

A platform combining Panopticon data visualization software with the Sybase RAP — The Trading Edition and Sybase CEP technology supports critical operations in capital markets firms

- Risk
- Trading & Execution
- Compliance & Fraud
- Performance & Attribution
- Profitability
- Research & Sales
- Latency Monitoring

Complete Visual Data Analytics Platform for Capital Markets

Analysts, traders and managers in capital markets firms must make sense of the massive amounts of data at their disposal and make decisions supported by the facts. They need to use information gleaned from historical databases and take real-time market activity into account.

Many firms are moving towards using visual data analysis as a key tool in order to shorten the amount of time between when new data becomes available and the time a trader or manager can make a well-considered decision. The combination of CEP and scalable analytics tools from Sybase and Panopticon's data visualization software creates a true real-time decision-making platform for capital markets applications.

Sybase RAP — The Trading Edition: Fast and Scalable Analytics for Capital Markets

Sybase RAP enables capital markets firms to make intelligent, efficient use of data for their trading, quantitative analysis and intraday risk management needs. The system offers a unique combination of real-time event analytics coupled with the fastest and most scalable in-memory and historical analytics engines available today.

Sybase RAP supports the ability to:

- Load massive volumes of time series data from many market and internal sources in real time
- Analyze high speed streaming data with very low latency
- Backtest quantitative models against years of historical data
- Exploit mathematical and time series functions for manipulating and analyzing time series data
- Enable execution of trading and risk management applications within a real-time cache
- Ensure consistency in the use and execution of quantitative models
- Access huge data sets from a growing number of users across the enterprise
- Scale as needed to deal with increasing data volumes and volatility

Sybase CEP: Continuous Intelligence™

Sybase Complex Event Processing (CEP) enables rapid application development, letting you quickly build and deploy new applications that derive insight from streaming event data, enabling instant response to changing conditions.

Sybase CEP supports:

- Real-time processing and analysis of high-speed event streams
- Event processing latency of one millisecond to seconds
- Enables risk managers to make real-time calculations of risk and profits and loss
- Support for streaming analytics and alerts
- Native C/C++ engine, adapters and analytics offer ultra-low latency and high throughput
- Publish-subscribe architecture enables scaling out across cluster nodes
- Optimized for modern multi-core, multi-threaded 64-bit hardware

Combine Real-Time Data with Time Series Historical Data

OLAP-enabled visual data analysis tools allow users to slice and dice the data generated by the CEP engine along with large volumes of time series data (like tick data). They can complete their analysis quickly, thereby allowing them to make well-informed and timely decisions for the benefit of the firm and its investors.

A typical implementation utilizes a Sybase CEP engine to enable rapid application development. The system also takes advantage of the wide range of integration tools — including adapters and APIs — included with the engine.

Sybase CEP technology enables you to build applications that:

- Process multiple streams of event data in real-time.
- Apply custom business logic to normalize, filter, correlate and aggregate events.
- Generate a stream of actionable information from one or more streams of raw data.
- Initiate an automatic response to changing conditions based on individual events or combinations of events.
- Generate alerts to raise awareness of situations that require immediate attention.
- Provide continuous insight for better and more timely decisions.

Sybase database technology includes IQ, the world's leading column-oriented analytics server. IQ is 10x to 100x faster than conventional transactional databases and is a perfect system for managing the huge volumes of tick and trading data that must be presented to either the CEP engine and/or the Panopticon OLAP-enabled data visualization software in a capital markets application. Sybase ASE databases are well known throughout the financial services community as providing ultra-fast, nonstop performance on cost-effective, standards-based platforms. ASE is already deployed at 24 of the top 25 global banks and 46 of the top 50 global banks and securities firms.

Risk Analysis Applications

Whether the firm looks at risk in real time, intraday, end of day, or on a historic basis, OLAP-enabled data visualizations make risk analysis more effective and efficient. Common use cases for the Panopticon/Sybase platform include:

- Market Risk
- Credit / Counterparty Risk
- Liquidity Risk
- Fund Risk Management
(in association with Performance & Attribution)

Whether you are looking at risk in real time, intraday, end of day, or on a historic basis, this combined platform supports the key functions that make risk analysis much more effective and efficient:

- Federate multiple disparate pricing and trading feeds.
- Add standing/static data covering book structures, instrument hierarchies, counterparty hierarchies, and more.
- Generate real-time profit & loss (P&L), positions, and exposures across books, desks, asset classes, counterparties, and so on.
- Add trade costings to generate a more accurate real-time P&L.
- Work with short and long positions and perform risk aggregation and netting.
- Work with additive risk figures such as exposure and associated limits.
- Work with Value at Risk (VaR) and associated limits. (Due to their non-additive nature, these limits must be applied separately at every level in the hierarchy.)
- VaR generation using internal calculations or an external grid.
- Generate market risk limit utilization across all hierarchies.
- Generate counterparty risk limit utilization across all hierarchies.

Trading and Execution Applications

Banks, asset managers and hedge funds use Panopticon dashboards to analyze and monitor trading performance across the complete trade lifecycle in real time and at the end of day. They also analyze historic time series trading and execution data in order to identify long term trends and patterns. The Panopticon/Sybase platform is especially valuable in these trading applications:

- Pre-Trade Basket Analytics
- Algo Trading Scenario Performance/Profitability Monitoring
- Order Driven Market - Fill Performance Monitoring
- Quote Driven Market – Trading Performance Monitoring
- Best Execution
- Post Trade Analysis

Trade Monitoring and Compliance Applications

Financial institutions can use the Panopticon/Sybase platform to identify sources of potential fraud and to monitor compliance with regulatory obligations. The system supports performance monitoring across traders, ECNs/Venues, desks, products, maturity baskets, client/counterparties and industry groups. This platform provides immediate feedback to trading and sales desks allowing them to maximize client profitability and service. Additionally, the data produced by the system is retained in the Sybase RAP store, thereby enabling managers to compare the latest real-time performance information with daily, weekly and longer term historic trends.

In this application, the platform allows managers to:

- Run CEP models to quantify transaction effectiveness.
- Aggregate effectiveness data across flow trading businesses.
- Highlight good and bad performance across the products traded, the trading desks and the client structures.
- Investigate problem performance patterns by slicing and dicing across real-time streaming OLAP cubes powered by the Sybase CEP engine.
- Visually analyze trends, outliers and clustering within the streaming OLAP cube data sets.
- Examine usage patterns by different desks and teams.



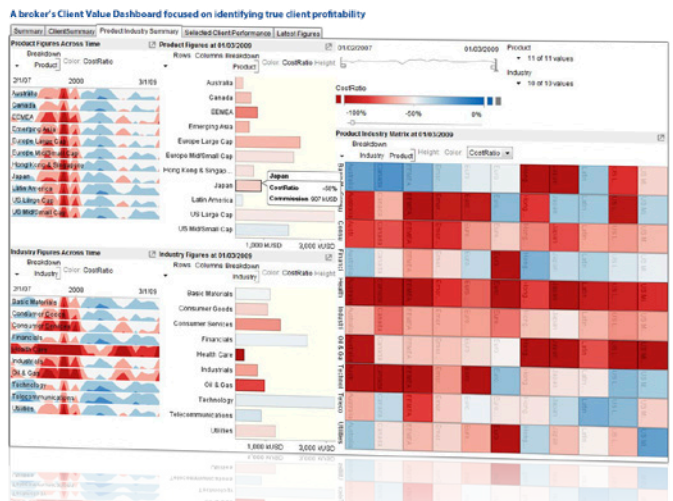
Maximizing performance requires real-time insight into markets and trading activity. Trading opportunities are a perishable commodity and taking advantage of them requires fast analysis of all relevant data. The Panopticon/Sybase platform provides the ability to visually analyze real-time feeds from external data sources like Bloomberg and Reuters and make instant comparisons with historical time series data. The platform allows traders to identify opportunities and trends in minutes or even seconds.

Performance Attribution Analysis Applications

Portfolio Managers use Panopticon dashboards to analyze fund and constituent performance. In most cases, firms monitor intraday P&L as well as daily and historic performance data generated by their existing attribution systems. Panopticon visual analysis tools allow users to find problems and opportunities at the fund, portfolio or constituent level that are often very difficult or impossible to identify in traditional reports.

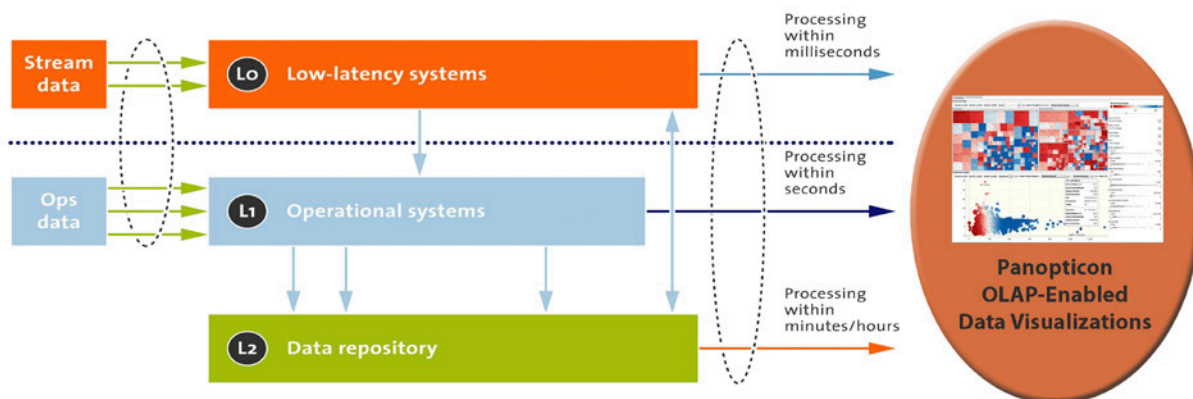
Common use cases include:

- Fund performance & screening
- Instrument performance & screening
- Absolute & relative performance analysis
- Risk analysis
- Attribution analysis



A platform combining Panopticon's OLAP-enabled visual data analysis software with the Sybase CEP engine, IQ column-oriented database and ASE relational database is adaptable to the needs of very large as well as smaller banks, hedge funds and mutual fund companies. Managers and traders can make decisions based on real-time data quickly rather than waiting for reports containing out of date information.

Unique three layer architecture handles market data volume and velocity growth



A platform incorporating Panopticon's OLAP-enabled visual data analysis software, Sybase CEP engines, column-oriented databases, and row-oriented databases offers a unique three layer architecture optimized for capital markets applications. Banks and trading firms don't have to choose between speed and analytical capabilities. The system is able to handle multiple real-time streaming feeds from trading systems and external data providers. It allows traders, managers and analysts to make comparisons with historical data and with other equities, isolate unusual trading behavior and market anomalies, and identify trading opportunities very quickly – often in seconds.

Panopticon Software

Panopticon visual data analysis helps people make timely, insightful decisions based on up-to-the-minute data. Companies can implement these tools quickly and increase the value and utility of existing decision support systems.

The Panopticon platform is available in three versions:

- Panopticon Developer SDK allows developers to embed our in-memory StreamCube™ OLAP data model and data visualizations into their own applications. The SDK supports code-level integration with existing enterprise applications, client/server, or web-enabled, thin-client deployments. The SDK supports .NET WinForms, Webforms, Windows Presentation Foundation (WPF), or Java Swing.
- The Panopticon EX enterprise application is fully productized system designed for rapid deployment at the workgroup or enterprise level. The platform includes a desktop authoring tool that allows power users to assemble and publish new monitoring and analysis dashboards to the web.
- Our Rapid Development Kit (RDK) combines features of Panopticon EX and the Developer SDK. It allows you to build dashboards quickly in EX and embed the complete dashboards as objects in your applications. This means you can complete quite sophisticated development projects in just a few hours with minimal coding. It also puts control over the design of the dashboards into the hands of knowledgeable business users who understand best how to visualize the information they're looking for.

Panopticon's clients use the company's data visualization software tools to speed up their business processes, reduce operational and investment risks, detect anomalies (including fraud), and identify opportunities to increase profits and sales. They help people see hidden patterns or spot problems in addition to helping them identify useful opportunities in their data.

“ Panopticon makes the perfect set of visualization tools for CEP. And you can quote me on that! ”

Marc Adler
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