



In the Fiercely Competitive
Financial Services Industry,
Modern Data Storage
Isn't Optional





The financial services industry is at a crossroads. Increasing regulatory pressure in the wake of the financial crisis has altered the landscape to make compliance an ever-changing challenge. Data security and fraud have risen to the highest priority, brought to the fore by highly publicized breaches. The fintech revolution has introduced an entirely new slate of competitors and seismic technological shifts, while big data requires greater computational power alongside more and faster data storage. Meanwhile, consumers have come to expect always-on accessibility and iron-clad security from their financial services providers.

Financial services firms must adapt to this new reality — and quickly — or risk losing out to the competition. At the core of this effort is a modern data storage infrastructure that can meet today's urgent challenges as well as those coming down the pike. The problem? Most firms are burdened with legacy systems that are simply not capable of providing the level of security, stability, availability and performance needed to achieve regulatory compliance, meet consumer expectations and compete effectively. These legacy systems hinder growth with unacceptable latency and slow processing speeds. At the same time, they consume an ever-growing and increasingly costly volume of data center space and power. Systems dependent on mechanical drives face high and unpredictable failure rates, as well as a complex but rigid structure that requires high levels of maintenance and vast inventories with multiple SKUs.

The challenges are daunting. To overcome them, financial services providers must modernize their storage infrastructure not only to meet the needs of the current fluid environment, but also the growing demand for speed and capacity well into the future. Storage infrastructure must provide the level of data security required by regulatory compliance and consumer expectations. It should offer low latency and high performance to ensure real-time transaction processing both on the consumer-facing side and internally to perform complex data analytics. It needs bedrock stability to ensure business continuity and data integrity, and it requires high availability to meet growing demand.

The Challenges at a Glance



Compliance: Regulatory bodies worldwide are imposing a complex, ever-evolving web of regulations for enhanced data security and reporting. A recent study by Deloitte cites 14 trends shaping the regulatory landscape, including capital planning and stress testing; data quality, analytics, and reporting; fintech, and consumer protection.¹ Firms must implement enhanced governance and continuous monitoring to remain compliant. In addition, agencies have stepped up enforcement, resulting in headline-grabbing financial settlements. Commercial banks must deal with balance-sheet regulations, such as the net stable funding ratio, and perform full risk analysis against solvency ratios on every trade. Hedge funds and brokerage firms must monitor trades in near-real time, making latency reduction a high priority.



Risk Management: Many firms are bolstering their enterprise risk management (ERM) programs not only to comply with regulations, but also to protect themselves from unforeseen risk and take advantage of emerging opportunities. These programs require vast data gathering and comprehensive predictive analytics. Lately, risk management has focused on protecting consumer data, fraud prevention, and ensuring that financial services firms retain sufficient capital to support their trading activities.



Digital Transformation: Disruptive new technology has created tremendous challenges and opportunities for financial services firms. Automation has reshaped trading and retail banking, while the emergence of fintech firms offering consumer-friendly technology and cost structures have left traditional firms scrambling to catch up.



Consumer Expectations: The mobile revolution has raised consumer expectations to new heights. Customers demand end-to-end digital solutions that deliver flawless experiences, greater convenience and complete transparency — all with anywhere/any time access. A recent Deloitte white paper highlighted faster and more customer-friendly systems as high priorities moving forward.²



Big Data: Real-time data analytics for decision-making and real-time transaction processing hold great promise for financial institutions, but they also require exponential leaps in computational power, and storage capacity and speed.

The pressure to modernize legacy systems is intense, but financial institutions are rightly averse to dramatic infrastructure changes that risk a disruption of operations or compromise data integrity and security.

SSDs to the Rescue

Solid state drives (SSDs) offer solutions to these challenges, as well as an upgrade path that minimizes disruption and expense.



Compliance: Regulatory compliance increasingly depends on real-time monitoring, transaction-level data storage, immediate availability for auditing, and other requirements that are better achieved with the speed, density and data integrity that SSDs provide.



Security: Data security requires encryption at multiple levels. Encryption at the array controller level is just the beginning. SSDs can offer end-to-end encryption along the entire data path.



High Speed: Latency is the bane of financial services technology. A broker could lose \$5 million per millisecond if his electronic trading platform is even five milliseconds behind the competition.³ When it comes to credit card transactions, service level agreements mean that processors have a limited window to perform thorough risk analysis for approval/denial. Perhaps the most obvious advantage of SSDs is the dramatic reduction of latency compared to spinning platters and even hybrid arrays.⁴



High Availability: Downtime is expensive. In fact, businesses are losing \$700 billion to it annually.⁵ Because SSDs have no moving parts, their lifespan is far more predictable, making it easier to replace them with minimal disruption.



Ease of Management: SSDs offer several advantages over HDDs and hybrid arrays when it comes to IT management. They consume less power and take up less space, making facilities maintenance far easier and reducing total costs.⁶

Why Micron SSDs for Financial Services?

Micron offers financial services firms a simple storage upgrade path to achieve the security, performance and resiliency they need to compete within the new financial technology paradigm.



Security*: Micron SSDs offer full drive data encryption built into the drive. TCG Enterprise is a security specification for enterprise data storage devices. This hardware-level encryption eases deployment and offers simpler key management versus software encryption, because the drive itself creates and secures the encryption keys.

Looking for even higher levels of security? Our self-encrypting drives (SEDs) offer FIPS 140-2-validation, with government-approved encryption algorithms; the ability to secure and attest to the authenticity of SED firmware; user authentication at the role or identity level; and the creation, management, and protection of encryption keys and passcodes.



Performance: High security doesn't mean performance compromises. Micron's direct-attached storage options reduce latency to meet the real-time analytics and transaction processing needs of today's financial services firms. Putting storage inside servers eliminates separate storage arrays and the associated network latency they

create. Just one example: The Micron 5100 Series delivers 74,000 random write IOPS — more than 2.5 times as fast as its closest SATA competitor.



Resilience: Micron SSDs are designed, tested and validated for durability. Micron management software allows IT departments to track and report remaining lifespan, enabling scheduled replacement planning to reduce service disruption.



Easy Upgrade Path: Financial services firms have invested heavily in their computing infrastructure, and a recent Gartner analysis suggests that financial management applications generally have long and useful lives.⁷ So firms need a solution that unlocks greater potential while maintaining the highest level of compliance, security and performance. Micron offers several configurations, including SATA, SAS and PCIe NVMe, to make upgrading as easy as swapping out outmoded storage units with high-performance SSDs.

* Security features vary by product and part number. Please verify feature set before ordering.

The Micron Family of Solutions for Financial Services

SATA SSD

Micron's Enterprise SATA SSDs offer excellent value with all the benefits of upgrading from hard drives to flash. Enjoy unique features like Micron's tunable FlexPro architecture, very large capacities and high performance relative to competitor SATA.

SAS SSD

Micron's SAS SSDs are ideal for high-availability applications where data path redundancy is critical. Our SAS dual port access means you can have peace of mind. Total bandwidth is also increased relative to SATA, allowing higher performance.

NVMe SSD

When speed is what you need, Micron's NVMe SSDs should be your first consideration. Whether in add-in card, U.2 drive or M.2 stick format, Micron's NVMe devices utilize PCIe to transfer data at ultra-low latencies and lightning fast transfer rates.

Learn more about Micron's SATA, SAS and NVMe product lines at enterprisestorage.com.

Financial services firms simply cannot afford to stand still while the rest of the industry continues to modernize its storage infrastructure. Micron SSD solutions provide a strategic modernization path, allowing financial institutions to compete in an environment where every millisecond counts. Micron doesn't just provide superior performance. We offer the security and resiliency that financial services providers demand, as well as innovative functionality to make your company a nimbler competitor. What's more, we do this while helping to reduce total storage infrastructure costs, allowing your firm to invest in the next generation of consumer and analytics applications.

To learn more about how Micron SSD technology can prepare your storage infrastructure for the future, visit www.enterprisestorage.com.

¹ "Navigating the year ahead, Banking regulatory outlook 2017," Deloitte Center for Regulatory Strategies, Americas, December 2016.

² "CloserLook: 2017 Banking & Securities Outlook," Deloitte, 2016.

³ The Value of a Millisecond: Finding the Optimal Speed of a Trading Infrastructure, TABB Group, April 2008.

⁴ Floyer, David. "The Potential Business Value of Low-Latency Flash," February 14, 2015.

⁵ "Businesses Losing \$700 Billion a Year to IT Downtime, says IHS," January 25, 2016.

⁶ Floyer, David. "The IT Benefits of an All-Flash Data Center," Wikibon, March 23, 2015.

⁷ Rayner, Nigel. *IT Market Clock for Financial Management Applications, 2016*, Gartner, August 2016.

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