# SunGard: SAP® Sybase® IQ Supports Big Data and Future Growth

SUNGARD®

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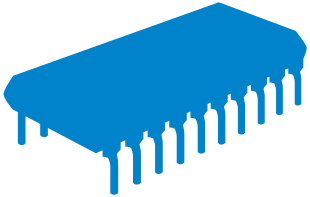
## Company
SunGard Data Systems Inc.

## Industry
High tech

## Products and Services
Software and technology services for industries including the financial sector

## Web Site
www.sungard.com

## SAP® Solutions
SAP® Sybase® IQ server



SunGard Data Systems Inc. knew its Protegent compliance solutions had to perform well, even as customers' data volumes grew rapidly. Customers wanted their users to be able to run ad hoc queries more quickly against larger volumes of increasingly complex current and historical data and to more easily comply with industry and government regulatory requirements. The implementation of SAP® Sybase® IQ server helps Protegent build newer and larger systems and expand into new markets and business areas.

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# Maintaining performance in the face of growing data volumes

SunGard Data Systems Inc. is one of the world's leading software and IT services companies, working with more than 25,000 customers in more than 70 countries. The company provides software and processing solutions for financial services firms, higher education institutions, and public sector organizations. It also provides disaster recovery services, managed IT services, information availability consulting services, and business continuity management software.

**25,000**

Number of customers spread over 70 countries

Among its many services and solutions, the firm offers Protegent, a suite of compliance solutions that help retail and institutional investment firms oversee business processes relating to compensation processing, client acquisition and suitability, and employee personal trading and codes of ethics. These Protegent solutions are fueled by massive amounts of internal and external data. As data volumes have mushroomed, the system – running on traditional relational databases – began to experience performance deterioration that was unacceptable to end users. To remedy this problem and position itself for the inevitable continued growth in customers' data volumes, the company implemented the SAP Sybase IQ server, a column-based analytics server designed specifically to deliver superior performance for mission-critical business intelligence, analytics, and data warehouses.

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# Moving beyond traditional database technology

SunGard's Protegent solutions support supervision and surveillance practices, help streamline the compliance lifecycle, proactively monitor trades, and provide comprehensive auditing and reporting for financial institutions and companies that trade in energy and commodities markets. In doing so, the solutions help reduce expenses and address regulatory requirements.

To do all of this effectively and efficiently, Protegent gathers huge volumes of internal and external data, which it runs through its Synapse rules engine. This engine is designed to produce alerts that flag unusual or questionable activity.

"Our customers are the big trading firms," says Steve Rider, product architect for SunGard's Protegent business. "We currently operate in the U.S. market, and we're expanding into international markets. With our rules engine system, gathering all of this data together becomes challenging. As the data volumes have grown over the years, we've been faced with simply managing the volume of input data coming through the system. In addition, the volume of results is significant, and we're growing into ranges where traditional database technology struggles."

"We now have a powerful platform to move forward on. We don't worry about data volumes anymore. SAP Sybase IQ is simple to manage and operate and lets us easily build really big systems in a cost-effective, manageable, and sustainable way."

Steve Rider, Protegent Product Architect, SunGard Data Systems Inc.

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# Finding a better technology to support growing data volumes

Protegent solutions were designed to interoperate with any database system, typically traditional, row-oriented databases developed primarily for transaction processing purposes. Protegent provided customers with an ad hoc user interface, allowing end users to select from over 100 fields to produce their own ad hoc queries. To optimize performance, Protegent created indexes based on its anticipation of the most commonly executed queries. However, tuning every single, on-the-fly query was difficult.

As data volumes grew, both from increased trading activity and from customers' desires to retain more historical data, performance began to concern users. "It became quite obvious to us," says Rider, "that we had to find a better technology – a technology that would give us a leap forward in our ability to handle very large and continuously growing volumes of data without performance degradation."

Another factor contributing to the problem was that data was becoming more complex in and of itself. For example, a simple four-byte integer that used to store nine digits of an ID number had become alphanumeric and expanded into the 50 to 100 character range. These ID numbers are the keys Protegent uses to locate records. Instead of small, four-byte fields, the firm had to deal with hundred-byte fields.

"We're not simply pulling more records," Rider explains. "We're pulling more complex records based on more complex data. In addition, the complexity of what users are asking for is growing. And, of course, regulatory requirements are expanding and asking for data that is approaching real time. Data growth, for all of these reasons, is ongoing and massive, and represents a challenge for us."

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# SAP Sybase IQ column-based architecture provides the solution

As SunGard's Protegent team searched for a solution that would enable it to address these challenges, it found one that stood out: the SAP Sybase IQ server. Protegent found that the column-oriented nature of SAP Sybase IQ allowed it to put indexes on the specific columns containing the information users required.

**660** billion

Rows of market data processed daily

The advantages of a column-based architecture over the previous row-based architecture mean that Protegent employees do not have to spend time tuning their system to ensure high performance for ad hoc user queries. Additionally, the SAP Sybase IQ multicolumn orientation allows it to run in parallel without Protegent having to do anything. The result is that every query and data load becomes parallelized, and Protegent can easily leverage the power of modern, multiprocessor computers and achieve necessary performance levels, regardless of data volumes.

"With the implementation of SAP Sybase IQ, Protegent has grown from a single server system into a multinode grid," adds Rider. "The system currently holds approximately 80 TB of compressed data. We currently have some 660 billion rows of market data and load over a billion rows a day during market hours, at the same time interactive users on the system are pulling reports and running queries against this data."

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# The right technology to face future data demands

Rider explains why SAP Sybase IQ server is such a good fit. "It doesn't matter what we throw at it [SAP Sybase IQ]," says Rider, "it seems to take it in stride and gives us a great response . . . We feel like it's a solution that will carry us forward into uncharted territory. We see no limit to how far we can go with it." Rider expects that the system will soon exceed a trillion rows and envisions the system eventually growing into the petabyte range. "We feel SAP Sybase IQ can support our growing business without having to do much more than procuring a bit of hardware," he adds.

**1** trillion

Rows of data stored

SunGard needed to be sure its Protegent solution would be supported well into the future. "With SAP Sybase IQ," says Rider, "the system just runs." Of course, as the only constant in business is change, the future will undoubtedly present Protegent with new challenges. As it expands into other geographic markets and into other business areas, such as options trading, it expects to see data growth measured in orders of magnitude. But this is not something the company is concerned about, says Rider. At some point, it may have to add another server to its grid, but that's about it.

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# More power, less administrative effort

SAP Sybase IQ benefits SunGard's Protegent solutions by:

- Slashing query response time regardless of data volumes
- Storing over 1 trillion rows of data
- Enabling analytics and reporting against virtually unlimited data
- Reducing administrative and maintenance time
- Minimizing hardware and storage costs
- Positioning Protegent for continued business growth

With an architecture based on SAP Sybase IQ now in place, Protegent has a solution that will support its growth well into the future. The company no longer has concerns about data volumes or the need to devote IT resources to tuning for ad hoc queries. The system requires little administrative time.

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