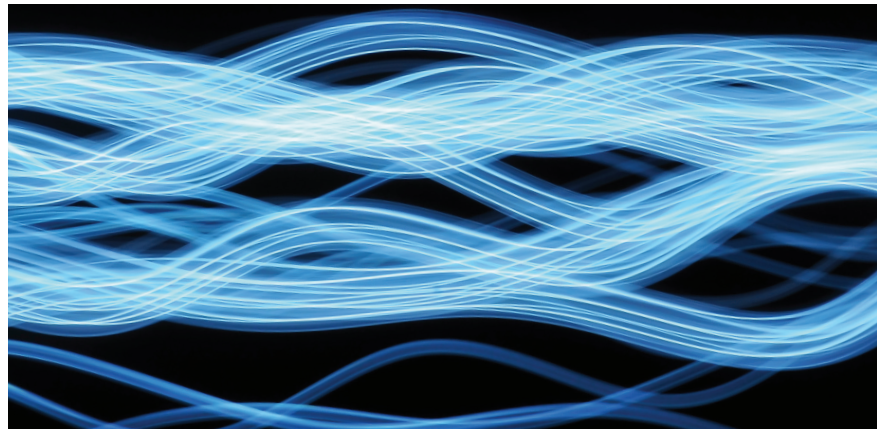


Use Case Brief: Process and Visualize Real-Time Streaming Data Delivered by the Solace Messaging Platform



Panopticon Streaming Analytics supports the continuous optimization of your operations.

- **Monitor:**
Identify anomalies in real-time streams.
- **Investigate:**
Examine the historical time series data of all actions that led up to an anomaly.
- **Backtest:**
Analyze how alternative scenarios will affect performance using historic data.
- **Optimize:**
Update operational alerts and thresholds based on the backtested results.



Subscribe to Solace feeds in seconds. Build complex stream processing and data visualization applications in minutes.

Using Panopticon to monitor and analyze real-time Solace streams makes it easy for business users and engineers to build, deploy, and begin using their own streaming analytics solutions – customized to their unique requirements – without writing any code.

- Panopticon includes a native connector for Solace. No customization required.
- Connect to any number of Solace feeds. Federate Solace feeds with other real-time streams.
- Incorporate historical data from time series databases or standard SQL or NoSQL databases into your processing models. Compare real-time streams against historic and reference data.
- Implement a wide range of low latency statistical analysis tools, including comparisons, filters, calculations, confluents, and aggregations.
- Program alerts based on anomalies derived from complex calculations.
- Build and publish analytical user interfaces to visualize real-time streaming and historical time series data.

Real-Time Monitoring of Connected Car Telemetry



This screen is visualizing real-time feeds coming in from a fleet of over 10,000 commercial vehicles. Streams containing data on each vehicle's operations, including fuel consumption, time spent idling, actual speed compared to posted, accidents, and route deviations are brought into the system on Solace message buses. The system automatically makes comparisons with historical data and compares each individual vehicle's performance with its peers and flags outliers.

Analysis of Sensor Data from Oil Drilling Rigs



Oil wells are equipped with a variety of sensors measuring temperature, torque, friction, pressure, location, volume of production, and rate of penetration. All this data is streamed into a central control room over Solace. Analysts are able to use Panopticon to monitor that data in real-time. Stream processing applications automatically compare current data with recent trends and historical records and alert users when potential maintenance issues occur before they can bring drilling to a halt.

Learn more:
altair.com/panopticon

Solace Messaging Platform

Solace PubSub+ is an advanced event broker that meets the diverse messaging and streaming needs of enterprise, IoT, and mobile applications across hybrid- and multi-cloud environments.

With PubSub+ you can easily establish event-driven information flow between applications running on-prem and in the cloud, and migrate applications as your requirements and available technologies evolve.



Unify Your Messaging

Meet all your data movement needs — publish/subscribe + queueing + request/reply + streaming — with one platform that spans public cloud, private cloud and on-premises systems.



Design Your Ideal Architecture

PubSub+ lets you create the ideal architecture and scaling strategy for your application infrastructure because it's available as completely interoperable software, a fully managed service, and a turnkey hardware appliance.



Leave Lock-in Behind

With PubSub+ you can use the right tool for every job without risking technology or vendor lock-in by supporting open protocols including AMQP, JMS, MQTT, REST and WebSocket.



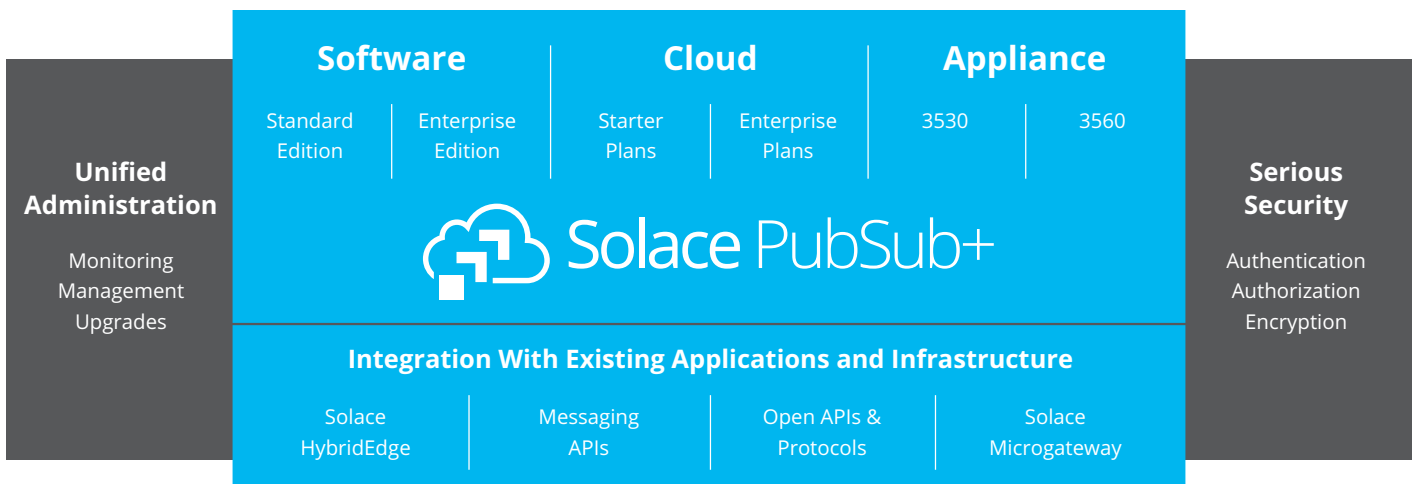
Achieve Unrivaled Reliability

Proven in the world's most demanding computing environments, PubSub+ offers you peace of mind thanks to built-in fault tolerance, high-availability, disaster recovery, robust management and proactive monitoring with event-driven alerting functionality.



Easily Integrate Existing Assets

PubSub+ makes it easy to integrate your existing assets, such as ESBs, JMS brokers and database connectors.



See www.Solace.com for more detailed information.

Panopticon Streaming Analytics Platform

Delays in decision making are costly in many industries, including capital markets, energy, telecommunications, and IoT. Waiting for end-of-day reports means you're likely to miss profitable opportunities, or fail to respond to threats until it's much too late.

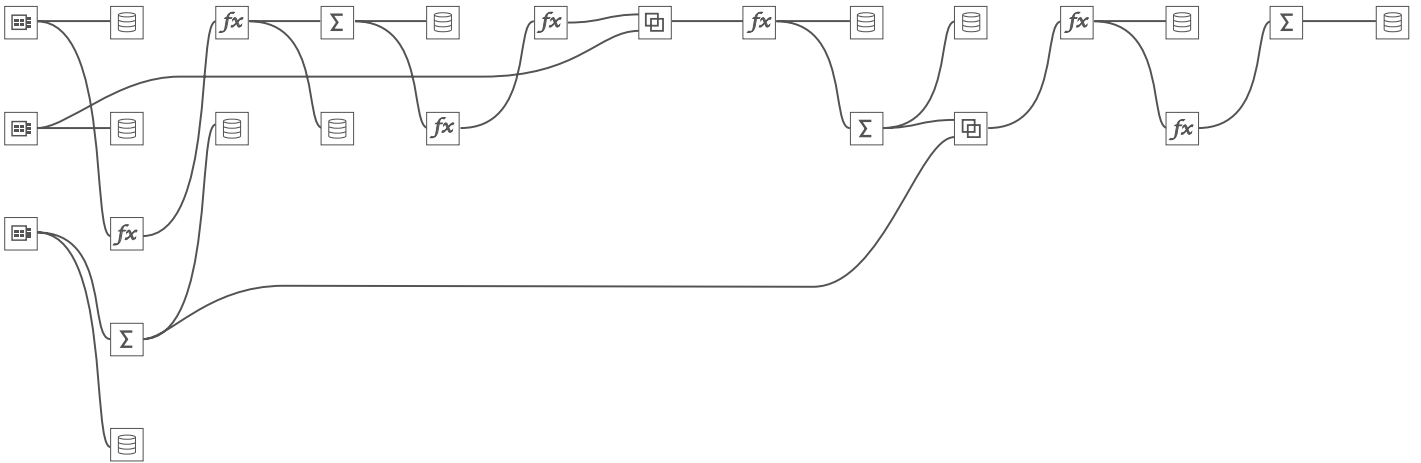
The platform consists of Panopticon Visual Analytics software, the only true real-time data visualization system on the market, and Panopticon Streams, a stream processing engine that enables users to program sophisticated business logic and data functions using a fully visual interface. The platform is built from the ground up for business people – not IT engineers. Rather than waiting for months for expensively-produced custom applications, users can build and deploy their own systems in a few minutes.

True Real-Time Trading Activity On Your Screen: Panopticon Visual Analytics Software. Panopticon Visual Analytics is optimized for handling time-critical data, including data that may be changing with extreme rapidity. Panopticon's filtering tools enable users to zoom and out on the time line, remove false positives from the screen, and focus on exceptions. Users can solve difficult problems quickly, understand complex relationships in seconds, and identify issues requiring further investigation with just a few clicks.

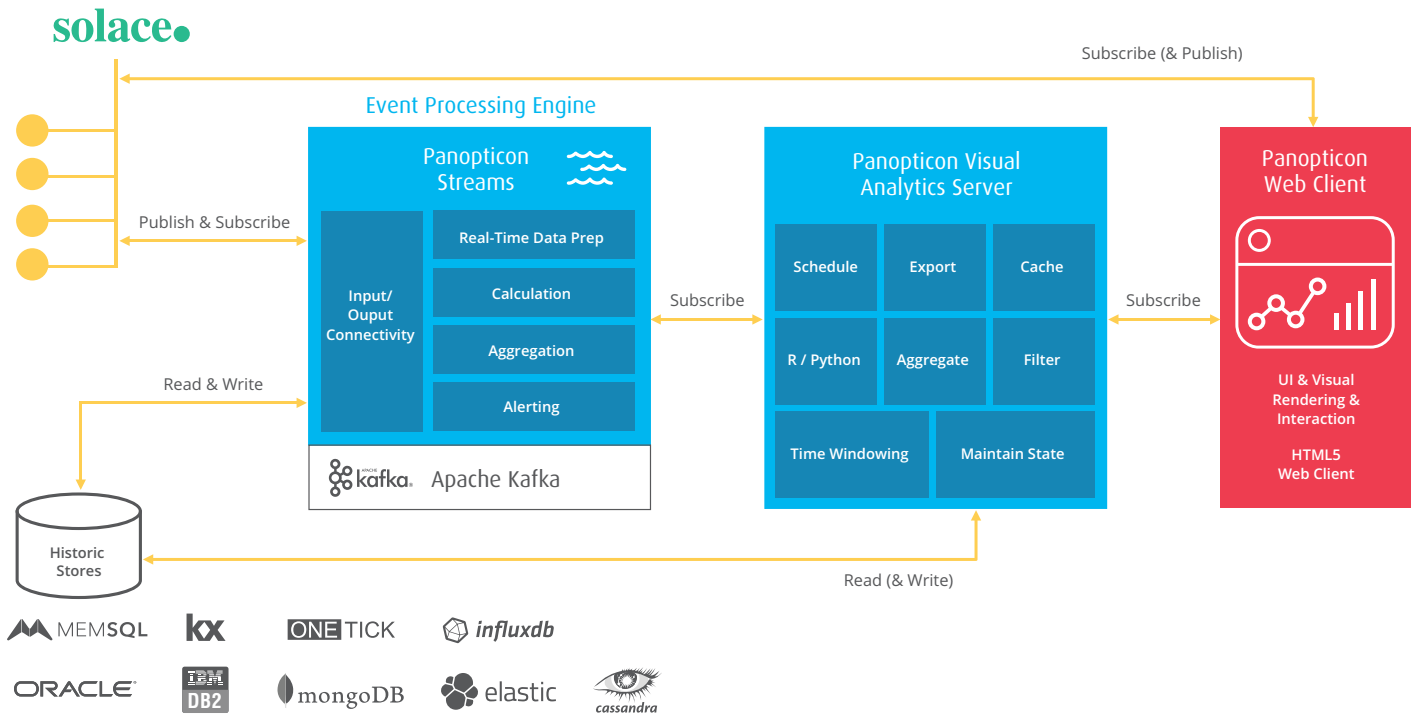
Stream Processing with No Coding: Panopticon Streams supports real-time data prep, including aggregation, calculations, and alerting. Panopticon Streams supports the critical functions required for firms to thrive in today's complex regulatory and competitive business environment. It enables the people with direct responsibility for the firm's operations to build and maintain their own analytics systems. They can build new directed data flows with a standard web browser, then start their stream processing model and begin consuming its output within minutes after receiving the software – without calling on the IT department or waiting for custom code to be developed, tested, and delivered.



At a major investment bank, traders use this Panopticon application to play back activity for any period of time they are interested in examining. They can step through each trade tick-by-tick, play back in real time, faster than real time, or slower than real time. They can analyze order and execution performance by algo strategy, execution venue, customer, and industry.



Simplified Reference Architecture



Join Solace feeds with data from:

- Any SQL database
- Time series databases, including MemSQL, InfluxDB, Kx kdb+, and OneTick
- NoSQL databases, including Elastic, Hive, and Spark SQL
- XML, JSON, or text files
- Python or R

Subscribe to:

- Solace
- Kafka topics
- RabbitMQ
- Kx kdb+tick
- OneTick CEP
- Thomson Reuters TREP_RT
- ActiveMQStreamBase CEP
- StreamBase LiveView
- SAP ESP
- 60East AMPS
- WebSocket

Output to:

- Solace
- Kafka topics
- SQL Databases
- InfluxDB
- Kx kdb+

- Native Solace connectors – no customization needed
- Subscribe and publish directly to Solace
- Designed for business users
- Build real-time streaming displays with sub-second resolution
- Process and display historical time series data down to the nanosecond timestamp
- Replace expensive custom development projects
- Install in minutes
- Create purpose-built analytics applications in minutes