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| Overview  Country or Region: United States  Industry: Telecommunications  Customer Profile  Ashburn, Virginia–based MCI is a global communications provider with more than 40,000 employees who deliver connectivity to businesses, governments, and consumers.  Business Situation  MCI Enterprise Hosting wanted to enhance the efficiency, security, and reporting of its database and application management services, while gathering business intel­ligence more quickly and efficiently.  Solution  The organization deployed Microsoft® SQL Server™ 2005 to take advantage of enhanced query and reporting capabilities that better meet the needs of enterprise customers.  Benefits   * Faster and more efficient query capabilities * Better reporting for improved communications * Enhanced value to customers |  |  | “The Microsoft SQL Server 2005 solution gives us the ability to see quickly and accurately what our customers have, what they need, and what we can offer them.”  Jeremy Webb, Senior Product Manager, MCI Enterprise Hosting |
|  |  | MCI Enterprise Hosting, a Digex service, used a database solution based on Microsoft® SQL Server™ 2000 to provide application management support services to customers. The demand for faster, more complex reporting led the organization to seek to improve its existing solution. Initially attracted to new features such as the PIVOT relational operator that expands reporting options, MCI decided to upgrade to SQL Server 2005. As a result, the hosting provider can run extensive queries and produce reports more efficiently and effectively, saving MCI database adminis­trators significant time and effort. Plus, improved insight about customer systems, applications, and trends helps MCI offer added service and value to enterprise customers. |
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Situation

MCI Enterprise Hosting, the hosting unit of global communications leader MCI, provides a comprehensive range of Web hosting and application management solutions, from Internet and network colocation to fully managed, complex hosting services. MCI has Internet data centers in North America, Europe, and the Asia/Pacific region, where it offers both managed and colocation hosting solutions for its customers’ Web sites, data­bases, applications, and telecommunications equipment in a secure, rigorously engineered environment.

To help maintain its worldwide server farm, MCI Enterprise Hosting uses an internally developed application, Digex Intelligent Gathering System (DIGS). DIGS performs both scheduled and impromptu audits to retrieve configuration details from more than 2,000 Microsoft® Windows®–based server computers that the organization hosts for its customers. To run an audit, MCI uses a target list, which speci­fies the computers to audit, and a “package” list, which specifies the information to gather about each computer. Each package consists of more than 120 key parameters that are used to manage the organization’s globally dispersed servers.

Difficulties with Reporting

DIGS retrieved information from a central Microsoft SQL Server™ 2000 database, including details about each server com­puter’s operating system, applications, and recent updates. However, writing and exe­cuting impromptu queries involved a compli­cated, time-consuming process of developing a number of subqueries, correlating them, and managing multiple query iterations that were required to ensure that the types of data and the data itself were correct.

“It wasn’t that SQL Server 2000 couldn’t process our data well enough—in fact, it handled everything we threw at it,” says Dan Kahler, Senior Engineer for MCI Enterprise Hosting. “The challenge was the time and effort it took to gather detailed information from thousands of globally dispersed com­puters, and getting data back from the system in an understandable format for providing meaningful information to customers and executives.”

One of the elements that made reporting such a challenge was that MCI had designed DIGS to be extensible so that need-specific packages could be added and enabled without requiring changes to the core DIGS engine or database schema. Instead of cre­ating new columns and data-manipulation language procedures each time a package was added, the DIGS database used a pack­age metadata table to store package defini­tion data. It also added new rows to existing tables as the audit data for these packages was collected. The issue with the extensibility of DIGS was that, with no set list of packages, the audit data was not stored in package-specific columns. The lack of package-specific columns forced MCI to undergo a tricky, time-consuming process to produce useful reports.

The complexity involved with making queries and generating reports took time away from MCI database administrators’ and develop­ers’ core responsibilities, delaying MCI from providing customers with easily accessible reporting. Typically, five to seven database administrators were asked to perform an average of 75 distinct queries each week, along with supplying reports and data to customers. “Our IT staff members had to spend considerable time compiling data for others,” says Kahler. “Our processes were more manual than we would have liked, which also elevated the risk of human error.”

Need for Business Intelligence

In addition to better reports for customers, MCI required greater business intelligence. Analyzing the existing applications used within the hosting environment would help MCI better determine which technologies would be most beneficial in supporting customers.

Access to more accurate, detailed infor­mation also could help the organization’s IT administrators maintain tighter security and take more proactive steps in managing the environment. “Security is of great importance in a managed hosting environment because customers rely on us to protect their mission-critical functions,” says Jeremy Webb, Senior Product Manager for MCI Enterprise Hosting. “Our administrators needed to know which products were installed and their update status to cover vulnerabilities with appro­priate measures. We needed to make information available immediately so administrators could react to unexpected threats and safeguard customers.”

Solution

MCI Enterprise Hosting did not have to go far to find an appropriate solution to its database issues: Microsoft SQL Server 2005, part of Microsoft Windows Server System™ integrated server software. Says Webb, “SQL Server 2005 offered certain features right out of the box—including the PIVOT relational operator and Reporting Services.” Additionally, MCI had developed DIGS using SQL Server 2000, so the organization already had a great deal of expertise on which to build.

Consultants from Microsoft Services helped MCI coordinate opportunities for education and training on SQL Server 2005. One such opportunity was a two-day seminar for three MCI developers in May 2005. The session, led by members of the Microsoft partner channel, introduced the developers to many of the new features in SQL Server 2005. “The chance to run hands-on experiments during the training seminar helped confirm that the SQL Server 2005 features that we had been drawn to truly met our business require­ments,” says Kahler.

In August 2005, 15 MCI employees from across the Enterprise Hosting organization attended a five-day session on SQL Server 2005 infrastructure scalability and arch­itecture, which helped the organization’s technical staff be better prepared to conduct additional hands-on work with the software. The session also provided MCI with a multi­machine testing environment that would have been cost-prohibitive for the organization to establish internally. “The multimachine test­ing environment further helped to expand our knowledge and comfort with features that would be attractive to customers, such as database mirroring,” says Kahler.

MCI next conducted internal testing with the DIGS application and upgraded its existing SQL Server 2000 staging environment to SQL Server 2005 Enterprise Edition. Then MCI incorporated the new SQL Server 2005 features and verified that their functionality met the organization’s needs. MCI captured scripts to incorporate the new features and applied them to the production environment. “We copied the production environment over to a new SQL Server 2005 database to make sure that there were no issues with populat­ing data,” says Kahler. “The transfer to SQL Server 2005 went flawlessly for us.”

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| “The transfer to SQL Server 2005 went flawlessly for us.”  Dan Kahler, Senior Engineer, MCI Enterprise Hosting |

Benefits

From the outset, MCI Enterprise Hosting believed that SQL Server 2005 would offer tremendous scalability, and that has proven to be the case. Additionally, the wealth of scenarios, database administration tasks, new architectural features, and enhanced availability deliver value to MCI and its customers. The improved functionality is helping MCI write and execute queries more quickly, make reports more readily available, and capture in-depth information to identify business opportunities and better serve customers.

Faster Query Capabilities

With SQL Server 2005, MCI is finding it both quicker and easier to run queries than with its previous database solution. The new PIVOT relational operator is especially advan­tageous because it helped MCI transform its vertical database environment into one that efficiently processes meaningful information. The PIVOT operator rotates rows into columns and can perform aggregations or other math­ematical calculations along the way.

“Before implementing SQL Server 2005, we had to write, truncate, and repackage a con­siderable amount of logic to deal with the millions of rows of data. A transformation query could take several minutes to com­plete,” says Kahler. “The equivalent trans­formation using the SQL Server 2005 PIVOT operator takes just 11 seconds, and it’s infinitely easier to debug. The PIVOT operator feature is a huge plus for us.”

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In addition, the PIVOT operator helps MCI developers write queries that other admin­istrators and enterprise customers can run through the DIGS user interface. MCI also enjoys the use of the APPLY operator and common table expressions because they help further the company’s goal of getting better information out of its database with fewer time-consuming, labor-intensive subqueries.

Better Reporting for Improved Communications

As a result of the upgrade to SQL Server 2005, it’s now faster for MCI to create reports and share them. In particular, once fully deployed, SQL Server 2005 Reporting Services will address an ongoing need in the MCI environment: efficient communications between those seeking information and those needing to provide it. When users describe what types of information they require and how often they want to receive reports, IT staff members will have a mechanism for regularly delivering that information quickly and easily in a clear report format.

“The Reporting Services feature in SQL Server 2005 will give us the ability to get the right data to the right people,” says Webb. “With a single tool, we can serve various audiences with different interests, and we can do it quickly. A report that used to take us a couple of days to create will take under one hour. Because Microsoft has automated the process, we will be able to provide faster, better reports to customers.”

Add Kahler, “Reporting Services provides us with a truly intuitive means of creating reports, as well as a straightforward way of distributing them. The upgrade to SQL Server 2005 really simplifies report generation for us and our customers.”

Enhanced Value to Customers

Having the ability to easily gather business intelligence—such as server computer usage trends from week to week—is important. MCI is using the SQL Server 2005 solution to gain insight about the operating systems, applica­tions, and tools used by its customer base so that it can better serve customer needs. “SQL Server 2005 helps us identify a proliferation of a specific application across many custom­ers’ computers—or the need for a specific application. With that information, we can offer customers more support,” says Webb.

The new solution also offers a more accurate, accessible view into which customer compu­ters are not current with software updates. With that information, MCI can manage its security more efficiently to protect its customers.

MCI anticipates that the benefits derived from its upgraded solution will encourage customers to adopt SQL Server 2005 for their hosted computers. “Features like database mirroring and Database Tuning Advisor can improve performance, and data encryption support can help customers comply with regulatory requirements,” says Webb. “The Microsoft SQL Server 2005 solution gives us the ability to see quickly and accurately what our customers have, what they need, and what we can offer them in terms of improved management, enhanced efficiency, and resource savings.”

Microsoft Windows Server System

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| Software and Services   * Microsoft Windows Server System * Microsoft SQL Server 2005 Enterprise Edition * Services * Microsoft Services | * Technologies * Microsoft SQL Server 2005 Reporting Services   Hardware   * HP ProLiant Series server computers |

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Microsoft Windows Server System is a line of integrated and manageable server software designed to reduce the complexity and cost of IT. Windows Server System enables you to spend less time and budget on managing your systems so that you can focus your resources on other priorities for you and your business.

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Microsoft SQL Server 2005

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Microsoft SQL Server 2005 is compre­hensive, integrated data management and analysis software that enables organizations to reliably manage mission-critical informa­tion and confidently run today’s increasingly complex business applications. By providing high availability, security enhancements, and embedded reporting and data analysis tools, SQL Server 2005 helps companies gain greater insight from their business infor­mation and achieve faster results for a competitive advantage. And, because it’s part of Windows Server System, SQL Server 2005 is designed to integrate seamlessly with your other server infrastructure investments.

For more information about SQL Server 2005, go to:   
[www.microsoft.com/sqlserver](http://www.microsoft.com/sqlserver)