✦ PICO
REDLINE SOFTWARE

Redline Software

In 2022, Pico acquired Redline to incorporate their award winning software solutions with Pico's global ultra-low latency infrastructure and network underpinned by Corvil Analytics.

24/7 GLOBAL SUPPORT
ON-SITE INTELLIHANDS

COST EFFFECTIVE MULTI-ASSET CLASS SUPPORT

A full suite of global Equities, Fixed Income, Futures, and Options Data on every major Exchange in the US, Europe, and Asia

TIME TO MARKET
BE **LIVE** IN **DAYS,** NOT MONTHS

Pico delivers comprehensive and resilient market data solutions captured at source in native exchange format

PICO REDLINE SOLUTIONS

InRush Ticker Plant
Ultra-low latency market data for buy-side and sell-side use cases.

Redline Feed
Normalized market data consolidated into one high-performance hosted feed.

Historical Market Data
Raw market data, just as it is received on the wire.

Managed Service
Monitor daily operations to lower costs, reduce risks, and enter markets faster.

Pre-Trade Risk
Manage risk with a series of comprehensive checks, verifications, and control actions.

Order Execution Gateway
Powerful direct market access order execution at the lowest latency.

InRush Ticker Plant

InRush Ticker Plant is a highly optimized enterprise-class feed handler that terminates market data from multiple feed sources on a fraction of a single server.
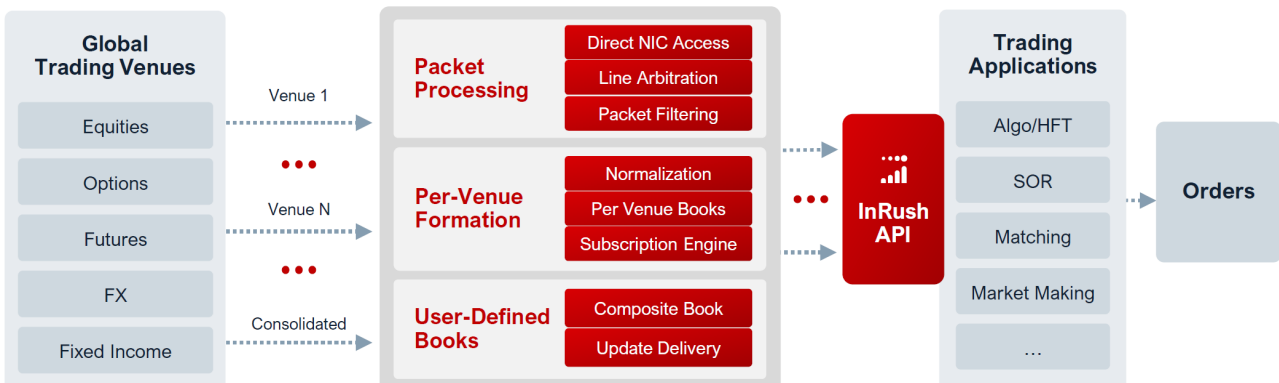
6 out of the top 7 global banks rely on Pico's InRush Ticker Plant because it is the most accurate and lowest latency market data available.

InRush maintains full-depth books for all symbols on the wire with an emphasis on low latency and determinism. Running on industry-standard Intel®-based multicore servers, our feed handler delivers ultra-low latency intelligent trading events to your trading applications for equities, options, futures, FX and fixed income markets.

By directly connecting to over 180 global trading venues, InRush helps you discover the most accurate pricing and capture the best trading opportunities in the market.

RedlineFeed

RedlineFeed delivers normalized low-latency multi-asset class market data, built from direct feeds, in a cost-effective manner.

The service offers market participants the performance benefit of direct feeds without the challenges of exchange connectivity and feed protocol changes.

Market Data as a Service: RedlineFeed is distributed from a publishing hub hosted and managed by Pico experts and is delivered on each subscribing application server by a locally embedded InRush™ Ticker Plant instantiation. Client applications receive normalized market data updates via the easy-to-use InRush API and via legacy API bridges. A redundant architecture assures a high availability feed, and book snapshots allow for client midday restart and recovery of book state after line gaps.

RedlineFeed publishers can be customized to publish a variety of use-case specific information such as a synthetic Best Bid & Offer for equities and options, user-defined BBOs per market, a user-configurable depth feed, or conflated quotes. User-defined striping enables content for a symbol set or symbol range to be assigned to specific multicast channels, reducing bandwidth requirements to subscribers.

The subscribing server can also formulate a subset of the data it receives from the RedlineFeed publisher and reliably republish it to downstream client subscribers. With this ability to cascade market data to edge caches that support hundreds of endpoints, a variety of quality of service levels can be met for global trading and monitoring use cases across the enterprise.

RedlineFeed is offered as both a shared and dedicated service. Leading buy and sell side financial services firms use RedlineFeed to power their mission-critical and low latency trading needs from algorithmic order execution to ATS dark pool matching.

Historical Data Stored in the Cloud

Get raw market data, just as received on the wire. Pico provides raw market data packets plus recording and replay services and tools to help you perform trading analysis and tests.

Historical market data captured in raw packet form, just as received from each subscribed venue, is necessary in a variety of use cases for which traditional tick databases don't suffice. We offer a one-time purchase or an ongoing subscription. Contact our Intellihands team for a complete list of our historical data for all supported venue.

Supported Venues: Direct and consolidated feeds for U.S. equities and most derivatives exchanges, Note: NYSE direct feed data requires exchange licensing

- **Trade compliance verification, forensic analysis of market events, and latency trend analysis**
  These require knowledge of the precise arrival time and sequence of ticks received at your co-located trading server for a time-accurate replay of the trading day.

- **Application validation and regression testing**
  Injecting raw packet data into your trading applications allows you to conduct these tests without the need to program separate tools and tests.

- **Researching trading history**
  You're not limited to the information that traditional tick databases have decided to save because all .pcap files are recorded as received without information loss.

Pre-Trade Risk

Our software allows for verification, forensic analysis of market events, and latency trend analysis.

This careful analysis requires knowledge of the precise arrival time and sequence of ticks received at your co-located trading server for a time-accurate replay of the trading day.

Application validation and regression testing — injecting raw packet data into your trading applications — allows you to conduct tests without the need to program separate tools and tests.

Researching trading history — you're not limited to the information that traditional tick databases have decided to save because all .pcap files are recorded as received without information loss. recording and replay services and tools to help you perform trading analysis and tests.
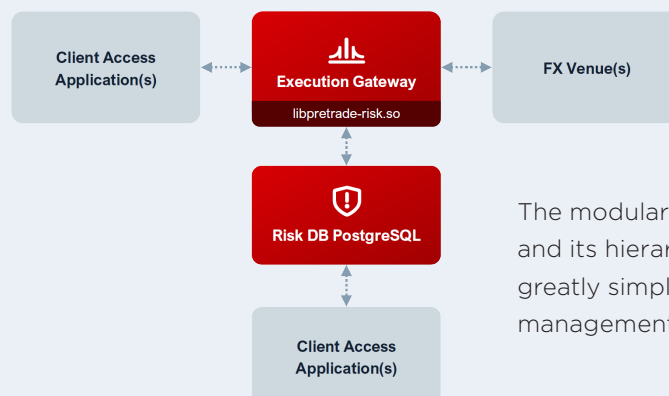
The modular architecture of PTR and its hierarchy of user permissions greatly simplifies enterprise management of trading desks.

Recording Service

Let us manage your data for you.

The Pico Managed Service team can set up the necessary infrastructure, manage data recording, and archive the raw packet data locally or remotely in storage dedicated to you. Our monitoring service performs data integrity checks and provides user support. Or do it all yourself, using Pico tools to record and play back your raw market data arriving at your servers in your co-location centers.

How It Works

01 RECORDING

Our Accelerated Ticker Plant can be configured to record data from multiple markets simultaneously on a single server.

Data received from is captured to disk on a per-exchange basis, in compressed .pcap format that preserves the original packing. This ensures that the data will be accurately replayed to reflect the identical arrival sequence for the co-location center where the recording server is located.

02 ARCHIVING

At Pico we record market data on a daily basis at key co-lo facilities and send this data to Pico data cloud in near real time.

Pico Recording Service can keep the data for which you are entitled readily available on fast drives for the required period of time. Various archiving techniques may be employed to meet specific customer requirements.

03 REPLAY

Data can be replayed by the InRush ticker plant's .pcap injection utility, over the network with tools such as tcpreplay or inspected with Wireshark.

InRush can also replay exchanges simultaneously while merging them into a single time series with fidelity. This feature lets users re-create complex scenarios such as consolidated book or user-defined synthetic BBO calculations.

Order Execution Gateway

Powerful direct market access order execution at the lowest latency.

Our Order Execution Gateway provides reliable and ultra-low latency order execution for a wide variety of trading and order routing applications, normalized across equities, options, futures, FX and fixed income markets.

Single Multicore Server
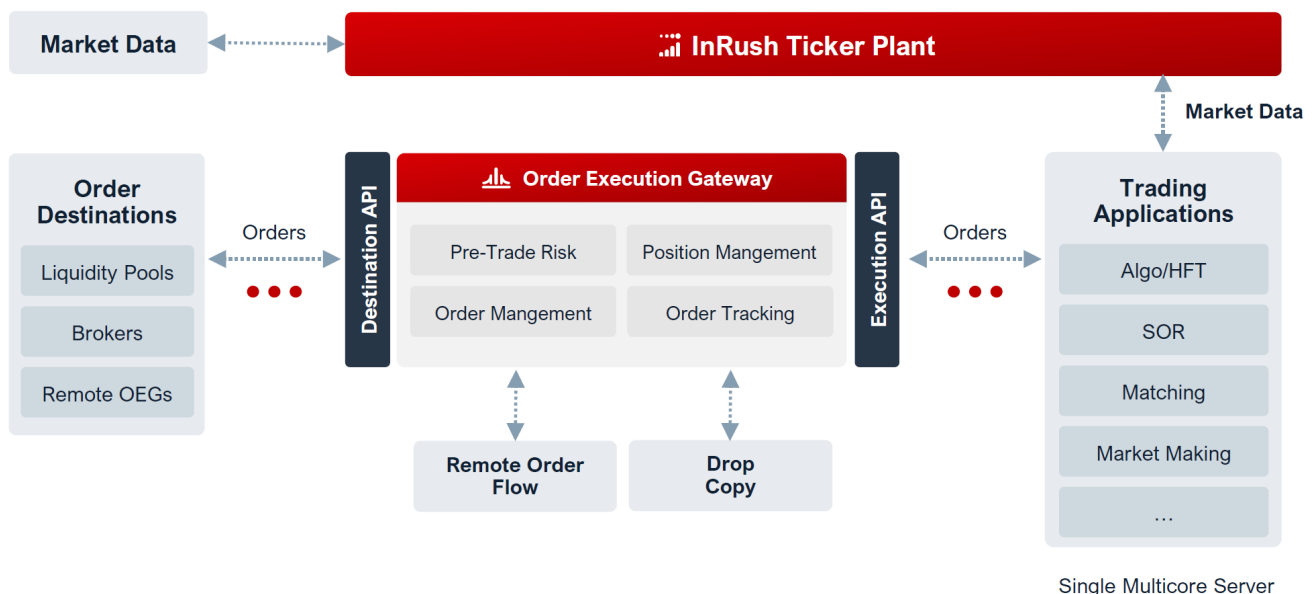
Orders generated by local (in-server) trading applications may be received by the Order Execution Gateway (OEG) using our highly optimized execution API.

This market access solution not only forms and submits each order to the chosen trading venue for direct market access (DMA), but also performs order and portfolio management, real-time order tracking, pre-trade risk checks, and system monitoring. The results? A more complete execution solution at lower development costs with vastly improved trade execution.

Pico Execution Gateway has been used by top tier hedge funds, proprietary trading firms, and global investment banks to trade hundreds of billions of dollars daily since 2012.

Get a more complete execution solution at lower development costs with vastly improved trade execution. ⊿⊾

Customers have utilized Pico Order Execution Gateway to power their direct market access trading needs including use cases such high frequency trading, smart order routing, and market making.

ACCESS LIQUIDITY FASTER	CONTROL TRADING RISKS	EXECUTE TRADES MORE RELIABLY

Order Execution Gateway Features:

Flexible Ways to Input Orders — locally via out Execution API or remotely via the FIX Order Gateway

Comprehensive Order Management — maintains and reports multi-level order and order state information to your strategies

Direct and Exclusive Broker Control of Pre-Trade Risk Parameters — across asset classes and easily controlled algorithmically or by a human through an accessible relational database interface

Portfolio and Position Management — reports aggregated client & securities data (e.g. total committed capital, realized gain/loss)

Real-Time Order Tracking — order status at the exchange is reported back to your trading application as desired

Advanced Execution Options — support for market making, mass quotes, RFQs, auctions, and complex orders

Low latency Tuned — with advanced system level optimizations to take advantage of the latest hardware and software available

Logging — Transaction Logging of every message sent from/to each venue

Certified — Certified with Direct Market Access Brokers for Equity Markets the exchange is reported back to your trading application as desired