



Endress+Hauser

**Fast, effective business
warehousing with the
IBM Systems solution
for SAP NetWeaver
Business Intelligence
Accelerator**



“The IBM Systems solution for SAP NetWeaver BI Accelerator delivers excellent, reliable query performance – helping us to get the most out of a business intelligence environment that is growing rapidly in terms of both user numbers and data volumes.”

Jürgen Schrempp
Division Manager Business Technology
Endress+Hauser InfoServe

“The entire project was implemented, commissioned to production and completed on time and on budget. By implementing the IBM Systems solution for SAP NetWeaver BI Accelerator, query performance has improved significantly. For example, one query that used to take 30 minutes to process now runs successfully within two minutes.”

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About this paper

This technical brief describes a project to accelerate business intelligence query response times at Endress+Hauser. The brief provides a technical overview of system layout, project planning and realization for the IBM Systems solution for SAP NetWeaver Business Intelligence Accelerator.

Customer Objectives

- *Maintain and reduce query response times in the face of rapid BI growth*
- *Make query response times more predictable, eliminating the need for custom tuning*
- *Reduce the workload of maintaining BI system aggregates*

Customer Benefits

- *Response speeds for end-users are fast and predictable – for example, one query that used to take 30 minutes is now completed within two minutes*
- *Aggregate maintenance is simpler, reducing workload for IT administrators*
- *Flexible infrastructure provides easy scalability as data volumes and user numbers grow*

IBM Solution

- *IBM BladeCenter technology provides a scalable architecture to improve SAP application performance*
- *SAP NetWeaver BI Accelerator software accelerates performance of BI queries*
- *IBM System Storage DS4700 provides high-performance storage infrastructure to boost I/O speeds*
- *IBM General Parallel File System (GPFS) delivers high performance and availability*
- *SUSE Linux Enterprise Server provides excellent reliability and resilience at low operational costs*
- *Solution integrates fully and easily with existing infrastructure*



IBM Systems solution for SAP NetWeaver BI Accelerator in summary

SAP NetWeaver BI Accelerator is designed to deliver high performance analytics. It is an evolution of the SAP approach to business intelligence based on the SAP NetWeaver technology platform. It is also a key building block in the Enterprise SOA strategy of SAP. The goal is to provide “near real-time analytics”, and/or give large numbers of end-users rapid access to data that is stored in a data warehouse.

The solution enables customers to analyze large amounts of business-critical information, crunching through terabytes of data in a matter of seconds. IBM and SAP have created an easy-to-install appliance that enables customers to deploy SAP NetWeaver BI Accelerator in an easy, cost-effective way. The IBM Systems solution for SAP NetWeaver BI Accelerator is based on 64-bit Intel Xeon processor-based blade servers.

The solution at a glance

The IBM Systems solution for SAP NetWeaver BI Accelerator is an appliance designed to fit seamlessly into existing SAP NetWeaver Business Intelligence environments.

The solution comes in predefined standard configurations of different sizes that fit perfectly into a wide variety of customer environments, and all the components are intensively pre-tested by both SAP and IBM.

The solution can be activated for selected InfoCubes easily, without any need to change InfoCubes, DataSources or queries within SAP NetWeaver BI. This new technology is completely invisible to the user. The sole prerequisite for deploying this technology is SAP NetWeaver BI 7.0.

IBM BladeCenter H

The IBM BladeCenter integrates multiple computing resources into a cost-effective high-density enclosure. BladeCenter H provides power efficiency, high performance and scaling capabilities, helping businesses to make the most of their investment in SAP NetWeaver BI Accelerator.

IBM BladeCenter HS21 blade server

Equipped with quad-core Intel Xeon processor-based blade servers delivering high performance and efficiency for SAP NetWeaver BI Accelerator.

IBM System Storage DS4700 Express

The DS4700 offers high-performance Fiber Channel connections capable of speeds of up to 4Gbps, as well as powerful system management, data management and data protection features. Indices are stored on the DS4700 and loaded into the memory of the HS21 blade servers for online processing of queries.

IBM General Parallel File System (GPFS)

GPFS achieves higher levels of performance by making it possible to read and write data in parallel, across multiple disks or servers. Because multiple disks or servers contain the data, it also achieves a higher level of fault resilience.

Use of GPFS is key to the very high performance delivered by SAP NetWeaver BI Accelerator, with very fast data access and exceptional ease of management. The high availability features of GPFS make it an ideal solution for the SAP NetWeaver BI Accelerator environment.

SUSE Linux Enterprise Server on IBM BladeCenter

The IBM Systems solution for SAP NetWeaver BI Accelerator uses SUSE Linux Enterprise Server running on the HS21 blades, offering high performance and almost linear scalability, with enterprise-class support from Novell.

Background, starting point and objectives

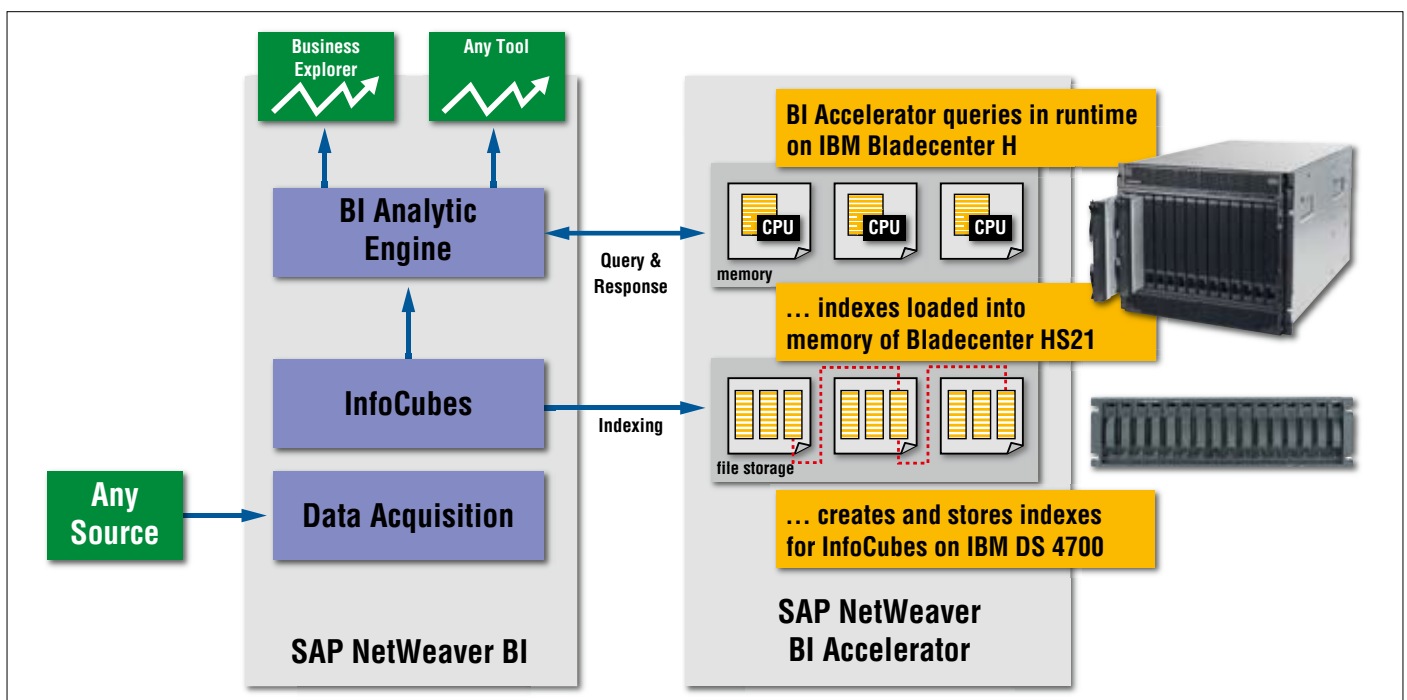
Endress+Hauser was founded in 1953 by Georg H. Endress and Ludwig Hauser. The company has developed from an instrumentation specialist to a provider of complete process automation solutions to meet the need of its customers for improved efficiency and profitability. The Endress+Hauser Group is comprised of 80 companies in 39 countries, managed and coordinated by a holding company in Reinach, Switzerland. The group employs over 8,000 people and generates around €1.1 billion in annual turnover.

Endress+Hauser has a long-lasting SAP-based business software strategy, working with SAP applications in areas such as enterprise resource planning (ERP), customer relationship management (CRM), and product life-cycle management (PLM). In 2003, Endress+Hauser decided to implement three components of the SAP NetWeaver platform: SAP NetWeaver Portal, SAP NetWeaver Exchange Infrastructure, and SAP NetWeaver Application Server. Smaller sales offices run on SAP Business One.

An important part of the landscape is SAP NetWeaver BI 7.0, which is used to provide analytics for business decision support.

Endress+Hauser runs SAP NetWeaver BI 7.0 on the IBM System z and IBM System Storage DS8000 platforms, using a DB2 database of approximately 350GB for the BI environment. The BI installation is the fastest-growing instance in the overall SAP system landscape, and is estimated to be expanding by as much as 30 per cent per year. Presently more than 2,200 people within the company access the SAP NetWeaver BI system, mostly via SAP NetWeaver Portal. BI reporting is used to manage all aspects of business performance. With increased utilization of BI as a key business tool, the results it generates have become more and more time-critical.

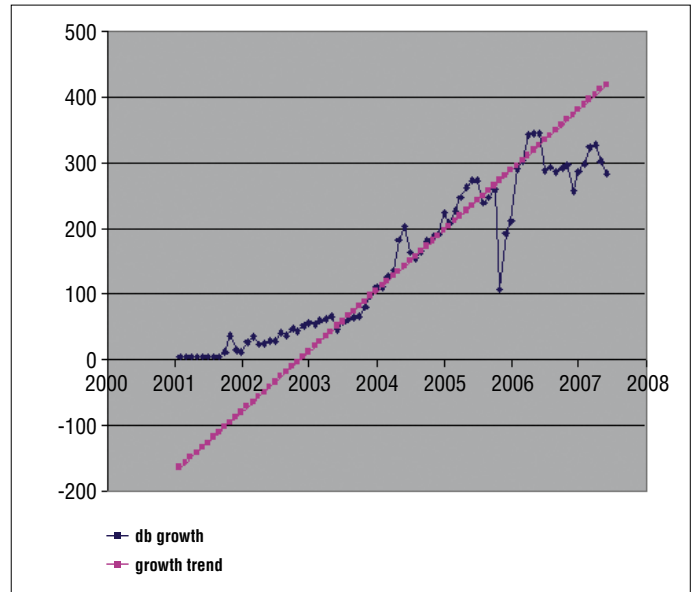
In the past, query processing was taking too long, making it difficult to get timely access to vital information. Endress+Hauser needed to boost query performance and enable more concurrent user sessions.



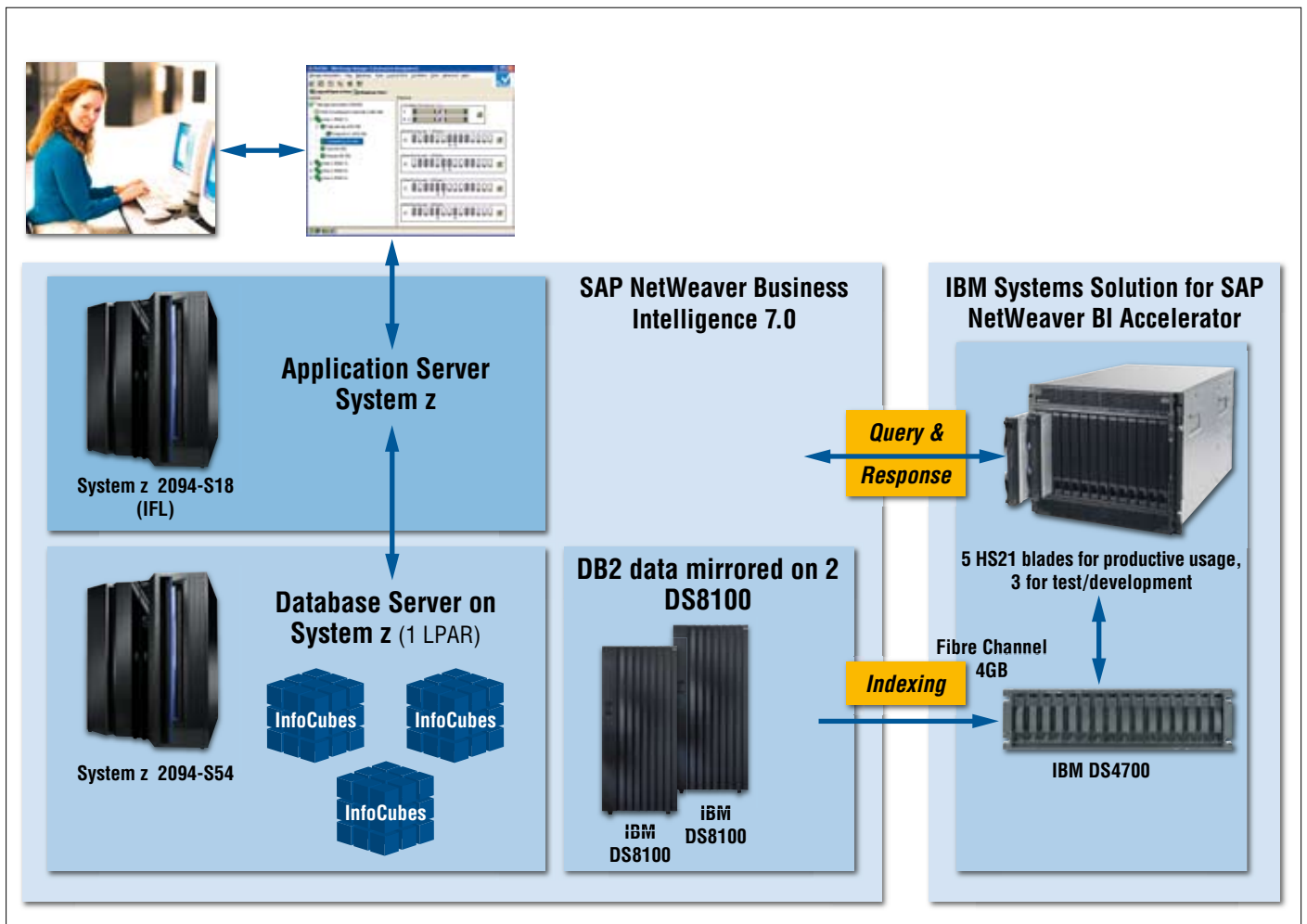
A strong relationship with IBM

Endress+Hauser has a strong relationship with IBM and is convinced of the benefits of IBM infrastructure. The company's IBM System z platform is appreciated for its high-end reliability and stability features, while the IBM DS8000 systems provide excellent performance for the SAN, and ensure the safety of business-critical data with their advanced mirroring functionality.

The IBM Systems solution for SAP NetWeaver BI Accelerator fits seamlessly into this environment.



SAP NetWeaver BI expected data growth at Endress+Hauser: worst-case scenario



The graphic provides a high-level view of the topology implemented at Endress+Hauser

The project at a glance

Endress+Hauser had already upgraded to SAP NetWeaver BI 7.0 (a basic requirement for BI Accelerator), because the company wanted to take advantage of new and enhanced BI functionalities.

The SAP NetWeaver BI Accelerator solution was planned by Endress+Hauser together with IBM. Joint workshops helped to prepare for the decision, enabling the discussion of topics like high availability, backup and recovery, system management, and the need to create a secure connection between the SAP NetWeaver BI environment and the Accelerator. The solution was sized to reflect expected growth, and the proposed configuration will cover increases in data volumes and user numbers over the next two years.

The decision for the IBM Systems solution was made in a very short time-frame, and installation was planned and completed in September 2007. After one week of intensive testing, Endress+Hauser put the solution into use in its production environment.

Endress+Hauser implemented the solution with five HS21 blade servers for the production environment. A further three HS21 blades in the same BladeCenter chassis are used for testing and development.

On the implementation side, Endress+Hauser decided to work with IBM Global Technology Services. The major tasks were to implement the solution at the customer site and connect it to the existing SAP NetWeaver BI component. The entire project was implemented, commissioned to production and completed on time and on budget.

By implementing the IBM Systems solution for SAP NetWeaver BI Accelerator, query performance has improved significantly. For example, one query that used to take 30 minutes to process now runs successfully within two minutes.

Project results and further outlook

The project to implement the IBM Systems solution for SAP NetWeaver BI Accelerator was a major success for Endress+Hauser, and is now being rolled out to more users across the enterprise.

There will be more SAP NetWeaver BI Accelerator users in future, principally owing to the growth of the E+H Group. Better response times will tend to improve user acceptance, and users that were somewhat inactive in the past are likely to become more active in the future. The main differences that the solution has made to day-to-day work are more intensive usage, better user acceptance, and increased efficiency.

The integration into the existing infrastructure at Endress+Hauser was so simple, and the performance gains so convincing, that the whole solution was moved to production within a very short time. Once the solution went live, Endress+Hauser was able to delete all its existing BI aggregates, reducing the workload for the BI system and improving performance.

Initial indexing took about three hours and daily data load about 30 minutes, so full reindexing is the company's method of choice in case of data corruption.

The solution is monitored in two different ways. Hardware monitoring is performed by the infrastructure department at Endress+Hauser, while application monitoring is handled by the business intelligence department, using the SAP TREX administration tool. A complete integration into a monitoring environment with IBM Director is planned.



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D-70548 Stuttgart
ibm.com

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