High-Performance Analytics

Use big data and sophisticated SAS® Analytics to innovate and differentiate

Overview

Want to gain faster, better insights for making the right critical decisions within ever-shrinking windows of opportunity?

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

What if you could select a scalable analytics infrastructure that is built for the future and accommodates rapid change, while lowering the total cost of ownership of your IT resources?

With high-performance analytics from SAS, you can do all of the above and more. Create value across different functional areas. Respond more quickly to market and business changes. With SAS, you can manage your biggest data challenges and create high-impact information that can transform the way you 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 to Gain Fast, Precise Insights and Transform Your Organization

### 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 gain rapid insights** to identify optimal actions and make the best decisions.
- **Use more granular data and more complex analytical algorithms** to produce new insights quickly, solve your most difficult problems, act confidently to seize new opportunities and better manage risks.
- **Improve collaboration and productivity** among 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 make each day.

Whether you need to analyze millions of price points, recalculate entire risk portfolios in minutes, identify well-defined customer segments or make 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. And SAS Analytics is considered best-in-class by both our customers and industry analysts. These advantages, combined with high-performance analytics, enable you to quickly exploit high-value opportunities from big data, while making the most of your existing investments or the latest advances in analytics infrastructure.

### 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.

### 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 for processing 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 uses 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 inside 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 users of SAS Enterprise Miner, SAS/STAT® and SAS/ETS® who want to build predictive and descriptive models for executing directly within the database environment. In-database analytics shortens the time needed to build, execute and deploy models, improving productivity for both analytic professionals and IT staff. They also help tighten data governance processes by giving analytic professionals access to consistent, fresh data for faster, more accurate results.

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<tr>
<th>Capability</th>
<th>Benefit</th>
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<tbody>
<tr>
<td>Workload balancing and management</td>
<td>Manage jobs and users more efficiently</td>
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<td>High availability of resources</td>
<td>Avoid user or source disruption</td>
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<tr>
<td>Distributed processing</td>
<td>Enhance performance</td>
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<td>Commodity hardware use</td>
<td>Reduce cost</td>
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### Grid Computing

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<tr>
<th>Capability</th>
<th>Benefit</th>
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<tr>
<td>Data and analytic functions processed inside the database</td>
<td>Achieve better data governance</td>
</tr>
<tr>
<td>Streamlined model development and analytical lifecycle deployment</td>
<td>Gain faster time-to-results</td>
</tr>
<tr>
<td>Use of existing database architecture</td>
<td>Maximize your IT infrastructure</td>
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<td>Existing code can be run without modifications</td>
<td>Improve analytic efficiency and productivity</td>
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### In-database processing

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<th>Capability</th>
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<tr>
<td>In-memory architecture for data and analytic processing</td>
<td>Solve your most complex problems in near-real time</td>
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<tr>
<td>High-performance analytic capabilities, including data visualization</td>
<td>Quickly understand your data and derive highly accurate results</td>
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<tr>
<td>Distributed environment</td>
<td>Scalable and reliable analytic infrastructure</td>
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**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. Because data can be quickly pulled into the memory, requests to run new scenarios or new analytical computations can be handled much faster and with better response times.

**SAS High-Performance Analytics**

SAS High-Performance Analytics is the only in-memory offering on the market that processes sophisticated 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 placed 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 lifecycle. 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.

SAS Visual Analytics is a high-performance, in-memory solution that empowers all types of users to visually explore big data, execute analytic correlations on billions of rows of data in minutes or seconds, gain insights into what the data means and deliver results quickly wherever needed.

Giving multiple users the ability to dynamically examine huge volumes of data simultaneously, combined with SAS software's powerful high-performance analytics, provides organizations with an unprecedented way to tap into big data and identify new and better courses of action more quickly. Users can easily spot opportunities for further investigation and analysis, and then convey visual results to decision makers via Web reports or the iPad.

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 to 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?

For more than 35 years we have worked with our customers, seeking innovative solutions to their most pressing issues, and the complexity of the analyses required has never been a barrier. As the need to solve larger problems and tackle more complex scenarios evolves, high-performance analytics 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.

High-performance analytics from SAS is optimized to address new business requirements and overcome technical constraints. We are leading the way – empowering organizations to transform their massive volumes of structured and unstructured data assets into business value using multiple deployment options.

Let SAS be the trusted adviser you turn to when you need to solve big data problems with big analytics. With high-performance analytics options from SAS, you can use more granular data, perform more sophisticated analysis, better manage your IT resources and reduce the time to results, enabling faster, more confident decision making.

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 55,000 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®.