BOMBARDIER

Train Engineers Rejuvenate Fleet Management with Visual Mapping Technology

Customer: Bombardier
Web Site: www.bombardier.com
Number of Employees: 5,000+
Country or Region: United Kingdom
Industry: Transportation and logistics—Public transportation
Partner: Shoothill

Customer Profile
Bombardier is a transportation company that employs 60,000 people worldwide, in the aerospace and rail transportation sectors. Based in Canada, it posted revenues of U.S.$17.5 billion in January 2008.

Software and Services
- Technology
  - Microsoft Virtual Earth
- Microsoft Server Product Portfolio
  - Microsoft SQL Server 2005

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Robert Cain, Requirements Manager, Bombardier

Bombardier is a global transportation company that manufactures and maintains trains and planes in more than 60 countries. In November 2007, the organisation transformed its train management software in the United Kingdom by implementing Microsoft® Virtual Earth™ mapping technology. Employees now gain a deeper visual insight into their business, helping them analyse data far easier than before, leading to more efficient maintenance and services.

Business Needs

Bombardier is a large enterprise that spans five continents. Based in Montreal, Canada, it has two separate business entities—aerospace and rail transportation. In the United Kingdom, Bombardier rail transportation manages and maintains around 2,500 train cars.

The company needs to collect a large amount of train data to manage and monitor vehicles effectively. The required data ranges from information on technical malfunctions to engine temperatures and toilet water levels. A black box is fitted in every carriage, which records this information and then transmits it by Global System for Mobile Communications (GSM) into Microsoft SQL Server® 2005 data management software located at the organisation's data centre in Derby.

Robert Cain, Requirements Manager at Bombardier, says: "Initially, this information was plotted on a number of different spreadsheets and graphs. Train locations were shown by coordinates placed on a map using Microsoft MapPoint® 2004 business mapping software. Our engineers would analyse the data, then carry out the necessary maintenance. But the engineers found it difficult to pinpoint exact problems

SHOOTHILL

Microsoft Virtual Earth

attributed to geographical locations from reading the tables and graphs."

Bombardier records about 18,000 pieces of data every hour. The sheer volume of data meant it was difficult for the company's 150 technicians to perform the maintenance they needed in the most efficient way. Similarly, the corporation's directors found it hard to gain a clear overview of specific trends in data and recurring operational issues. As a result, they couldn't easily plan future strategies.

Cain says: "We needed to implement a solution that could provide a succinct and accessible overview of train data, which could be attributed to specific geographic locations. In addition, the system had to be deployed quickly, with minimal disruption to our engineers."

Solution

In November 2007, after considering other solutions and providers, Cain sought the help of Microsoft Certified Partner Shoothill. Together, they implemented a system based on Microsoft Virtual Earth mapping technology. Cain says: "We chose Virtual Earth for its reliability and because it can be deployed quickly and easily. Shoothill impressed us with its professionalism, in-depth knowledge of Microsoft technology and willingness to design and develop a system that suited our exact requirements."

The combined Bombardier and Shoothill team conducted three phases of implementation: configuration, testing, and integration with existing systems. Each segment needed to be completed in just two months to meet the June 2008 deadline. "At each stage we limited the features to be developed to the smallest amount possible and had well-defined acceptance criteria. Each stage was allocated the minimum development time so the system could be tested and rolled out quickly to our internal users," says Cain. "User responses were then analysed and we identified features to be deployed in the next stage." At the end of the deployment, the Virtual Earth mapping application was linked to the organisation's SQL Server database.

Now, Bombardier can plot all its train data onto the Virtual Earth map. Engineers can quickly locate all the company's vehicles, click on their icons, and read specific issues attributed to them. Controllers use the solution to view detailed, real-time information about the network, including:

- Problems, such as signal failures, colour coded according to their significance
- Major events, such as breakdowns, highlighted through alerts
- Vehicle environment values, such as temperatures and passenger numbers.

They can also access a complete history of recent events through the system's time lapse feature. Cain adds: "The entire development proceeded commendably with no major technical difficulties. We can now view our data quickly and with more clarity."

Benefits

The Virtual Earth solution, designed and developed by Shoothill, has revolutionised the way in which engineers can analyse train information. With a clear view of trains and issues, engineers can easily monitor performance and plan maintenance. In addition, Bombardier executives have a concise overview of operations and can make more informed strategic decisions. Cain says: "With Virtual Earth we can see exactly what we need. It's popular with our engineers, helping them diagnose and solve problems quickly. We also manage our engineering resources better, reducing costs."

- Train monitoring is improved. Depending on the fleet operator, users can find the real-time location of trains on the network, and access detailed information specific to it, or pull up that information at the end of the day.
- Maintenance analysis is faster. Engineers can diagnose complex problems in hours rather than days by viewing concise train data, quickly.
- Business operations are enhanced. Managers and executives can observe operations on a map, which makes it easier for them to see where resources should be placed for maximum efficiency.
- Operations costs are reduced. Engineers can react to problems faster reducing maintenance costs, and trains can be located and directed in real time, which reduces the money spent on fuel.
- Passenger safety is increased. Bombardier can locate trains and their issues immediately, increasing the level of security offered to train customers and employees.

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