



# The Business Value of Upgrading to SQL Server 2005

## White Paper

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### Abstract

Business decision makers deploying Microsoft® SQL Server technologies have adopted SQL Server 2005 because it optimizes their IT infrastructure for growth and improves their alignment with key business objectives. With up to 35% faster transaction processing, advanced business intelligence solutions and enhanced developer productivity, SQL Server 2005 builds on the strengths of SQL Server 2000. Enterprise and midmarket organizations upgrading to SQL Server 2005 will not only accelerate growth but also open exciting new opportunities for database administrators, developers and IT decision makers.

Fortune 1000 organizations already using the pre-release version of SQL Server 2005 have found that it provides significant advancements in database technology and allows business users to unlock value in their data by:

- Minimizing business disruptions through increased 24/7 availability, scalability and security.
- Gaining deeper business insight through richer end-user analytics and reporting tools that result in a faster return on investment.
- Accelerating the development time of line of business applications by up to 40% with Visual Studio 2005 and .NET integration, including 50-70% code reduction for most scenarios.
- Reducing data management complexity and easing manageability.

These advances generate value by enabling business to accelerate their organizations growth while significantly reducing IT cost and complexity.

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# Introduction

Companies take on many challenges when trying to implement data management solutions because of the proliferation of data and systems within their organizations, the need for reliable and secure access to data, and constant pressure to reduce spending and simplify the IT environment.

Microsoft® SQL Server 2005 is designed to address these challenges providing the next generation of integrated data management and analysis software that can help organizations:

- Deploy and manage mission-critical applications that provide 24/7 reliability and controlled, secure access.
- Deliver real-time business insight derived from sources across the organization through reports that can be customized by individual users.
- Develop new services and analysis capabilities cheaper and faster than ever before.

The customer evidence examples in this white paper highlight the significant business value that can be realized by upgrading to SQL Server 2005. This value was measured using standard financial metrics, such as net present value, internal rate of return, and payback.<sup>1</sup>

The compelling business benefits as evidence by these customer examples include:

- Almost effortless upgrades from SQL Sever 2000 to SQL Server 2005
- Up to 35% faster transaction processing, including improved response times on queries
- Higher availability (99.999%) for mission critical applications and five times faster failover.
- Up to 40% faster development environment through Visual Studio and .NET integration that results in quicker project completions
- Improved analysis and calculation capabilities that allow developers to provide new services
- Improved reporting capabilities that allow business decision makers access to information when they need it as well as create their own ad hoc reports in multiple formats.

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<sup>1</sup> The metrics were calculated by third-party consulting firm Navigant Consulting Inc., based out of Chicago, Illinois, through interviews with customers who had deployed pre-release versions of the product. The pre-release version of SQL Server 2005, also known as the Community Technology Preview (CTP), is a free web download available at: <http://www.microsoft.com/sql/2005/productinfo/ctp.msp>, September 2005.

# Enterprise Data Management

Database administrators are required to deliver a trusted and reliable platform to support continuous, mission-critical applications. SQL Server 2005 is designed to manage enterprise-wide line of business applications and provide administrators a highly available and secure environment.

Businesses implementing SQL Server 2005 achieve significant benefits from previous versions of SQL Server through:

- Higher availability (99.999%) for maximum uptime and five times faster failover (~3 seconds) with data mirroring to create continuous applications.<sup>2</sup>
- Enhanced performance with up to 35% faster transaction processing and 150% better database performance in some scenarios.
- Stronger security with larger databases.
- Simplified manageability that reduces administrative needs, enabling administrators to shift from low-level management tasks to more strategic activities.

“We are upgrading from SQL Server 2000 to SQL Server 2005 for our SAP systems to take advantage of database mirroring. Using this technology, we can create complete, up-to-date backups on servers in separate buildings. SQL Server 2000 was very reliable, but the

**Please see Exhibit 1 for more details on Koehler Paper’s SQL Server 2005 solution.**

## Increased Availability

Many organizations depend on their database applications to keep business critical operations running and data accessible. Uptime in their database is critical, as any amount of downtime can cause an immediate loss in revenue. SQL Server 2005 provides the capabilities to ensure that organizations can keep their applications up and running 24/7. With its database mirroring feature, even a failure of the database can be managed gracefully with no impact to end-users or operations because SQL Server 2005 can be set up to automatically switch to a backup server.

SQL Server 2005’s ‘always on, always available’ advanced data management capabilities can dramatically reduce the potential for lost revenue due to a database failure, whether caused by hardware or software. The potential cost savings are enormous for critical applications that can shutdown retail systems, customer service applications, or manufacturing production lines (see Exhibit 1).

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<sup>2</sup> Database mirroring is feature is complete, has passed extensive internal testing, and will be generally available and supported upon the release of SQL Server 2005 SP1.

## Security Enhancements

SQL Server 2005 delivers enhanced security features for enterprise data management through multiple levels that include:

- Security settings that default to the most secure option
- Native data encryption
- Automatic password policy enforcement based on domain-level group policy settings
- Fine grained control over access permissions

Security settings by default provide the first level of security and reduce the risk for data and IP to be compromised, automatically setting up a safe environment for the database right from the start. Database administrators then have the ability to choose what access permissions should be assigned for particular users and groups of users.

SQL Server 2005 can encrypt the data at all levels of access. The database itself can be encrypted, communications with the database can be encrypted so the data is protected while it is traveling over a network, and the data can be encrypted on the user's computer. The server can even be set up to deny access to users who are not set up to encrypt the data.

Strict password policy enforcement, such as requiring long passwords and setting expiration dates for passwords, can be set up for all users. These options help to prevent access by unauthorized users.

Finally, database administrators have the ability to control access to all areas of the database at group and user levels. For example, many users only need to create reports for one department. These users can be given read-only access to a portion of the database. Though they have access to everything they need, there is no danger of them inadvertently changing data or accessing restricted information.

## Improved Manageability

SQL Server 2005 builds on the database management capabilities of SQL Server 2000 with a new management tool, enhanced self-tuning capabilities, and updated programming methods to automate management tasks. These advances can increase the productivity of database administrators by saving the time needed for maintenance, configuration, and tuning. This frees their time to focus on higher-level tasks, such as database architecture.

## Exhibit 1. Customer Evidence Example: Enterprise Data Management

### ***Koehler Paper reduces the chance of expensive plant shutdowns***

Koehler Paper operates five plants in Germany to produce specialty papers. The plants operate 365 days a year and any unplanned shutdown of the process line results in a significant loss of capacity and revenue. The last time a plant shutdown occurred due to a database issue, it took three days for production to return to normal, resulting in more than U.S.\$3,000,000 in lost revenue.

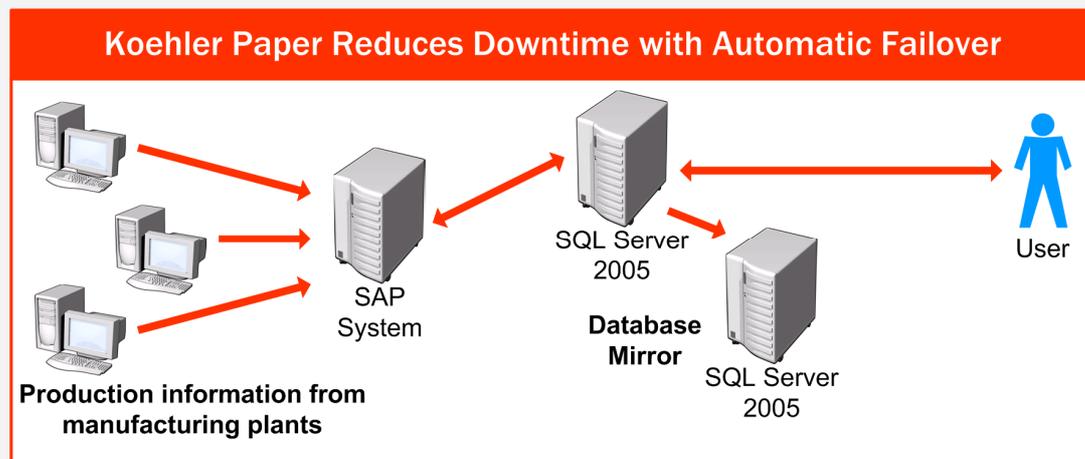
After learning about its new database mirroring capabilities, Koehler Paper was one of the first adopters of Microsoft SQL Server 2005 technology, using its 64-bit capabilities for their SAP applications. Database mirroring involves running two separate databases with the same information. If something happens to one database, software within SQL Server can detect the failure and immediately begin using the other database. While failures are rare, if SQL Server 2005 can prevent one plant shutdown over the next five years, the savings provide a 200-percent return on Koehler's investment.

#### **Koehler Paper Benefit Summary**

- Reduced chance of plant downtime
- Reduced administrative costs by \$150,000 per year
- Return of 50% and payback in 15 months

| Financial Benefits      |               |
|-------------------------|---------------|
| Net present value       | U.S.\$135,000 |
| Internal rate of return | 178%          |
| Payback                 | 6 months      |

The improved availability of SQL Server 2005 is the primary reason Koehler deployed the new software. But SQL Server 2005 has proven to have many other advantages for database administrators at Koehler. Administrators now perform maintenance while the database stays online in many cases. Administrators can also easily make backups before performing maintenance or upgrades and undo any changes at the first sign of a problem before the production lines are affected. Reducing administration costs by \$150,000 annually will produce a return of 50 percent for Koehler over the next three years with payback in 15 months. Please see Appendix A to read the entire Koehler Paper's SQL Server 2005 solution.



Automatic failover capabilities of SQL Server 2005 will help Koehler avoid costly downtime. Administration costs will also be reduced by more than \$150,000 per year.

# Business Intelligence

Robust, scalable business intelligence applications built using SQL Server 2005 enable business users to obtain a unified view of their operations and turn data into actionable insight. With SQL Server 2005's built-in end-to-end business intelligence capabilities, including advanced analytics and data mining, simplified data integration and powerful interactive reporting, organizations of all sizes can achieve breakthrough business performance and a faster return on their information.

Organizations that can quickly address changes in key performance indicators can significantly improve results because issues get resolved immediately rather than when a monthly update is released. The business intelligence features within SQL Server 2005 include:

- New enterprise-capable Extract, Transform, Load (ETL) solution to load and manage multi-terabyte data warehouse.
- Up to 2x enhanced performance on OLAP dimensions with Unified Dimension Model (UDM)
- New ad hoc reporting with Report Builder combined with enhanced enterprise reporting
- Expanded data mining capabilities with five new algorithms
- Enhanced business productivity through tighter integration with Microsoft Office System and Visual Studio 2005

SQL Server 2005 also provides new data mining capabilities to help companies discover relationships within the data that can lead to new business strategies. Data mining capabilities are often considered beyond the reach of many organizations because they are expensive and complicated to set up. SQL Server 2005 creates an easy-to-use and flexible business intelligence environment that can be used within any organization.

“The SQL Server 2005 solution moved us past the first hurdle—timely access to the data. We now have the capability to do predicative analysis on this data. The data tells us why customers leave and allows us to act immediately to mitigate the service issue.”

Melanie Shook, Manager of Customer Care Operations, Recall

**Please see Exhibit 2 for more details on Recall's SQL Server 2005 solution.**

## Real-Time Data Analysis

SQL Server 2005 Analysis Services provides the capability to perform complex data analysis and reporting on real-time data. With many systems, data analysis and data mining can only be used to discover long-term trends through weekly or monthly reports. SQL Server 2005 enables users to receive immediate feedback about key metrics by creating dashboards, scorecards and tracking key performance indicators that provide current information about business operations.

With this knowledge, users can quickly respond to changes in the business environment. The database can even send out notifications through e-mail

messages when metrics reach predefined levels. For example, a procurement specialist at a manufacturing plant needs to keep a certain level of inventory on hand. The database can calculate days of inventory at the factory based on the amount of materials, and the projected rate of use. When the days of inventory reaches the minimum required, SQL Server 2005 can notify the buyer, or even place an order automatically.

## **Self-Service Reporting**

SQL Server 2005 Reporting Services enables business users to create their own ad hoc reports when they want them (see Exhibit 2). The IT department no longer needs to be involved when new reports are needed, freeing them to work on other high-priority tasks. Business users are also more likely to take advantage of the database when they can access information themselves rather than going through the IT department. These reports provide a great supplement to standardized reports that are produced each month.

Ad hoc reporting capabilities enable users to investigate and resolve issues immediately. For example, a user who receives a notification that the average cost to produce an item has risen above its profitable level can immediately investigate the cause of the higher cost.

## Exhibit 2. Customer Evidence Example: Business Intelligence

### Recall Improves Customer Service and Reduces Costs

Recall provides a full range of document and data management solutions for companies around the globe. Operations at Recall are complex. The company often stores thousands of items at a time for a single customer. Each item has to be meticulously documented so it can be retrieved easily when needed.

Because Recall lacked a central system to collect and analyze operational data, the company was forced into manual and time consuming analysis practices, resulting in inconsistent and often untimely reporting. This limited visibility into business processes and decreased Recall managers' ability to quickly resolve quality issues. Although Recall had high levels of customer satisfaction, the executive team felt more could be done. They felt they could retain more customers by making Recall services easy to use and by improving service quality to standards never before seen in the industry.

#### Recall Benefit Summary

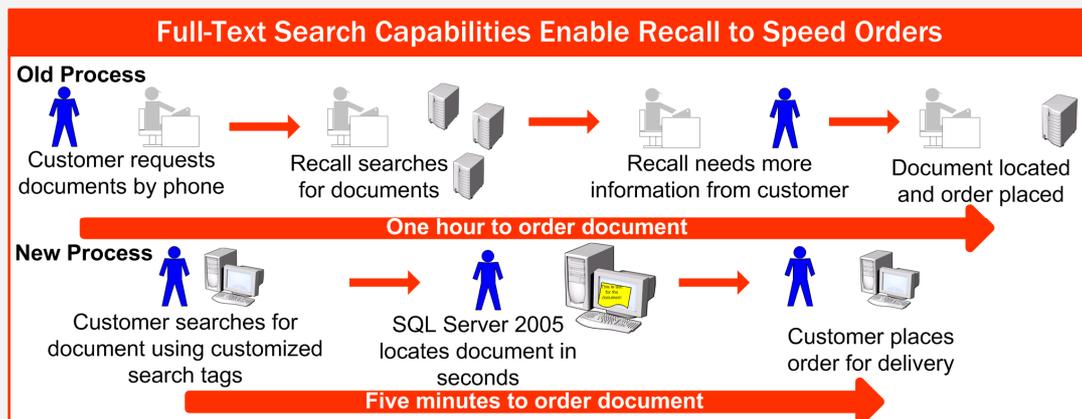
- Improved customer service
- Reduced customer churn rates by 50 percent
- Reduced costs of collecting data by U.S.\$250,000

| Financial Benefits      |               |
|-------------------------|---------------|
| Net present value       | U.S.\$930,000 |
| Internal rate of return | 135%          |
| Payback                 | 12 months     |

Recall found a solution using Microsoft® SQL Server 2005. This solution is helping to create a business intelligence platform at Recall which collects data from its many operational systems, and transforms the data into timely information. SQL Server stores the data securely and produces dashboards and reports that managers can access through a Microsoft Office SharePoint® Portal Server intranet at Recall.

SQL Server 2005 is also used to give customers direct access to their records through an Internet application. With the new solution in place, Recall is able to offer its customers unparalleled access to their information. Customers can now quickly find the status of any document and conveniently place orders for documents through Recall's Web site.

The system is expected to reduce Recall's cost of collecting data by U.S.\$250,000 and help decrease customer churn rates by 50 percent. From these benefits, Recall expects to achieve a return of 135 percent on the project with payback in 12 months. Please see Appendix A to read Recall's entire SQL Server 2005 solution.



Recall enables customers to access and modify their storage records with SQL Server 2005.

# Developer Productivity

SQL Server 2005 enables organizations to use data in ways that were previously cost-prohibitive through advanced programming capabilities that fundamentally alter the way database applications are developed and deployed. These capabilities enable developers to provide the scalable and flexible applications business users require, while reducing the time and cost required to produce them.

Unlike previous versions of SQL Server, SQL Server 2005 delivers an unmatched developer environment that greatly improves productivity across the organizations through:

- Faster and more flexible applications development through native support for XML Web Services and SQL CLR.
- New capabilities and features that reduce development time are no longer cost-prohibitive, such as Cachesync to simplify web development.
- Native data encryption for secure applications.
- Quicker response times for complex analysis requests.
- Integration with Visual Studio 2005 and .NET speeds up development by up to 40%, including 50-70% code reduction for most scenarios.

In many cases, organizations running previous version of SQL Server will find that they can offer new service features to customers without incurring significant costs, such as web-based access to shipping information.

“We use SQL Server 2005 Management Studio for nearly all of our development. Previously we had to work with Query Analyzer, Enterprise Manager, and other tools as separate entities. Now everything is done from the same place—from creating tables to firing queries, or previewing the XML that is generated. Our development of XML-based applications is 90 percent faster with Management Studio.”

Gerald Schinagl, Project Manager for the Sports Database, Austrian Broadcasting Corporation

**Please see Exhibit 3 for more details on ORF's SQL Server 2005 solution.**

## Creating New Opportunities

With SQL Server 2005, developers can access types and sources of data that were previously impossible to store, providing additional analysis opportunities to users. Because these capabilities can be added quickly and easily, organizations find that adding new functionality to their database applications is no longer cost-prohibitive. Companies can also create new business opportunities by providing real-time access to data at prices that are attractive for end-users (see Exhibit 3).

Advances in report generation enable users to create ad hoc reports from real-time data. These self-service capabilities change the way the database can be used in an organization. Previously, developers had to create specific reports for users. Because these reports required programming effort, they were typically tailored for executives making strategic decisions and were based on monthly or weekly data. Changing reporting to a self-service activity based on real-time data

enables decision makers at all levels of the company to benefit from the data collected.

Microsoft SQL Server Mobile Edition greatly enhances the capabilities of mobile workers to analyze data while away from the office. Databases or portions of databases can be easily synchronized on to mobile computers so workers can still benefit from access to corporate data while away. For example, salespeople can keep copies of pricing databases on their laptop computers and have access to all the information they need while visiting customers.

## **Faster Response Times for End Users**

Database query response times have improved 70–80 percent for many applications converted from SQL Server 2000 to SQL Server 2005. Quicker response times to queries help business users react faster and enable the database to be used for real-time decision making. Queries that might have previously taken several hours can now be completed in a matter of minutes. This provides a whole new level of functionality for end-users because analysis can be done on an ad hoc basis rather than exclusively in predefined reports. Companies can use this new accessibility to information to dynamically monitor processes.

## **Reduced Development Time**

Developers using SQL Server 2005 can reduce the time required to build new applications by as much as 40 percent, including 50-70% code reduction for most scenarios. This time savings is due to the fact that the entire database project can now be completed with one set of developer tools rather than with a different product for each component, such as storing data, manipulating data, querying data, and producing reports. In addition, developers can take advantage SQL Server 2005's updated developer tools to automate the task of converting existing applications to take advantage of its new capabilities.

Organizations benefit from quicker completion of applications because they can use new capabilities earlier. Oftentimes, these capabilities provide a competitive advantage for companies by helping them increase profit margins until competitors can develop equivalent technology. Extending this period of advantage by even a few months can result in significant profit increases.

Companies also benefit by reducing the time required from their in-house development staff. SQL Server 2005 reduces the need for specialized knowledge when developing database applications. The simplified user interface enables a large portion of the IT staff to contribute to the development effort. Many companies hire consultants or third-party development firms when creating database applications. SQL Server 2005 can help these firms deliver more secure line-of-business (LOB) applications that are easier to manage and at a much lower cost.

## Exhibit 3. Customer Evidence Example: Developer Productivity

### **ORF adds new capabilities for sports reporters with little effort**

ORF is the national public service broadcasting company in Austria. Sports coverage is one of the primary draws for ORF with a special focus on winter sports. To improve coverage of winter sports for its viewers, ORF wanted to report results faster and improve its reporters' access to historical data.

ORF turned to SQL Server 2005 because of its improved performance on the complex calculations required to update rankings and statistics as real-time data is entered. SQL Server 2005 can automatically import standard results information from sports organizations that offer XML data, eliminating the need for manual entry. And it is easy for reporters to access the data they need, even on mobile computers, when they are reporting live from an event.

### **ORF Benefit Summary**

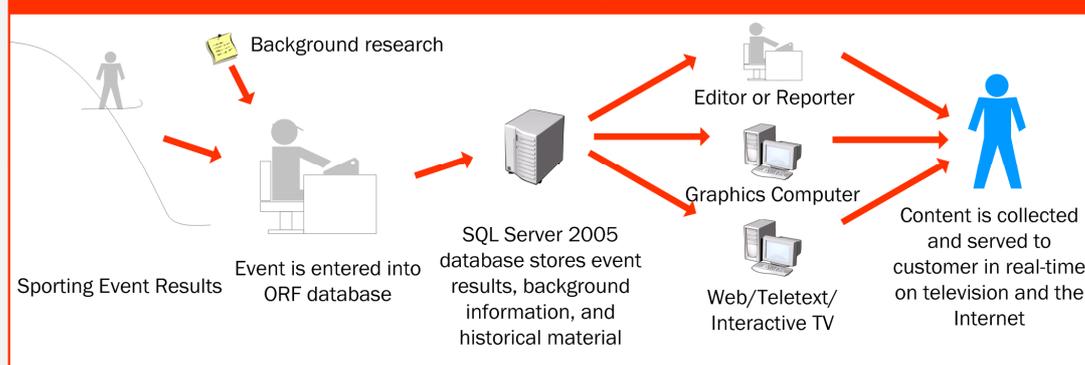
- Decreased development time enabled project to expand to more sports
- Improved database performance opened new sales opportunities

| Financial Benefits      |              |
|-------------------------|--------------|
| Net present value       | U.S.\$53,000 |
| Internal rate of return | 42%          |
| Payback                 | 19 months    |

ORF benefits from the enhanced development tools in SQL Server 2005 and found that it could expand its SQL Server project to cover more sports than originally planned. The project expanded from just covering alpine skiing events to the current goal of covering all of the winter Olympic sports for the 2006 Olympic games. ORF estimates the productivity gains from using SQL Server 2005 are worth 1,600 hours per year in support and development time, which, if converted to dollars, provides a return of 42 percent for the broadcaster.

SQL Server 2005 also opened new business opportunities for ORF. "SQL Server 2005 has become a business enabler because we can now offer access to our data at speeds and prices that are interesting to users, which we could not do with the previous solution," explains Gerald Schinagl, Project Manager for ORF. ORF plans to deliver data to partner companies over the Internet and should have this service in place for the 2006 Olympic games. ORF also delivers data to its online branch, ORF Online, and the interactive television offering. The old applications were unable to deliver real-time data so ORF Online entered the sports results manually to keep the Web page up to date. Now ORF Online gets real-time results data directly from the sports database. Please see Appendix A to read ORF's entire SQL Server 2005 solution.

### ORF Provides Real-Time, On-Demand Sporting Event Results with SQL Server 2005



SQL Server 2005 enables ORF to enhance its sports broadcasts with real-time data and graphics. The improved development environment allowed ORF to add many more sports to the database than originally planned.

# Conclusion

By optimizing their data management environment with SQL Server 2005, enterprise and midmarket companies are better positioned increase operational efficiency and take advantage of new growth opportunities.

## Benefit from a Trusted Platform

SQL Server 2005 provides a comprehensive and reliable platform to run the most demanding and mission-critical applications. It contains advanced maintenance and backup capabilities that heighten availability and enable developers to create 24/7 applications. The advanced security features and reduced administration in SQL Server 2005 protect confidential data from theft (or inadvertent exposure) while enabling administrators to shift from low-level tasks to more strategic activities through enhanced management tools and self-tuning capabilities.

## Make Better Decisions

SQL Server 2005 provides significant improvements on business intelligence capabilities than previous releases of SQL Server that give organizations the ability to understand the relationships between different parts of their organization, from the supply chain to merchandising strategies to manufacturing schedules. By unlocking valuable information from their data and turning it into actionable insight through analytics and reporting, business decision makers can make better decisions that result in higher revenues and lower costs.

More types of data can be analyzed, giving users a broader picture of their organization. Data analysis can be used to track current performance with key performance indicators so employees can receive real-time feedback. SQL Server 2005 also provides improved analysis capabilities, such as new data mining models, that enable users to see relationships that were previously unknown. Once relationships are discovered across business processes, managers can take advantage of this knowledge to improve decisions and better serve customers.

## Deliver Faster Results

Improved developer tools and environment make applications built on SQL Server 2005 much easier to develop and maintain. Reducing development time by up to 35 percent not only decreases the cost of applications, it also helps companies stay ahead of their competition by releasing new applications faster.

Additionally, self-service reporting frees administrators from handling business users' data requests, so they can focus on more strategic projects. Users can take advantage of the ad hoc analytics and reporting capabilities in SQL Server 2005 to gain access to real-time data, enabling them to respond faster to changes in key metrics.

Many companies are already seeing the benefits from SQL Server 2005. For more information on these companies, please go to: [www.microsoft.com/sql/2005](http://www.microsoft.com/sql/2005)

## Author

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# Appendix - Case Studies



## German Paper Manufacturer Reduces the Chance of Expensive Plant Shutdowns

### Overview

**Country or Region:** Germany

**Industry:** Pulp and Paper

### Customer Profile

Headquartered in Oberkirch, Germany, Koehler Paper manufactures specialty papers from five locations in Germany.

### Business Situation

Koehler operates plants 365 days a year and any plant shutdowns result in significant production losses. Koehler wanted to improve the backup capabilities of the databases supporting its SAP system

### Solution

Koehler Paper is currently piloting the beta edition of Microsoft® SQL Server™ 2005 and plans to deploy the solution company-wide.

### Benefits

- Enhanced availability with database mirroring
- Reduced administrative costs by \$150,000 per year
- Ease of migration

### Financial Benefits

|                         |               |
|-------------------------|---------------|
| Net present value       | U.S.\$135,000 |
| Internal rate of return | 50%           |
| Payback                 | 15 months     |

“The beta edition of SQL Server 2005 has performed flawlessly, providing 100 percent planned uptime.”

Alexander Fischer, Team Leader, IT Basics Department, Koehler Paper

Koehler Paper operates five plants in Germany to produce more than 400,000 tons of specialty papers annually. The plants operate 365 days a year and any unplanned shutdown of the process line results in a significant loss of capacity and revenue. Koehler Paper adopted Microsoft SQL Server 2005 technology after learning about the Database Mirroring capabilities. Database Mirroring involves keeping two separate databases with the same information. If something happens to one database, software within SQL Server can detect the failure and immediately begin using the other database for Koehler’s SAP applications. While failures are rare, if SQL Server 2005 can prevent one plant shutdown over the next five years, the savings provide a 200-percent return on Koehler’s investment.



Automatic failover capabilities of SQL Server 2005 will help Koehler avoid costly downtime. Administration costs will also be reduced by more than \$150,000 per year.

## Situation

In 1807, August Koehler bought a mill and began making paper by hand in Oberkirch, Germany. Nearly 200 years later Koehler Paper, which has five plants in Germany, sells some U.S.\$715 million a year in specialty papers to an international customer base.

The company, which has 2,000 employees, has an extensive SAP deployment, running SAP version 4.70, SAP Business Information Warehouse version 3.1, SAP Supply Chain Management version 4.1, SAP Enterprise Portal 6.0, and SAP Solution Manager.

The entire SAP deployment is supported by a 200 gigabyte (GB) relational database running on Microsoft® SQL Server™ 2000 Enterprise Edition (64-bit), part of Microsoft Windows Server System™ integrated server software, and the Enterprise Edition of Microsoft Windows Server™ 2003 operating system. A shadow database is used for failover support. The database is hosted on a Dell PowerEdge 2850 64-bit dual-processor computer. The SAP system has about 400 users, supporting up to 260 concurrent users.

Looking toward the future, the company wanted to enhance its database infrastructure across the enterprise by finding an easier and more efficient way to manage a failover system than the present solution.

## Solution

Koehler Paper migrated its SAP database to the beta edition of SQL Server 2005. "The beta edition of SQL Server 2005 has performed flawlessly, providing 100 percent planned uptime," says Alexander Fischer, Team Leader, IT Basics Department at Koehler Paper.

Koehler will use the Database Mirroring feature of SQL Server 2005 to enhance the currently used failover strategy based on SQL Server 2000. Database Mirroring involves keeping two separate databases with the same information. If something happens to one database, software within SQL Server can detect the failure and immediately begin using the other database for Koehler's SAP applications.

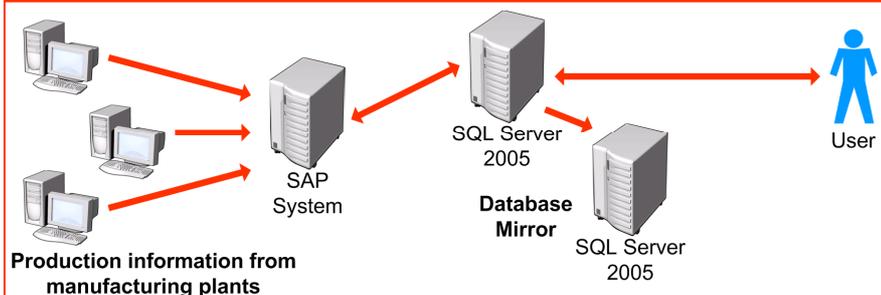
## Benefits

Koehler Paper anticipates several benefits from upgrading to SQL Server 2005, enhanced availability with database mirroring, reduced administration costs, and ease of migration.

### Enhanced Availability with Database Mirroring<sup>3</sup>

The enhanced availability of SQL Server 2005 immediately caught the attention of Koehler Paper because the company was seeking ways to improve its failover scenario to provide better availability for its mission-critical SAP database. "While our current database shadowing provides us with a failover solution, it requires use of third-party tools, and is difficult to manage," says Fischer. "The log shipping in SQL Server

### Koehler Paper Reduces Downtime with Automatic Failover



<sup>3</sup> While database mirroring will be delivered after the release of SQL Server 2005, this feature is complete, has passed extensive internal testing, and will be generally available in the first half of 2006

“The ability to run both versions of SQL Server on the same computer is a big advantage for us because it allows us to get comfortable with the new version before switching it into production mode.”

Alexander Fischer, Team Leader, IT Basics Department, Koehler Paper

0 or visit the Web site at:  
[www.koehlerpaper.com](http://www.koehlerpaper.com)

2005 is easier to work with and provides us with a much better administrative interface.”

While failures are rare, if SQL Server 2005 can prevent one plant shutdown over the next five years, the savings provide a 200-percent return on Koehler’s investment.

#### Reduced Administration Costs

The improved availability of SQL Server 2005 is the primary reason Koehler deployed the new software. But SQL Server 2005 has proven to have many other advantages for database administrators at Koehler. Administrators now perform maintenance while the database stays online in many cases. Administrators can also easily make backups before performing maintenance or upgrades and undo any changes at the first sign of a problem before the production lines are affected. Reducing administration costs by an estimated \$150,000 annually will produce a return of 50 percent for Koehler over the next three years with payback in 15 months.

#### Ease of Migration

The migration process is made easier because SQL Server 2005 and SQL Server 2000 can be run simultaneously on the same computer. “The ability to run both versions of SQL Server on the same computer is a big advantage for us because it allows us to get comfortable with the new version before switching it into production mode,” says Fischer. “This takes the stress out of migration.”

#### Microsoft Windows Server System

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#### Software and Services

- Microsoft Windows Server System
  - Microsoft Windows Server 2003 Enterprise Edition
  - Microsoft SQL Server 2005 (beta edition)

#### Technologies

- Microsoft SQL Server 2005 Reporting Services

#### Hardware

- Dell PowerEdge 2850 64-bit dual-processor

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## Document Solutions Firm Improves Customer Service, Reduces Costs with SQL Server 2005

### Overview

**Country:** United States

**Industry:** Document Management

### Customer Profile

Headquartered in Atlanta, GA, Recall offers document and data management solutions to 78,000 customers in 23 countries.

### Business Situation

Recall wanted to improve its business processes by providing managers access to real-time performance metrics. In this way, the company gained greater insight into operations.

### Solution

Recall is developing a business intelligence platform using Microsoft® SQL Server 2005 that collects data from Recall operations systems and provides managers with customized dashboards and reports.

### Benefits

- Improved customer service
- Reduced customer churn rates by 50 percent
- Reduced costs of collecting data by U.S.\$250,000

#### Financial Benefits

|                         |               |
|-------------------------|---------------|
| Net present value       | U.S.\$930,000 |
| Internal rate of return | 135%          |
| Payback                 | 12 months     |



"SQL Server 2005 will enable Recall to move to the next level in enterprise data management tools and business intelligence."

Brian Beard, CIO, Recall

Recall provides a full range of document and data management solutions for companies around the globe. Because Recall lacked a central system to collect and analyze operational data, the company was forced into time consuming manual analysis practices, resulting in inconsistent and often untimely reporting. Recall found a solution using Microsoft® SQL Server 2005. This solution is helping to create a business intelligence platform at Recall that collects data from its many operational systems and transforms the data into timely information. SQL Server produces dashboards and reports that managers can access through a Microsoft Office SharePoint® Portal Server intranet at Recall. The system reduced the cost of collecting data by U.S.\$250,000 and is helping Recall decrease customer churn rates by 50 percent. Recall expects to achieve a return of 135 percent on the project with payback in 12 months.



“The integrated platform offers efficiencies, particularly when talking about developer skill sets. You don’t have to hire different developers for different parts of the project because it is all done within the Visual Studio environment.”

Jason Willard, Director of Business Intelligence, Recall

## Situation

Recall provides information management solutions to more than 78,000 companies globally through offices in 23 countries. The company operates three divisions: Document Management Services, Data Protection Services, and Secure Destruction Services. These divisions offer a wide-range of services, including physical and digital document storage and retrieval, digital data protection and recovery, and secure destruction of information and materials.

Operations at Recall are complex. The company often stores thousands of items at a time for a single customer. And each item has to be meticulously documented so it can be retrieved easily when needed. Even the process of destroying items requires careful coordination so the truck arrives on time, the correct items are collected and destroyed, and the bins that store the items are returned to the proper place for the next pickup.

Each of the three divisions at Recall had different processes and systems for tracking results. Management lacked the desired level of visibility into these processes, and it was often difficult to determine if individual operations were working smoothly. A few years ago, a quality system was implemented to track results. The key measurement of the system was called Perfect Order, which tracked all aspects of order fulfillment from on-time delivery to order accuracy. Because Recall lacked a centralized system to compile business information, the Perfect Order data was collected manually at each local office. This process was costly, generally required the use of temporary workers to compile the results.

This limited visibility decreased Recall managers' ability to quickly resolve quality issues. Although Recall had high levels of customer satisfaction, the executive team felt more could be done. They felt they could retain more customers by making Recall

services easy to use and by improving service quality to standards never before seen in the industry.

The lack of a centralized business intelligence platform often led managers to make decisions with incomplete information. For example, managers in the Secure Destruction Services division wanted to determine the average cost of servicing a container. This information couldn't be pulled from the hundreds of Microsoft Office Excel® spreadsheet software files and Microsoft Office Access databases in use by various groups to store the information. “We could not pull the data together because data was spread out among various Access databases and Excel spreadsheets. We just had to go with an estimate,” explains Helen Bevan, Operations Support Manager. “We needed a new system that would allow us to build a real-time dashboard for managers.”

## Solution

Microsoft SQL Server 2005 contains greatly expanded business intelligence capabilities. The SQL Server 2005 business intelligence components used in the solution include:

- **Integration Services** that can pull data from many sources for use as a data warehouse
- **Analysis Services** that enable users to calculate key performance indicators and perform data mining
- **Reporting Services** that enable users to generate customized reports from the database

The entire platform is developed from within a single tool in the Microsoft Visual Studio® development system, making the development process simple. “Previously, you couldn't find an integrated platform for business intelligence project development,” notes Jason Willard, Director of Business Intelligence at Recall. “You would most likely end up with a best-of-breed solution that required multiple business intelligence tools

vendors.” SQL Server 2005 reduces the need for highly specialized knowledge when developing applications. The simplified user interface enables a large portion of the IT development staff to contribute to the project. “The integrated platform offers efficiencies, particularly when talking about developer skill sets. You don’t have to hire separate developers for different parts of the project because it is all done within the Visual Studio environment,” says Willard. SQL Server 2005 has tools to help developers automate the task of converting existing applications to take advantage of its improved business intelligence capabilities.

When Recall heard about the improved capabilities of SQL Server 2005, the company saw an opportunity to meet its business intelligence needs at a lower cost, while increasing the efficiency and quality of the business intelligence solutions. Recall began working with Intellinet, a Microsoft Gold Certified Partner, to evaluate options for upgrading its SQL Server 2000 applications and for implementing its business intelligence strategy. Intellinet had deep knowledge of the development of SQL Server

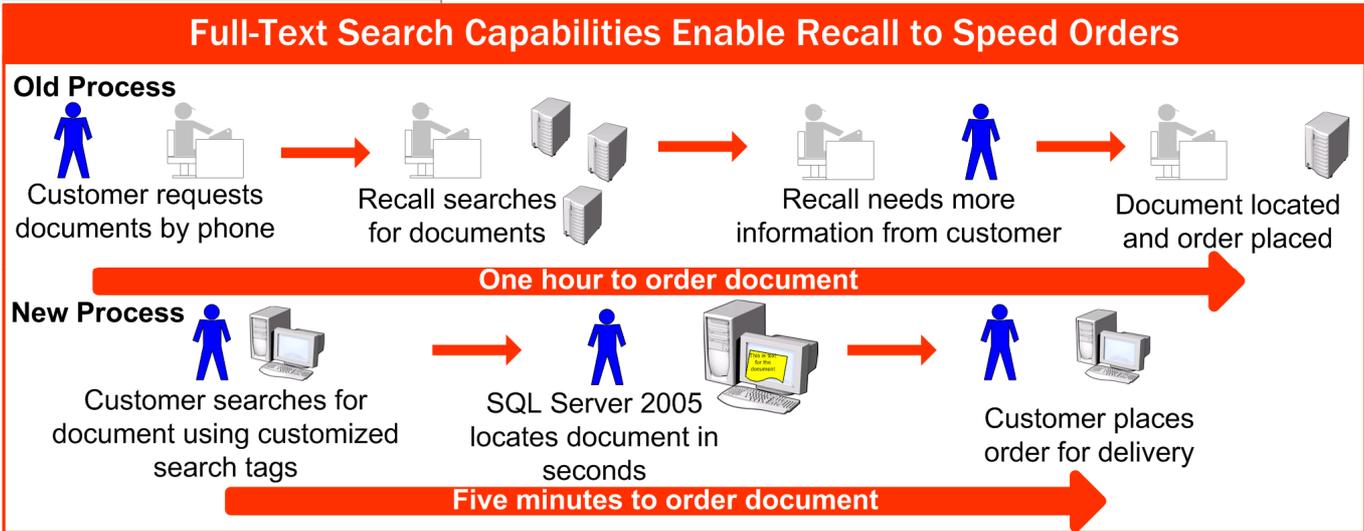
2005 and brought valuable insight into the advantages it offered Recall.

The outcome: Recall is undertaking projects to bring business intelligence capabilities to each of its three divisions. Eventually, SQL Server 2005 will provide operational analytics and real-time insight into operations to managers in each division. SQL will also provide notifications to managers when their personalized key performance indicators metrics cross pre-defined boundaries. Examples of Recall solutions based on SQL Server 2005 follow.

**Upgrading the Customer Web Portal**

Recall first used SQL Server 2005 for the ReQuest customer Web portal. This application changed the way customers interact with Recall when managing their storage needs. Originally developed in SQL Server 2000, ReQuest uses full-text search to enable customers to gather information about items Recall is holding for them. The database needed to be upgraded because it outgrew the search capabilities of SQL Server 2000 and the application could no longer meet its performance targets. The ease of the

Recall enables customers to access and modify their storage records with SQL Server 2005.



“The SQL Server 2005 solution moved us past the first hurdle—timely access to the data. We now have the capability to do predicative analysis on this data. The data tells us why customers leave and allows us to act immediately to mitigate the service issue.”

Melanie Shook, Manager of Customer Care Operations, Recall

transition from SQL Server 2000 to SQL Server 2005 surprised some at Recall. “We installed the new software on our test server, and then detached the database from SQL Server 2000 and reattached it to SQL Server 2005. It was that easy,” explains Alan Wren, Database Administrator at Recall. “All of the new management tools available started working without having to go through a setup process.”

SQL Server 2005 provided substantial performance improvements on the test database, reducing the time to index the database from 14 hours to 90 minutes. These performance increases translated directly to the much larger production database. Now records can be searched almost immediately after they are entered. The upgrade to SQL Server 2005 was so successful for this application that it went into production while SQL Server 2005 was still in its original beta release.

#### **Customer Quality Dashboard**

Next, SQL Server 2005 was used to implement a reporting system to track customer complaints and churn rate. The system pulls together data from the disparate complaints systems and customer databases to give managers insight into the reasons for customer churn. “The new system allows our operations managers to look at their dashboard and see any customer complaints for their market that were registered the previous day,” explains Melanie Shook, Manager of Customer Care Operations at Recall. “Now they can react to quality issues immediately and maintain positive relationships with our customers.”

#### **Business Intelligence Platform**

Currently, Recall is working on implementing SQL Server 2005 as the reporting tool for all of its PeopleSoft implementations. There is a new implementation in the Secure Destruction Services division and an emerging implementation for the Finance

department. Integration Services pulls data from the PeopleSoft systems and other operational systems into a central business intelligence database. Then Analysis Services organizes the data and calculates key performance indicators. Finally, Reporting Services organizes the data into reports and dashboards. The reports are available to managers through the Office SharePoint Portal Server intranet at Recall. The new system is expected to give managers insight into all aspects of Recall business operations.

#### **Server Consolidation**

Recall is planning to consolidate many of its current mission-critical SQL Server 2000 databases onto a single server running SQL Server 2005. The company currently operates databases on eight servers. Recall is looking to move all these databases onto one, 8-way Intel Itanium server. This move can significantly reduce maintenance costs and enable future expansion through multi-core processors based on the Itanium architecture.

#### **Benefits**

The Microsoft SQL Server 2005 business intelligence solution enables Recall to use data more effectively, improving customer service and helping to eliminate low-value, manual work activities. “The main thing we are doing is getting information to people so they can make better business decisions,” comments Melanie Shook, Manager of Customer Care Operations at Recall. The company expects the reduced IT costs and improved business processes to produce a return on investment of 135 percent and to provide payback in 8 months.

“Recall has a proven track record with Microsoft products. SQL Server 2005 will enable Recall to move to the next level in enterprise data management tools and business intelligence,” explains Brian Beard, Recall’s CIO. “The other major upside is the cost to value ratio, by staying with a Microsoft

platform we will continue to maximize our current investments and gain a cost advantage over our competition."

#### **Improved Customer Service**

The ReQuest system improves customer service by providing customers with easy access to a complete, confidential record of their holdings at Recall. The system then enables customers to place orders or perform administrative tasks for their account quickly and accurately. Many customers find ReQuest easier to use than calling and talking to a customer service representative. This system helps to speed the order process and improve order accuracy. It also helps Recall provide customers with detailed, real-time reports about their storage inventory and current order progress.

#### **Reduced Churn Rates by 50 Percent**

Microsoft business intelligence tools are helping to improve customer service by giving managers the data they need to take a proactive stance on service. Customer complaints are logged in to the system so they are addressed immediately. Quality scores are highly visible throughout the organization and are updated in near real-time. SQL Server 2005 provides the data that managers need to react to changes in the customer environment. "The SQL Server 2005 solution moved us past the first hurdle—timely access to the data," says Melanie Shook. "We now have the capability to do predicative analysis on this data. The data tells us why customers leave and allows us to act immediately to mitigate the service issue." Improved service has reduced churn rates, which ultimately improves Recall's profitability. Recall estimates that if the company can reduce churn by as little as 2 percent in one division, the cost savings are expected to be U.S.\$300,000 annually.

#### **Reduced Costs of Collecting Data by \$250,000**

SQL Server 2005 has automated the collection of data for the Perfect Order benchmark and other key performance indicators. This new system reduces the manual effort required in each local office to collect this information. Much of this work was done by temporary staff who are no longer required. The cost savings from temporary workers and full-time employees who can be reassigned is expected to exceed U.S.\$250,000.

## For More Information

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For more information about Intellinet products and services, call (404) 442-8000 or visit the Web site at:

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For more information about Recall products and services, call (888) 732-2556 or visit the Web site at:

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## Microsoft Windows Server System

Microsoft Windows Server System™ integrated server software is a comprehensive, integrated, and interoperable server infrastructure that helps reduce the complexity and costs of building, deploying, connecting, and operating agile business solutions. Windows Server System helps customers create new value for their business through the strategic use of their IT assets. With the Windows Server™ operating system as its foundation, Windows Server System delivers dependable infrastructure for data management and analysis; enterprise integration; customer, partner, and employee portals; business process automation; communications and collaboration; and core IT operations including security, deployment, and systems management.

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## Software and Services

- Microsoft SQL Server 2005
- Microsoft Office SharePoint Portal Server 2003
- Technologies
  - Microsoft SQL Server 2005 Integration Services
  - Microsoft SQL Server 2005 Analysis Services
  - Microsoft SQL Server 2005 Reporting Services

## Partners

- Intellinet

## Hardware

Intel Itanium servers



## Overview

**Country or Region:** Austria

**Industry:** Broadcast

### Customer Profile

Based in Vienna, Austrian Broadcasting Corporation Radio & Television (ORF) provides programming to more than 5.4 million Austrians daily, including extensive winter sports coverage.

### Business Situation

To improve coverage of winter sports for its viewers, ORF wanted to report results faster and improve its reporters' access to historical data.

### Solution

ORF is upgrading to the beta edition of Microsoft® SQL Server™ 2005 to improve support for XML data types and mobile devices, and enhance developer productivity.

### Benefits

- Decreased development time by up to 90 percent enabled the pilot project to expand to more sports
- Improved database performance opened new sales opportunities
- Faster compilation of results improves broadcasts
- Enhanced support for mobile devices

### Financial Benefits

|                         |              |
|-------------------------|--------------|
| Net present value       | U.S.\$53,000 |
| Internal rate of return | 42%          |
| Payback                 | 19 months    |

## Austrian Broadcaster Speeds Database Performance with Move to SQL Server 2005

“SQL Server 2005 has become a business enabler because we can now offer access to our data at speeds and prices that are interesting to users, which we could not do with the previous solution.”

Gerald Schinagl, Project Manager for the Sports Database, Austrian Broadcasting Corporation

Austrian Broadcasting Corporation (ORF) is the national public service broadcasting company in Austria. Sports coverage is one of the primary draws for ORF with a special focus on winter sports. To improve coverage of winter sports for its viewers, ORF wanted to report results faster and improve its reporters' access to historical data. ORF deployed the beta edition of Microsoft® SQL Server™ 2005 running on the Microsoft Windows Server™ 2003, Standard Edition operating system, to replace SQL Server 2000. The improvements in SQL Server 2005 allowed ORF to create applications up to 90 percent faster and expand the database to more sports than originally planned. The additional work ORF was able to complete has delivered a 42 percent return to ORF. The applications created with SQL Server 2005 have also opened new business opportunities such as selling access to the sports database to partner companies.



SQL Server 2005 enables ORF to enhance its sports broadcasts with real-time data and graphics. The improved development environment allowed ORF to add many more sports to the database than originally planned.

### Situation

Austria has long been known as a country of alpine beauty. Located north of Italy and south of Germany, Austria has some of Europe's most beautiful mountains, so it's natural that the country's nearly 8 million citizens have a passion for watching great performances on snow and ice. The Austrian Broadcasting Corporation (ORF) is dedicated to providing the country with rich programming, including the most up-to-date sports coverage, with special emphasis on alpine skiing, snowboarding, cross-country skiing, luge, speed skating, figure skating, and a wealth of other winter sports.

Behind the scenes, ORF has a 2 gigabyte (GB) relational database hosted on Microsoft® SQL Server™ 2000 Standard Edition running on the Microsoft Windows® 2000 Server operating system. The database holds everything from athlete biographers and team histories, to the latest in statistics and competitive rankings. The database is accessed on an intranet basis by ORF reporters and on an extranet basis by local news teams.

Looking toward the future, ORF needed a database that would:

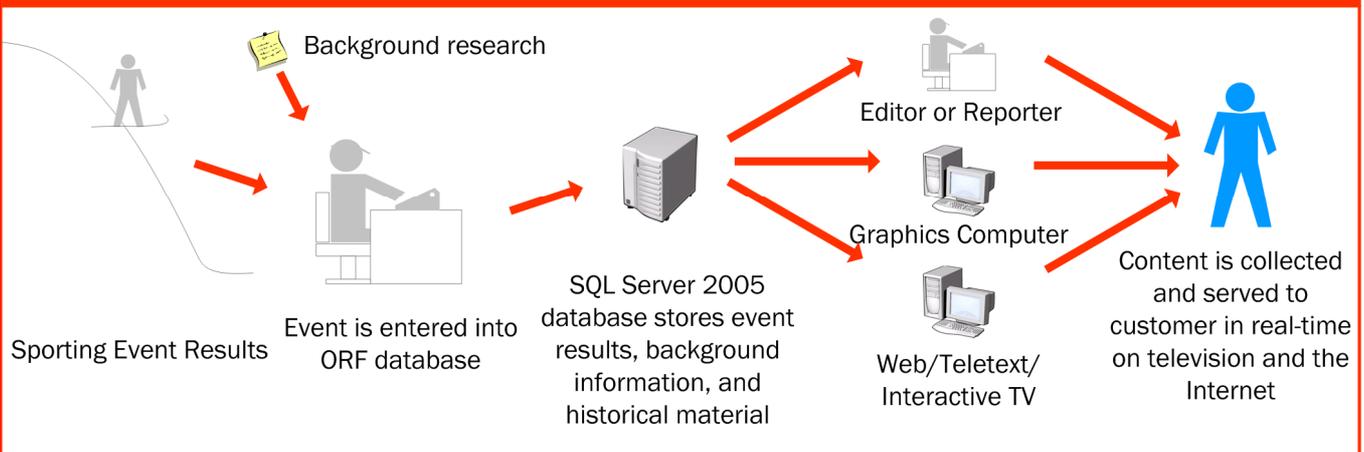
- Natively support the XML data type.
- More easily support rankings and pivoting, something that now requires custom code.
- More easily support better generalized procedures using SQL Common Language Runtime features.
- Provide better support for mobile devices including cell phones and handheld PCs.
- Enhance developer productivity.

### Solution

ORF upgraded its sports database to the beta edition of SQL Server 2005. The basic architecture remained much the same, but now ORF takes advantage of SQLCLR, the common language runtime feature built into SQL Server 2005, to improve data manipulation and calculations. The new solution will include:

- **Presentation Tier.** The presentation tier provides ORF internal users with role-based extranet access for managing and updating data. The extranet also provides ORF television and radio news groups with read-only access to data. Sports fans will soon

## ORF Provides Real-Time, On-Demand Sporting Event Results with SQL Server 2005



“We use SQL Server 2005 Management Studio for nearly all of our development.... Our development of XML-based applications is 90 percent faster with Management Studio.”

Gerald Schinagl, Project Manager for the Sports Database, Austrian Broadcasting Corporation

be able to access data through the ORF Web site. The presentation tier was created using Microsoft Visual Studio® .NET 2003 development system. The presentation tier runs on Microsoft Windows Server™ 2003 Standard Edition operating system, part of Microsoft Windows Server System™ integrated server software.

- **Business Tier.** The business tier provides database encapsulation and business rules, and runs on Windows Server 2003 Standard Edition, hosted on an active/passive cluster.
- **Database Tier.** The database tier will host SQL Server Integration Services (SSIS) for extraction, transformation, and loading (ETL), as well as the complete sports relational database, which now exceeds 4 GB. The database tier runs on the beta edition of SQL Server 2005 and Windows Server 2003 Standard Edition, hosted on an active/passive cluster.
- **Reporting Tier.** ORF plans to deploy a reporting tier using SQL Server 2005 Reporting Services running on Windows Server 2003 Standard Edition. Reporting Services will be used to create tables to better serve newspapers and other print-based media.

### Benefits

SQL Server 2005 has delivered a number of benefits to ORF in both the development of new applications and the performance of those applications. The benefits include:

- Decreased development time allowed the database to include more sports
- Improved performance opened new sales opportunities
- Faster compilation of rankings improves broadcasts
- Enhanced support for mobile devices improves access for reporters

ORF estimates the productivity gains from using SQL Server 2005 are worth 1,600 hours per year in support and development

time, which, if converted to dollars, provides a return of 42 percent for the organization.

### Faster Development Allows Database to be Expanded

ORF developers are enjoying the efficiencies of working with SQL Server 2005 Management Studio, previously referred to as the SQL Server “workbench.” Management Studio unites what were previously separate tools to provide a centralized work place.

“We use SQL Server 2005 Management Studio for nearly all of our development,” says Schinagl. “Previously we had to work with Query Analyzer, Enterprise Manager, and other tools as separate entities. Now everything is done from the same place—from creating tables to firing queries, or previewing the XML that is generated. Our development of XML-based applications is 90 percent faster with Management Studio.”

ORF found that it could expand its SQL Server project to cover more sports than originally planned. The project expanded from just covering alpine skiing events to the current goal of covering all of the winter Olympic sports for the 2006 Olympic Games.

### Improved performance opened new sales opportunities

SQL Server 2005 also opened new business opportunities for ORF. “SQL Server 2005 has become a business enabler because we can now offer access to our data at speeds and prices that are interesting to users, which we could not do with the previous solution,” explains Schinagl. ORF plans to deliver data to partner companies over the Internet and should have this service in place for the 2006 Olympic Games. ORF also delivers data to its online branch, ORF Online, and the interactive television offering. The old applications were unable to deliver real-time data so ORF Online entered the sports results manually to keep the Web page up to date.

Now ORF Online gets real-time results data directly from the sports database.

### **Faster Compilation of Results Improves Broadcasts**

To keep the excitement going, ORF keeps viewers up to speed on rankings and other statistics in as close to real time as it can. "As a skier is going down the course, we want to be able to show our viewers what the World Cup standings would be if he or she wins," says Schinagl. "We used to have to do ranking calculations outside of SQL Server 2000. We had about 150 lines of code we would use to determine correct rankings. With SQL Server 2005, the calculations are performed with perhaps 10 lines of code in a stored procedure. This means we have less external code to maintain, less chance to make an error, and we get our ranking results about 20 percent faster."

During live broadcasts of sporting events, ORF developers have found they can generate updated results for display along the bottom of the television screen significantly faster because SQL Server 2005 supports XML as a native data type. Team information stored as XML can now be acted upon directly from within the database, compared to earlier schemes that required the data to be extracted from and acted upon by separate applications, outside the relational database.

"Our developers love the fact SQL Server 2005 supports XML as a native data type," says Schinagl, "Native support of XML plus the SQLCLR feature of SQL Server 2005 has helped us to reduce the time from query to display in the tested cases by about 70 percent."

### **Enhanced Support for Mobile Devices**

ORF is using SQL Server 2005 Mobile Edition, which provides significant enhancements over its predecessor, SQL Server 2000

Windows CE Edition, to create robust database functionality for its reporters in the field using handheld devices such as the Tablet PC and the Pocket PC. ORF developers are creating solutions so a reporter can have a subset of the total sports database on their handheld device. A reporter covering Nordic skiing, for example, could have a Pocket PC with virtually the network's entire database for Nordic events without the need to have a network connection to its home base.

"Using new functionalities of SQL Server Mobile Edition and SQL Server Integration Services, we are enhancing our mobile application, so it quickly loads the data into the portable device," says Schinagl. "The process of loading data to a mobile device is much easier than it was with SQL Server 2000 and SQL Server [Windows] CE."

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For more information about Austrian Broadcasting Corporation Radio & Television products and services, call (+43) 1 878 78 0 or visit the Web site at: [www.orf.at](http://www.orf.at)

## Microsoft Windows Server System

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## Software and Services

- Microsoft Windows Server System
  - Microsoft Windows Server 2003
  - Microsoft SQL Server 2005 beta edition
- Microsoft Visual Studio .NET 2003

## ■ Technologies

- Microsoft SQL Server 2005 Reporting Services

## Hardware

- Intel-based servers