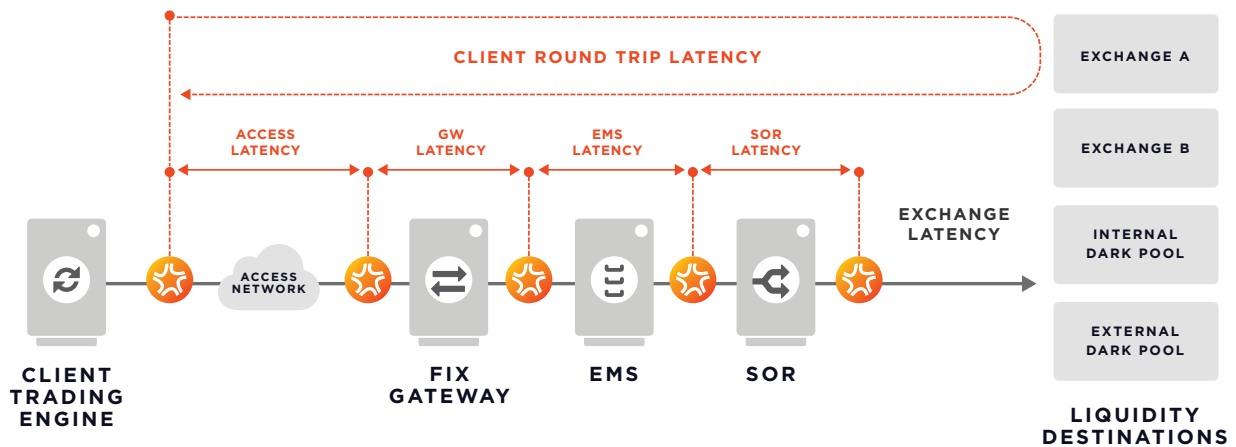# PICO | Corvil Analytics

The Gold Standard for Execution, Transparency and Performance

Corvil Analytics for the Broker Business

See every order, every tick, for every client, to every venue in real-time for equities, options, derivatives, FX and fixed income in one integrated platform; everything timestamped, normalized, stored and available on demand.

PROBLEM OVERIVEW

The challenges for the modern broker business are numerous. Buy-side clients are demanding greater transparency and visibility into exactly how the broker is processing their orders. Where were the orders routed? Why were their orders routed to a given venue? Did they receive best execution? Can you prove it? Buy-side clients are increasingly challenged with regulatory obligations and require their sell-side broker to provide the necessary data to fulfill these obligations. In addition, every broker is trying to improve overall execution experience while managing their operating and technology costs. This demands a new level of visibility, analytics and data that empowers the broker operations team to provide these answers and services in an efficient manner.

SOLUTION OVERVIEW

Corvil provides precision transparency and real-time analysis of the execution lifecycle through the entire trading loop from client through the market. It tracks each order and associated messages live as it propagates through Client Gateways, SORs, Venue Gateways and across service provider venue connectivity.

Corvil passively taps into the packet data flowing in the network which contains a highly granular and accurate record of all activity happening in the trade plant. The Corvil solution mines the packet data by automatically discovering all trading sessions and extracting all trade-relevant intelligence. Corvil maintains this rich transaction data source and correlates all actions and transformations across processing hops so that the user can monitor, search, query or investigate any action or event, live or retrospectively at any point in the trade plant. The user can also access any Corvil data through its platform API and/or stream the Corvil data to third party BI, risk, compliance or data analysis tools.

OUTCOMES

- Full transparency provided to clients for execution outcome

- Precision visibility into order execution life cycle achieved

- Real-time visibility into trade plant latency for every hop

- Improved response time for execution inquiry from clients

- Lower regulatory tail risk with trusted data to defend audit

- Reduced mean time to repair (MTTR) infrastructure problems

- Service providers held to account for SLA compliance

- Reduced operational risk from technology failure

> Transparency and the real-time ability to prove the quality of execution at this juncture is not a luxury. It's a commodity. Everyone has to do it and that will be the standard going forward.
>
> **CITI**

Managing Market Data Quality and Performance

Corvil provides full support for managing the quality and performance of market data with the ability to detect gaps, determine impact of microbursts and measure both absolute and relative latency for symbol updates or events in any feed. With support for all market data protocols globally, Corvil provides the most comprehensive off-the-shelf solution available for monitoring both order flow and market data within the broker environment.

Making Sure You Never Miss Content Flow

With client and venue sessions being added and removed on a weekly or daily basis, it can be hard to keep application and monitoring systems up-to-date. Client onboarding processes don't always notify the technology terms of required changes to monitoring systems, leaving you with potential blind spots. Corvil auto discovery handles this, ensuring that all client trading flows are automatically discovered, tagged and monitored. Configuration APIs allow you to proactively push knowledge of sessions into your Corvil deployment.

Right Sizing Your Systems To Be "Fast Enough"

Combining internal and external latency visibility, Corvil helps you determine how fast you need to be and pinpoints any bottlenecks that stand in your way. We provide comprehensive performance monitoring of external exchange latency, as well as hop-by-hop latency across internal processing stages, and across the networks that connect you to your markets and clients. And we analyze microburst workloads to help ensure that each network and application processing stage is correctly sized for optimal performance.

USE CASES

- Transparency for end-to-end order lifecycle from client to venue
- Bridging the operating gap between the business and IT performance
- Meeting the new data requirements for regulations and client demands
- Managing IT infrastructure for optimal cost performance

TRADE PERFORMANCE ANALYTICS

Fill Rate

Order tracking state is used to monitor the success or failure of orders through the fill-rate calculation: the percentage of the request volume that was filled.

Tick-to-Order

Calculates the algorithm response latency: the time from receipt of the triggering tick to the transmission of the order.

Order-to-Tick

Calculates the venue response latency: the time from transmission of an order to receipt of tick update on the venue feed reflecting the trade.

Order Response

Calculates the venue response latency: the time from transmission of an order to receipt of acknowledgment of the order from the venue.

Microburst Analysis

Calculates the volume of a specified metric for short timescales, e.g., the number of messages received in 1ms.

Gap Detection

Tracks the sequence numbers of all multicast market data feeds, and uses this tracking to report and alert on any gaps.

Relative Latency

Calculates the relative latency between two measured events with timestamps from a common time reference.

Bandwidth Prediction

Calculates an estimate of the amount of bandwidth needed to meet a quality of service objective for a given traffic load e.g., a market data feed.

MANAGE CLIENTS

- Auto-discover new client flows
- Demonstrate transparency to clients
- Reduce mean time to resolve query
- Track order lifecycle precisely
- Analyze connection health

MANAGE IT SYSTEMS

- Validate performance of gateways, SOR
- Optimize response times e.g., tick to order
- Benchmark performance of software updates
- Keep 3rd party software vendors accountable
- Offload logging to speed up performance