

Microsoft® SQL Server™ 2008

Microsoft SQL Server 2008

Customer Solution Case Study



Overview

Country or Region: United States

Industry: IT services

Customer Profile

Nexius provides network analytics and business intelligence support for the telecommunications industry. Based in Herndon, Virginia, the company employs 275 people in nine regional offices.

Business Situation

Nexius needed a business intelligence solution that would meet increased customer demands for performance and scalability while keeping maintenance costs down.

Solution

The company replaced its data warehousing system with a solution featuring Netezza technology and Microsoft® SQL Server® 2008 Analysis Services.

Benefits

- Improves query performance by nearly 50 percent
- Eases system management
- Reduces operating costs

Data Analysis Solution Provider Increases Query Performance by Nearly 50 Percent

“When we started testing the Netezza technology with SQL Server Analysis Services and used the newer OLAP models, the aggregate query performance improved by almost 50 percent.”

Joseph Khalil, Senior Vice President of Product Development, Nexius

Nexius, a technology consulting firm and provider of data analysis solutions, was chosen by a major telecommunications company to deploy its advanced network intelligence platform called Xplore to analyze quality-of-service data provided by a mobile phone network. Xplore had to process more than 10 million call records per hour, and the supporting database technology could not meet the customer’s performance requirements. Nexius worked with Netezza, a developer of data warehouse appliances, and Microsoft to integrate Xplore with the Netezza platform. The combined solution integrates Nexius technology with Microsoft® SQL Server® 2008 Analysis Services and the Netezza data warehouse appliance. Tests show raw performance is up to seven times faster and queries are nearly 50 percent faster compared to the previous solution. The new solution is also easier to manage and costs less to operate.

NETEZZA

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Situation

Nexius provides the telecommunications industry with services and solutions that integrate network and business intelligence (BI) technologies. Its customers include some of the largest telecommunications companies in the world.

In early 2007, Nexius deployed Xplore, its network intelligence platform, to process call data from the mobile phone network of a major telecommunications company.

When a mobile phone subscriber makes a call, the network generates a record containing data about the call session—for example, duration, signal strength, and whether the session was terminated. The network sends the data to the Xplore solution, where the call's quality of service (QoS) is computed and more than 90 days of QoS data is stored. Xplore updates the QoS data in near real-time, and then the data is aggregated into online analytical processing (OLAP) cubes by Microsoft® SQL Server® 2008 Analysis Services.

Nexius engineers and the customer analyzed the aggregated data with Xplore, using Microsoft SQL Server 2008 Analysis Services, SQL Server 2008 Integration Services, and SQL Server 2008 Reporting Services to process and present the data to the users. According to Joseph Khalil, Senior Vice President of Product Development at Nexius, "By going back and analyzing all of this data, we can simulate the customer's experience on the network in near real-time and allow the mobile operator to proactively address network issues that impact the customer."

Since the system was brought online, the number of mobile phone subscribers has grown substantially. As a result, the size of the database has increased along with the amount of data that the analysis tools must process and the time that is necessary to

complete the analyses. To maintain the level of performance that the customer required, the database administrators at Nexius had to spend more time tuning the previous database. "Storage requirements will always increase, but we needed to accommodate this in such a way as to not degrade performance," says Khalil. "If we're running a report that takes five seconds to load when we have 2 terabytes, it still needs to load within five seconds when we have 30 terabytes."

Nexius expected the storage requirements of the data warehouse to double within a year. Nexius needed a BI solution that could scale easily and cost-effectively while meeting the customer's performance demands. To reduce administration and migration costs for Nexius and the customer, the new solution also had to be easy to maintain and compatible with the existing analysis tools.

Solution

In September 2008, Nexius chose to integrate its Xplore platform with products from Microsoft and Netezza, a provider of high-performance data warehouse appliances. The Netezza appliance was chosen because it performs complex analyses on terabytes of data very quickly. The appliance uses massively parallel processing (MPP) and data streaming technologies that are designed for high-performance data warehousing and data analysis environments. Peter Sollimo, Channel Sales Manager at Netezza, says, "We call it an appliance because it is truly just that. When Netezza performs an installation, each one is the same—the only variance is the size of the system. Within hours of arrival, the box is ready for testing, processing data loads, and handling queries."

“Integrating Netezza technology with our existing business intelligence tools based on Microsoft Business Intelligence technologies has given us a cost-effective and high-performance solution.”

Joseph Khalil, Senior Vice President of Product Development, Nexius

In the first phase of testing the integrated system, the testers evaluated how efficiently SQL Server Analysis Services, SQL Server Integration Services, and SQL Server Reporting Services worked with the Nexius data analysis software running on the Netezza appliance. The engineers used SQL Server Analysis Services with newer and more efficient OLAP models to accommodate larger aggregations of QoS data while increasing performance. Their goal was to integrate Microsoft and Netezza technology into an optimized data analysis and data warehousing engine. This would be the foundation of the Xplore-based architecture delivered to the customer.

In the second test phase, Nexius incorporated Xplore and Microsoft BI front-end tools into the new BI architecture. The engineers confirmed that these applications could meet end-user requirements for performance and stability in the new environment. Nexius also used the tests as an opportunity to deploy the Windows Server® 2008 operating system on its application server. The company expected to complete the Windows Server 2008 deployment in the first quarter of 2009.

Nexius and Netezza finished the tests in December 2008. The testing and integration went as planned and performance exceeded expectations. Says Khalil, “Any time we had difficult questions or issues during the tests there was someone on call from Netezza or Microsoft ready to help. The evaluation of the Netezza platform with Microsoft and Nexius technologies has gone smoothly, and we are very happy with the level of support we’ve received.”

Benefits

Testing has shown that the joint solution has improved data analysis performance

and reduced operating costs. It is also easier to manage. Says Khalil, “Integrating Netezza technology with our existing business intelligence tools based on Microsoft Business Intelligence technologies has given us a cost-effective and high-performance solution.”

Improves Query Performance by Nearly 50 Percent

SQL Server Analysis Services and Netezza technology made it possible for Nexius engineers to incorporate newer and more efficient OLAP models into its test environment. The MPP and data streaming technologies incorporated into the Netezza appliance give the new data warehouse solution the ability to query QoS data much faster than the previous system.

“When we ran the raw queries on Netezza, we saw a seven-fold increase in performance,” says Khalil. “When we started testing the Netezza technology with SQL Server Analysis Services and used the newer OLAP models, the aggregate query performance improved by almost 50 percent.” This was due in large part to the increased performance of the integrated solution reducing the need to refresh the OLAP cube data. “In one of our tests,” says Khalil, “it took 40 seconds for a report to load from a standard OLAP cube. Using the enhanced OLAP models created with SQL Server Analysis Services, it took 25 seconds to load the report. That is a significant performance improvement.”

Faster query performance means faster QoS data analysis for the telecommunications company using the data warehouse. “Our customer will use that information to manage its mobile phone network more efficiently and provide better service to its subscribers,” says Khalil.

“We found that once we got the Netezza and Microsoft tools configured the way we wanted them, we didn’t need the maintenance overhead that we had to devote to the previous data warehouse.”

Joseph Khalil, Senior Vice President of Product Development, Nexius

Eases System Management

The previous data warehouse used by Nexius required a large amount of routine maintenance to keep it operating at peak performance. Nexius needed dedicated database administrators to complete these time-consuming duties. For example, when the database grew, Nexius had to frequently update the partitioning of large numbers of disks. To optimize the performance of the data warehouse, administrators needed to change the database schema or implement table indexing.

The new solution simplifies management. The Netezza data warehouse appliance is a self-optimizing system—it automatically monitors and balances its query workloads across its parallel processing units. This reduces the number of maintenance tasks that must be performed, eliminating the need for Nexius to hire full-time database administrators. Because Netezza architecturally integrates database, server, and storage functionality into its appliance, Nexius administrators do not have to integrate third-party data warehouse processing and storage technologies. Nexius administrators can also add storage resources without shutting down the data warehouse appliance.

Nexius administrators use the Cube Wizard in SQL Server Analysis Services to quickly and easily create OLAP cubes. The performance monitoring and profiling tools in SQL Server Analysis Services simplify the job of maintaining the OLAP cubes.

According to Khalil, “We found that once we got the Netezza and Microsoft tools configured the way we wanted them, we didn’t need the maintenance overhead that we had to devote to the previous data warehouse. That’s another big plus for us.”

Reduces Operating Costs

The Netezza data warehouse appliance combines storage, server, database, and data analysis functionality within one cabinet. This design will reduce or eliminate several operating costs associated with the previous data warehouse:

- A dedicated storage device administrator
- A dedicated operating system administrator
- The purchase and maintenance costs of a server cluster
- The purchase and maintenance costs of network connectivity technology

“With the database system,” says Khalil, “we had to specify things like the number of servers, the storage requirements, and the fiber connectivity between the servers. All of these items are encapsulated in one Netezza appliance. This has significantly reduced our costs.”

Netezza technology and SQL Server Analysis Services have made it possible for Nexius to better serve the business needs of its customer by making the architecture of its data warehousing solution less complex. The simpler architecture streamlines the data warehousing process and provides wide-ranging benefits—Nexius has a more manageable solution, the customer gains faster QoS data analysis, and the customer’s mobile phone subscribers experience better service.

For More Information

For more information about Microsoft products and services, call the Microsoft Sales Information Center at (800) 426-9400. In Canada, call the Microsoft Canada Information Centre at (877) 568-2495. Customers who are deaf or hard-of-hearing can reach Microsoft text telephone (TTY/TDD) services at (800) 892-5234 in the United States or (905) 568-9641 in Canada. Outside the 50 United States and Canada, please contact your local Microsoft subsidiary. To access information using the World Wide Web, go to:

www.microsoft.com

For more information about Nexius products and services, call (703) 650-7777 or visit the Web site at:

www.nexius.com

For more information about Netezza Corporation products and services, call (508) 382-8200 or visit the Web site at:

www.netezza.com

Microsoft SQL Server 2008

SQL Server 2008 is a highly secure, reliable, and scalable platform for business-critical applications with transparent encryption, comprehensive auditing, and enhanced mirroring, while reducing the time and cost of managing data with enterprisewide policies. SQL Server simplifies development of data-driven applications with the integration of Microsoft Visual Studio® and the Microsoft .NET Framework, support for any type of data, and consistent storage from the device to the data center. SQL Server delivers the right information to all users with advanced visualizations, powerful reports, and integrated analysis.

For more information about SQL Server 2008, go to:

www.microsoft.com/sqlserver

Software and Services

- Microsoft Server Product Portfolio
 - Windows Server 2008 Enterprise
- Technologies
 - Microsoft SQL Server 2008 Analysis Services
 - Microsoft SQL Server 2008 Integration Services
 - Microsoft SQL Server 2008 Reporting Services

Hardware

- HP ProLiant BL460 and BL680 server computers with quad-core Intel Xeon 1.86Ghz processors
- Netezza data warehouse appliance