BostonCoach drives to new heights of efficiency with a realtime dispatch system.

Overview

■ *Challenge*
To maintain growth and profitability, BostonCoach needed to overcome increasing complexity in its dispatch operations which hindered the productive deployment of its cars and drivers.

■ *Why Become an On Demand Business?*
To speed decision-making and react to minute-to-minute changes, BostonCoach needed to automate the gathering and processing of dispatch data.

■ *Solution*
BostonCoach teamed with IBM to create a dispatch management system capable of sensing and responding to changing parameters in realtime

■ *Key Benefits*
  • *10 to 20 percent increase in fleet utilization*
  • *Achieved capacity to increase revenue by up to 10 percent without adding additional resources (i.e., drivers or cars)*
  • *Several million dollars in cost savings*

BostonCoach's system keeps track of its 500 vehicles in realtime.

Established in 1985 as an internal car service for Fidelity Investments, BostonCoach (www.bostoncoach.com) has since grown into the second largest provider of ground transportation services in the U.S. The company now operates a fleet of more than 500 vehicles serving eight U.S. cities, as well as an affiliate network that serves 450 other cities in North America, Europe and the Far East. In the course of BostonCoach's evolution, consistency has been a pervasive theme,

"The ground transportation industry is the ultimate ever-changing environment. The new system has given us a competitive advantage by allowing us to master our environment as we've never been able to do before."

– Bill Kavanagh, COO, BostonCoach

ON DEMAND BUSINESS™

On Demand Business Benefits

- 10 to 20 percent increase in fleet utilization

- Several million dollars in cost savings based on increased driver productivity and facilities consolidation

- Achieved the capacity to increase revenue by up to 10 percent without adding additional resources (i.e., drivers or cars)

- An increased ability to spot impending problems—such as schedule bottlenecks—and resolve them before they happen

- Improved ability to ramp capacity up or down rapidly to meet demand.

exemplified by the company's steady revenue growth and its astonishing 99 percent on-time pickup rate, which stands as perhaps the best measure of the company's intense focus on operational efficiency and customer satisfaction. Indeed, these values—by fueling growth and strengthening the BostonCoach brand—have been the foundation of its success. Building on this foundation, the company views the ability to maintain near-perfect on-time performance as one of the key criteria against which its strategies and operational decisions are evaluated.

The need: bringing utilization up by keeping complexity down

To maintain its growth and profitability, BostonCoach needed to generate more paying rides within its existing service areas (in part by reducing denials of service) and to faciliate expansion into new markets. At the same time, the company sought to control its costs by maximizing the efficiency of its investments in its key resources—cars, drivers and dispatch centers. To meet this challenge, BostonCoach needed to increase the utilization of its fleet assets—all the while meeting its stringent on-time standards. The answer lay within the company's fleet dispatch system, the heart of its operations. The job of the dispatcher, or "fleet controller," is to make decisions, the most visible of which is the matching of a driver to a job. In reality, though, fleet controllers are compelled to make a series of interconnected judgments related to dynamic factors such as weather, traffic conditions, driver locations, flight schedule changes and incoming customer pickup requests for each job. Thus, as the jobs to be dispatched accumulate, decision complexity grows exponentially. Against this backdrop, one of the biggest challenges for the fleet controller is to minimize "deadheading"—the time drivers spend in cars without paying customers, generally on the way back from a trip—which has the single largest impact on fleet utilization.

Bill Kavanagh, BostonCoach's COO, notes that while fleet controllers typically have expert knowledge of a particular city, the growing complexity of their task ultimately undermined their effectiveness. "Like any human, fleet controllers are only able to handle a certain level of complexity in their decision-making before they hit the wall," says Kavanagh. "We had reached a point where the larger our operations got, the more challenging this task became." BostonCoach needed a system that would automate the processing of key decision inputs, thereby simplifying the dispatch process for fleet controllers and enabling a more efficient deployment of fleet resources. Such a system would need to sense relevant changes in the dispatch environment as they occurred

and respond in a way that optimized utilization and kept deadheading to a minimum.

Taming complexity through sense and respond capability

To address its need, BostonCoach teamed with the IBM Boston Center for e-business Innovation and IBM T.J. Watson Research Labs to create a centralized dispatch management system, or Fleet Optimization System, known as FOCUS. FOCUS automatically senses changes in key parameters—such as early or late arrivals at pickup or drop-off, or changes in driver availability—by gathering data in realtime from the dispatch system and from drivers in the field, who are equipped with wireless GPS-enabled devices. This data is then merged with the existing base of dispatch information and run through an optimization engine developed by the Watson Labs. The system responds by generating a near-optimal dispatch schedule for each city, updated continuously. In line with BostonCoach's mandate, the FOCUS solution complements the company's core dispatch processes without changing them, thus improving efficiency as well as the ability to service future growth. The key process enhancement was the ability to define the proper course of action from of a vast and dynamic body of data.

Now, fleet controllers are presented with suggested driver/trip match-ups derived from FOCUS, relieving them of this burden and enabling them to focus on exceptions, such as special customers. In addition to enabling BostonCoach to adapt and optimize on a minute-by-minute basis, FOCUS also provides the company with a proactive planning tool. By leveraging the solution's advanced reporting capability, BostonCoach's managers have also gained the ability to optimize their staffing strategies by ramping capacity up or down rapidly to meet demand, or bringing in affiliates quickly when necessary.

Building on a strong relationship

IBM was selected due to its long-standing relationship with Fidelity, the strength of its core technology and perhaps most of all its ability to access the resources of the Watson Labs. While Watson Research Labs developed the core optimization engine, the Boston Center for e-business Innovation performed the integration necessary to link FOCUS to BostonCoach's existing proprietary dispatch systems, located in regional centers. In the latter case, the team wrote a Java program in IBM WebSphere Application server that polls each system, gathers and reformats data and augments it with business rules. This data is then sent via IBM WebSphere MQ to the optimizer engine (running on an IBM eServer pSeries), which generates a result and ultimately sends it via WebSphere MQ to the appropriate fleet controller's workstation. WebSphere Application Server was selected because of its openness— an important factor since the solution involved a number of third-party elements. WebSphere MQ was chosen due to its guaranteed message delivery capability as

Key Components

Software

- IBM WebSphere® Application Server
- IBM WebSphere MQ
- IBM Optimization Subroutine Libraries (OSL)

Servers

- IBM eServer™ pSeries® p660

Services

- IBM T.J. Watson Research Laboratories
- IBM Boston Center for e-business Innovation

"The ability to bring together great core technology and the world-class R&D capabilities of the Watson Labs was something that no one else in the marketplace had."

– Bill Kavanagh

well as its well-defined message format, which will facilitate integration with new dispatch systems in the future.

With FOCUS up and running, BostonCoach has seen a 10 to 20 percent increase in its fleet utilization, along with several million dollars in cost savings. While the project's key metric—driver productivity—was a key part of this savings, the solution also produced a number of unforeseen benefits. For instance, the fact that fleet controllers can now focus on exceptions increased their productivity, so much so that BostonCoach was able to consolidate the number of dispatch facilities it operates. BostonCoach can now leverage its existing dispatch capabilities as it enters major new markets, thus speeding entry and avoiding the huge expenditures it had typically spent on hiring 24/7 fleet controllers and the facilities to house them. The company's recently added Atlanta and San Francisco markets, which are dispatched from its Boston hub, are dramatic evidence of the viability and success of this approach.

While cost savings and productivity have been key

benefits, the solution has also contributed to a 10 percent increase in revenues. Kavanagh sees this increase as a clear sign that his company is now able to make more precise, effective decisions in a highly dynamic environment. "By its nature, the ground transportation industry is the ultimate ever-changing environment. The new system has given us a competitive advantage by allowing us to master our environment as we've never been able to do before. And it wouldn't have been possible without our teaming with IBM."

For more information

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