



MCKESSON CORPORATION

SUN AND AVANTGO STREAMLINE SUPPLY CHAIN WITH MOBILE SOLUTION

KEY HIGHLIGHTS

Company

McKesson Corporation

Industry/Market

Healthcare Services

Customer Environment

- BEA WebLogic Server
- Oracle® 8.05 database
- Two-way Sun Ultra Enterprise™ 450 server (AvantGo M-Business Server)
- Two, 4-way Sun Enterprise™ 4500 servers (WebLogic appserver)
- Sun Ultra2, 2-way mirrored server (Oracle database)
- Netscape™ Enterprise Server (web server)
- Symbol SPT 1700 series, PalmOS-based scanning devices

Key Business Challenges

- Improve inventory accuracy and offer new real-time tracking services to help customers manage procurements
- Improve delivery accuracy and Proof of Delivery claims retrieval

Key Business Solutions

- AvantGo® M-Business Server with AvantGo Mobile Delivery
- Java™ servlet integration to legacy Tandem, and AS/400 custom applications

Key Business Benefits

- Calls for delivery errors dropped to nearly zero
- Reduced imaging costs by 100%
- Reduced legal and delivery claims
- Reduced late and incomplete deliveries
- Management reports available to track delivery performance
- Customers can access same-day package tracking information

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*Jesse Bork, Manager of Business Systems
McKesson Corporation*

McKesson Corporation, the world’s leading healthcare services company, has broadened its product offerings. The company has evolved from pharmaceutical wholesaler to developing solutions for improving the business of healthcare delivery. A key component of that strategy is streamlining supply chain management. With over 40,000 customers, 2,600 drivers, and 32 distribution centers (DCs), the company has replaced its paper-based distribution systems with automated closed-loop systems that rely on handheld devices.

To accomplish the task, McKesson needed a cost-effective mobile computing solution that could integrate with back end systems and provide the scalability to handle its huge distribution network. The new system was based around AvantGo Mobile Delivery™ running on the AvantGo M-Business Server, a mobile application delivery platform, and ruggedized Symbol hand-held PalmOS devices. When it came time to scale up to full production, McKesson migrated from Windows NT to Sun platforms. “We chose Sun for its reliability and scalability,” said Jesse Bork, manager of business systems.

Today, McKesson and its customers are seeing significant savings in distribution costs, and since the system was moved to Sun platforms, reliability has improved

dramatically. “During the first three months of full-scale operation, we have yet to report an outage,” said Bork.

Closing the Loop

Cost containment has become a major competitive goal in the healthcare industry. And, although McKesson’s huge purchasing power has always delivered bottom line savings for its customers, in today’s changing healthcare market, hospitals, clinics, and pharmacies need to look beyond product discounts.

McKesson’s paper-based distribution system proved an attractive target for improving operating efficiencies. Like any hard copy system, McKesson’s distribution system was labor-intensive and prone to error. Each day, drivers were handed printed delivery schedules, shipping manifests, and customer receipt acknowledgments, all of which were scanned into an imaging system after deliveries were completed. With the paper shuffling came the possibility for lost or misinterpreted schedules, poor quality controls, and difficulties in tracking the performance of its drivers, many of whom were contracted through third-party courier services.

Bork joined McKesson from a major package delivery company to implement a new electronic, closed-loop system that would not

only automate driver instructions, but provide customers with the ability to conduct routine ordering, acknowledgment, and receipt transactions as well.

Sun platforms are processing nearly 40,000 transactions daily, serving a national distribution network of 2,000 drivers and tens of thousands of customers. During the first three months of full-scale production, the system has yet to fail.

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“There was a huge cost sensitivity for a project as large as this,” said Bork. “It’s one thing to design a system for a couple of thousand drivers. But, when we decided to open the system up to customers, we needed an architecture that could ultimately support tens of thousands of additional users.”

The Solution

According to Bork, McKesson chose AvantGo Mobile Delivery running on the AvantGo M-Business Server as the platform for the mobile interactive application because, at the time, it was the only one that was truly device-independent. “We didn’t want to be locked onto any individual device,” said Bork. McKesson adopted Symbol data collection devices based on the Palm PDA platform to provide personal productivity and bar code scanning capabilities.

The back end of the system included an Oracle® database that is used for caching the current day’s transactions, BEA WebLogic Server as the application server, and Netscape Enterprise

Server as the web server. “We based the system on the Java™ 2 Platform, Enterprise Edition [J2EE™] because we needed an open, scalable architecture,” noted Bork.

WebLogic executes Java servlets to communicate with the AvantGo Server and post data to the Oracle database and AS/400 file system, and uses RMI (Remote Method Invocation) to post data to the Tandem-based order management system. The front end uses a forms-driven interface based on standard HTML and the JavaScript™ programming language.

The AvantGo software, initially based on Windows NT Server 4.0, was plagued with server reliability problems, and tended to crash every few weeks. The culprit, according to Bork, was that Windows NT was limited to a single application process that was not as forgiving of minor code flaws. Consequently, when the process failed, it brought the entire server down with it. “Given our plans to roll out to thousands of users, this was unacceptable,” said Bork.

Midway through rollout, the AvantGo Server was gradually moved to a two-way Sun Ultra Enterprise™ 450 server. “We chose Sun because that has been our web standard,” said Bork, noting that the middle tier, including the WebLogic application server and the Netscape Enterprise Server web server, was already running on a cluster of two, four-way Sun Enterprise™ 4500 servers. “Once we finished tuning and configuring the AvantGo application on Sun, it worked flawlessly,” recalled Bork. The Solaris™ operating environment supported the running of multiple application processes, allowing failover.

Going Mobile

McKesson has implemented the application across 80% of its distribution network. The system currently handles an average of 10 – 16 concurrent synchronizations from drivers, and processes over 40,000 transactions daily.

Each morning, the drivers synchronize their handheld devices using the AvantGo Mobile Delivery application, and leave the DCs, confident that they have correct, up-to-date routing and delivery instructions. At the customer site, package bar codes are scanned, customer electronic signatures are captured, and if an attempt is made to deliver the wrong container, the system shows an error message. All this data is fed back through the AvantGo application to enterprise systems when the drivers re-sync their devices at the end of the day.

By capturing data on handheld devices when trucks are loaded and deliveries dropped off, McKesson has dramatically improved its quality of service. Inventory accuracy exceeds 99% and delivery errors have been virtually eliminated. In turn, these results have led to a significant reduction in legal and delivery claims attributable to incorrect deliveries. And, because the data is online, scanning costs for invoices and related documents have been totally eliminated.

“We’re seeing large enterprises being able to increase the return on their technology investment by moving business processes directly into the hands of their mobile workers,” according to Felix Lin, vice chairman and co-founder of AvantGo Inc. Based on the success of McKesson, AvantGo has introduced a packaged closed-loop delivery solution with many of the same features.

“AvantGo helped us make the mobile transition much faster than our rivals, many of whom got bogged down with real-time wireless solutions that didn’t deliver,” said Bork. “Using AvantGo software on Sun platforms, we know that this system will meet future demand. It’s one thing to have a few thousand drivers hitting the system, but it will be something else once we get our customers up to speed. Sun’s given us the confidence that we’ll get there.”

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*Felix Lin, Vice Chairman and
Co-Founder, AvantGo Inc.*

HEADQUARTERS SUN MICROSYSTEMS, INC., 901 SAN ANTONIO ROAD, PALO ALTO, CA 94303-4900 USA
 PHONE: 650 960-1300 FAX: 650 969-9131 INTERNET: www.sun.com



SALES OFFICES

AFRICA (NORTH, WEST AND CENTRAL): +9714-3366333 • ARGENTINA: +5411-4317-5600 • AUSTRALIA: +61-2-9844-5000 • AUSTRIA: +43-1-60563-0 • BELGIUM: +32-2-704-8000 • BRAZIL: +55-11-5187-2100 • CANADA: +905-477-6745 • CHILE: +56-2-3724500 • COLOMBIA: +571-629-2323 • COMMONWEALTH OF INDEPENDENT STATES: +7-502-935-8411 • CZECH REPUBLIC: +420-2-3300-9311 • DENMARK: +45 4556 5000 • EGYPT +202-570-9442 • ESTONIA: +372-6-308-900 • FINLAND: +358-9-525-561 • FRANCE: +33-01-30-67-50-00 • GERMANY: +49-89-46008-0 • GREECE: +30-1-618-8111 • HUNGARY: +36-1-202-4415 • ICELAND: +354-563-3010 • INDIA: +91-80-5599595 • IRELAND: +353-1-8055-666 • ISRAEL: +972-9-9710500 • ITALY: +39-039-60551 • JAPAN: +81-3-5717-5000 • KAZAKHSTAN: +7-3272-466774 • KOREA: +822-3469-0114 • LATVIA: +371-750-3700 • LITHUANIA: +370-729-8468 • LUXEMBOURG: +352-49 11 33 1 • MALAYSIA: +603-264-9988 • MEXICO: +52-5-258-6100 • THE NETHERLANDS: +00-31-33-45-15-000 • NEW ZEALAND: +64-4-499-2344 • NORWAY: +47 23 36 96 00 • PEOPLE'S REPUBLIC OF CHINA: • BEIJING: +86-10-6803-5588 • CHENGDU: +86-28-619-9333 • GUANGZHOU: +86-20-8755-5900 • SHANGHAI: +86-21-6466-1228 • HONG KONG: +852-2202-6688 • POLAND: +48-22-8747800 • PORTUGAL: +351-21-4134000 • RUSSIA: +7-502-935-8411 • SINGAPORE: +65-438-1888 • SLOVAK REPUBLIC: +421-7-4342 94 85 • SOUTH AFRICA: +2711-805-4305 • SPAIN: +34-91-596-9900 • SWEDEN: +46-8-631-10-00 • SWITZERLAND: GERMAN: 41-1-908-90-00 • FRENCH: 41-22-999-0444 • TAIWAN: +886-2-2514-0567 • THAILAND: +662-636-1555 • TURKEY: +90-212-335-22-00 • UNITED ARAB EMIRATES: +9714-3366333 • UNITED KINGDOM: +44-1-276-20444 • UNITED STATES: +1-800-555-9SUN OR +1-650-960-1300 • VENEZUELA: +58-2-905-3800

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