

# Live Risk and Risk Blotter

We designed Beacon's live risk capabilities to deliver risk analysis when you need it, while markets are open, opportunities are developing, and there is time to respond to unexpected events or increased volatility.

## Need More Than Just an End of Day Report? Beacon Live Risk Solves That.

Beacon's live risk capabilities and the companion Risk Blotter application enable traders and analysts to view positions and risk exposures on a real-time basis. Users are able to configure their blotter to pivot risk the way they want to see it, such as by instrument, underlying, currency, or expiry.

Run common risk reports out of the box and create custom calculations and reports. Use Beacon's app or stream the outputs in a scalable and high-frequency manner to your own front end. Event-driven updates such as new trades or market data changes trigger recalculations and the aggregated results are published to the user frontend in near-real-time.

## Key Benefits

### Ingest and Aggregate Large Volumes of Data

Leveraging the Kafka event streaming platform, Beacon can ingest and process thousands of trade, market, and reference data messages per second and aggregate trades into positions, readily accommodating extremely large books and periods of high market volatility.

### Integrate Proprietary Models & Connect to Existing Systems

Leverage Beacon's integration capabilities and transparent source code license to seamlessly add your own models and analytics and support existing systems.

### Challenge

Increased trading volume and pricing-model sophistication across a diverse set of instruments was exceeding the capabilities of the legacy risk management architecture. The old-style vendor solution was prone to architectural bottlenecks and did not allow for sufficient technical ownership and adaptation to maintain the desired levels of scalability and functional quality.

### Solution

A scalable cloud-native and cloud-agnostic risk calculation framework that can process high volumes of streaming market data, trade ingestion, and related reference data. High-performance compute capabilities to calculate positions and run custom analytics as required by market events or user need. Customizable front-end application that can show risk output in near-real-time and supports pivoting, filtering, custom display columns, and trade drilldown.

### Result

Confidence that risk and PnL are consistent, current, and explainable. Cost-effective scalability to handle any market conditions, volatility, and events. Analytics and reports accessible to traders and risk managers on demand. Reduced overhead and centralization that combines ordinary and complex instruments in the same view.

### Continuously Update Risk Calculations

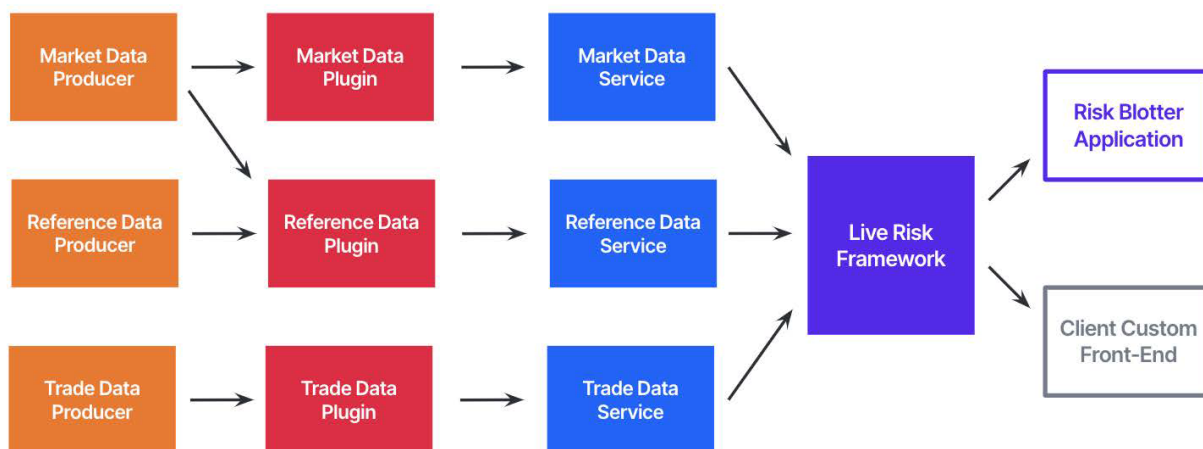
Group families of risk scenarios or instrument types together and delegate real-time risk calculations to a dedicated high-performance compute pool for desired performance level and response time. Recalculation is optimized at an instrument level with the ability to update risk in near-real-time.

### View Changing Risk & PnL in Real-Time

Use Beacon's powerful Risk Blotter application to view and pivot a grid of positions, risk, and PnL calculations, and seamlessly interoperate with other widgets in the trader dashboard. Or simply connect the live risk API to your own application.

# How it Works

Beacon's live risk capabilities are defined by flexible integrations, a real-time data hub, and scalable cloud-based compute infrastructure. Compute pools are dynamically allocated to risk needs during the day and released at the end of the day, optimizing cloud costs and desired performance. With customizable user interfaces, our innovative approach caters to traders' and analysts' dynamic risk needs, delivering flexibility and scalability in real-time risk management.



## Inbound Integrations

- Flexible interfaces that integrate with existing stack including market making systems and market data platforms
- Market data and trade data ingestion frameworks, data validation, and automated complex ETLs from multiple input sources
- App Store plugins that ingest real-time or on-demand market data from external sources, including Bloomberg B-PIPE, CME, Intex, MarketAxess, Markit, Morningstar, Refinitiv Data Scope, Refinitiv Elektron, and S3

## Streaming Real-Time Data Hub

- Continuous processing of streaming market data for real-time risk reporting, leveraging high-throughput and scalable Kafka technology
- Publish-subscribe system for efficient data processing, offering durable and reliable access to the latest market numbers without continuously querying databases
- Seamless integration of new data sources into existing market data feeds, models, and applications with Beacon's modular and service-agnostic architecture

## Scalable High-Performance Compute

- Automatically scale infrastructure hardware and virtual machines based on trading volumes, data throughput, and performance requirements, to maximize hardware utilization
- Dynamically allocate compute resources across delegated pools and optimize workload partitioning for simultaneous risk calculations, ensuring consistent, responsive results while optimizing cloud costs
- Optimize compute allocation by customizing bucketing strategies to assign more compute power to small buckets of resource-intensive instruments, for example.
- Ability to integrate and build custom risk calculations using Beacon's flexible risk framework

**Example:** Beacon Live Risk enabled full revaluation of risk Greeks on 20,000 equity warrant positions every 5 seconds

## Output Options

### Risk Blotter Application

- Centralized real-time ticking grid of portfolio risk and sensitivities
- Client-managed recalculation speeds supported by Beacon's scalable high-performance compute infrastructure
- Configurable views that support pivoting, filtering, custom display columns, and trade drilldowns
- Composable dashboards to build custom embeddable components such as real-time charting and analytics

### APIs and Custom Applications

- Push risk output to Kafka or to a third-party data visualization tool such as Atoti
- Connect data to another system or custom-built front end via the Python/REST API or Beacon's Glint app development toolkit

Read the recent article on Beacon's live risk capabilities and the confidence they can bring to your trades and risk management, or contact us to request a demo.