IBM

Bayer Business Services speeds business intelligence with SAP and IBM

Overview

■ *Challenge*

  *Bayer MaterialScience (BMS),
  one of the three Bayer AG sub-
  groups, was seeking approaches
  to cope both now and in the
  future with the rapid growth in
  data volume generated within
  its SAP Netweaver Business
  Intelligence (BI) data warehouse
  system. If it could collate data and
  produce meaningful information
  more rapidly, the company would
  be well positioned to respond to a
  fast-changing marketplace.*

■ *Why Become an
  On Demand Business?*

  *Bayer operates a very large
  SAP application. The Bayer
  MaterialScience unit itself uses
  a large SAP Netweaver BI data
  warehouse application (base
  17,000 SAPS, dynamically
  extendable to 22,000 SAPS).*

» **On Demand Business defined**
  An enterprise whose business
  processes — integrated end-to-end
  across the company and with key
  partners, suppliers and customers —
  can respond with speed to any cus-
  tomer demand, market opportunity
  or external threat.

*Investing in high-performance
analytics has enabled the company
to discover more about itself and
its customers more quickly.*

■ *Solution*

  *Bayer Business Services (4,400
  employees, €816 million in sales),
  the Bayer group's international
  competence centre for IT-based
  services, implemented a brand-
  new, very high-performance infor-
  mation analysis system solution,
  based on SAP Netweaver BI
  with business intelligence accel-
  erator functionality and IBM
  BladeCenter® technology in a full
  workload prototype scheduled
  to go into production in the next
  few months.*

■ *Key Benefits*

  *Remarkably faster business
  query results mean that Bayer
  MaterialScience can answer
  ad hoc and "what-if?" questions
  more quickly, producing meaning-
  ful information that helps the
  company to innovate and stay
  ahead of its competitors.*

Bayer AG in Leverkusen, Germany,
is a worldwide leader in the pharma-
ceutical and chemical industries.
The company has more than 300
operating units, which employ 93,700
people on five continents. Bayer
MaterialScience (BMS) is one of
the key Bayer business units, with
almost 18,800 employees and annual
net sales of €10.7 billion in 2005.

ON DEMAND BUSINESS™

Bayer Business Services

Driving innovation through On Demand Business

On Demand Business Benefits

- Up to 50 percent improvement in data warehouse query performance

- Faster production of meaningful information that helps Bayer MaterialScience innovate and compete

- Very high degree of cost-efficiency and scalability

"Choosing IBM Systems Solution for BI Accelerator technology ensures that Bayer Business Services has a high-performance, cost-effective solution that is highly scalable, and one that offers room for future growth."

– Peter Kossmann,
Proof of Concept Project leader,
Bayer Business Services

BMS produces high-quality chemicals for industrial use, including polyurethanes, polycarbonates, adhesives, sealants and coatings. Bayer Business Services is the preferred partner for providing IT-based services to an innovative and successful enterprise.

To manage and guide this complex global business, Bayer MaterialScience executives use advanced dashboarding and analytical tools, which take data from the underlying SAP software and provide reporting on all aspects of business performance, including production, sales and supply chain operations.

Gathering and analyzing data across such a large enterprise, using a large SAP application, has led to a rapid growth in the volume of data in existing systems. A data volume of 2TB has already been exceeded by Bayer MaterialScience, with a forecast growth of more than 1TB per annum, reaching 20TB by 2012. One of the consequences has been a slowdown in system response time. Bayer MaterialScience therefore sought an approach to structure its SAP NetWeaver BI data warehouse system to be faster and future-viable.

Dr Lothar Burow, head of BMS Business Intelligence Services, says, "Bayer MaterialScience has high ambitions to improve response times by at least 50 percent. The task was to answer the questions 'How quickly can we get the required information?,' 'How can we reduce the costs?,' and 'What technology is the right long-term strategy?' with a stable, reliable solution that would take the strain off existing systems."

Bayer Business Services developed a proof of concept for BMS. The advantages of Bayer Business Services were that it was one of the very few IT service providers to have experience in dealing with SAP installations of this size, and that their prototype used genuine data. Bayer Business Services kicked off by analyzing whether the performance gain was feasible by optimizing the database as implemented in the SAP NetWeaver BI data warehouse system. The answer was negative. As noted by Peter Kossmann, Bayer Business Services Proof of Concept project leader, "Adopting the usual approach of performance optimization – ramping up CPU and I/O performance – was not enough on its own: targeted solutions were needed." Bayer Business Services commenced testing of alternative databases and investigating a number of proprietary hardware/software solutions to accelerate the SAP NetWeaver BI data warehouse.

Ramping up performance

Bayer Business Services chose to add the brand-new Business Intelligence Accelerator (BI Accelerator) functionality to its SAP Business Intelligence solution. The BI Accelerator functionality was designed specifically to solve the challenge of analyzing very large data sets at high speed by deploying advanced software on high-performance hardware, creating the capability to slash the time taken to deliver actionable management information.

Peter Kossmann reports, "Prior to the general availability of BI Accelerator, only IBM was able to deliver a full-scope infrastructure solution, and to show how to achieve the expected performance increase." In addition to the infrastructure solution, Bayer Business Services took the existing systems into account: the SAP systems database was also optimized during the six-month project period.

Approaching high-speed analysis

To improve the speed of data analysis, Bayer Business Services will add the new BI Accelerator technology to the existing SAP Business Intelligence solutions, with SAP NetWeaver BI data warehouse drawing the data from an Oracle database running on IBM System p5® 595 servers under IBM AIX® 5.3. The BI Accelerator runs on the high-performance IBM BladeCenter model HS20 Blades with Intel® Xeon™ EM64T processors, running 64-bit Linux,® linked to the IBM TotalStorage® DS4300 storage system.

The IBM Systems Solution for BI Accelerator uses the IBM DS4300 storage server solutions with redundant components, offering very high availability and reliability, with point-in-time copying and volume copying for disaster recovery and synchronous and asynchronous mirroring options. These IBM System Storage offerings are designed to be affordable, scalable storage options for consolidation and clustering applications. Bayer Business Services has implemented GPFS, IBM's clustered file system deployed in the IBM Cluster 1350, which provides transparent access to data from multiple systems with very high data integrity and resilience.

The data is extracted and loaded into the IBM Systems Solution for BI Accelerator, with the IBM BladeCenter servers providing the high-performance computing power required for such tasks as returning the results to the management information systems. With around 2,000 users querying a database of approximately 3TB, the solution has been designed from the outset to scale rapidly without loss of performance.

Peter Kossmann says, "Bayer MaterialScience will now be able to expect quick responses for analyses even on complex data sets, delivering query results to the management dashboard more quickly. We will be able to make the best use of the data by providing a more solid and timely basis for management decisions."

Up to 50 percent performance boost

The starting configuration of the IBM Systems Solution for BI Accelerator solution in general uses six IBM HS20 Blades, creating a system capable of managing 20 parallel user sessions, handling 250 million rows of 500 bytes. The IBM and SAP solution is scalable to a fully populated BladeCenter chassis of 14 Blades, able to manage 100 parallel user sessions handling 1,000 million rows of 500 bytes.

With the addition of the new BI Accelerator to the existing SAP solutions, query performance at Bayer MaterialScience has improved by up to 50 percent. Peter Kossmann: "The IBM BladeCenter brings a very high degree of cost-efficiency and scalability to the configuration, which is important for our ability to deploy the solution both to other Bayer operating units and to external customers."

Accelerating competitive advantage

The SAP NetWeaver BI Accelerator software is optimized for the IBM BladeCenter platform. Modular by design, BladeCenter is highly scalable and offers a low total cost of ownership. Only IBM BladeCenter systems are able to hold such a high density of Blades within a single chassis, and adding more Blades to the BladeCenter produces an almost linear increase in performance for the BI Accelerator software, ensuring that the customer is easily able to enhance the system as the database workload grows.

Peter Kossmann continues, "The ability to collect and analyze data so quickly has a high value to Bayer MaterialScience. With the right information at the right time, managers can better understand the business and the market."

For more information

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