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# Multi-leg/Complex Option Orders

## Industry Webinar

July 21, 2021

# Agenda

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- ▶ Multi-leg/Complex Option Order Overview
- ▶ Basic Message Structure and Rules
- ▶ Linkage
- ▶ Equity Legs
- ▶ Supplement Event
- ▶ Workflows
  - Basic Multi-leg Receive and Route
  - Multi-leg Order Received Electronically as Individual Orders
  - Legging - Routing as Components (Individual Leg and/or Partial Legs)

# Multi-leg/Complex Option Orders

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- ▶ The following multi-leg/complex order events are reportable to CAT:
  - A multi-leg order that meets the definition of an exchange-defined complex order and is routed to an options exchange as a complex order. The definition of complex order in this context is not dependent on any NMS or options linkage plan trade through exemption provision embedded within an exchange's definition of a complex order.
  - A multi-leg order involving at least one option leg received by a broker-dealer as a single instruction where all legs of the order are linked and such linkage affects the price of any individual leg of the order. A typical example of this type of order would be a Buy/Write.
- ▶ Orders **not** reportable to CAT as a multi-leg/complex order:
  - Baskets
  - Complex/multi-leg order with out an option component
  - Pairs Trading

# Multi-leg Events: Order vs. Trade

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## Order Events

Multi-leg events are only applicable at the order level. New Order, Order Accept, Order Route, Internal Route, Order Modify, Order Cancel, etc.

Multi-leg Order Supplement – single event as opposed to supplements for each event type.

## Trade Events

Trade events used are determined by individual tradeable securities – option leg trades use option events and equity leg trades use equity events.

## Allocation events

No Multi-leg allocations events. Existing (simple) Option and Equity events are used.

# Multi-leg Events: Trunk and Leg Details

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Multi-leg order events within CAT are structured in a similar format to multi-leg FIX messages. There is no field for the security identifier (e.g., equity or OSI symbol) in the main message. Instead, the “strategy unit” is defined in the *legDetails* block.

The message is essentially divided into the main “trunk” message that holds the order level attributes, and a *legDetails* block that defines terms of the trading unit.

# Order Level Details: “Trunk” Section

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The “trunk” (order level) section of the message contains most standard order attributes, such as client, timestamps, quantity, price, handling instructions, etc.

Note - at the Trunk level:

- **Price** is the net price per strategy “unit” and must be defined as either a Debit or a Credit amount.
- **Quantity** represents the number of “units” to be traded. The components of the strategy unit are defined in the *legDetails* block.

# Leg Level Details: *legDetails* Section

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*LegDetails* Block defines all the components that must be traded together to comprise the “strategy unit”:

- **Ratio** – *legRatioQty* provides a ‘per unit’ quantity for each leg. This field is used in conjunction with the trunk level ***quantity*** field to determine the total leg quantity.
- **Side** – Buy/Sell is defined for each leg
- **Security** – *optionID* (OSI symbol) is provided for option legs or *symbol* is provided for the equity leg.
- **Open/Close** – for option legs only

# Additional Leg Information

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- ▶ Number of CAT reportable legs must be identified in the *numberOfLegs* field.
- ▶ A Multi-leg Order Supplement (MLOS) event must be used when more legs exist than can be sent in a single message due to record size limits.
- ▶ Leg attributes (number of legs, leg ratios, etc.) cannot be changed via an Order Modification event. The multi-leg order must be canceled and re-entered as a new order with the legDetails block reflecting the new 'shape'.



# Non-CAT Reportable Legs

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- ▶ If the strategy contains any legs which are non-CAT reportable (e.g., Futures, Fixed Income) the relevant *handingInstructions* value must be populated.
- ▶ MLNO event only used when more than one CAT reportable security is part of the order.
- ▶ *netPrice* field added to equity and option order events.
  - Populated when the order is tied to stock (TTS), simple listed option (TTSO), fixed income (TTF), futures (FUT), unlisted option (TTU), other non-CAT reportable product (TTO) or part of another trading strategy in which the order is traded at a net price.
  - When populated the *price* field must be left blank or populated with a value of zero.

# LegRatioQty: Total Leg Quantity vs. “LCF”

It is customary for multi-leg orders to be defined with the leg ratios reduced to the smallest whole number quantities - sometimes referred to as “Lowest Common Factor” (LCF). Exchanges generally only accept electronic orders in this format.

Some systems allow for entry of the leg ratios as the full leg quantity, so CAT will also accept orders in that format.

It is possible to have orders in the same lifecycle with legRatioQty specified in different formats.

Ratio equal to full leg quantity

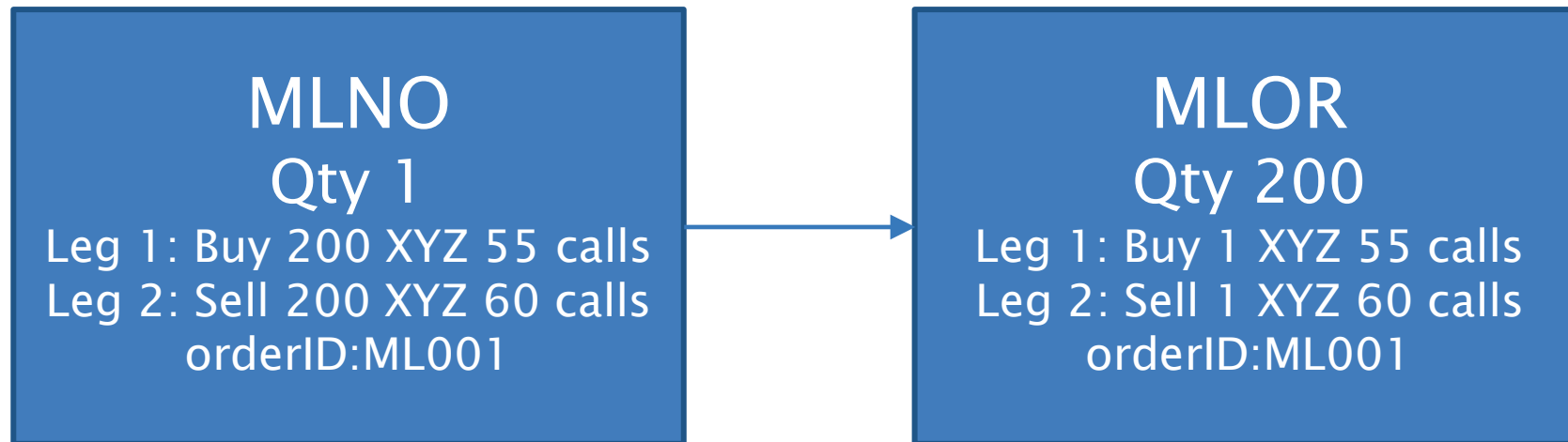
quantity (trunk)				1	
	Buy/Sell	Instrument		legRatioQty	Leg Total Qty
Leg 1	B	XYZ 210218C00055000		200	200
Leg 2	S	XYZ 210218C00060000		200	200

Ratio normalized to simplest form with quantity as number of units

quantity (trunk)				200	
	Buy/Sell	Instrument		legRatioQty	Leg Total Qty
Leg 1	B	XYZ 210218C00055000		1	200
Leg 2	S	XYZ 210218C00060000		1	200

# LegRatioQty Example

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# Net Price

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Complex Option Orders must include a net price for the execution of all legs in ratio. The cost to pay for the buy legs netted against the proceeds collected from the sell legs.

A net limit price is specified as:

- ▶ Debit price – willing to pay up to (but no more than) a specified amount for all legs.
- ▶ Credit Price – must receive at least (no less than) a specified amount for all legs.
- ▶ “Even” – not willing to pay any money, but receiving any amount in proceeds is fine. The cost of the buys legs does not exceed the proceeds of the sell legs.

In CAT data

- ▶ Debit prices are specified as positive numbers
- ▶ Credit prices are specified as negative numbers

# PriceType field

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CAT reporting provides flexibility in the *priceType* field to reflect the various ways limit prices may be held in some trading systems.

PU – Per Unit

TS – Total Strategy

TC – Total Cash

- ▶ These numbers are mathematically equivalent.
- ▶ It is possible to have orders in the same lifecycle with different *priceType* values.
- ▶ Please see FAQ K15 for more information.

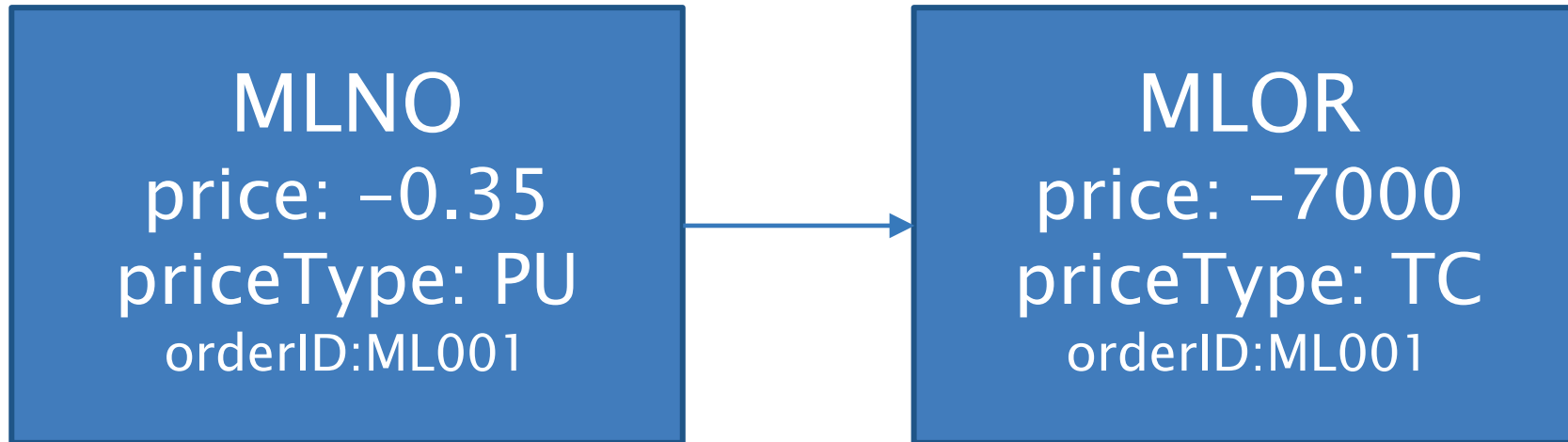
# PriceType field: Example

		Order Quantity		200				-\$0.35		-\$70.00		-\$7,000.00	
	B/S	Instrument		Leg Ratio	Leg Qty	Bid	Offer	Leg Price	Full leg px	Cost			
Leg 1	B	XYZ 220123C00055000		1	200	1.10	1.15	1.15	\$230.00	\$23,000.00			
Leg 2	S	XYZ 220318C00055000		1	200	1.50	1.55	-1.50	-\$300.00	-\$30,000.00			

Value	Description	Calculation	Example
Per Unit	The price provided is for the leg ratio as defined in the <i>legDetails</i> block. This example is selling a calendar spread for a \$0.35 net credit 200 times.	Order Qty = 200 Leg 1: Buy 1 @ 1.15 Leg 2: Sell 1 @ 1.50	<b>\$.35 Credit</b> <i>price= -0.35</i> <i>priceType=PU</i>
Total Strategy	The price provided on the event represents the total execution price of fully executing all legs.	Leg 1: Buy 200 @ 230 Leg 2: Sell 200 @ 300	<b>\$70 Credit</b> <i>price= -70</i> <i>priceType=TS</i>
Total Cash	The price provided on the event represents the total dollar price to fully execute and clear all legs. This includes the option multiplier (generally 100) for all option legs.	Leg 1: Buy 200 @ 23,000 Leg 2: Sell 200 @ 30,000	<b>\$7,000 Credit</b> <i>price= -7000</i> <i>priceType=TC</i>

# PriceType Example

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# Linkage

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- ▶ Linkage keys for Multi-leg events do not include symbol/optionID
  - Between IMs: sender, receiver, event date, routed order ID
  - IM to Exchange: sender, exchange, event date, routed order ID and session
- ▶ *multiLegInd* field is used to link a single option or equity event to a multi-leg event within a venue.
  - *multiLegInd* must be set to true when the previous event is a multi-leg event
    - Routing leg orders (MOOR, MEOR, MOCO, MECO, etc.)
    - Manual trade events (MOOT, MEOT, etc.)
    - Fulfillment events (MOOF, MEOF, etc.)
- ▶ Exchanges have been reporting Complex events since April 2019
- ▶ Feedback on all 2d linkages will be available in the test environment on 8/23/2021



# Industry Member Phase 2d Release Rollout

Test Environment As of 6/28/2021	Test Environment As of 7/19/2021	Test Environment As of 8/2/2021	Test Environment As of 8/23/2021	Phase 2d Go-live Production Environment As of 12/13/2021
<b>Ingestion</b> Industry Test Open for Machine-to-Machine File & Data Integrity Validations & Feedback <ul style="list-style-type: none"> <li>• Syntax Validations</li> <li>• Conditional Validations</li> </ul> <b>CAT Reporter Portal</b> <ul style="list-style-type: none"> <li>• Manual File Upload</li> <li>• Reporting Summary Statistics</li> </ul>	<b>Intrafirm Linkage</b> Industry Test Open for Machine-to-Machine Intrafirm Linkage Validations & Feedback <ul style="list-style-type: none"> <li>• Reference Data Validations on <i>senderIMID, receiverIMID, destination and legDetails OptionID/Symbol</i></li> </ul> <b>CAT Reporter Portal</b> <ul style="list-style-type: none"> <li>• Linkage File feedback</li> <li>• Linkage Statistics</li> <li>• Error Summary and Error Search including Error Correction</li> <li>• Direct Data Entry</li> </ul>	<b>Intervene Linkage</b> Industry Test Open for Machine-to-Machine Interfirm/Exchange Linkage Validations & Feedback <ul style="list-style-type: none"> <li>• Interfirm Quote Linkage</li> <li>• Interfirm/Exchange linkage for Route Modification Events including Unlinked feedback for Routed Order ID Mismatch</li> <li>• Firm to Exchange Trade Linkage for MOOT Events</li> </ul> <b>CAT Reporter Portal</b> <ul style="list-style-type: none"> <li>• Support Clearing Firm View of Correspondent Reporting Feedback submitted by Third-Party Vendor</li> </ul>	<b>Multi-leg Linkage</b> Industry Test Open for Machine-to-Machine Multi-leg Linkage Validations & Feedback <ul style="list-style-type: none"> <li>• Interfirm &amp; Exchange for Multi-leg Events</li> <li>• Intrafirm Out of Sequence checks</li> </ul> <b>CAT Reporter Portal</b> <ul style="list-style-type: none"> <li>• Reconciliation Statistics</li> </ul>	<b>Ingestion &amp; All Linkage</b> Production Open for Machine-to-Machine File, Data Integrity and <b>All</b> Linkage Validations & Feedback <b>CAT Reporter Portal</b> <ul style="list-style-type: none"> <li>• Manual File Upload</li> <li>• Reporting Summary Statistics including reconciliation</li> <li>• Linkage File Feedback</li> <li>• Error Summary and Error Search including Error Correction</li> <li>• Direct Data Entry</li> <li>• Support Clearing Firm View of Correspondent Reporting Feedback submitted by Third-Party Vendor</li> </ul>

Phase 2d Compliance Date – 12/13/2021

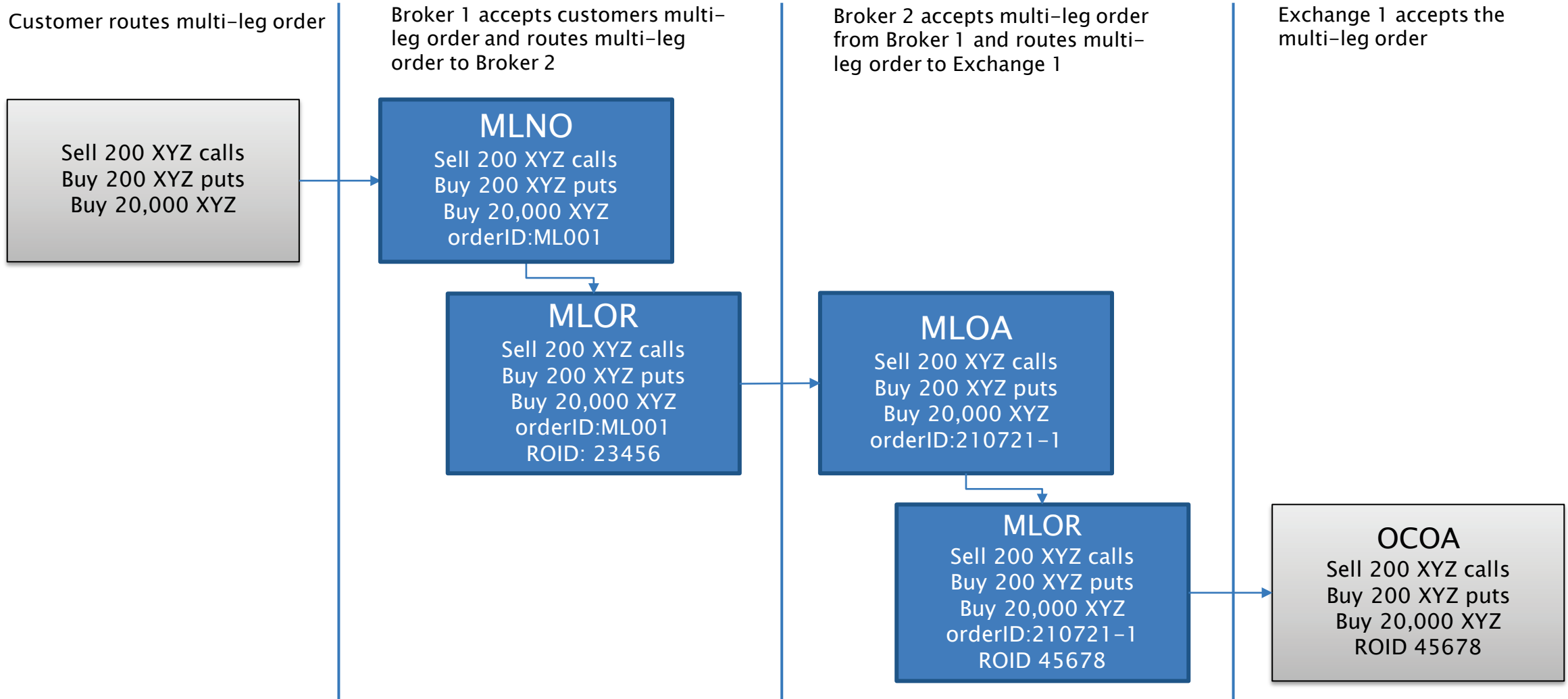
# Equity Legs

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Reporting structure for equity legs, which are currently reportable since 2a will change in Phase 2d.

Equity legs must be reported within the *legDetails* block of the multi-leg events MLNO/MLOA/MLOR/MLOM/etc.

# Multi-leg Order with Equity Leg Example 2d



# Supplements

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Only a single supplement event (MLOS) for Multi-leg orders

- ▶ Record size limitations can prohibit all necessary information from being sent on a single message.
  - *legDetails* – A single leg block may not be split across multiple events
  - *aggregatedOrders*
- ▶ Setting the *routeRejected* flag on a multi-leg Order Route event

Cannot be used to set the *routeRejected* flag on MLMR or MLCR events

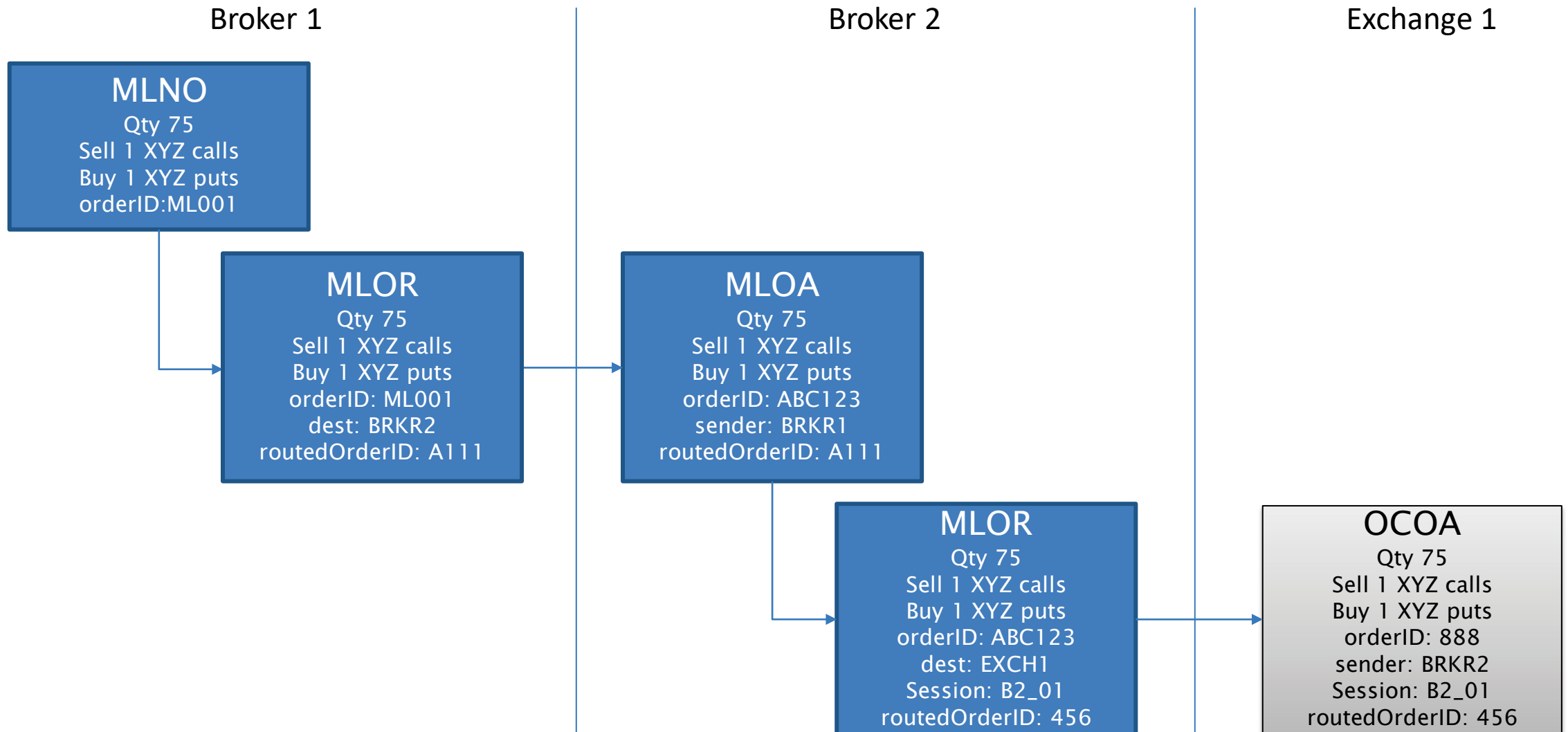
- Due to linkage limitations, rejections of these events must be reported using a correction

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# Workflows

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# Order Received and Routed as Multi-leg



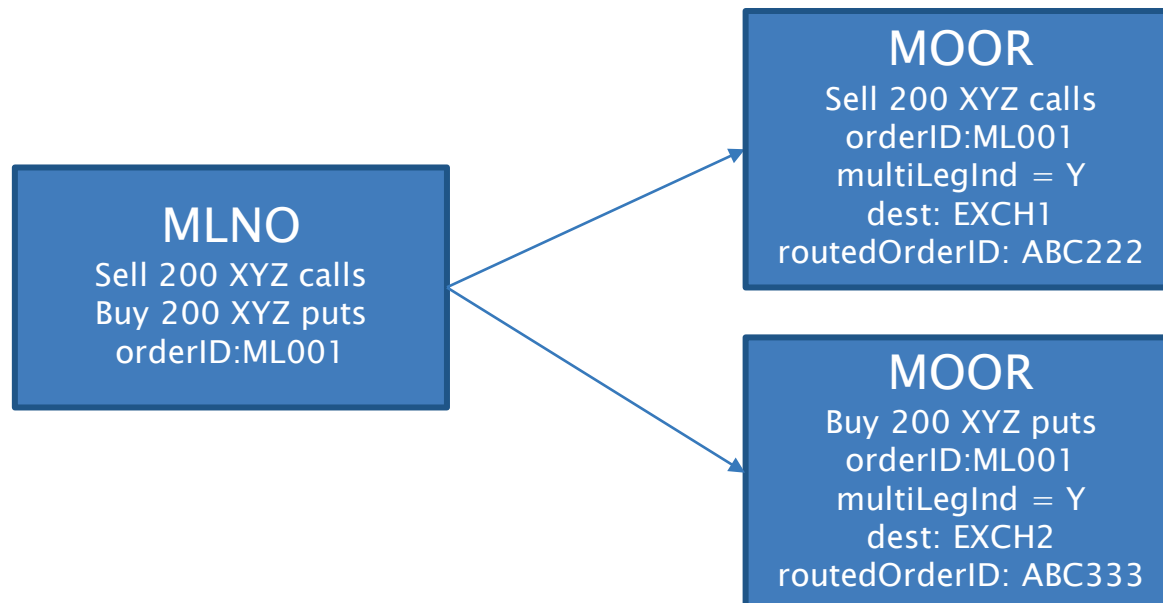
# Legging

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- ▶ In scenarios where the Multi-Leg order is “legged-out” and routed as individual legs, the route of each leg must be reported as a simple Order Route or Option Order Route event
  - *orderId* references the MLNO/MLOA
  - *multiLegInd* is populated. This is used for linkage to indicate that the route links to a multi-leg order and optionID or symbol does not take part in the linkage key.
- ▶ It is also possible to create an multi-leg order route that does not contain the full set of legs included in the new order. For example, option legs can be routed out as a multi-leg order route, and the equity leg can be split out as an equity order route.

# Legging Example 1

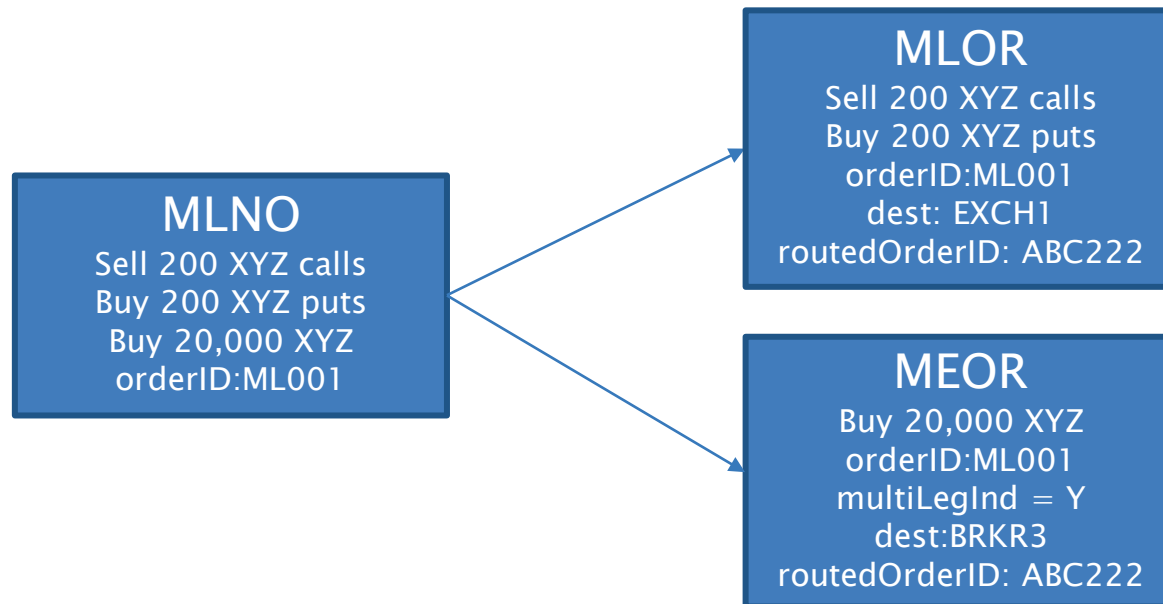
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# Legging Example 2

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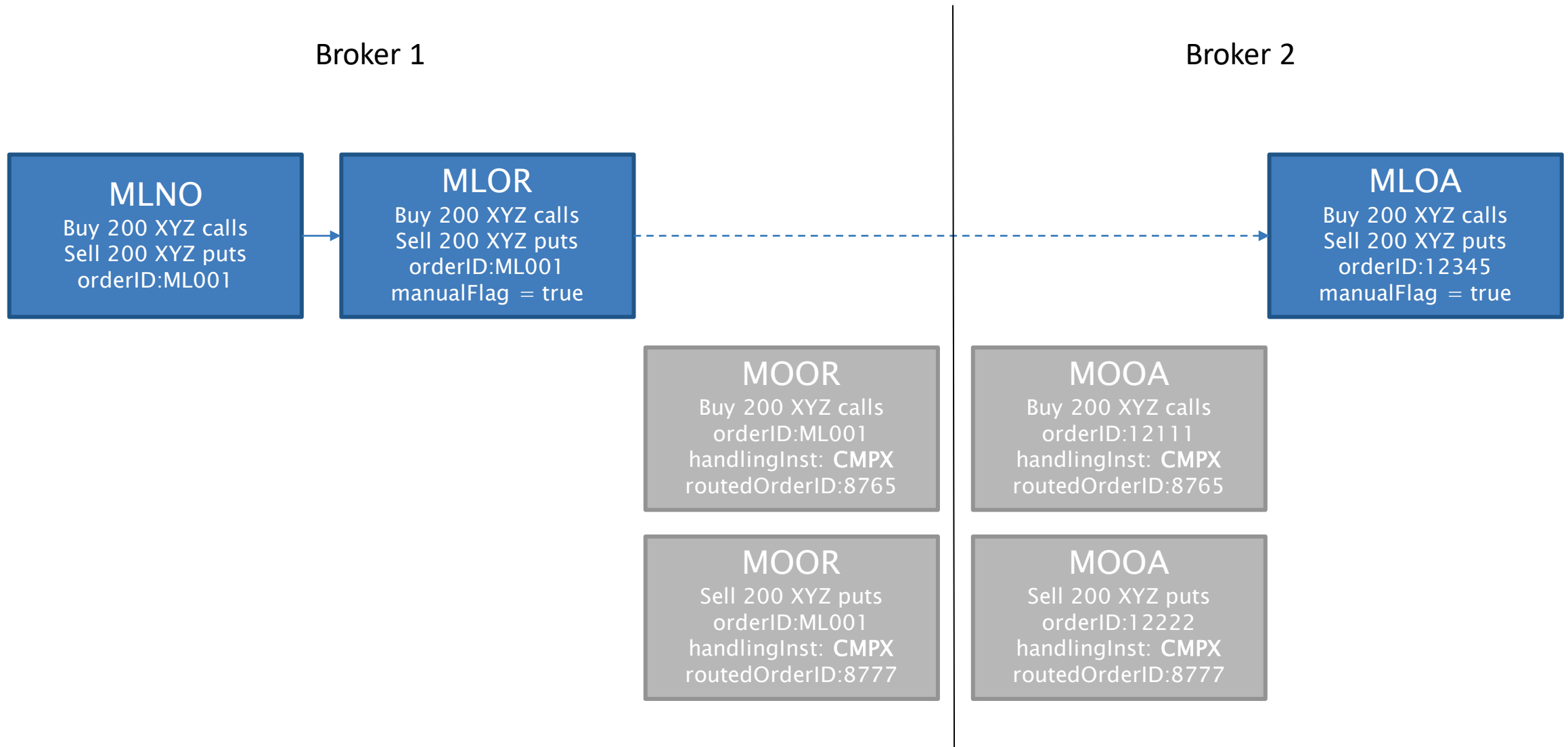


# Multi-leg Received Electronically as Single Orders

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- ▶ In cases where a Multi-Leg instruction is communicated manually, but received as individual FIX messages due to system limitations, the Industry Member should report only the Multi-Leg New Order event as a manual event.
- ▶ The order is considered routed/received once all the terms of the order are agreed, including all leg details and the net price. This is true whether electronic FIX messages are sent/received prior to or after the complete order instruction from the client. The individual electronic orders should not be reported to CAT. If a firm is not able to suppress these MONO/MENO events, they must include the CMPX handling instruction.

# Multi-leg Received Electronically as Single Orders Example



# FINRA CAT Helpdesk

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Questions may be directed to the FINRA CAT Helpdesk at 888-696-3348 or [help@finracat.com](mailto:help@finracat.com)

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**Q&A**

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# How to Ask a Question during Today's Call

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- **For participants using computer audio:**
  - Click the “Raise Hand” button at the bottom of the participants window.
  - A visual prompt will indicate that your line has been unmuted.
- **For participants using phone audio:**
  - Enter \*9 on your phone keypad.
  - An audio prompt will indicate that your line has been unmuted.