

# VEXATA SOLUTIONS FOR FINANCIAL TRADING SYSTEMS



## Vexata VX-100 Scalable NVMe Flash Array

- Breakthrough Economics** Vexata delivers more performance, scale, and capacity at half the price of leading all-flash arrays (AFAs)
- Transformative Performance** All-NVMe storage platform, delivering ultra-low latency and massive throughput for faster data loads
- Performance at Scale** Non-disruptive performance scaling that provides linear capacity, throughput and IOPS scaling without trade-offs
- Simplified Operations** VX-100 Scalable Systems deploy seamlessly into existing networks to deliver record breaking performance without the need for custom host drivers or applications
- Enterprise Features** Continuous operations, snapshots, encryption, thin provisioning, and data protection

“The Vexata NVMe Flash Array established many new STAC-M3 records while running kdb+ at large scale.”

*Peter Lankford  
Director of STAC*

“Through our collaboration, Vexata not only provides a very fast storage layer for accessing the data, but it is so fast that, combined with Levyx’s persistent data frame layer, they deliver an ideal alternative to memory for hosting live datasets in a bulletproof enterprise-grade system.”

*Reza Sadri  
CEO of Levyx*

Trading systems deal with time measured in fractions of a second. Traders are increasingly reliant on accelerated compute infrastructure to supercharge algorithmic trading, high-frequency trading, and analytics applications. These applications access both historical and real-time market and trading data stored on AFAs that use high-performance SSDs. Traditional AFAs create I/O bottlenecks that reduce the performance of NVMe flash media by as much as 20X or more. In order to achieve faster outcomes and higher revenues, trading system architects need solid-state storage systems that can match the performance of accelerated compute environments.

Trading systems benefit from Vexata’s simplified deployment at any scale with its breakthrough economics, transformative performance, linear scaling, simple management and provisioning, flexible infrastructure support, and a deep expertise acquired from delivering Vexata to some of the largest financial organizations worldwide.

Common applications include:

- Back testing**  
Ultra-fast access to shared historical market data enables 5X faster simulation times leading to better accuracy and more profitable algorithms
- Trading Analytics**  
Real-time and historical data can be ingested and scanned at a blazing rate to implement a trading strategy that results in higher revenues
- Risk and Fraud Analysis**  
Streaming stock transactions can be combined with historical market and trading data to enable 10X faster credit and fraud checks

Vexata’s next-generation architecture enables a **dramatic increase in performance at substantially less cost while greatly simplifying the data infrastructure.**

## TRADING USE CASES

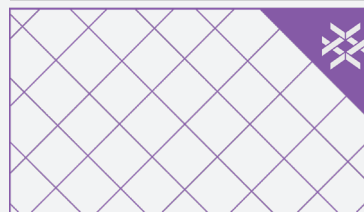
Back Testing | Trend Analysis | Quantitative Trading | Tick-analytics | Risk and Fraud Analysis

### STAC-M3 – Trading Analytics Partnership with Kx Systems

using kdb+



4 Broadwell Dual Socket Servers



Vexata NVMe Flash Array w/Intel NVMe SSDs






37GB/s of HYBID BW  
Records in 14 of 24 benchmarks

# VEXATA SOLUTIONS FOR FINANCIAL TRADING SYSTEMS



## Benefits of Using Vexata in Financial Trading Systems

VEXATA SCALABLE NVMe FLASH ARRAY IS PURPOSE BUILT TO ACCELERATE FINANCIAL TRADING APPLICATIONS

				
BREAKTHROUGH ECONOMICS	TRANSFORMATIVE PERFORMANCE	LINEAR SCALING	SIMPLIFIED OPERATIONS	ENTERPRISE FEATURES
<p><b>Lowest TCO</b></p> <ul style="list-style-type: none"> <li>Lower cost than most AFAs</li> <li>Improves utilization of server resources</li> <li>Reduces software license consumption</li> <li>Multi-chassis management reduces OPEX</li> </ul>	<p><b>Unmatched Performance at Scale</b></p> <ul style="list-style-type: none"> <li>Record-setting STAC-M3<sup>1</sup> and STAC-A3<sup>2</sup> performance</li> <li>10× lower latency searches across 100's of TB than AFAs</li> <li>High ingest rates of 1.5TB/min</li> <li>High scan rates of 3TB/min</li> <li>5X higher DB query/update performance per server</li> </ul>	<p><b>Seamless Performance Scaling</b></p> <ul style="list-style-type: none"> <li>SCSI-FC, NVMe-oF (FC), and NVMe-oF (Ethernet)</li> <li>Scale from TBs to PBs without impacting performance</li> <li>Supports multiple simultaneous workloads</li> </ul>	<p><b>Powerful Management</b></p> <ul style="list-style-type: none"> <li>Detailed analytics and performance management</li> <li>Multi-chassis management</li> <li>16×32Gb FC or 16×40Gb Ethernet</li> <li>Non-disruptive rolling upgrades</li> <li>Call-home &amp; predictive analysis</li> </ul>	<p><b>Data Protection and Availability</b></p> <ul style="list-style-type: none"> <li>Immutable and instant snapshots</li> <li>Always-on encryption</li> <li>RAID 5/6 data protection</li> <li>Continuous operations with 99.9999% availability</li> <li>Supports FC and Ethernet networks</li> </ul>

## Customer Case Study

### LEADING ONLINE TRADING FIRM – PEAK TRADING LOAD

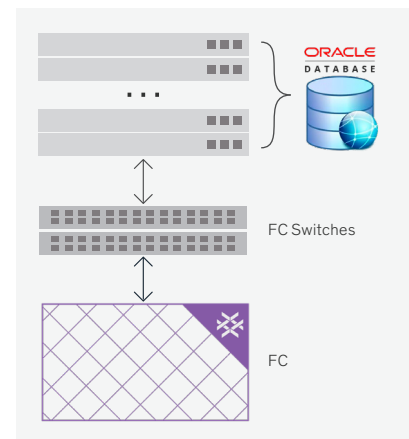
#### Customer Challenges

This global online trading firm is one of the leaders in the industry and processes over 170,000 transactions daily and manages millions of brokerage accounts. They use an Oracle database that holds trading and historical data that is stored on multiple SSD-based AFAs. The customer's current AFAs were unable to support SLAs during peak trading and query transactions, so the customer consulted Vexata to propose a solution.

#### Customer Benefits

The customer saw the Vexata technology as very differentiated and ran a battery of tests to demonstrate that the Vexata VX-100F Scalable NVMe Flash Array would support their extreme peak workloads. It did, so Vexata replaced the customer's multiple AFAs with one array and simplified deployments significantly, making system capacity planning and scaling very straightforward. The customer reported the Vexata array was the fastest storage system they ever tested. The cost savings from the consolidation would provide rapid ROI, reducing both CAPEX and OPEX costs.

- 2.75M 8K Read and Write IOPS
- Over 30× improvement in trading performance
- Saved footprint: Six to one reduction in the number of arrays needed
- Saved cost: Less than half as expensive as the AFA replaced
- 36.9 GB/s throughput
- Future-proofed for 16 months of workload growth with expansion growth built in



STAC-M3 Report at: <https://stacresearch.com/news/2017/05/03/KDB170421>  
 STAC-A3 Report at: <https://stacresearch.com/LEVX180608>

**ABOUT VEXATA:** Vexata is the leader in active data management solutions. Vexata's unique breakthrough enterprise offerings enable transformative performance and scale from database and analytics applications. With unparalleled ability to consume the latest in media like NVMe Flash and now with Intel Optane™ SSDs, Vexata systems deploy simply and seamlessly into existing storage environments. Learn more at [www.vexata.com](http://www.vexata.com)

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