

FedEx Ground meets rising customer expectations by shortening its package processing cycle.

Overview

■ **Business Challenge**

With customer expectations for timely delivery rising, and its own processes ever-more dependent on data, FedEx Ground needed to ensure that its business systems were fast, reliable and flexible. FedEx Ground's systems needed to meet ever-increasing processing demands—both near-term and long-term—while at the same time supporting a business model based on speed, efficiency and low cost.

■ **Solution**

FedEx Ground deployed the IBM System i as the foundation of its operations. With industry-leading flexibility and resiliency, the System i solution has been a key enabler of the company's ongoing transformation efforts affecting all of its package delivery processes.

■ **Key Benefits**

- *Flexible resource allocation and nimble capacity growth with the System i's virtualization capabilities*
- *Increased system availability, ensuring greater reliability for day to day operations*



FedEx Ground specializes in cost-effective, small-package shipping, offering dependable business-to-business delivery or convenient residential service through FedEx Home Delivery and FedEx SmartPost. FedEx Ground has a workforce of nearly 60,000 employees and independent contractors who operate out of more than 500 facilities across the United States and Canada.

Not long ago, the two main branches of the delivery business—air and ground—played by two very different sets of rules. Companies and individuals understood that time-definite deliveries required air transport, and were willing to pay a premium to get it, while ground transport provided a more affordable option, appropriate for less time-sensitive deliveries. While this picture still describes the industry at the broad-brush level, a closer view shows a series of subtle changes that add up to an industry in major flux. Over the years, intensifying competition has

“We operate in an environment where customer expectations continue to escalate. IBM’s System i infrastructure helps us not only meet—but exceed—them by enabling us to speed up our network and develop new solutions for our customers.”

– Ken Spangler, VP of IT, FedEx Ground

Business Benefits

- Flexible resource allocation and nimble capacity growth with the System i's virtualization capabilities
- Increased system availability, ensuring greater reliability for day to day operations
- High levels of integration speed for application development, enabling faster rollout of new capabilities
- Low TCO with the System i's ease of management and flexibility

“We came to the conclusion that the System i was the best for our needs. Its stability, TCO and speed of development convinced us we should not only maintain our mid-range environment, but expand it to keep it at the center of our operations.”

– Ken Spangler

driven carriers to transform key processes like package tracking and sortation. The result has been a steady improvement in efficiency—with packages moving through the system faster—and a richer array of services available to customers.

For delivery giant FedEx (www.fedex.com), the success of its transformation efforts has trickled down to customers in a variety of ways. One obvious example is the prevalent expectation of near-perfect reliability, a perception that underpins its brand strength and fuels the company's relentless drive to be a “zero-defect environment.” While the transport business in general has seen a steady rise in customer expectations, it has been especially evident in the company's \$5.3 billion FedEx Ground unit. Indeed, for many of FedEx Ground's business customers, the expectation of perfect delivery performance—combined with timely, accurate tracking data—has become ingrained in their business practices, as has the need for reliable information to support their decision-making. Moreover, with competition fierce in the ground transportation business, FedEx Ground has actively sought to differentiate itself by introducing several value-added services, such as scheduled home delivery of packages.

A business built on data

The common theme of these developments is that business process transformation has led to a steady rise in both the volume and importance of package data within FedEx Ground's operations. The company's average daily data transactions exceed 1 billion, generated by the nearly 7-8 million packages in the delivery pipeline at any one time—providing a sense of the scale of its data processing challenge. But to get a true sense of the strategic importance for FedEx Ground, one needs to look at the many ways that data is integrated into its critical operations.

Here's a high-level view. In most cases, large-scale data collection begins before the package is picked up, via FedEx shipping systems located at shippers' locations. Upon the pick-up and induction of packages into the system, they are then scanned for destination information and physical dimensions. Once this data is gathered and integrated into FedEx's information backbone, automated sortation systems—located within the company's 43 hubs and automated satellites—use the data to make the millions of calculations needed to optimize package flow across the FedEx Ground network. For each of the nearly 3 million packages picked up on an average day, the system

plots a specific path based on factors ranging from the package's destination and distance traveled, to special handling instructions from the customer. These same factors are also applied to the rating and invoicing of each package. After leaving a facility, packages are then scanned at various points prior to delivery to enable customers to track them in realtime.

Delivering results

For FedEx Ground, the critical importance of data management poses a constant challenge. With data more embedded into its core processes, the company has experienced a proportionate surge in data processing volumes. Add to this the fact that customers are now more reliant on this data being available to support their own business decisions, whenever they need it. To meet its customers' expectations, FedEx Ground needed to maximize the resiliency of its backbone infrastructure. Put simply, it needed to process more data, more rapidly, all the while guaranteeing system availability. But while system resiliency was the bedrock of its operations, FedEx Ground also had to address other imperatives—namely, the need for cost control and strategic nimbleness—that sprang from its competitive environment. Given the cost sensitivity of the ground transport business, FedEx Ground made it a priority to minimize the total cost of ownership (TCO) of its infrastructure. Overlapping this was the need for flexibility. With competition constantly driving the company to develop the “next new thing,” the company needed a platform that would enable it to develop and support new applications rapidly, efficiently and cost-effectively. FedEx Ground had that platform in the IBM System i.

While FedEx Ground has relied on IBM since its founding in 1985, its current status came after a period of technology soul-searching that began when its infrastructure needs started to take off, says VP of IT Ken Spangler. “We looked at a lot of different platforms as our core technology environment for the future,” says Spangler. “But we came to the conclusion that the System i was the best for our needs. Its stability, TCO and speed of development convinced us we should not only maintain our mid-range environment, but expand it to keep it at the center of our operations for the long term.” That's just what they did. FedEx Ground now has seven IBM System i servers that touch almost every aspect of its business. Its applications—custom developed on i5/OS with IBM DB2 Universal Database and IBM WebSphere Application Server—power many of its key business processes, from induction to delivery and nearly all points in between. To maximize resiliency, the company maintains parallel data centers in different locations with all transactions replicated over a wide area network to enable high-availability disaster recovery. FedEx worked in concert with IBM Global Technology Services to architect, configure and deploy the systems.

Delivering results

Judging by the strong performance it has enabled FedEx Ground to achieve, the System i infrastructure has more than fulfilled the company's demanding

Key Components

Software

- IBM WebSphere® Application Server
- IBM DB2® Universal Database™
- IBM i5/OS

Servers

- IBM System i5 595

Services

- IBM Global Technology Services
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Why it matters

Package delivery services are not only brutally competitive, they're also increasingly critical to today's modern economy. For FedEx Ground, constant improvement in delivery performance is a must both for its bottom line and those of its customers. By building its business on the flexible, resilient IBM System i platform, FedEx Ground has the foundation it needs to drive continuous process improvement.

requirements. Consider, for example, that in just the past few years, the time required for packages to move through the system has been reduced by one day in more than half the company's shipping lanes. This improvement in the package processing cycle is in part a reflection of the faster sortation enabled by the System i platform. Looking at the company's Service Quality Index, a multivariate measure of service execution, Spangler sees even stronger evidence of the impact of the System i on its business. "Over the last few years, our composite service and quality performance has improved by more than 70 percent thanks in part to the processing speed, architecture scalability, and system availability of the System i," says Spangler. "From a competitive standpoint, we have become a better company every year."

FedEx Ground also knows that to stay on this upward trajectory, other key parts of its business model need to be in synch with the dynamics of the ground delivery business. Here again, the System i provides powerful support. Given the low-cost nature of the ground business, the platform's low TCO—in large measure a function of its ease of administration—helps the company keep its overall cost structure down. Equally important, the System i platform gives FedEx Ground the flexibility to innovate while handling the demands of rapid growth.

As FedEx Ground continues its rapid expansion, Spangler sees the System i virtualization strengths—namely, its support for flexible resource allocation and capacity growth—as a huge advantage. "At one time, peak volumes presented a crisis. Now, with the System i, we're able to meet this traffic surge more effectively," says Spangler. "The System i has enabled us to grow the scale of our environment, while at the same become more nimble and resilient."

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