Instrument coverage
Exchange traded and OTC

*Instruments*: Futures, Forwards, Put/Call Options (am/eu), FRA, Swaps, Repos, TM (flex), CFD, Binaries, cascading futures and more

*Asset classes*: Equity, ETF, Index, FI, FX, Commodity, Electricity

Cash settled and physical delivery
Stock lending
GENIUM INET CLEARING
SYSTEM ARCHITECTURE

Collateral Mgmt. (CM)
Price Mgmt. (PS)
Reports and Data Warehouse
Genium Risk (RM)
Settlement (SE)
OTC Match (TRM)
Clearing engine (CL)
Ref Data (CDB)
Genium INET Middleware
FPML Gwy
SWIFT Gwy
FIX Gwy
Price feed Gwy
OMnet components (OMN/ETR/OMdu)
OMnet Gwy
Clearinghouse applications
Clearing Office (CO)
Product Design (PD)
API
FPML/MarkitWire
SWIFT
FIX
Price feeds
OMnet API
Participant applications
Clearing Workstation (CW1 & CW2)
3rd party

NASDAQ OMX
GENIUM RISK

Genium Risk - modern architecture to support

- Efficient coverage of all asset classes
- Gross/net and cross-margining
- Parallel processing and plug in extensions
  - Different margin methodologies: e.g. Delta Hedge, Power Delta Hedge, OMS II, VaR, CFM...
- High flexibility - margin method configurable per participant & instrument
- Twin testing framework (verify new release against the current)

High performance

- Fast full margin runs and flexible intra day margin scheduling
- Real-time risk management

Advanced functionality

- Efficient but prudent cross margin capabilities between listed and OTC instruments
- Stress testing (CCaR)
- Daily back testing
- Risk aggregation
- Integration with Sentinel Risk Manager for incident handling, including limit and alarms
- Sophisticated Price server
GENIUM RISK
REAL TIME RISK FLOW

• Margin simulation
• Intraday margin
  • Scheduled on time
  • Manual request
  • Triggered by event
• End of day margin
• Pre-Validations (margin vs collateral)
• Limit and alarms
• Stress testing
• Back testing
Functionality

• Prices for margin and collateral valuation
• Filter and determine prices for margin calculation (intraday and end of day)
• Sophisticated exception handling to determine good prices
• Yield curves
• Volatility surface
• Greeks
• Parameter based calculations allows for customer specific models
• Volatility surfaces for better pricing of illiquid out-of-the-money options
• Integrated with external price feed, e.g. from Reuters
• Publish prices to members and internal modules (API)

Theoretical price models:

• Black Scholes
• Black 76
• Binomial
• Exotic (binary)
• Discounted underlying price
• Roll method
Genium Inet Clearing
Settlement & Collateral Mgmt

Delivery versus payment and cash transfer to CSDs and settlement banks via Genium Inet SWIFT Gateway (GSG)

Settlement instruction handling
- Real time & batch settlement instruction generation and distribution
- Aggregate settlement requirements into CSD/bank instructions
- Multi level netting: Full net, Aggregated buy & sell or trade-by-trade
- Real-time settlement monitoring
- Multi currency
- Prepares data for general ledger

Collateral Management
- EMIR compliant collateral management service – supports segregation and portability of client collateral
- Handles deposit and withdrawal of collateral (cash and securities) in real time from CSD or custody system
- Performs valuation of securities collateral based on available price information
- Validates total collateral (i.e. cash and securities) against margin and settlement requirements to determine deficits or surplus
- Notification sent to Clearing Operations when collateral deficits are discovered
COLLATERAL MANAGEMENT
REAL TIME COLLATERAL FLOW

Price Server (PS)
- Price feed
- Collateral price information
- Margin requirements
- Collateral valuation
- Collateral validation
- Collateral management
- Deposit & Withdrawal of collaterals (cash, securities & guarantees)

Genium Risk (RM)
- Margining
- Trades & Positions
- Open deliveries & cash settlement instructions
- Notification of collateral deficits (or surplus)

Clearing Office

Banks, Custodians

CL

SWIFT
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