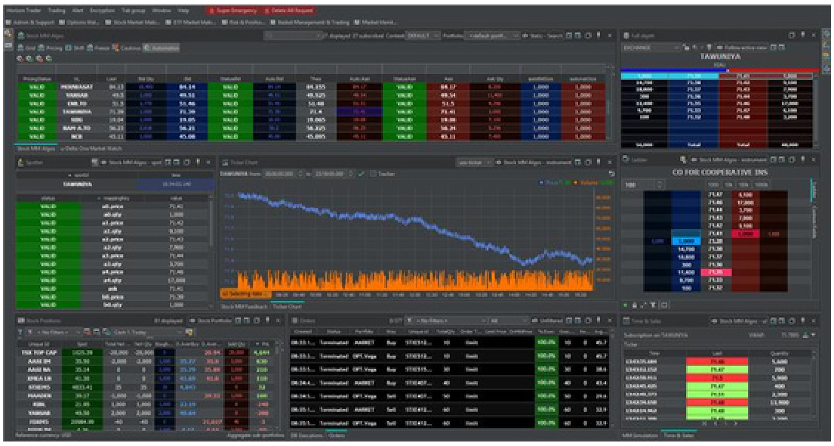
Empower your Market Making with Horizon

Horizon provides a **complete solution** for **principal trading** and **market making** within a **single multi-asset platform**.

With **direct connectivity** to **150+ markets, brokers, data sources, and crypto venues**, Horizon's platform enables seamless **pricing, hedging, and trading** across multiple asset classes, including:

- **Equities** – including delta-one products and ETFs
- **Derivatives** – such as listed and OTC options, futures, and warrants
- **Structured Products** – including barrier and path-dependent instruments
- **Other asset classes** – including FX and digital assets

Designed to support the full life cycle of listed and OTC products, Horizon offers comprehensive monitoring, notifications, and customizable dashboards—all within an intuitive, high-performance trading interface.



COMPETITIVE ADVANTAGES

The power-features that make simplified performance possible

Multi-asset class support

Equities, derivatives, structured products, Delta-One, bonds, and digital assets.

Single trading platform

Integrating market making, algo factory, quoting engine, order & execution management.

Low latency, high performance

Optimized architecture for fast execution.

Customization

Develop custom IP, trading strategies, and execution algorithms, integrating with external systems.

Follow the sun support

Dedicated support, product management, and developers in Americas, Asia, Europe, and the Middle East.

Modern & Modular

Flexible architecture based on the latest technologies.

Pricing

CUSTOMIZABLE SPOT PRICE COMPUTATION

Horizon's **Spotter module** provides a **powerful and fully customizable tool** right out of the box for price computations. Spotter allows traders to apply **standard pricing formulas** or leverage **weighted algorithms** based on order books, from simple **underlying streams to complex multi-instrument combinations.**

Additionally, users can **define custom formulas** to compute prices and status updates, which are seamlessly integrated into pricing functions, ensuring precision and adaptability in volatile markets.

REAL TIME PRICING

Horizon's **Market Making** delivers **real-time price computation** through **interpolation adjustments** of dynamically calculated or precomputed prices. The system continuously generates raw prices, spreads, and Greeks, ensuring precise and responsive market-making.
To enhance stability, **built-in safety mechanisms** mitigate market noise, including **flow control, threshold triggers, and throttling**. Additionally, the system can **automatically update metadata**, adjusting pricing status and triggering alerts for **extreme volatility, sudden price jumps, or stagnant markets.**
For ultimate control, traders can **manually refine final computed prices,** ensuring accuracy and adaptability in fast-moving markets.

While Horizon provides a built-in pricing engine, **clients can seamlessly integrate their own pricers** to retain control over their proprietary valuation models.

Pricing

EXTERNAL PRICING INTEGRATION

Horizon's Market Making platform offers **flexible pricing capabilities,** allowing traders to use the **built-in Horizon Pricer** or integrate **externally computed prices via API.** This ensures seamless adaptation to diverse pricing models and trading strategies.
To accurately determine **theoretical prices**, the platform supports the insertion of custom data inputs, including **offsets, coefficients, weights, yield curves with discount factors, forward rolling adjustments, and volatility data.**

This versatility enables market makers to refine pricing models, ensuring precision and consistency across trading operations.

INTERNAL PRICING & VOLATILITY MODELING

Horizon's Market Making platform supports **a wide range of instruments,** including **options, warrants, CBBCs, futures, ETFs, funds, CFDs, delta-one products, certificates, structured products, combinations, multi-currency strategies, and quanto derivatives.**
To ensure precise pricing and risk assessment, Horizon supports **advanced volatility modeling**, offering solutions such as **volatility matrices and asymptotic semi-parametric autofitting.** The system leverages multiple interpolation and extrapolation techniques, including **linear and quadratic matrix point interpolation, constrained cubic splines, and semi-parametric volatility mapping,** allowing traders to fine-tune pricing models for optimal accuracy.

This robust framework provides flexibility and precision in pricing across diverse asset classes and market conditions.

Market Making

MARKET LIQUIDITY BASED MARKET MAKING

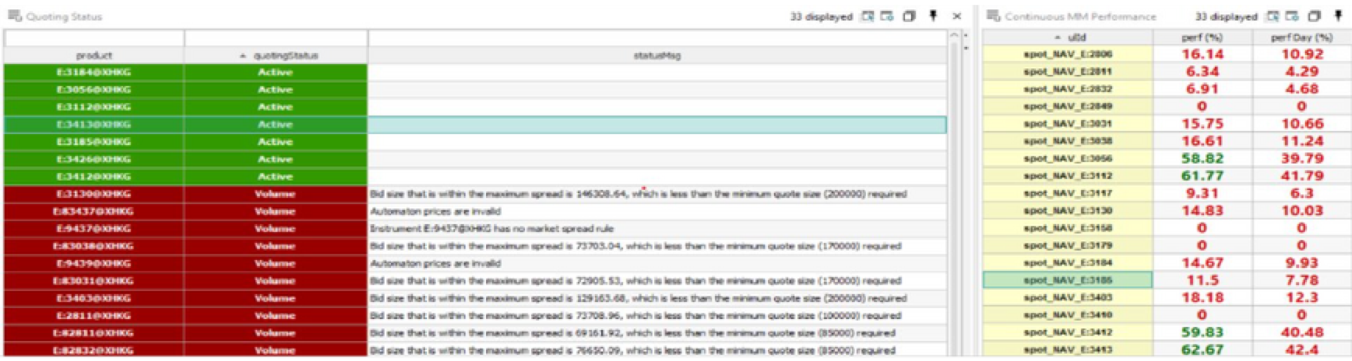
Horizon's Market Making platform **dynamically adjusts pricing** based on **real-time market liquidity.** Using the follow-market mechanism, the system can automatically fine-tune spreads by **mirroring the spread of the instrument or its underlying** asset. Additionally, it can adapt spreads based on available market liquidity, ensuring **optimal pricing** strategies while maintaining competitiveness and regulatory compliance.

CONTINUOUS QUOTING AND QUOTE REQUEST REPLY

Horizon's Market Making platform provides **flexible quoting mechanisms** to optimize liquidity provision. With Horizon Automaton, market makers can deploy various **animation styles, issuing orders at multiple depth levels**, maintaining continuous quotes throughout the trading session, or setting time-limited quotations at predefined prices. The system also enables automatic responses to quote requests, ensuring rapid and efficient market participation.

MARKET MAKING OBLIGATIONS

Market makers and liquidity providers must meet specific obligations related to **spread, quantity, and time** presence to ensure market **stability and reliability**. Horizon's Market Making enables seamless **configuration, enforcement, and real-time monitoring** of these commitments across multiple exchanges, helping firms maintain compliance with regulatory requirements.



Market Making

MARKET MAKING SET UP AND CUSTOMIZATION

The market making platform is designed to accommodate both **straightforward** and **highly sophisticated market-making strategies.** Traders can deploy simple, **out-of-the-box configurations** for rapid execution or **implement complex, fully customizable setups tailored to specific instruments**, market conditions, and risk parameters. With **advanced rule-based automation**, granular control over pricing, and real-time monitoring, Horizon ensures seamless adaptability for diverse trading environments.

ANTI ARBITRAGE MECHANISM

To ensure safe market-making, Horizon provides **multiple anti-arbitrage mechanisms**:

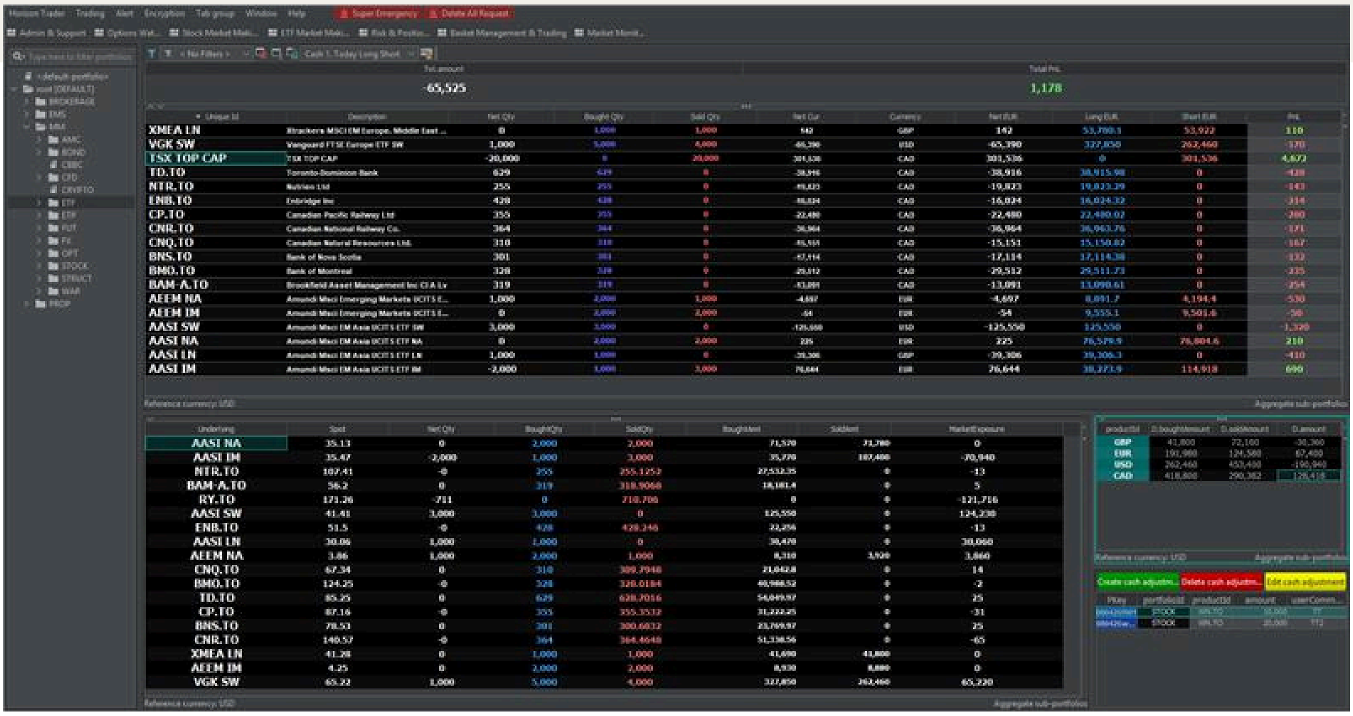
- **Automatically enlarge the spread** after execution,
- **Delayed quantity refill** with increasing delay,
- **Delayed price update** when prices are meant to move, the side at risk is moved immediately but the other side can move with a delay **to prevent market manipulation**.

Performance Monitoring

RISK MONITORING

Horizon's Market Making System enables **real-time monitoring of risk parameters**, including **daily P&L, Greeks, and more**, at any level of the portfolio hierarchy—**by underlying, expiry, or instrument.** Instruments can be **valued using market data feeds** or priced via **Horizon's internal or external pricing models,** with the flexibility to apply a distinct **pricing dataset** (e.g., interest rates, dividends) separate from the market-making setup.

For complex instruments such as funds, the system supports **multi-underlying risk decomposition**, providing deeper insights into exposure and risk distribution. Horizon provides a risk simulation tool applying shocks on a portfolio to assess the risks in case of important market move. The shocks can be applied on the spot, volatility, dividend, rates and borrowing rates.



POSITION MANAGEMENT

Horizon's Position Management is purpose-built to support market-making activities by providing real-time **visibility and control at the instrument level**. It enables **traders to monitor positions across multiple books, desks, or asset classes** with precision, helping to manage risk, ensure inventory balance, and support hedging strategies. Designed for speed and accuracy, this tool enhances execution workflows by giving traders the insights they need to make quick, informed decisions in fast-moving markets.

Performance Monitoring

AUTO HEDGING

Horizon's **Automatic Hedger** enables precise **Delta exposure management**, allowing market makers to control exposure in terms of **shares or notional amount.** Traders can fine-tune **hedging aggressiveness,** set **thresholds and limits**, and optimize execution to **minimize costs and market impact.** For complex exposures, Horizon supports **multi-instrument hedging** — enabling firms to hedge using a **basket of instruments**, individual constituents (e.g. in ETFs or funds), or correlated futures. And for advanced scenarios, **Horizon Extend** empowers firms to design fully custom hedging logic — integrating real-time risk metrics, external data sources, or proprietary models to align hedging behavior with trading strategy and compliance rules.

Hedger Status

View Grid Hedger

Portfolio	UL	Ac...	Star...	QtyToHedge	Residual	Buy Strategy	OnMktBuy	Bought	Sold	OnMktSell	Sell Strategy	NotionalSent	NotionalExecuted
CBBC	1810.HK	✓	✓	NaN	0	BEST+1	0	0	0	0	BEST+1	0	0
CBBC	981.HK	✓	✓	-500	0	BEST+1	0	0	500	0	BEST+1	0	-8,000
CBBC	HSI	✓	✓	0.12	0.12	BEST+1	0	0	0	0	BEST+1	0	0
DR	1211.HK	✓	✓	200	200	BEST+1	0	0	0	0	BEST+1	0	0
DR	1810.HK	✓	✓	0	0	BEST+1	0	0	0	0	BEST+1	0	0
DR	2318.HK	✓	✓	8,000	0	BEST+1	8,000	0	0	0	BEST+1	289,600	0
DR	700.HK	✓	✓	253	-47	OPPOSITE	0	300	0	0	OPPOSITE	0	90,420
DR	9888.HK	✓	✓	0	0	BEST+1	0	0	0	0	BEST+1	0	0
DR	9988.HK	✓	✓	30	30	BEST+1	0	0	0	0	BEST+1	0	0
DR	9999.HK	✓	✓	0	0	BEST+1	0	0	0	0	BEST+1	0	0

PRE TRADE RISK MANAGEMENT

Horizon's Market Making solution offers a **unified view** for managing Pre-Trade Risk rules efficiently. With a **comprehensive rule set,** traders can enforce safeguards such as **fat-finger checks**, account **Buying Power calculations, and automated short-selling controls.** The system also includes **built-in protections against self-matching** (Wash Sales / NCBO), ensuring compliance and mitigating risk before execution.

This proactive risk management framework enhances trading security while maintaining market integrity.

Automated Algorithms

Horizon Automated Strategies empowers firms with the ability to design, test, and deploy automated trading strategies that adapt to dynamic market conditions.

OUT OF THE BOX ALGOS

Horizon offers a suite of **pre-built algorithms** powered by its Horizon Extend framework, designed to enhance market-making efficiency. These include:

- **Arbitrage Algo** – Executes passive index arbitrage algos
- **Advanced Volatility Trading Algos** – Implements hedged volatility orders
- **Trade-by-Trade Hedging (**Absolute Hedger) – Dynamically adjusts hedging on each trade
- **Automatic Price Adjustment** (Automaton Price Shifter) – Modifies pricing based on position exposure

With a wide range of **out-of-the-box algorithms**, Horizon enables traders to optimize execution, manage risk, and refine their market-making strategies with ease.

ADVANCED VOLATILITY TRADING ALGOS

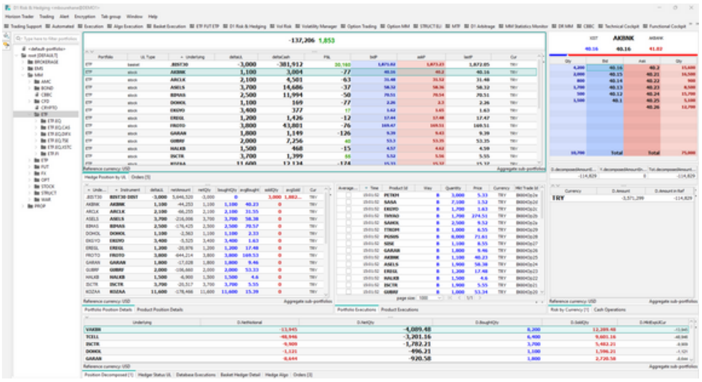
Horizon's **Hedged Vol Order** enables traders to execute orders based on a **specific quantity or target Vega, Theta, or Gamma** across multiple option instruments, with **automated Delta hedging** seamlessly managed by the system.

Users can fine-tune key parameters, such as **pricing models** (implied volatility, theoretical volatility, spread) and **hedging logic** (stop-loss levels, threshold adjustments), ensuring precise execution.
For advanced strategies, multiple **Hedged Vol Orders** can be coordinated using the **Hedged Vol Spreader,** allowing traders to construct and manage volatility spread positions across different instruments, such as **Basket vs. Index, Basket vs. Basket, or Index vs. Index.**
This sophisticated automation enhances efficiency, minimizes risk, and provides greater flexibility in volatility trading.

Automated Algorithms

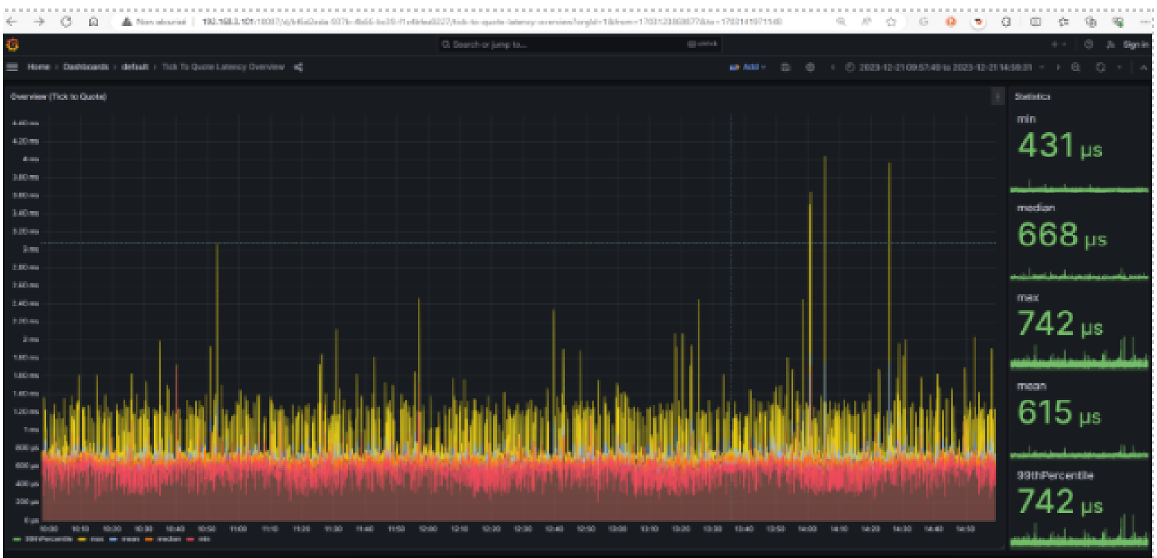
INDEX ARBITRAGE & HEDGING

Horizon's **Passive Index Arbitrage Algo** continuously **monitors future basis** and executes stock orders when **arbitrage conditions are met**, while automatically **hedging the traded amount** on the corresponding future instrument.
To optimize execution, orders can be **split into multiple waves**, reducing market impact and improving fill efficiency. The algo also includes **basket completion functionalities**, ensuring seamless execution when predefined thresholds are reached.
This intelligent automation enhances arbitrage opportunities while maintaining precision in risk management and execution.



REAL TIME TICK TO QUOTE MONITORING

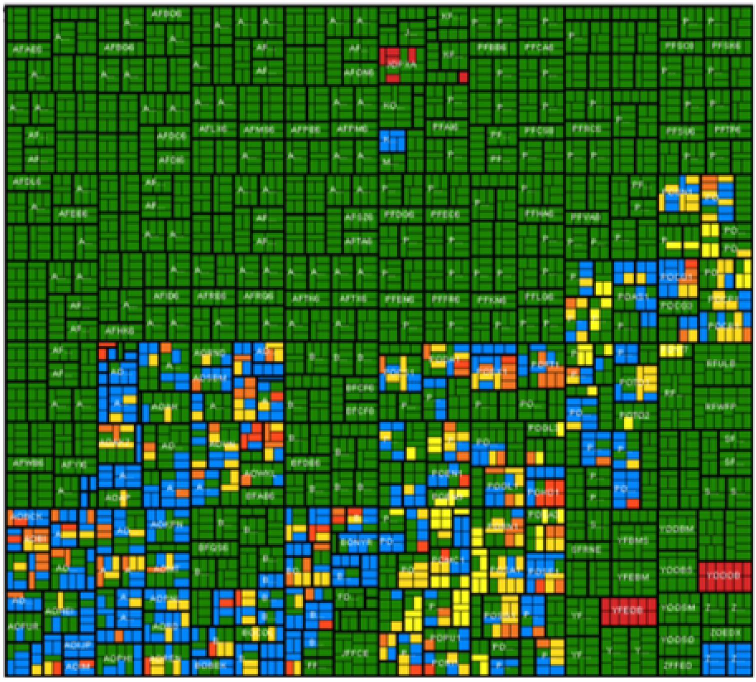
To ensure optimal performance in fast-moving markets, Horizon provides tools to **measure and monitor tick-to-quote latency**. This metric can be **visualized in real time** and **analyzed post-trade** through intuitive graphical tools, enabling continuous optimization of your quoting strategies and system responsiveness.
With year-round performance visibility, market makers can detect latency drift, adapt to changing market conditions, and stay competitive across all trading sessions.



Volumes and scalability

HIGH VOLUMES MONITORING

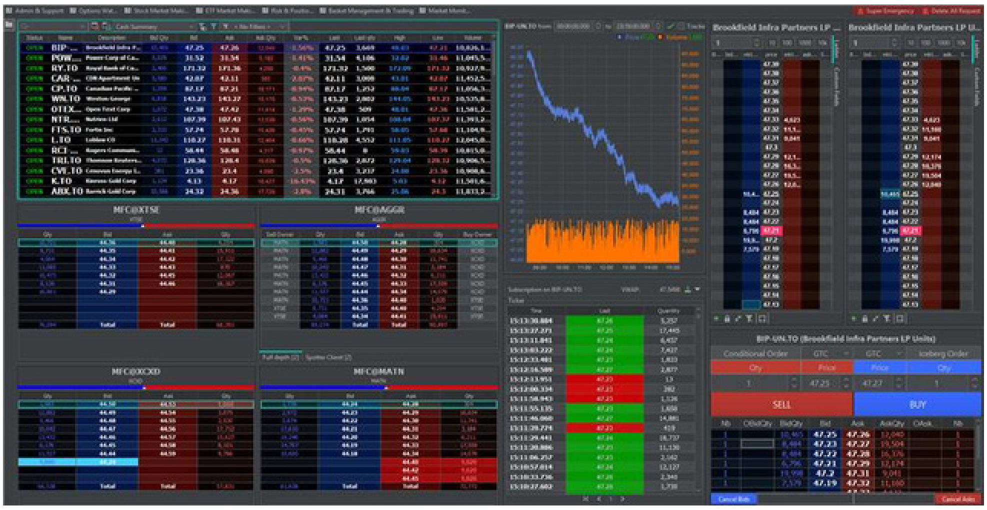
Horizon is designed to **handle high volumes**, allowing traders to **monitor and manage tens of thousands of products in real time**. Our intelligent interface highlights only the instruments that **need attention**—such as those requiring confirmation or breaching thresholds—so teams can focus on what matters. Treemap views provide a clear, visual overview of all underlyings, customized to **reflect key metrics** like spread size, pricing status, and market making obligations.



LOW LATENCY AND PERFORMANCE MONITORING

Powered by AZUL, Horizon's low-latency architecture embeds market-making logic directly into the gateway, delivering faster response times and enhanced execution speed. The platform offers **real-time latency monitoring with detailed metrics and historical insights**, enabling precise **analysis of fluctuations and continuous performance optimization**.

In parallel, Horizon provides comprehensive monitoring tools to **track and refine market-making strategies.** Traders gain deep visibility into spread management, order execution efficiency, and liquidity provision, supported by **customizable alerts**, detailed analytics, and automated reporting. These capabilities ensure firms can **maintain peak performance**, swiftly adapt to market conditions, and **meet regulatory obligations** with confidence.



Additional Features

HORIZON EXTEND

Horizon Extend, our Algo Framework, makes it possible to go beyond the features available off-the-shelf and **implement custom** logic, algorithms and integrations. This well-documented extension framework is comprised of **language agnostic** APIs (Rest API, FIX protocol…) as well as **Java/Scala APIs** to interact with the core of the platform.

- Customize from the inside
- Build using the application native API
- Seamless integration with the user interface
- Automated testing/back-testing capabilities

- Fully integrated with the platform
- Wide knowledge support
- Complete Intellectual Property protection

Customize
Tailor the existing logics

Differentiate
Create your own algos

Perform
Back-test your strategies

Connect
Leverage Horizon APIs

Automate
Automatize workflows

Time to market
Reduce time to market

ABOUT HORIZON

Horizon Trading Solutions is an independent global technology company specializing in electronic trading, supporting agency and principal businesses across equities, derivatives, and virtual assets. For over 20 years, we have empowered the world's leading capital market participants with cutting-edge algorithmic technology and direct exchange connectivity. Our multi-asset platform and deep commitment to client success allow us to deliver performance simplified: making it easy to excel in trading.