Service Provider Transforms Special-Order Process with Cloud-Based Inventory Solution

Overview

Country or Region: United States
Industry: IT Services

Customer Profile
GCommerce offers software-as-a-service solutions that streamline distribution supply chain operations. Located in Des Moines, Iowa, GCommerce has customers in multiple industries.

Business Situation
GCommerce wanted to implement a virtual data warehouse for the automotive aftermarket, but building the infrastructure to host it was too costly.

Solution
GCommerce developed a cloud-based inventory solution with Windows Azure, SQL Azure, and Microsoft Silverlight. The solution interoperates with Microsoft BizTalk Server 2010.

Benefits
- Transforms supply chain
- Improves agility and scalability
- Boosts productivity
- Simplifies implementation
- Enhances innovation

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>
> Steven Smith, President and Chief Executive Officer, GCommerce

GCommerce offers electronic services that improve supply chain efficiency. It wanted to develop an application for the automotive aftermarket, which relies on special-order drop shipment for most transactions. To centralize inventory access and automate procurement, GCommerce implemented a cloud-based solution with Windows Azure and Microsoft SQL Azure. The Virtual Inventory Cloud solution gives distributors immediate online access to a global parts supply. The virtual data warehouse is expected to increase sales and drive down costs. In addition, marketplaces worldwide can benefit from the highly scalable solution. GCommerce reports that with Microsoft BizTalk Server 2010 and familiar development processes, it was able to launch the new service in just 90 days. The solution helps GCommerce focus on bringing innovation to the marketplace.

Windows Azure Platform

Situation

GCommerce is a leading provider of software-as-a-service solutions that improve supply chain efficiency. Located in Des Moines, Iowa, the company develops solutions for multiple industries, including automotive, industrial, and consumer products. Its solutions are designed to help hundreds of trading partners across the supply chain overcome technology barriers and share information in real time.

Since it was established in 2000, GCommerce has served the automotive aftermarket industry, which encompasses all products and services purchased after the original motor vehicle sale. The automotive aftermarket is valued at U.S.$300 billion, representing a significant opportunity for the company, which already handles approximately 30 percent of industry purchases made electronically.

According to Steven Smith, President and Chief Executive Officer at GCommerce, 80 percent of the transactions processed in the automotive aftermarket generate just 20 percent of the revenue. "The challenge today is that most of the orders processed by retailers and wholesalers are drop shipment special orders," he says. "They are placed randomly by phone, by fax, or through Web sites, and there is no procurement model in place."

Special orders are particularly prevalent in the aftermarket industry. Automotive retailers and wholesalers face pressure to reduce inventory costs. As a result, they limit their inventory to parts with high turnover, and rely on drop shipment to have suppliers deliver special orders directly to customers. It is also difficult for them to maintain a comprehensive inventory. "The automotive aftermarket is a long-tail industry with millions of parts,"

says Smith. "It's not possible for any one retailer or wholesaler to stock them all."

Special orders are costly and time-consuming in any industry. "Think about all the vertical marketplaces around the world that are processing random orders at an estimated $6.20 per paper transaction," says Smith. "How many billions of dollars are wasted every day?"

To improve access to automotive aftermarket parts, GCommerce implemented a business model with 200 national wholesalers and retailers that function as distribution hubs. The hubs are electronically connected to more than 1,000 suppliers and 2,500 brands in the United States that in turn sell parts to smaller retailers.

The company wanted to streamline the process further and drive up the profitability of drop shipment special orders. It hoped to create a virtual, cloud-based inventory to speed inquiries and procurement worldwide. GCommerce considered building an on-premises server farm to house the project, but it decided that would be too costly. "We looked at the millions of dollars it would cost to build a data center," Smith says. "We had to decide if we wanted to be in the business of building infrastructure or creating innovation."

In the end, the company decided to adhere to its core business model and look for an alternative to building its own data center for cloud-based services. Smith says, "It didn't make sense to become an infrastructure company when our specialty is creating transformation through business rules and data management."

While moving to a cloud-based solution would open new possibilities for scalability,

the company also wanted to enhance the scalability of an exacting and time-consuming mapping process it must complete for each new customer. The process involves analyzing the data formats and business rules used for electronic purchase orders and related documents, and mapping the definitions and values to GCommerce's own format, which it refers to as the *super specification*. The super specification serves as an all-encompassing guide for document transfers, providing the trading hub for translating and processing orders between third parties with otherwise disparate systems.

"Customers come to us with a vast array of data formats—from flat files, to various XML implementations, to different flavors of EDI [Electronic Data Interchange]—the variations are exponential when factoring in the customizations that organizations create," says Jason Popillion, Chief Technology Officer at GCommerce. "The more transformation mappings we can complete per month to bring on new customers, the faster we can scale our business. This makes us extremely focused on scaling."

The company had long used Microsoft BizTalk Server to create these essential mappings, but as the company prepared to scale its operations with its cloud-based solution, it needed to find a way to scale its mapping process.

Solution

GCommerce considered several cloud computing options, including an offering from Amazon. However, the company felt that Amazon lacked the flexibility needed to meet the unique needs of the automotive aftermarket industry. Smith says, "We wanted to use the existing channels of retailers and wholesalers and provide what Amazon couldn't offer—an

almost unlimited availability of supplier inventory."

The company decided that a solution based on the Windows Azure cloud services operating system and Microsoft SQL Azure was the best choice. Windows Azure is a scalable environment that offers on-demand compute and storage through Microsoft data centers. The solution offered several advantages compared with options from other vendors, including better flexibility and simplified administration. Popillion says, "One of the biggest technical benefits we saw with Windows Azure and SQL Azure was the ability to maintain and grow our solutions without the distraction of implementing new infrastructure."

Windows Azure also made sound business sense. GCommerce deployed a large-scale data warehouse called the Virtual Inventory Cloud that gives buyers immediate access to a global inventory of aftermarket parts. The solution is highly scalable, and the company pays only for services consumed. As a result, GCommerce can scale up or down as needed to handle traffic spikes without needing to purchase infrastructure that would sit idle during off-peak times. "With the solution we created using Windows Azure and SQL Azure, we can populate our data in such a way that we can scale the load up or down as needed," says Popillion. "We can scale across multiple nodes and keep data easily accessible, and the pricing model accommodates fluctuating transaction rates."

To gain faster mapping abilities, GCommerce upgraded to Microsoft BizTalk Server 2010 from an earlier version. "As a participant in Microsoft's TAP program for BizTalk Server 2010, we could see that mapping was going to be significantly easier and faster," Popillion says. "We're

using BizTalk Server 2010 to speed mappings throughout our operations—including for our new cloud initiative."

Enhancements to BizTalk Server are appreciated because BizTalk is so central to GCommerce operations. "BizTalk Server 2010 is at the foundation of what we do," Popillion says. "Once the mappings are completed, any trading partner can exchange purchase order and related documents with any other trading partner. It's the mapping we do with BizTalk Server that enables everything to automatically execute when a purchase order hits our system."

BizTalk Server 2010 easily interoperates with Windows Azure and provides full support for consuming and exposing service endpoints through the Windows Azure Service Bus. The Windows Azure Service Bus delivers a first-class choice for addressing connectivity requirements between on-premises-hosted and cloud-based applications regardless of their geographical locations and irrespectively whether or not these applications are separated by firewalls, gateways or other technically challenging network boundaries.

The Virtual Inventory Cloud solution takes full advantage of the hybrid application architecture and leverages both the on-premises BizTalk infrastructure and Windows Azure to provide reliable data transfer, elastic processing and scalable transformations using Windows Azure Service Bus, Windows Azure operating system and storage services. The interoperability between BizTalk Server and Windows Azure enables GCommerce to quickly process high volumes of inventory data through leveraging the full power of cloud computing and ability to auto-scale on demand.

In addition, Virtual Inventory Cloud leverages some of the value-add capabilities in BizTalk Server 2010 such as Business Activity Monitoring (BAM) and Business Rules Engine (BRE). This enables GCommerce to provide end-to-end tracking and monitoring of the inventory and product data as it flows between the on-premises and the cloud-based services in the solution architecture. The business rules help deliver the full flexibility in defining the operational model for data processing on the Cloud.

GCommerce is able to fully reuse the existing investments in the complex data mapping and run the existing BizTalk transformations seamlessly from within the cloud-based solution and on the premises.

GCommerce reports that the implementation of its cloud-based solution was also easier than expected. Although the team had not worked with Window Azure before, it was ready to launch the solution in 90 days. "We had many pleasant surprises when developing the Virtual Inventory Cloud," says Popillion. "We found we could develop a cloud-based application using our existing development skills and database partitioning models—the learning curve with Windows Azure and SQL Azure was very small."

With single sign-on, parts buyers can use the same set of credentials for all GCommerce applications, including the Virtual Inventory Cloud. They log on to the Virtual Inventory Cloud through an interface designed with the Microsoft Silverlight browser plug-in. Then Web services retrieve inventory data stored in SQL Azure. The solution interoperates with Microsoft BizTalk Server 2010 Enterprise, which runs on-premises at the company's data center in Des Moines, Iowa.

GCommerce uses a strategy of software-plus-services both on-premises and in the cloud to meet customer needs. When a buyer orders a part from the Virtual Inventory Cloud, the on-premises solution sends a purchase order in the appropriate format to the part vendor's business system.

In May 2010, GCommerce released a pilot version of the application to 10 enterprise wholesalers and suppliers, and demand is rapidly increasing. The Virtual Inventory Cloud, by design, is able to grow to more than 1 trillion rows of data and more than 1.5 terabytes. The highly scalable and interoperable solution applies to other industries besides automotive, such as hardlines retailing and specialty markets. Smith says, "Because it is based on Windows Azure, the Virtual Inventory Cloud is a solution that is adaptive to virtually any supply chain in the world."

GCommerce already plans to enhance the solution with more features. For example, it will take advantage of Microsoft Communications Server "14" to connect a telephony system with the Virtual Inventory Cloud. Buyers will be able to enter a part number through voice recognition or their phone's keypad to check inventory and place an order.

The company also plans to move more solutions to the cloud. "From a technology perspective, we will continue to grow our solutions on Windows Azure," says Popillion. "Microsoft cloud services are very important parts of the GCommerce technology stack, because we can scale out solutions worldwide at a moment's notice."

Benefits

With its Virtual Inventory Cloud based on Windows Azure, SQL Azure, and Windows Azure Service Bus, and with the mapping efficiency gained with BizTalk Server 2010, GCommerce expects to streamline and transform supply chains worldwide. The centralized, highly scalable solution was easy to implement with Microsoft support, and GCommerce can focus on bringing new solutions to the marketplace.

Transforms Supply Chain
GCommerce is betting big that the Virtual Inventory Cloud will continue to transform the distribution supply chain and improve the profitability of special orders. For example, Smith points out that retailers and wholesalers want to reduce inventory overhead but increase sales. "Now people can have access to an almost infinite supply without adding costs to their existing operations," says Smith. "The Virtual Inventory Cloud with SQL Azure and Windows Azure is the best of both worlds—it drives top-line revenue and reduces bottom-line costs."

The combination of SQL Azure and BizTalk Server has helped GCommerce to streamline the supply chain by reducing manual processes. "We can be transformative," says Smith. "We can bring solutions to market that change the very nature of the way the supply chain works. Today, an end-to-end special order takes 15 seconds instead of 15 minutes, thanks to Windows Azure, SQL Azure, and the Virtual Inventory Cloud from GCommerce."

Completed in just 15 seconds, special orders are now 60 times faster—a dramatic improvement in efficiency. Buyers who had abandoned transactions because of manual and time-consuming processes have returned, and customer loyalty and retention rates have improved. Smith says, "We are creating sales that might have potentially been lost."

The benefits extend to customers at all points in the supply chain. For instance, consumers can have confidence that the parts they order through Web sites are truly available. "Our solution is radically different," Smith says. "We can give customers—whether they walk in the door or shop online—access to an almost unlimited inventory. Instead of placing an order and hoping it can be fulfilled, they will know that the part is in stock and that they will get their order."

Improves Business Agility and Scalability
To create an effective solution, GCommerce needed a way to centralize access to inventory. Windows Azure made it possible for the company to offer a virtual data warehouse to distributors around the globe. "SQL Azure is a perfect solution for housing inventory data, in contrast with a traditional data warehouse model," says Popillion. "We can post data to a common repository that has huge scalability and redundancy, and we can port that worldwide almost instantly."

GCommerce is gaining scalability in onboarding new customers because BizTalk Server 2010 makes it faster and easier for their specialists, called mappers, to transform an organization's electronic forms into the GCommerce super specification.

"BizTalk Server 2010 simplifies the process of mapping from one node to the other," says Michael Hilty, Mapper at GCommerce. "With the new version of BizTalk Server I can copy the custom code of functoids, rather than re-keying it, which is a huge time saver. On a more abstract level, BizTalk Server 2010 helps me to see processes that really weren't visible before."

Boosts Productivity

The new data mapping features of BizTalk Server 2010 have reduced the time required for some mapping projects from days to hours. "I just completed a mapping project," Hilty says. "With the earlier version it would have taken me two days to map the transformations for the project. With BizTalk Server 2010 I completed the work in just two hours."

BizTalk Server 2010 enhanced productivity so greatly that GCommerce has been able to redeploy most of the staff that used to be assigned to mapping, while greatly increasing the rate at which new customers can be brought on board with completed mappings. "BizTalk Server 2010 simplifies the complex task of mapping," Popillion says. "We've been able to reduce the number of dedicated mappers here by 75 percent. At the same time we've scaled the number of new customers we can complete mappings for, growing that number from about three per month to more than 250 per month."

Simplifies Implementation
GCommerce says it was surprisingly easy to develop a solution that could have such a significant impact on worldwide supply chains. "While we developed the Virtual Inventory Cloud, common tool sets were very important to my staff," says Popillion. "We could use some of the same base code we had already developed for other projects and seamlessly import it to SQL Azure."

Enhances Innovation
By offering its new Virtual Inventory Cloud solution, GCommerce is changing the playing field of the automotive aftermarket industry. "We can be agile and change the behavior of the supply chain," Smith says. "Instead of focusing on legacy methods such as processing orders through the phone, fax machines, and Web sites, we can

actually think about transformation. In short, this solution based on Windows Azure and SQL Azure allows GCommerce to be in the business of innovation rather than the business of building infrastructure."

By building on Windows Azure, GCommerce can focus on bringing new solutions to the marketplace. Smith says, "With Microsoft and Windows Azure, we can collectively change an entire industry and move it from a random process to a systematic solution in a tenth of the time, with a tenth of the people, at a tenth of the cost."

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