



## Challenge

Solve database access performance problems emerging after redesigning the application and switching to a new application server

## Solution

Replacement of default Microsoft SQL Server drivers with Progress® DataDirect® JDBC drivers

## Benefit

10X improvement in page load time;  
20X improvement in database access performance

## The Need for Speed

Whoever first said “Instant gratification isn’t fast enough” could easily have been referring to a business website user’s experience. For Yamaha Motor Europe, a supplier of motorcycles and related motorized products, this has certainly been the case with the operationally-critical dealer website. The site connects their 1,500 European dealers with the Yamaha distributors in 12 countries. The website is designed so that dealers can quickly order spare parts for one of Yamaha’s dozens of motorized products as well as register warranties and process warranty claims. The Yamaha dealer site plays an important but understated role for the Yamaha brand in Europe. The experience of owning a Yamaha product is influenced by the ease of service. By efficiently connecting dealers and distributors, the Yamaha dealer site ensures a positive impression of the brand for the end customer, the person who actually bought the water vehicle or motorcycle.

“For users of our website, there are only two acceptable speeds for the underlying application and database: Fast and faster,” said Kees Trommel, Division Manager Information Systems at Yamaha Motor Europe. “With hundreds of data points, such as part numbers, loading onto Web pages, database speed is essential to maintain a satisfactory user experience. A half second lag in page load time can make a big difference.”

## Diagnosing the Database Trouble in an Infrastructure Update

For cost cutting reasons, Yamaha decided to switch out the high-end application server that powered the European dealer website with Apache Tomcat running in a virtualized environment. As Yamaha replaced the site's application server, however, it ran into a serious data access performance problem with the Microsoft SQL Server database. Page load times that used to take five seconds now took forty, if they worked at all. The previously stable site crashed frequently. Worse, the database itself crashed as well. This was of course completely unacceptable, causing Yamaha to delay the launch of the new site.

An analysis of the problem by Yamaha's IS division revealed that the default JDBC drivers that came with the Microsoft SQL Server were not suitable for the task of handling the particular demands of the dealer site. The issue they faced turned out to be relatively common: The free drivers that accompany many commercial databases are not able to operate efficiently—or at all. The Yamaha team began to search for a new database driver that could help them ensure the kind of database performance they needed for the site. After reviewing their options, Yamaha selected Progress® DataDirect® JDBC drivers to replace SQL Server's built-in drivers.

Yamaha chose Progress DataDirect solutions because they are designed for optimal database access performance on virtual machines (VMs). DataDirect takes a resource-efficient approach to architecture. The DataDirect drivers that Yamaha selected were designed to make the most efficient possible hardware-based resources such as CPU, memory, and network

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Kees Trommel, Division Manager Information Systems,  
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I/O capacity. Better hardware performance leads to improved application performance on the VM that runs the application. The DataDirect drivers also feature a streamlined, clientless design that communicates with the database at the lowest level possible, the "wire protocol." This design eliminates the need for database client libraries, reducing the administrative overhead of managing multiple vendors and versions of cumbersome database client installations and the amount of excessive network "chatter."

Compared to other JDBC drivers, DataDirect Type 5 products demonstrate unmatched throughput. On average, DataDirect JDBC drivers can process 20-500% more work in a given time period than is possible with competing products. For example, in a test that simulates a monthly report in which many records are fetched, the DataDirect driver is up to 1450% faster. And in most tests, DataDirect driver throughput stays high and even increases as more users are added. DataDirect drivers also use considerably fewer CPU cycles to deliver superior throughput than competing drivers—in many cases, greater than 150% more CPU efficient. Finally, DataDirect drivers require significantly less memory while doing more work than performance-limiting Type 4 drivers—in some cases saving over 400% in memory.

**"We collaborated with the Progress Support team on tuning the drivers and got a 20X improvement in database access performance!"**

Ronald Haring, Senior Developer, Yamaha Europe

## Making the Database Hum with Progress Datadirect JDBC drivers

After using the wizard-based installation process, which took the Yamaha database administrator about an hour, the Tomcat-based version of the dealer site came back to life. The database stopped crashing and the application returned to its previous level of stability. After tuning the driver, including

tweaking some “hidden” settings by working in concert with the Progress support team, the dealer site was able to function at 20 times the speed it had been running with the Microsoft SQL Server drivers! The improved data access helped actual page load times increase by a factor of 10X.

“We collaborated with the Progress Support team on tuning the drivers and got a 20 times improvement in database access performance!” said Ronald Haring, Senior Developer, Yamaha Motor Europe. “DataDirect ‘Statement Pooling’ capability was a big factor in this remarkable performance leap. Pages now loaded in between four and five seconds.” DataDirect was also able to help Yamaha with a smooth transition to launching the new dealer site in 12 different languages. Some of the countries where Yamaha does business use UTF8 characters, while others use Unicode. The SQL Server drivers had trouble with this, but DataDirect JDBC drivers made it possible to get the site up in all territories easily.

## Delivering Agility and High Quality Customer Experience

The updated dealer site, with Progress DataDirect drivers in place, is now functioning at a speed that satisfies its demanding users. And, while the infrastructure is new, the stability and reliability necessary to run the business is the same because of the choice of DataDirect JDBC drivers. This accomplishment is essentially invisible to end users, of course. For them, the site just works, but that’s what Yamaha needs. The access performance of the database, enabling smooth and efficient use of the site, is powering an important part of Yamaha’s operations. In terms of IT operations, the Progress DataDirect drivers are making possible a new level of infrastructure agility. The database is no longer an obstacle to updating or replacing components of infrastructure, such as application servers. Database access performance is also not an issue inhibiting the move to virtualization.

## About Yamaha Motor Company

Yamaha Motor Europe is the European headquarters of Yamaha Motor Company Limited (YMC). YMC is a global business, based in Japan, that produces motorcycles, all-terrain vehicles, boats, marine engines including outboards, automobile engines, personal watercraft and snowmobiles. Yamaha Motor is part of Yamaha Corporation. In 1955, Yamaha CEO Genichi Kawakami took the company from being the world’s largest maker of pianos into the field of motorized vehicles. The company’s intensive research into metal alloys for use in acoustic pianos had given Yamaha wide knowledge of the making of lightweight, yet sturdy and reliable metal constructions. This knowledge was easily applied to the making of metal frames and motor parts for motorcycles. The company has worldwide revenue in excess of \$15 billion.

## About Progress

Progress (NASDAQ: PRGS) is a global software company that simplifies the development, deployment and management of business applications on-premise or in the cloud, on any platform or device, to any data source, with enhanced performance, minimal IT complexity and low total cost of ownership. Progress can be reached at [www.progress.com](http://www.progress.com) or 1-781-280-4000.

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