THE POWER TO KNOW.

SAS® High-Performance Computing

Use big data and sophisticated analytics to innovate and differentiate

Overview

Want to gain faster, better insights so you can make the right critical decisions within ever-shrinking windows of opportunity?

Would accurate and precise analytically based results help you solve your most difficult problems and capitalize on chances for growth that otherwise would go unrecognized?

If you could produce faster answers using more data, while providing superior IT performance, reliability and scalability, could you improve the return on investment and total cost of ownership for your IT resources, including infrastructure and people?

With SAS® High-Performance Computing, you can do all of the above and more. In conjunction with SAS Analytics, SAS High-Performance Computing helps organizations create value across different functional areas and respond more quickly to market and business changes. It enables customers to handle their biggest data challenges and create high-impact information that can transform the way they do business – for the better.

Challenges

- **Increasing volumes and varieties of data.** Exploding data volumes hinder the completion of key analytic processes in a timely manner.
- **Excessive data movement and unnecessary data proliferation.** Organizations struggle to determine what data should be stored where and for how long, what data should be used in analytical processing and how it should be prepared for analysis.
- **Overwhelmed and poorly deployed IT resources.** More requests for analytical processing mean longer waits for answers and unpredictable response times.
- **Analytical processing complexities.** The growing number of analytical models and data refreshes that are needed require an on-demand pool of distributed and parallel processing resources. Otherwise, it simply takes too long to get results.

Exploit Big Data and Rapid Insights to Transform Your Business

Benefits

- Immediately capture value and gain competitive advantage by exploiting big data, including existing information and new data collected from other sources such as mobile devices and social media.
- Achieve incredibly fast response times and rapid insights to identify optimal actions and make the best decisions.
- Use more granular-level data and more complex analytical algorithms to produce new insights quickly, solve your most complex problems, act confidently to seize new opportunities and better manage risks.
- Improve collaboration and productivity between your analytic and IT groups.
- Ensure data quality, improve data governance and enhance resource use by reducing data movement and redundancy.
- Quickly meet ever-changing business demands with flexible and dynamic workload balancing and high availability.
- Incrementally grow and optimize IT infrastructures to support faster time to value in a cost-effective manner.

How SAS® Can Help

Organizations are constantly seeking more effective ways to make decisions, relying increasingly on facts derived from a variety of data assets. But difficulties arise when data volumes grow ever-larger and there are hundreds or thousands of decisions to be made each day.

Whether you need to analyze millions of price points, recalculate entire risk portfolios in minutes, identify well-defined customer segments or attractive and targeted offers to customers in near-real time, SAS can help.

The scalability of SAS to handle huge volumes of data is unsurpassed by our competitors. Additionally, SAS Analytics are recognized by customers and industry analysts as best in class. Combining those capabilities, SAS High-Performance Computing provides organizations with a manage-and-grow strategy for enterprise analytics, enabling them to make the most of current infrastructure and the newest computational and hardware investments.

Components

SAS® Grid Computing

SAS Grid Computing enables you to automatically leverage a centrally-managed grid infrastructure to achieve workload balancing, high availability of computing resources and parallel processing. Multiple applications and users can share a managed grid environment for better use of hardware capacity, while making incremental IT resource growth a possibility.

SAS® Grid Manager allows individual SAS jobs to be split up, with each piece running in parallel across multiple SMP machines in the grid environment using shared physical storage. It enables organizations to create a managed, shared environment to process large volumes of data and analytic programs. This makes it a perfect solution for managing multiple SAS users and jobs while enabling efficient use of IT resources and lower-cost commodity hardware.

SAS® In-Database Processing

SAS In-Database processing is a flexible, efficient way to get more value from increasing amounts of data by integrating select SAS technologies into your databases or data warehouses. It utilizes the massively parallel processing (MPP) architecture of the database or data warehouse for scalability and better performance. Using SAS In-Database technologies, you can run scoring models, some SAS procedures and SQL queries inside a database. Moving relevant data integration, analytics and reporting tasks to where the data resides reduces unnecessary data movement, promotes better data governance and provides faster results.

SAS® Scoring Accelerator takes SAS® Enterprise Miner™ models and publishes them as scoring functions in-

side a database. This exploits the parallel processing architecture offered by the database to achieve faster results. SAS Scoring Accelerator interfaces are currently available for Aster Data, EMC Greenplum, IBM DB2, IBM Netezza and Teradata.

SAS® Analytics Accelerator for Teradata is designed for SAS Enterprise Miner, SAS/STAT® and SAS/ETS® users who want to build predictive and descriptive models to be executed directly within the database environment. In-database analytics shorten the time needed to build, execute and deploy models, improving productivity for both analytic professionals and IT staff. It also helps tighten data governance processes by providing analytic professionals with access to consistent, fresh data for faster, more accurate results.

	Capability	Benefit
Grid computing	Workload balancing and management	Manage jobs and users more efficiently
	High availability of resources	Avoid user or source disruption
	Distributed processing	Enhance performance
	Commodity hardware use	Reduce cost
In-database processing	Data and analytic functions processed inside the database	Achieve better data governance
	Streamlined model development and analytical lifecycle deployment	Gain faster time-to-results
	Use of existing database architecture	Maximize your IT infrastructure
	Existing code can be run without modifications	Improve analytic efficiency and productivity
In-memory analytics	In-memory architecture for data and analytic processing	Solve your most complex problems in near-real time
	High-performance analytic capabilities within select SAS products and solutions	Derive highly accurate results through improved modeling
	Database appliances used for persistent storage and failover	Overcome service-level constraints

SAS® In-Memory Analytics

SAS In-Memory Analytics enables you to tackle previously unsolvable problems using big data and sophisticated analytics. It allows complex data exploration, model development and model deployment steps to be processed in-memory and distributed in parallel across a dedicated set of nodes. Requests to run new scenarios or new analytical computations can be handled much faster and with better response times because data can be quickly pulled into the memory.

SAS® High-Performance Analytics (available for EMC Greenplum and Teradata) is the only in-memory offering on the market that processes high-end analytics and big data to produce time-sensitive insights very quickly. SAS High-Performance Analytics is truly about applying high-end analytical techniques to solve complex business problems – not just about using query, reporting and descriptive statistics within an in-memory environment. For optimal performance, data is pulled and collocated within the memory of a dedicated database appliance for analytic processing. Because the data is stored locally in the database appliance, it can be pulled into memory again for future analyses in a rapid manner.

SAS High-Performance Analytics addresses the entire model development and deployment life cycle. Unlike other offerings, SAS High-Performance Analytics can perform analyses that range from descriptive statistics and data summarizations to model building and scoring new data at breakthrough speeds. These results enable our customers to quickly extract more value from their data and stay ahead of the competition.

SAS® High-Performance Markdown Optimization is part of the SAS Revenue Optimization Suite. It analyzes massive amounts of data in parallel and enables retailers to identify and implement optimal pricing strategies. Retailers can quickly determine which products to mark down, how much to mark them down, and when and where to adjust pricing to maximize revenues.

SAS® High-Performance Risk delivers faster risk calculations. Global market volatility and economic uncertainty require financial services firms be quick and agile. SAS High-Performance Risk helps rapidly answer complex questions in areas such as market risk, counterparty exposure, liquidity risk management, credit risk, stress testing and scenario analysis.

Why SAS?

Combining SAS' industry-leading business analytics software with high-performance computing technologies enables our customers to get answers to previously unsolvable problems faster than ever before. SAS has integrated data management, reporting and analytics with high-performance computing to serve as a proven analytics infrastructure. We paid attention not only to improving analytic performance, but to all aspects of better managing big data.

In addition, SAS helps customers solve complex problems using a variety of hardware advances and processing options. For more than 35 years, we have worked with our customers, seeking innovative solutions to their most pressing issues, and the size and complexity of the analysis has never been a barrier. As requirements evolve to tackle larger problems and more complex scenarios, SAS High-Performance Computing enables organizations to take advantage of the latest hardware advances and a variety of processing options to make the best use of all available resources.

The flexible architecture of SAS is optimized to address new business requirements and overcome technical constraints, and we are leading the way in empowering organizations to transform their structured and unstructured data assets into business value using multiple deployment options.

SAS can be your trusted advisor that you turn to when you need to solve big data problems with big analytics. With SAS High-Performance Computing options, you can use more data, run more sophisticated analytics, better manage your IT resources and reduce the time to results, enabling faster decision making for competitive advantage.

Business Value

- Highly accurate and precise insights that lead to superior decisions.
- Near-real time insights at the point of decision or embedded in business processes.
- The ability to act quickly and confidently to seize new opportunities and effectively manage risks.

IT Value

- Superior performance, scalability and reliability.
- Optimal resource usage.
- Better data governance.

About SAS

SAS is the leader in business analytics software and services, and the largest independent vendor in the business intelligence market. Through innovative solutions, SAS helps customers at more than 50,000 sites improve performance and deliver value by making better decisions faster. Since 1976 SAS has been giving customers around the world THE POWER TO KNOW.®

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