Snack Maker Expects to Cut Inventory Shrinkage up to 75 Percent

Overview

Country or Region: Denmark
Industry: Manufacturing

Customer Profile

KiMs, based in Søndersø, Denmark, has approximately 250 employees and is the largest supplier of crisps and snacks in Denmark and a major supplier throughout Europe.

Business Situation

KiMs wanted a better, and state-of-the-art, way to manage its sales and delivery process.

Solution

The company adopted a mobile computing solution built with Microsoft® Visual Studio® 2005 and based on the Microsoft .NET Framework 2.0 and Microsoft SQL Server™ 2005.

Benefits

- Cuts inventory losses by 75 percent
- Boosts administrative productivity by 15 percent
- Cuts delivery costs by 25 percent
- Cuts development time/costs by 50 percent
- Increases system use by 25 percent

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Jesper Toubøl, Technology Manager, KiMs A/S

Denmark's KiMs, one of Europe's leading snack-food providers, needed a better way for its sales and delivery people to take orders and get the order information into the corporate system. Its better way is the Mobile Sales Assistant, a mobile order-entry solution based on a range of new-generation Microsoft® technology, including the Microsoft Visual Studio® 2005 development system and Microsoft SQL Server™ 2005. The solution is expected to reduce inventory loss by 75 percent, boost administrative productivity by 20 percent, and cut delivery costs by 15 percent. In addition, the 50 percent cut in development time and budget enabled by the Microsoft .NET connection software made it possible for KiMs to extend the solution to support both Pocket PCs and Tablet PCs. Use of mobile order-entry has increased about 25 percent since KiMs introduced the new solution.

Microsoft SQL Server 2005
Microsoft Visual Studio 2005

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Situation

Open a bag of snacks in Denmark and it probably comes from KiMs, that nation's largest supplier of snacks and crisps (or, as they're called in the United States, "chips"), which holds more than 50 percent market share. Whether you yearn for tortilla crisps, kettle crisps, peanuts, popcorn, pistachio nuts, tropical fruit, or any of a dozen other snack choices, the chances are that KiMs has a bag with your name on it.

As varied as its products, the company's customers include gas stations, grocery stores, supermarkets, and major chains such as England's Marks & Spencer. To supply its smaller customers, KiMs has long used an integrated sales and delivery system, in which the KiMs delivery people go to the stores, take orders, and fill them on the spot from inventory in their trucks.

Since the mid-1990s, the company supported this distribution with a mobile solution based on proprietary hardware and software. Delivery employees—who very seldom had occasion to go to company headquarters—would connect their devices to the KiMs network over an analog dial-up modem each night from their homes. Then, they'd upload the orders they'd taken that day and download a list of delivery stops, including information on the order status of each customer, for the next day.

Although the solution had been state-of-the-art when it was adopted, by 2004 it was time for a change. The daily batch processes for exchanging data meant that the information on which delivery personnel were operating could easily be out-of-date by the time personnel reached the customer. Moreover, that information wouldn't show orders that had come to KiMs by phone or fax. As a result, the KiMs personnel could visit a customer, fill some orders—but then have to make a repeat trip to the customer to fill the outstanding orders.

Compounding these problems was the unreliable integration of the proprietary technology with Microsoft® Business Solutions–Axapta®, which the company was already using for enterprise resource planning (ERP). Together, these issues sometimes caused orders to be omitted from the invoicing system—because it was almost impossible to check if data had been transmitted and to restore data if the transmission went wrong—even though the customer had received the merchandise from the delivery person at the time it placed the order.

KiMs could issue an invoice later, after the error was caught, but most customers do not pay invoices sent more than three months after an order is placed. The inevitable discrepancies between real and recorded inventory sometimes led drivers to be careless with their supplies, which contributed to a significant problem of inventory shrinkage, or loss.

Solution

In 2004, KiMs had conducted what Technology Manager Jesper Toubøl calls "an extensive search" for an alternative solution. Toubøl and his colleagues wanted a solution that ran on the same Microsoft Windows® operating system that they already used, in order to eliminate the added time and expense of managing a separate environment.

They wanted a solution that would operate over the Internet and that could be deployed and updated automatically, thereby eliminating the need for delivery personnel to make special trips to headquarters for the sake of the technology. Plus, they wanted a solution that would eliminate the

inaccuracies and lost data of their previous solution.

And moving beyond merely addressing problems, KiMs management wanted a solution that would give them real-time sales information to enable better decision making.

These criteria led KiMs to create its Mobile Sales Assistant (MSA), a solution based on a loosely coupled, service-oriented architecture (SOA). The MSA solution—built using Microsoft .NET software for connecting people, information, systems, and devices—runs on devices running the Microsoft Windows Mobile™ software for Pocket PCs as well as Tablet PCs running the Microsoft Windows XP Tablet PC Edition 2005 operating system.

Figure 1: The .NET-connected MSA solution uses intuitive Windows-based screens to deliver relevant customer information to guide the delivery person.

The solution was the company's first effort with a range of Microsoft technologies including the Microsoft .NET Framework version 2.0, the Microsoft .NET Compact Framework version 2.0, Microsoft Visual Studio® 2005 Professional Edition, Microsoft SQL Server™ 2005 Enterprise Edition, and SQL Server 2005 Mobile Edition. The .NET Framework is an integral component of Windows that provides a programming model and runtime for Web services, Web applications, and smart client applications. SQL Server is part of Microsoft Windows Server System™ integrated server software.

"We are a Microsoft shop and we feel comfortable with Microsoft technology," says Toubøl. "We had some experience with .NET, but this was our first work with the new-generation Microsoft technologies—and we are very pleased with the result."

On the server side, the solution begins with the existing Microsoft Axapta enterprise resource planning and resource database, which includes approximately 40 gigabytes (GB) of customer data. SQL Server 2005 Merge Replication technology pulls the data that is relevant to the day's deliveries out of the resource database and into a smaller, 2 GB SQL Server 2005 reference database. The Merge Replication publish-subscribe technology then publishes to each Windows Mobile–based device only the specific customer data needed by the delivery person operating that device—generally between 5 and 20 MB of information in all. The data is transmitted over the Internet using General Packet Radio Service (GPRS) technology for GSM phones and mobile devices. Because SQL Server Merge Replication sends only relevant data to each mobile device, the solution requires relatively little bandwidth, making the highly reliable GPRS—which can be expensive when high bandwidth is consumed—an appropriate choice.

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On the Windows Mobile–based device, the data is captured in a SQL Server 2005 Mobile Edition database. The delivery person accesses the data using a series of intuitive screens (see Figure 1) and enters new order information into the database in the form of XML documents, which SQL Server 2005 supports natively. If the delivery person is working offline, the documents are stored in a local queue.

When the connection to the KiMs network is reestablished, the orders are transmitted over the Internet to the server side, where a Web service forwards it for processing in the SQL Server 2005 database. Because delivery people generally connect to the server between customer visits, they can upload orders right after they receive them and get the latest updates on their remaining customer visits.

SQL Server Merge Replication then integrates the new data from the mobile devices. It updates the database in Microsoft Axapta, which can then process invoices, provide data for real-time analysis, and other functions. To deploy and update the solution, KiMs uses Microsoft Systems Management Server 2003, also part of Windows Server System.

The company built the solution with the help of Microsoft Business Solutions. The MSA solution was developed over six months and went live in September 2005. It has been deployed on Windows Mobile–based Pocket PCs to approximately 46 delivery people and on Tablet PCs to approximately 26 sales personnel.

Benefits

KiMs projects that the new solution will enable it to reduce inventory shrinkage, boost productivity, cut delivery costs, and increase customer service and employee morale.

"We see the .NET-connected solution as a tremendous strategic asset," says Toubøl. "It boosts efficiency and reduces costs throughout our sales and distribution process, while increasing customer service."

Saves up to 75 Percent of Inventory Shrinkage

With the Mobile Sales Assistant now in production, KiMs is projecting that the solution will have a major impact on the company's bottom line. The anticipated savings start with a 75 percent reduction in inventory losses.

"For the first time, we have timely, accurate information on orders and an immediate way to reconcile order information with inventory information," says Toubøl. "That will solve most of the problem of inventory shrinkage. Thanks to the MSA solution, we're seeing our delivery people act far more responsibly with inventory."

Beyond better inventory control, the solution eliminates the need to rekey inaccurate or lost orders into the ERP system, which Toubøl says boosts productivity in back-office administration by 15 percent. By eliminating the need for drivers to make multiple trips to a customer to deliver orders placed through phone, fax, and automated channels, KiMs expects to reduce delivery costs by about 25 percent.

Speeds Development by 50 Percent

By using the .NET Compact Framework 2.0 on the Windows Mobile–based devices and the .NET Framework 2.0 on the servers, KiMs was able to create one set of business objects that serve as application code for both Pocket PCs and Tablet PCs. That cut the time to create the solution by 50 percent, according to Toubøl. "Visual Studio 2005 and the .NET Framework 2.0 definitely slashed our development time," he says. "It gave us

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Ultimately, that savings had a profound impact on the shape of the solution. “In fact, we wouldn’t have deployed the solution on Tablet PCs without this savings,” explains Toubøl. “Our initial plan was to deploy only on the Pocket PCs. When we saw we could add the Tablet PC as a target device just by rewriting some user-interface code, that made it practical to deploy on the Tablet PCs as well.”

Because KiMs can put the same delivery and ordering solution on both Pocket PCs and Tablet PCs, sales personnel who visit larger customers only need to carry one device—their Tablet PC—rather than two, making life easier both for them and for their IT support staff. Sales personnel can use their Tablet PCs to show multimedia presentations on KiMs products and then take orders for those products on the same device.

A range of technologies in Visual Studio 2005 contributed further to the faster and more effective development. For example, the development team made extensive use of Generics, which facilitated code reuse, thus reducing the amount of code to be written and speeding the development process by several weeks. Another Visual Studio 2005 technology that the team found to be useful was Refactoring, which automates the process of improving code and therefore increases the long-term maintainability of code.

Boosts System Use by 25 Percent

Because delivery personnel didn’t fully trust the former solution to operate properly, they didn’t always place their orders through it, contributing to higher administrative costs. But since KiMs has deployed the .NET-connected MSA solution, the acceptance of the mobile devices has grown by 25 percent. Now, almost 100 percent of new orders are taken and relayed to headquarters through the new solution.

“Our delivery and sales personnel really like this solution,” says Toubøl. “And the new technology impresses the customers. It works quickly, easily, and reliably. And it’s easy for personnel to learn—they need minimal training, and they’re fully prepared. Our people are definitely happier and more motivated because of this solution. And that’s a win for them and for us. This also makes it much easier to attract the right sales candidates for our company.”

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Software and Services

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- Microsoft Visual Studio 2005 Professional Edition
- Microsoft Windows Mobile 5.0
- Microsoft Windows XP Tablet PC Edition 2005
- Solutions
  - Microsoft Business Solutions–Axapta
- Technologies
  - Microsoft .NET Compact Framework 2.0
  - Microsoft .NET Framework 2.0

Hardware

- Symbol MC 9000S mobile computers
- Hewlett-Packard GL 380 GII servers
- Toshiba M200 Tablet PCs

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