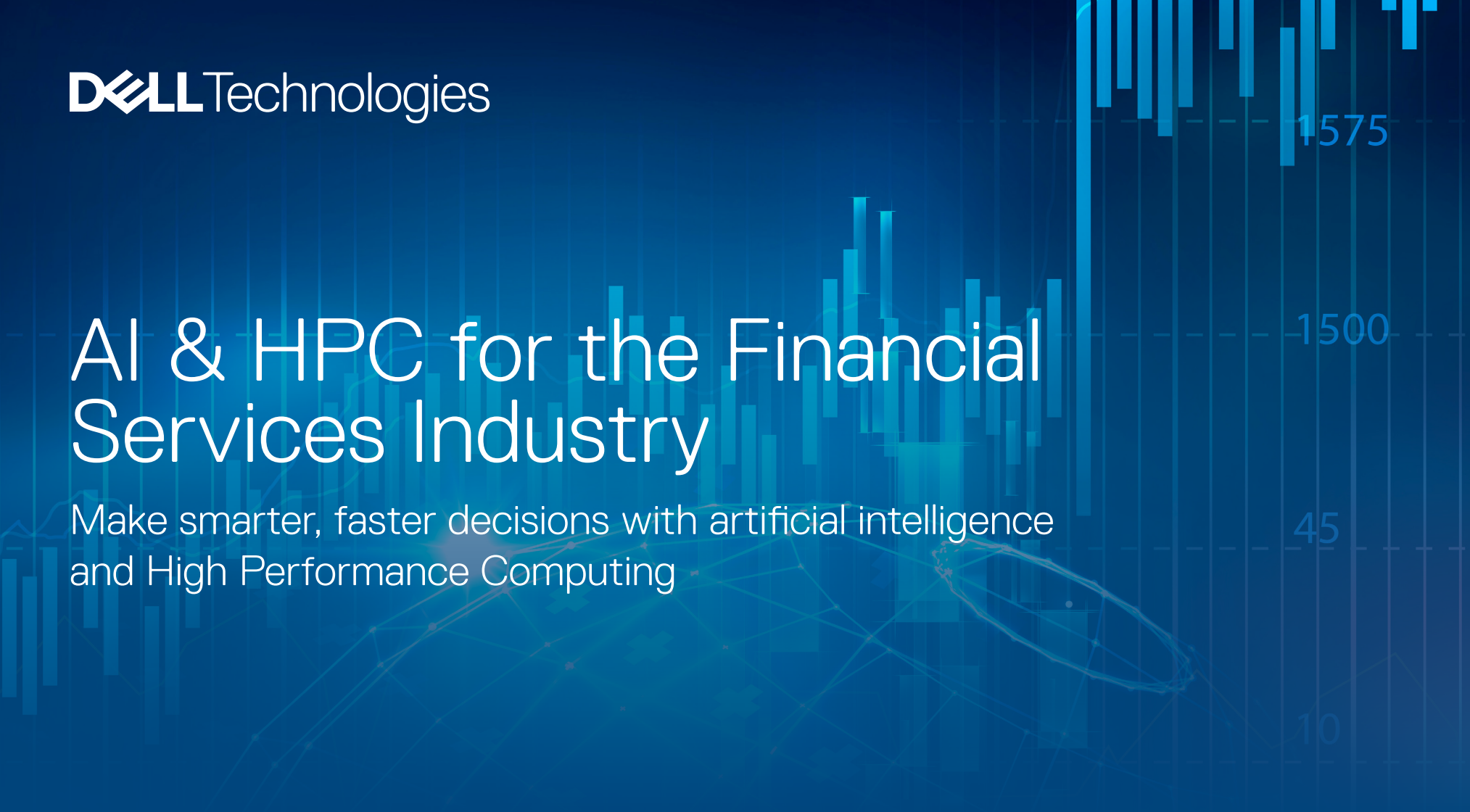
DELL Technologies

AI & HPC for the Financial Services Industry

Make smarter, faster decisions with artificial intelligence and High Performance Computing



MAXIMIZE RETURNS AND MINIMIZE LOSSES

AI and HPC have the power to create competitive advantage

Financial services institutions (FSIs) — including commercial banks, investment firms and insurance companies — are some of the largest consumers of High Performance Computing (HPC). Investment is driven by intense competition to make smarter, faster decisions that reduce risks and increase rewards.

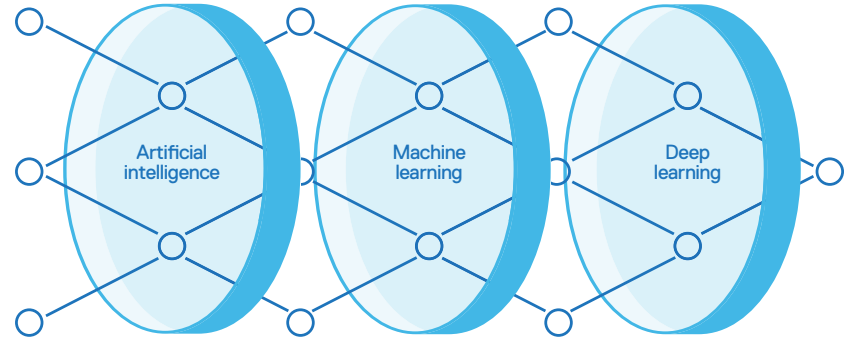
FSIs have long used HPC to gather and process their deep wealth of data. As HPC becomes more pervasive, many FSIs are using it to fuel artificial intelligence (AI) and machine learning (ML) for deep, fast and intelligent data analytics that can give them an extra edge.

These companies are embracing the AI opportunity across a broad range of financial decisions — from faster trades to better risk analysis and fraud detection.

MAKE FASTER, SMARTER DECISIONS

AI is a complex set of technologies underpinned by ML and deep learning (DL) algorithms, typically run on powerful HPC systems. Together, they enable FSIs to sift through increasing amounts of financial data to make faster and more accurate decisions.

The capabilities of AI, ML and DL can unleash predictive and prescriptive analytics on a massive scale. Like lenses, AI, ML and DL can be used in combination or alone — depending on the use case — to focus in on financial services challenges.



AI is an umbrella term that describes a machine's ability to act autonomously and/or interact in a humanlike way.

ML refers to the ability of a machine to perform a programmed function with the data given to it, getting progressively better at the task over time as it analyzes more data and receives feedback from users or engineers.

DL uses artificial neural networks (ANNs), inspired by the human brain, to process huge volumes of data. ANNs allow the machine to determine on its own if a prediction is accurate so that it can train itself without human intervention.

Financial services organizations can use AI, ML and DL to evaluate risks, set pricing and complete trades more quickly and accurately, as well as protect the business from fraud.

How AI and HPC are being used in the financial services industry

Advanced computing is changing how financial services companies evaluate and act on information to increase profits and reduce risks. The following is just a small sample of how financial services companies can leverage AI and HPC.

Fighting fraud at Mastercard

ML algorithms running on HPC systems allow Mastercard® to apply 1.9 million fraud detection rules — nearly instantaneously — to 165 million transactions per hour.

Learn more: Fighting fraud the smart way — with data analytics and artificial intelligence.

1

Risk assessment

Evaluate and test millions of hypotheticals

HPC enables faster risk recalculations in response to changing market conditions. AI can simulate huge numbers of parallel market scenarios over large portfolios to better predict changing market conditions for better, faster response. AI can also make risk models more predictive, which can speed credit decisions and reduce losses.

2

Trading

Supercharge high-frequency and algorithmic trading

HPC provides the power to execute trades faster. AI can be used to identify patterns and trends in data — including sentiment analysis, drug approvals, election outcomes and weather forecasts — to make predictions about the direction and volatility of a stock price and bid accordingly.

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3

Pricing

Set optimal pricing for a variety of financial products

HPC enables modeling thousands of scenarios to calibrate pricing to market conditions in real time. AI can be used to predict and prepare for market moves and respond almost instantaneously. It can also be used to evaluate and price risk on an individual basis, instead of using tranches.

4

Fraud protection

Detect and prevent fraud using sophisticated analytics

AI can be used to detect suspicious behavior and anomalies in real time. For credit card companies, more accurate fraud identification allows legitimate charges to go through while flagging fraudulent transactions. For insurance providers, AI can sift through patterns in the data to identify suspicious claims.

PROVEN EXPERTISE

AI and HPC systems from an industry leader

While AI and HPC might seem like the latest IT trends, Dell Technologies has been a leader in HPC for over a decade.

As an industry leader in AI and HPC, Dell Technologies offers proven products, solutions and expertise that reduce complexity and help you capitalize on the promise of using technology to increase profits and reduce losses while better managing risks. Working closely with our partner ecosystem and industry providers, we deliver solutions inclusive of infrastructure, applications and services. Plus, Dell Technologies solutions are based on open source architecture, offering access to a wide range of common tools, frameworks and libraries.

Dell Technologies

Dell Technologies helps organizations and individuals build their digital future and transform how they work, live and play. We provide the industry's broadest and most innovative technology and services portfolio for the data era. Together, we help you explore the possibilities of AI and HPC, introduce it into your organization and use it to make faster, smarter decisions.

Dell Technologies is committed to a culture of integrating ethics and compliance into daily decision-making. We believe in acting ethically in everything we do. It's good business and important to our customers, suppliers and strategic partners. As a result, critical programs have been developed to address key risks across the enterprise, creating trust with our customers.

DELIVERING VALUE

The AI and HPC value chain

Wherever you are on your journey, Dell Technologies delivers AI and HPC systems that fulfill your needs.

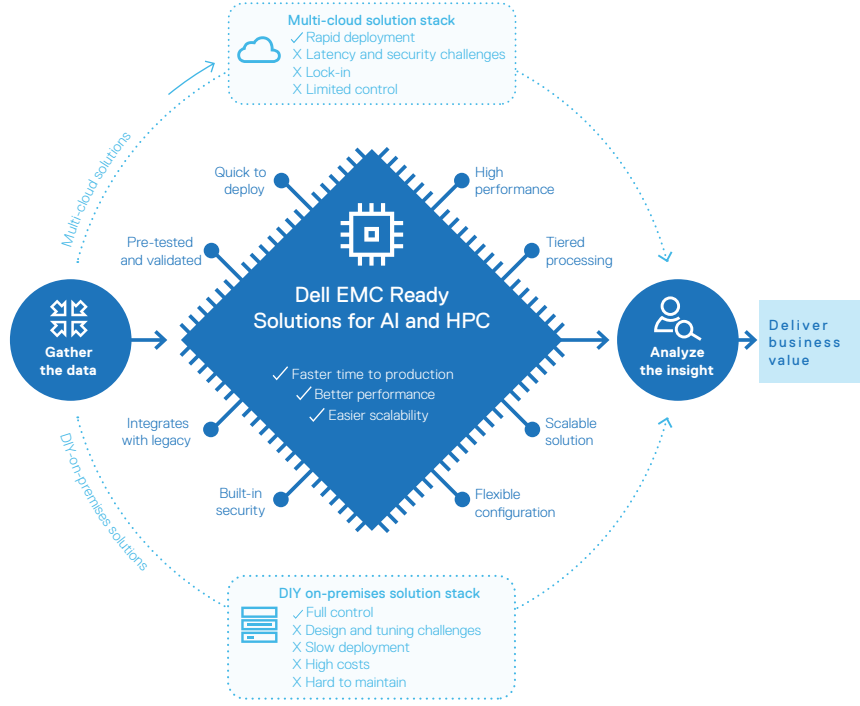
With an extensive portfolio, years of experience and an ecosystem of curated technology and service partners, Dell Technologies is ready to help you to capitalize on the promise of AI and HPC.

- **Extensive portfolio:** Dell Technologies uniquely provides a portfolio of technologies — spanning workstations, servers, networking, storage, software and services — to create successful AI and HPC implementations. What's more, Dell Technologies provides accelerated performance, efficiency and expertise to help you adapt as AI evolves.
- **Years of experience:** AI and HPC are evolving quickly and not many organizations have the skills to design, deploy and manage advanced computing systems. The Dell Technologies HPC & AI Innovation Lab team stays on the cutting edge of AI, testing new technologies, and tuning algorithms and applications to help you keep pace with this constantly evolving landscape.
- Our team of industry and technology experts can help you achieve faster time to results by shortening both design cycle and configuration times. These experts will work with you to create a configuration with the right features, at the right price. You can even take a test drive with a proof of concept, or in one of the Customer Solution Centers.
- **Curated partnerships:** Dell Technologies works closely with partners, such as Intel®, AMD®, NVIDIA® and others to optimize systems to leverage a wide variety of technological advancements.

SIMPLIFYING THE COMPLEX

Dell EMC Ready Solutions for AI and HPC

Designing and deploying an HPC system for AI and other workloads with the performance and scalability required can be complex.



Dell Technologies has invested to create a portfolio of Ready Solutions designed to simplify the configuration, deployment and management of AI and HPC solutions. They provide trusted designs that have been optimized, tuned and tested for a variety of key use cases. They include the servers, storage, networking, software and services that have been proven in our labs and in customer deployments. Plus, the modular building-block approach provides a customizable yet validated method for deploying new clusters or upgrading existing systems.

THE BENEFITS

Dell EMC Ready Solutions for AI and HPC

Ready Solutions for AI and HPC simplify IT transformation, helping you move faster.

OPTIMIZE INVESTMENTS

- Systems are tailored to speed deployment, help eliminate potential software and hardware issues, and optimize performance.
- Flexible, industry standard building blocks of compute, networking and storage are tested and tuned with your AI and HPC applications by Dell Technologies engineering teams.
- Available consulting, education, deployment, support and remote management services optimize solution productivity and efficiency.

SCALE EASILY

- A flexible building block approach easily scales over time.
- Scale by adding resources such as memory or hard drives inside Dell EMC PowerEdge servers.
- Add external storage with Dell EMC PowerVault storage arrays, or PowerScale scale-out network-attached storage (NAS).

REDUCE RISK

- Dell Technologies engineers and industry experts work in collaboration if/as needed to design, deploy and scale AI and HPC solutions for specific applications. This saves time and reduces the risk of potential hardware and software issues.
- Around the world, more than 34,000 Dell Technologies Services and Support experts are available every step of the way with consulting, education, deployment, management and support.[1]
- Dell Technologies is an industry leader in creating HPC solutions — regardless of size or complexity — that deliver fast setup with a wide range of optional services. With proven success in thousands of implementations worldwide, you can be confident growing with Dell Technologies.

Services and financing

Dell Technologies partners with you every step of the way, linking people, processes and technology to accelerate innovation and enable optimal outcomes.

- Consulting services can be delivered by certified experts to help you get the business value of advanced computing. The services include an assessment, workshop, testing, proofs of concept and production implementation. These experts help determine where advanced computing is a good fit for your organization. They also help you build your own internal team of experts through knowledge transfer at each step.
- Education Services offers courses and certifications in data science and advanced analytics through self-paced online labs and instructor led workshops.
- Deployment experts have the experience, expertise and best practices to enhance your success with AI and HPC solutions. With a proven track record of success in thousands of engagements worldwide, you can rely on Dell Technologies as your partner.
- Support experts can provide comprehensive hardware and collaborative software support 24x7 for optimal system performance and minimized downtime. ProSupport includes next-business-day on-site service with four- and eight-hour parts-and-labor response options, and escalation management with customer-defined severity levels. You can also opt for ProSupport Plus to get a Technology Service Manager, who serves as a single point of contact for your support needs.
- Financial Services offers a wealth of leasing and financing options to help you find opportunities when your organization faces decisions regarding capital expenditures, operating expenditures and cash flow.

DELL Technologies

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GET IN TOUCH

Contact us

To learn more, **contact** your local representative or authorized reseller.

Email: EmergingTech@Dell.com

Online resources

delltechnologies.com/ai

delltechnologies.com/hpc

[1] Dell Technologies, "**Dell Technologies Key Facts**," accessed August 2020.

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