



## Progressive Prepares for Future Growth, Gains Agility with SQL Server 2005

### Overview

**Country or Region:** United States

**Industry:** Financial services

### Customer Profile

Based in Mayfield Village, Ohio, Progressive Insurance is the third largest U.S. auto insurance group, with annual premiums over U.S.\$14 billion.

### Business Situation

Progressive needs to replace a nearly 30-year-old mainframe-based policy management application that is central to its operations.

### Solution

Progressive is creating a completely new policy management application that will be deployed using Microsoft® SQL Server™ 2005 database, and that will be created using Microsoft Visual Studio® 2005 and the Microsoft .NET Framework 2.0.

### Benefits

- Enterprise-grade reliability
- Scalability
- Ease of integration
- Faster time to market

“Moving from the mainframe to the Microsoft Application Platform is going to significantly reduce our development time for our internally developed applications.”

Mark Stehlik, IT Director, Progressive

Progressive, with annual premiums of more than U.S.\$14 billion, is one of the largest insurers of private automobiles in the United States. Its internally developed application for managing policies is at the very foundation of the company's operations. As the company prepared to replace its mainframe-based application—first deployed in 1979, and frequently updated over the years—it needed enterprise-grade technology that would scale and provide the flexibility to easily deploy new solutions. Progressive is creating its new policy management application, using Microsoft® SQL Server™ 2005 Enterprise Edition (64-bit) database, with development being done using Microsoft Visual Studio® 2005 and the Microsoft .NET Framework 2.0. The company's 45,000 agents will access policy data through Web-based access supported by Microsoft technology.

#### Fast Facts

Largest table (upon full deployment)	100 million rows
Largest table (anticipated post-deployment near-term growth)	500 million rows
Total data size when fully deployed	10 terabytes
System integration needs	Interacts with more than 100 applications
Database	Microsoft SQL Server 2005 Enterprise Edition (64-bit)
Operating system	Windows Server 2003 Enterprise x64 Edition
Development environment	Microsoft Visual Studio 2005 and the Microsoft .NET Framework 2.0
Application Platform Capabilities	Development, Data Management, Business Intelligence

technology and business processes have evolved dramatically. Proteus, written in the COBOL language, was created for processing paper policies that were mailed in by agents.

Increasingly, Proteus, deployed across several mainframes, was creating legacy issues within the application environment—such as hard-coded business processes, brittle applications, disconnected data sources, and complex development tools—all of which hampered Progressive IT efforts to support business goals. Integration issues with the Proteus application led to lengthy time-to-market for new or modified insurance products, limited competitive advantage, and/or delays to profitability derived from same.

#### Situation

Since its founding in 1937, the Progressive Group of Insurance Companies has been an innovator, initiating 24-hour, in-person, and online services, and other user-friendly ways to better meet customer needs. The company, which offers insurance to personal and commercial auto drivers throughout the United States, has grown to be the third largest U.S. auto insurance group, with annual premiums over U.S.\$14 billion.

The company's innovation played a role in the group being named to BusinessWeek magazine's inaugural list of the best places for new college graduates to begin their careers, ranking No. 37 among such employers as Walt Disney, Google, NASA, and General Electric.

An early adopter of computer technology, in 1979 Progressive created a policy management application called Proteus that was based on flat files, mainframe computing, 3270 screens, and batch processing. Proteus has served the company well, but over its nearly three decades of life,

True to its name, Progressive continually upgraded what Proteus could support by integrating leading edge technology, rolling out object-oriented applications, creating code generators, supporting mobile claims needs, integrating real-time with external data providers, building customer databases, extending component-based product specification, achieving application integration via XML, and taking market leadership of insurance over the Internet.

Yet the continual enhancements to Proteus—achieved by grafting the new technologies onto the core batch system—greatly heightened the complexity of the system, making each new enhancement more costly. Progressive determined the key was to connect the applications together in ways that supported their required business scenarios—through service orientation and the mapping of core business processes. This was especially important for the company because at least a hundred downstream applications are dependent on this major line of business system. The company also needed an infrastructure that was connected

“We have stress tested and endurance tested SQL Server. We’ve prototyped, and done proofs of concept, and we’ve found SQL Server 2005 is fully ready.”

Jim Gorjup, Group Manager, Progressive

and adaptable to the evolving needs of its internal business partners.

Progressive decided it was time to create a completely new application to replace Proteus.

But as the company prepared for this move, it knew that it needed a solution that provided:

- Enterprise-grade reliability, as the application is mission critical.
- Scalability to meet future growth.
- Internal developers with the agility to rapidly respond to customer needs and industry trends.

“Proteus, which is hosted across several mainframes, has served us well for nearly 30 years, but it wasn’t designed as a customer-facing system,” says Mark Stehlik, IT Director, Progressive. “It was becoming increasingly difficult to meet the expectations of our internal business customers, as well as our external customers. You can’t provide real-time responses to customers when dealing with a batch-processing application. We needed a new platform to help us respond to current and future needs.”

### Solution

Progressive is creating a completely new application to manage all events within a policy’s lifecycle, and integrate with existing Progressive applications to process business such as new policy creation, endorsements, and reinstatements. The new policy management application is being built using the Microsoft® Application Platform to give its IT and development teams the tools they need to build connected systems that bring together their people, processes, and information.

The solution is being created using Microsoft SQL Server™ 2005 Enterprise Edition (64-bit) database running on the Windows Server®

2003 Enterprise x64 Edition operating system. Progressive’s 28,000 employees and the company’s more than 30,000 independent insurance agencies will access the new policy management application through Web-based access supported by Microsoft technology. This feature enables real-time policy processing and interaction with thousands of non-Progressive employees—independent sales contractors—enabling greater employee and partner satisfaction in sales and service processes, which translates into enhanced customer satisfaction.

The mainframe and DB2-based Proteus application will have served Progressive Insurance for three decades by the time it is retired. Choosing the successor technology was a significant undertaking. Progressive evaluated SQL Server 2005 for use as the new policy management application database, and found that it meets the company’s functional, performance, and availability requirements.

The design, development, and testing for the migration work has already begun and the first deployment will go in production in the summer of 2008. Progressive plans to convert its operations from the current mainframe-based Proteus application to its new policy management system using a state-by-state deployment. When full deployment is completed, the new policy management application is expected to have about two terabytes of data hosted on SQL Server, with near-term growth expected to approach 10 terabytes.

### Architectural Overview

Built upon the Microsoft Application Platform, the new policy management application will deliver a flexible solution that can respond rapidly to changes in business demand, product design, and customer needs. The application is designed to ensure that

Figure 1. - The new policy management application, with its SQL Server 2005 database, will manage the complete policy lifecycle.

consistent but flexible rules are applied, information is stored accurately, and business events are communicated instantly to all affected systems.

Some of the basic architectural elements include:

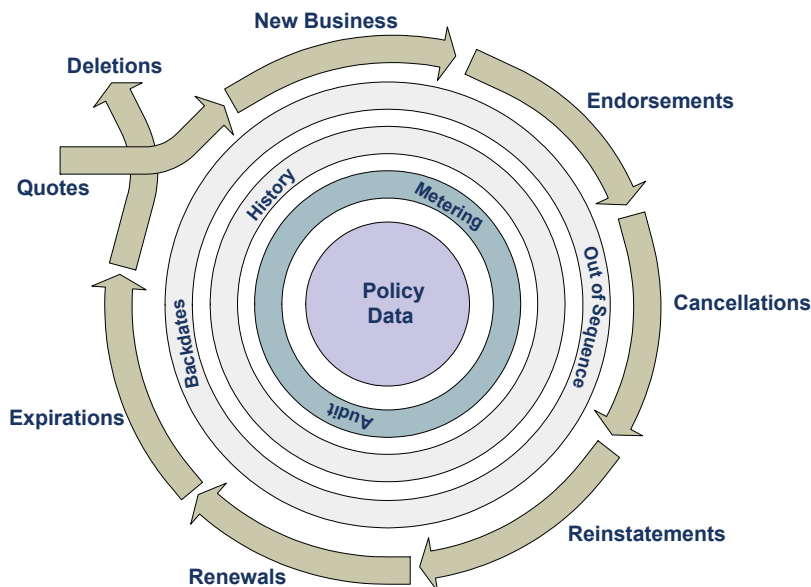
- Policy management application.** The new policy management application is being created using Microsoft Visual Studio® 2005 development system and the Microsoft .NET Framework 2.0, an integral component of Windows® that provides a programming model and runtime for Web services, Web applications, and smart client applications. The new application will deliver all of the business rules for orchestrating policy events. It controls transaction workflow, and manages data exchange with more than 100 separate systems across the enterprise. As shown in Figure 1, the new policy management application manages each phase of the

policy lifecycle, from receiving quotes and creating new policies, to adding endorsements, processing cancellations, reinstatements, renewals, expirations, and deletions.

- PolicyOps database.** The PolicyOps database is at the foundation of the solution, hosting all of the company's insurance policies, and supporting the policy management application. Each policy is stored as an individual compressed large object, using the Varbinary(max) datatype, new for SQL Server 2005. Storing each policy as a complete entity avoids the need to adjust database tables to accommodate changes in policy format or content. The database is expected to have 100 million rows of data upon full deployment, with near-term growth exceeding 500 million rows. To ensure scalability, the PolicyOps database will be federated across several instances of SQL Server 2005 using data-dependent routing federation. The Table Partitioning feature of SQL Server 2005 will be used to simplify database maintenance. Table Partitioning enables fast data loads and simplified maintenance for very large tables by giving database administrators the ability to treat multiple tables as a single entity.

- PubSub database.** The PubSub database supports publication of data to more than 100 subscribing systems. Every time the policy management application updates a policy, it writes the new data to the PolicyOps database as well as to the PubSub database that subscribing systems regularly check for updates, through a post-event processor.

- Instrumentation database.** The solution will include an Instrumentation database to temporarily store application performance data for analysts to use in monitoring and tuning performance of the policy management application. In full verbose mode, the application will generate about



“We are implementing a scale-out solution, and the ease of scalability was a large factor in the decision to create our solution using SQL Server 2005.”

Nadia Gordon, IT Manager, Progressive

300 transactions per second into this database. The data will be pulled every five minutes into a staging database and then into a multidimensional cube created with SQL Server 2005 Analysis Services, the online analytical processing (OLAP) component in SQL Server.

- **Policy Data Mart.** The Policy Data Mart contains point-in-time history of all policies and the details of the transactions against those policies. Data will be retained for 5 to 7 years to support reporting requirements by both support and business personnel.

All databases will be safeguarded for high availability by using Microsoft clustering technology, with each database deployed in an active/passive two-node configuration. SAN replication, which is the current standard for all mission critical databases, will also be used for SQL Server disaster recovery.

All of the above architectural features continue to enhance the speed-to-market, reliability, and future-proofing technical challenges of prior platforms. This new architecture will create new competitive advantages around policy/product-development and customer-service experiences for Progressive. Thus, while future-proofing their technical infrastructure, they are also future-proofing their business positions as well.

“The new policy management application that we’re creating using Microsoft development tools and deploying on SQL Server 2005, is absolutely essential to our operations,” says Mark Stehlik, IT Director Progressive. “As we prepared to replace our mainframe-based Proteus application, which had served us well for more than two decades, we knew that we needed to build our new solution on a solid foundation that would carry us into the future. Our past success with Microsoft products and technology, and the working

relationship we’ve enjoyed with the company, made it easy to choose Microsoft.”

### **Choosing the Microsoft Application Platform**

After reviewing other solutions, and packaged applications, Progressive chose the Microsoft Application Platform for creating and deploying its new policy management application. Over the past several years, the Progressive and Microsoft relationship has grown significantly. The local Microsoft account team and the Progressive team have worked closely to align people, processes, and programs—including consultation with the Microsoft product teams—to help Progressive create the solution to meet its current and future needs.

Progressive has steadily been moving line-of-business applications from its mainframe environment to Microsoft technology. “We moved our extremely important quoting system and our front-end applications from the mainframe to Microsoft-based solutions over eight years ago,” says Stehlik. “We’ve been very happy with the performance and reliability we’ve enjoyed from the earlier migrations, so our policy now is to continue to move line-of-business applications off the mainframe whenever we are doing an application redesign. It simply doesn’t make sense for us to create a new mainframe-based application and the Microsoft Products and People continue to help us derive real value from the platform.”

### **Benefits**

Deploying its data on SQL Server 2005 and creating its policy management application using Visual Studio 2005 and the .NET Framework will provide Progressive Insurance with a number of benefits, including enterprise-grade reliability, scalability, ease of integration, and the agility to significantly reduce application development time.

“You can’t provide real-time responses to customers when dealing with a batch-processing application. We needed a new platform to help us respond to current and future needs.”

Mark Stehlik, IT Director, Progressive

#### **Enterprise-grade Reliability**

Jim Gorjup, Group Manager, Progressive, who joined the company in 1986 and worked closely with the original mainframe-based system, knows first-hand how central Proteus is to the core functionality of Progressive—and how rock solid its successor application must be.

“Our policy management application is absolutely essential to Progressive’s continued business success,” Gorjup says. “So we have stress tested and endurance tested SQL Server. We’ve prototyped, and done proofs of concept, and we’ve found SQL Server 2005 is fully ready. We’re excited to be moving forward with our implementation.”

#### **Scalability**

Already the nation’s third largest private passenger auto insurance group, Progressive needs the ability to scale its policy management solution to meet growth for years into the future.

“One of the great benefits with SQL Server is the ability to scale up [adding more processing power] and scale out [adding more servers],” says Nadia Gordon, IT Manager, Progressive. “We are implementing a scale-out solution, and the ease of scalability was a large factor in the decision to create our solution using SQL Server 2005. SQL Server gives us the flexibility that we need for both in scale-out and scale-up situations and solutions.”

While scaling up the processing resources was an option for the mainframe-based Proteus system, Gordon notes that “we see the cost of incrementally scaling up or out is considerably less using a solution based on SQL Server 2005. We anticipate significant growth as a company, and that requires easy scalability.”

#### **Ease of Integration**

With more than 100 other systems to interact with, including billing systems hosted on the mainframe, ease of integration was a key consideration when choosing the best technology for creating and deploying the policy management application and supportive infrastructure.

“Working with a Windows\SQL Server platform, we are reducing the complexity that we might otherwise have to deal with integrating third-party technologies,” says Gorjup. “We’re freed from having to create what we call ‘scaffolding code’ to link different systems together. This helps us to focus on delivering business solutions to our business partners and not trying to force-fit a solution with tools that tend not to communicate well with one another.”

Brian Surtz, Architect Progressive, likes the ease with which Visual Studio and the .NET Framework enable integration with existing components. “It’s a lot easier to program in C# than it was in C++, but we still have a lot of legacy code in C++,” says Surtz. “To handle message queuing up to our mainframe billing system, we just wrote a wrapper in C# to use the native C++ components. The .NET Framework deals with this seamlessly.”

#### **Significantly Reducing Application Development Time**

The new policy management application, with its foundation of SQL Server and the .NET Framework, will make it much easier for Progressive to respond to market needs. “Our business partners within Progressive are continually innovating, and coming to IT asking if we can support them in offering new services to our customers,” says Gorjup. “The last thing we want to tell our business partners is that we can’t do something.”

In the past the complexity of integrating new solutions with the old code base was so

“Working with a Windows\SQL Server platform we are reducing the complexity that we might otherwise have to deal with integrating third-party technologies.”

Jim Gorjup, Group Manager, Progressive

prohibitive from both a cost and time standpoint that IT couldn't always support new initiatives.

“When you start to talk about an integration project not taking days or weeks—but months or years—the conversation quickly came to an end,” says Gorjup. “We'll no longer have that problem. With Visual Studio, the .NET Framework, and SQL Server, we will be able to help our business partners keep Progressive ahead of the industry in what we offer our customers.”

Over the years it has become more difficult for the company to find the COBOL programmers it needed to maintain its existing Proteus system and write the code required to integrate with new applications. “It's not just a matter of COBOL programmers retiring,” Stehlik says. “Many individuals who began their careers with COBOL have long since moved on to other languages, and more efficient development environments. Our programmers feel much more empowered working with the .NET Framework and Visual Studio.”

All of this greatly reduces the time it takes to create new solutions. “The Microsoft Application Platform gives us the agility to more quickly respond to the needs of our internal business partners and the changing demands of the market,” says Stehlik. “Moving from the mainframe to the Microsoft Application Platform is going to significantly reduce our development time for internally developed applications. We'll be able to pursue new business opportunities that simply would have been too expensive to code before.”

## 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](http://www.microsoft.com)

For more information about The Progressive Corporation products and services, visit the Web site at: [www.progressive.com](http://www.progressive.com)

## Microsoft Server Product Portfolio

For more information about the Microsoft server product portfolio, go to: [www.microsoft.com/servers/default.aspx](http://www.microsoft.com/servers/default.aspx)

## Microsoft SQL Server 2005

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 the Microsoft server product portfolio, 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)

### Software and Services

- Microsoft Servers
  - Windows Server 2003 Enterprise x64 Edition
  - Microsoft SQL Server 2005 Enterprise Edition (64-bit)
- Microsoft Visual Studio 2005

### Technologies

- Microsoft .NET Framework 2.0
- Microsoft SQL Server 2005 Analysis Services

### Hardware

- Intel-based 64-bit servers