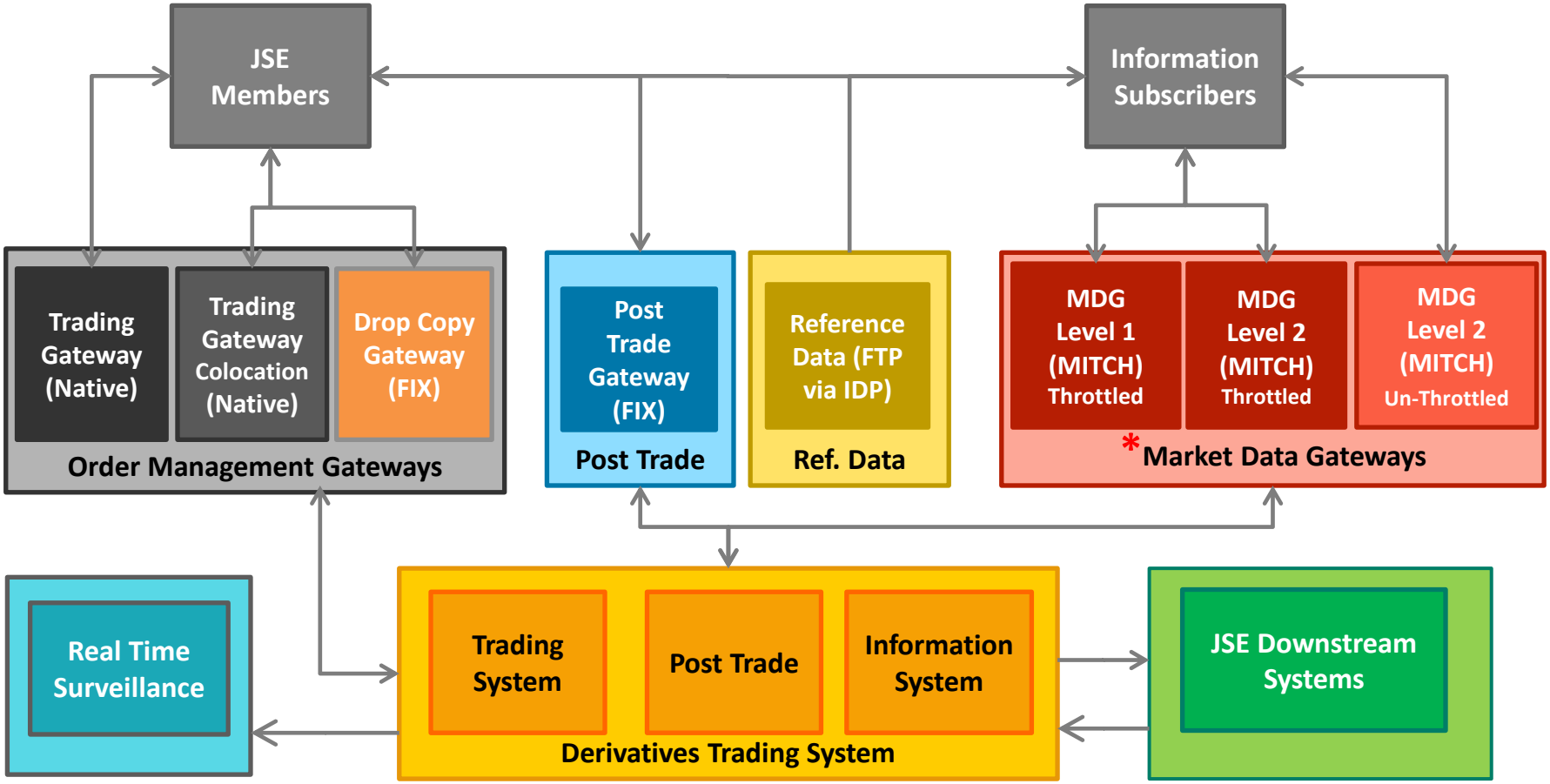
Trading and Information System

Current Equity Market



Trading and Information Systems

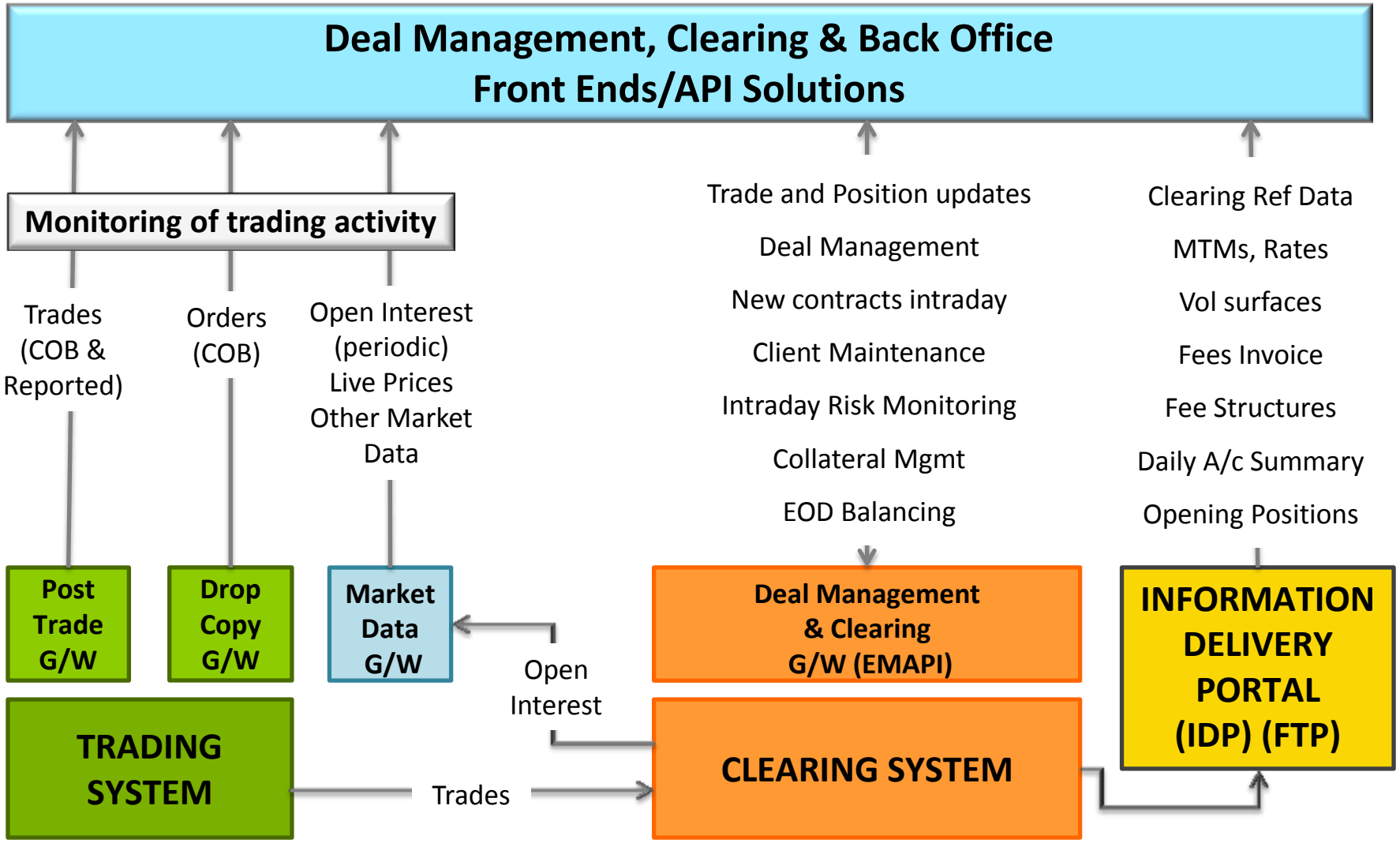
High Level Proposed Derivatives Solution



- There will be a set of Market Data Gateways for Equity Derivatives and a set of Gateways for Currency Derivatives
- * Additional market data gateways will be introduced at a later stage for Commodity Derivatives.
- Interest Rate market data will be disseminated via the same gateways as Currency Derivatives

Post Trade Interfaces

High Level Proposed Solution



Summary of Topics Covered To-Date

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Clearing & Risk Management

Clearing overview & daily lifecycle

- Post-trade functions
- Intraday & EOD processes

Settlement

- Single EOD run
- EOD balancing
- Settlement of margins, interest on cash, fees etc.
- Ad-hoc intraday margin call

Collateral management

- Securities & foreign currency collateral
- EOD & intraday processes

Margin methodologies

- JSPAN
- Margin add-ons
- HistVaR

Post-trade (intraday) risk monitoring

- Setting of intraday exposure limits
- Exposure updates and alerts

Default management

- Client default
- Trading Member default
- Clearing Member default

Legend

- Covered
- Covered at high level, further coverage planned
- Not yet covered
- Covered today

Agenda

- ITaC schedule of events for 2016
- ITaC Project 1a
  - Equity Market Enhancements
  - Summary of changes to Gateways
  - Project 1a Timeline
- Questions?

ITaC Project 1a

Equity Market Enhancements

- Introduction of Closing Price Cross CPX Session for trading segments ZA02 and ZA03

- Equity Market Enhancements:
  - Central Order Book Cross
  - Pegged Orders
  - EOD Volume Auction

ITaC Project 1a

Equity Market Enhancements – Central Order Book Cross

- Trading engine will facilitate a single-sided cross trade (XT) on the central order book
- Single message with buyer and seller details – similar to a single-sided reported trade message
- New trade type: Cross Orders (XT)
- Supported on Native Trading Gateway only
- Only available during COT (Continuous Trading Period)
- Hidden orders will not be allowed for this order type
- Price must be within the visible BBO spread
- Only limit orders with time in force (TIF) of DAY will be allowed
- Cross orders will not trigger Volatility Auction Call sessions
- Extended stats message will include the following statistics for ATs and UTs only:
  - number of trades, value and volume traded, VWAP and high/low price of the day
- XTs will be published via Market Data Gateways and be clearly identified

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Equity Market Enhancements – Pegged Orders

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- This change will enhance the current hidden order functionality
- The process and rules are still very similar, just enhanced

Pegged orders are non- visible orders that allow for improved execution of large orders at prices that are relative to the best executable spread of the instrument

How it works

Orders that are greater than the Minimum Reserve Size (MRS) can be pegged to:

- Mid-point of Best Bid and Offer (BBO)
- Best Bid (Buy Orders)
- Best Offer (Sell Orders)

What to remember

It will be mandatory to specify a Minimum Execution Size (MES) for all pegged orders

MES always has to be greater than or equal to MRS

Participants will be able to set a hard limit on a pegged order

Pegged orders can participate in the new EOD Volume Auction if opted in

Note

Only supported on the Native Gateway

Current hidden order functionality will be replaced with the Hidden Pegged Order functionality

Pegged Orders - MRS

Segment	MRS Calculation	Minimum Size Restriction
ZA01	20% ADV	10 000
ZA02	20% ADV	25 000
ZA03	150% ADV	None

Example- Pegged Orders with no Hard Limit

PM = Pegged to Mid-point
PO = Pegged to Offer
PB = Pegged to Bid

	Central Order Book Mid-point = 105						Pegged Order Container							
	Order ID	Bid Size	Bid Price	Offer Price	Offer Size	Order ID	Order ID	Bid Size	MES	Hard Limit	Hard Limit	MES	Offer Size	Order ID
	O1	10 000	100	110	30 000	O2						800	800 PM	P1
												1 000	1000 PM	P2
												500	500 PM	P3
	Scenario 1: Incoming Buy pegged order P4 [1300][MES 1300]PM													
Before Execution	Order ID	Bid Size	Bid Price	Offer Price	Offer Size	Order ID	Order ID	Bid Size	MES	Hard Limit	Hard Limit	MES	Offer Size	Order ID
	O1	10 000	100	110	30 000	O2	P4	1300 PM	1 300			800	800 PM	P1
												1 000	1000 PM	P2
												500	500 PM	P3
	Executions: P4 executes wit P1, 800 @ 105 P4 executes with P3, 500 @ 105													
After Execution	Order ID	Bid Size	Bid Price	Offer Price	Offer Size	Order ID	Order ID	Bid Size	MES	Hard Limit	Hard Limit	MES	Offer Size	Order ID
	O1	10 000	100	110	30 000	O2						1 000	1000 PM	P2

Pegged order was the incoming order, therefore:

1) P4 would be in an active state as there is no hard limit set.
2) MES criteria is evaluated for all pegged orders.
3) Passive pegged orders stepped over if MES is not satisfied.
4) Trade price is determined by the price of the passive order.

Example- Midpoint Pegged Orders with a Hard Limit

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Central Order Book Mid-point = 105						Pegged Order Container							
Order ID	Bid Size	Bid Price	Offer Price	Offer Size	Order ID	Order ID	Bid Size	MES	Hard Limit	Hard Limit	MES	Offer Size	Order ID
O1	10 000	100	110	1 000	O2	P1	800	800	103				
						P2	1 000	1 000					
						P3	1 000	800	100				

Incoming Sell Pegged Order P4 [1800][MES 800] PM with Hard Limit @ 106.

P4 Hard Limit is breached. Therefore P4 is added to the book in an inactive state without any executions.

Order books is as follows:

Order ID	Bid Size	Bid Price	Offer Price	Offer Size	Order ID	Order ID	Bid Size	MES	Hard Limit	Hard Limit	MES	Offer Size	Order ID
O1	10 000	100	110	1 000	O2	P1	800	800	103	106	1 800	1 800	P4
						P2	1 000	1 000					
						P3	1 000	800	100				

Example- Aggressing Order is a Visible order

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Before Execution

Central Order Book
Mid-point = 105

Order ID	Bid Size	Bid Price	Offer Price	Offer Size	Order ID
O1	10,000	100	110	1,000	O2

Pegged Order Container

Order ID	Bid Size	MES	Hard Limit	Hard Limit	MES	Offer Size	Order ID
					800	800 PM	P1
					1,000	1000 PO	P2
					900	900 PO	P3

Incoming Visible Buy order O3 2700 @ 106

Order books is as follows:

Central Order Book
Mid-point = 105

Order ID	Bid Size	Bid Price	Offer Price	Offer Size	Order ID
O3	2,700	106	110	1,000	O2
O1	10,000	100			

Pegged Order Container

Order ID	Bid Size	MES	Hard Limit	Hard Limit	MES	Offer Size	Order ID
					800	800 PM	P1
					1,000	1000 PO	P2
					900	900 PO	P3

Executions:

O3 executes with P1: 800 @105

O3 is then added to the order book.

After Execution

Central Order Book
Mid-point = 108

Order ID	Bid Size	Bid Price	Offer Price	Offer Size	Order ID
O3	1,900	106	110	1,000	O2
O1	10,000	100			

Pegged Order Container

Order ID	Bid Size	MES	Hard Limit	Hard Limit	MES	Offer Size	Order ID
					1,000	1000 PO	P2
					900	900 PO	P3

Visible order was the incoming order, therefore:

1) Price of the incoming aggressing order is better than the visible best bid therefore the aggressing visible order will first traverse the contra side of the pegged order container.
2) MES criteria is evaluated for all pegged orders.
3) Once the incoming order has gone through all the marketable pegged orders, the remaining quantity will:
   - Move to the main container and continue with executions
   - Added to the main order book
   - Expired based on the order type or the time in force

ITaC Project 1a

Equity Market Enhancements – EOD Volume Auction

The EOD Volume Auction will introduce the non-visible uncrossing of large orders after the close of the CPX Session

- New time in force (TIF) validity GDX will be introduced
- A new trade sub type named VT will be used to publish the bulk trade message
- GDX orders have to be large in size; Minimum Reserve Size (MRS) will be validated
- Time priority will be maintained
- GDX orders can be entered and managed until the CPX Session
- New session with a duration, where no auction information is disseminated
- Orders carried forward from other sessions can participate if they have opted in
- Minimum Execution Size (MES) will be ignored for Pegged Orders that have opted in
- Eligible Pegged Orders will be injected into the GDX container at the start of the CPX Session

Overview- Volume Auction

JSE

CPP SESSION	CPX SESSION	VOLUME AUCTION

CPX session will be the trigger for the Volume Auction Uncrossing.
Extend CPX to ZA02 and ZA03

Closing Price = 105

Central Order Book

ID	Opt in to VA	Bid Size	Bid Price	Offer Price	Offer Size	Opt in to VA	ID
O1	Yes	100	107				
O2	No	300	106				
O3	Yes	500	106				

GDX Container

ID	Bid Size	Limit Price	Limit Price	Offer Size	ID
G1	600	105	105	500	G4
G2	300	105	107	800	G5
G3	200	107			

Pegged Order Book

ID	Opt in to VA	Bid Size	MES	Hard Limit	Hard Limit	Offer Size	MES	Opt in to VA	ID
P1	Yes	600	300	104	103	300	300	Yes	P3
P2	Yes	300	300		104	700	700	No	P4
						400	400	Yes	P5
					105	200	200	Yes	P6

1. At the start of CPX Session all eligible pegged orders will be injected into the bottom of the GDX Container

2. The GDX container at the start of the EOD Volume Auction Call Session:

ID	Bid Size	Limit Price	Limit Price	Offer Size	ID
G1	600	105	105	500	G4
G2	300	105	103	300	P3
G3	200	107	105	200	P6

3. The GDX will first aggress the central order book resulting in the following trades:

Buy ID	Sell ID	Price	Size	Trade ID
O1	G4	105	100	T1
O3	G4	105	400	T2
O3	P3	105	100	T3

4. The sell side of the GDX container will then aggress the buy side of the GDX container resulting in the following trades:

Buy ID	Sell ID	Price	Size	Trade ID
G1	P3	105	200	T4
G1	P6	105	200	T5

5. A single Auction Trade message will be generated and disseminated via the MDGs at the end of the uncrossing

Trade Sub-Type	Price	Size
VT	105	1000

ITaC Project 1a

Equity Market Enhancements – Summary of Changes

Enhancement	Fix Trading Gateway	Native Gateway	Post Trade Gateway	Drop Copy Gateway	Market Data Gateway
Central Order Book Cross		New message will be introduced New fields will be added to the Execution Report Message	Additional fields will be added to the Trade Capture Report messages	New fields will be added to the Execution Report Message	New Enums to identify cross trades
Pegged Orders		New field will be introduced to the new order message	Execution Report will have additional enumeration to an existing field	Execution Report will have additional enumeration to an existing field	none
EOD Volume Auction	New fields will be introduced to the new order message	New Time Qualifier	New trade sub-type & Trading Session Sub ID	New trade sub-type & Trading Session Sub ID	Single Auction Trade Message & New Enums

ITaC Project 1a

Summary of Changes to Gateways

	Native Trading Gateway		
	Message	**Description of Change**	**Impact to Clients**
1	New Order Cross	New message for Cross Order will be introduced	New message will be similar to the single sided off book message structure Message will include buy and sell details; Trader ID, Limit Price and Order Quantity
2	New Order Message	New values added in Order Type field	New values added for Pegged and Pegged Limit Orders
		New value added in Time In Force Field for GDX	New value = 50 - Good for Volume Auction Uncross
		Stop price used for hard limit of pegged order	Stop price or Hard Limit This field will be ignored if the Order Type is not Stop (3), or Stop Limit (4) or Pegged Limit Order (51) Hard Limit Price of a Pegged Limit Order will be specified here
		New value added to the Execution instruction field	Value = 2 Include in EOD Volume Auction Uncross
		New field for Order Sub Type	Whether the order is a pegged order 50 Pegged to Mid, 51 Pegged to Bid, 52 Pegged to Offer

ITaC Project 1a

Summary of Changes to Gateways

	Native Trading Gateway (cont.)		
	Message	**Description of Change**	**Impact to Clients**
3	Order Cancel / Replace Request	New values added in Order Type field	New values added for Pegged and Pegged Limit Orders
		New value added in Time In Force Field for GDX	New value = 50 - Good for Volume Auction Uncross
		Stop price used for hard limit of pegged order	Stop price or Hard Limit This field will be ignored if the Order Type is not Stop (3), or Stop Limit (4) or Pegged Limit Order (51) Hard Limit Price of a Pegged Limit Order will be specified here
		New field for order sub type	Whether the order is a pegged order 50 Pegged to Mid, 51 Pegged to Bid, 52 Pegged to Offer

ITaC Project 1a

Summary of Changes to Gateways

	Native Trading Gateway (cont.)		
	Message	**Description of Change**	**Impact to Clients**
4	Execution Report	Update to Container field	This field indicates which container in the matching engine holds the order New values added for Pegged Container and EOD Volume Auction Uncross
		New value added to the Execution instruction field	Value = 2 Include in EOD Volume Auction Uncross
		New fields - Cross ID, Cross Type	Cross ID - the unique ID of the cross order Only populated for execution report messages generated for Internal cross orders The value submitted with the New Order Cross Message will be populated Cross Type - type of the cross order Only populated for execution report messages generated Internal cross orders The value submitted with the New Order Cross Message will be populated

ITaC Project 1a

Summary of Changes to Gateways

FIX Trading Gateway			
	Message	**Description of Change**	**Impact to Clients**
1	New secondary client order ID field	SecondaryClOrdID field added to all messages - New tag (526)	Non mandatory Assigned by the party which originates the order Can be used to include an additional unique identifier
2	Order Time if Force	New Time in Force (TIF)	New Time in Force Good for Volume Auction Uncross (GDX) added
3	New Order Single Message	New value added to Tag (336) - Trading Session ID	New enumerations added for Trading Session ID (336) New value added - Good for Volume Auction Uncross (GDX)
		New value added to Tag (18) - ExecInst	Execution Instruction new value added (u) to Include in Volume Auction Uncross
4	Order cancel / replace request	New value added to Tag (336) - Trading Session ID	New enumerations added for Trading Session ID (336) New value added - Good for Volume Auction Uncross (GDX)
5	Execution report message	New value added to Tag (18) - ExecInst	Execution Instruction new value added (u) to Include in Volume Auction Uncross

ITaC Project 1a

Summary of Changes to Gateways

MITCH Market Data Feed			
	Message	**Description of Change**	**Impact to Clients**
1	Extended Stats Message	New Message Type	Used to disseminate High Price, Low Price, VWAP, Volume, Turnover and Number of Trades
2	Snapshot complete message	Trading Status field and value updated	Trading Status - new value added (E) for EOD Volume Auction Call
3	Order Book Clear Message	Change in the sequence of fields	Book Type moves to the end of the message and will have a new value
4	Trade message	New field called Flags	Used for Cross Order
5	Auction Trade message	New value added to Auction Type field	Auction Type - new value added (D) for EOD Volume Auction Call
6	Recovery trade	New value added to Auction Type field	Auction Type - new value added (D) for EOD Volume Auction Call
		New field called Flags	Used for Cross Order

ITaC Project 1a

Summary of Changes to Gateways

Drop Copy Gateway			
	Message	**Description of Change**	**Impact to Clients**
1	Execution Report	SecondaryClOrdID field added to all messages New tag (526) Secondary ClOrdId	Non mandatory Assigned by the party which originates the order Can be used to include an additional unique identifier
		Updated Tag (336) - Trading Session ID	New enumerations added for Trading Session ID (336) New value added - Good for Volume Auction Uncross (GDX)
		New value added in Tag (18) - ExecInst	Execution Instruction - new value added to Include in Volume Auction Uncross
		New value added in Tag (40) - OrdType	Order Type - new values added for pegged and pegged limit
		New Tag (548) - Cross ID	The unique ID of the cross order. Only populated for execution report messages generated for Internal cross orders The value submitted with the New Order Cross Message will be populated
		New Tag (549) - Cross Type	The type of the cross order only populated for execution report messages generated Internal cross orders The value submitted with the New Order Cross message will be populated
		New Tag (1094) - PegPriceType	Required if the Order Type is Pegged or Pegged Limit

ITaC Project 1a

Summary of Changes to Gateways

FAST Market Data Feed			
	Message	**Description of Change**	**Impact to Clients**
1	Security Status message	Updated value in Tag (326) - SecurityTradingStatus	SecurityTradingStatus - new value added (135) for EOD Volume Auction Call
2	Market Data Snapshot (Full Refresh)	Updated value in Tag (1682) - MDSecurityTradingStatus	MDSecurityTradingStatus - new value added (135) for EOD Volume Auction Call
3	Market Data Incremental Refresh	Updated value in Tag (277) - Trade Condition	Trade Condition - new value added (VU) for EOD Volume Auction
		Updated value in Tag (829) - TrdSubType	TrdSubType - this field will contain the value 1016 - XT for cross trades and 1017 - VT for EOD Volume Auction

ITaC Project 1a

Summary of Changes to Gateways

Post Trade Gateway			
	Message	**Description of Change**	**Impact to Clients**
1	Trade Capture Report	New value added to Tag (625) - TradingSessionSubID	TradingSessionSubID - new value added (101) for EOD Volume Auction Call
		New Tag (548) - Cross ID	The unique ID of the cross order. Only populated for execution report messages generated for Internal cross orders The value submitted with the New Order Cross Message will be populated
		New Tag (549) - Cross Type	The type of the cross order Only populated for execution report messages generated Internal cross orders The value submitted with the New Order Cross message will be populated
		Updated value in Tag (829) - TrdSubType	TrdSubType - this field will contain the value 1016 - XT for cross trades and 1017 - VT for EOD Volume Auction

ITaC Project 1a Timeline

ITaC Project 1a: Equity Market upgrade

- Draft API documents were issued in December 2015
- Final API documents were issued at the end of February 2016
- Connectivity Document will be updated specifying bandwidth requirements, amongst others, for CTS and Production
- CTS environment will be available at the beginning of April 2016 for connectivity testing
- CTS will be brought down for 2 weeks in May 2016 and then be available late-May 2016 with the new Equity Market enhancement functionality
- Three mandatory Dress Rehearsals will be scheduled for Project 1a commencing in Aug 2016 (optional 4th dress rehearsal available)
- Conformance must be completed before the 1st Dress Rehearsal
- Internal technical integration testing has started and is on track
- Project 1a Go-live scheduled for end of Q3 / beginning Q4 2016
- A more detailed project timeline will be made available to clients in March 2016

ITaC Project 1b and 1c

Project 1b Equity Derivatives Market and Project 1c Currency Derivatives Market:

- Dress Rehearsals for Project 1b & 1c will commence in early 2017
- Project 1b Go-live scheduled for Q2/Q3 2017, with 1c two months later
  - If testing progresses well, these dates may be revised

Project 2: Commodity Derivatives Market, Interest Rate Derivatives and Bond Market

- Planning will only commence for this project in late 2016

Questions?

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