



Rosenau Transport

Leveraging real-time data to take trucking from commodity to value add

Overview

The Need

Canadian trucking company Rosenau Transport sought to make its operations more efficient and cost-effective while also differentiating itself through superior customer service.

The Solution

Rosenau teamed with IBM to build and source a system that captures data from truck-mounted sensors and transmits it to a central transport management and analysis hub, where it provides the basis for operational decision support—from route optimization to delivery notification.

What Makes it Smarter

Insight based on real-time vehicle information drives efficiencies throughout the supply chain, by helping to save fuel, reduce delays and enable proactive planning based on up-to-the-minute knowledge of delivery time.

The Result

“This technology goes beyond simply providing information to becoming a tool that gives us advice on the best decision to make.”

—Terry Rhode, system controller and IT manager, Rosenau Transport, Ltd.

The long-haul trucking industry is a vital part of the North American economy, with communities across the continent relying on truck transport to bring them everything from food to consumer goods. It's a challenging business—there is relentless pressure to keep costs as low as possible to meet customer price expectations, and with shipping being a commodity industry, it can be difficult to find competitive differentiators. In addition, there is increasing demand from both customers and government regulators for information about everything from shipment status to environmental impact.

These were just a few of the issues facing Rosenau Transport Ltd., a Canadian trucking company serving the western part of the country. But rather than viewing these challenges as problems, Rosenau saw new opportunities to gain a competitive advantage. “The need to maintain a high degree of customer satisfaction is really our number-one driver,” says Terry Rhode, system controller and IT manager at Rosenau. “Keeping our costs low so we don't have to raise prices is a big part of that, but our vision is to go a step further. We want to make our customers' jobs easier; the more we can do for them, the greater the incentive to choose us as their transport provider. Our goal is to make price less important than service. If we can add sufficient value, then we can actually charge a premium and avoid getting into a price war squeeze.”

The company realized that the key to turning its vision of greater efficiency and superior service into reality was to gain end-to-end, real-time visibility into its operations. Access to precise information about its operations out on the road and on board each of its trucks, at





Business Benefits

- Combines real-time road information with sophisticated routing algorithms to automatically reroute trucks around traffic delays and obstructions, helping to save time and fuel
 - Provides up-to-the-minute status information to customers, enabling them to proactively plan for delivery
 - Automatically captures operational information that is used to optimize fuel consumption, keep trucks in peak condition and reduce unnecessary trips and detours—reducing environmental impact
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all times, would open a world of possibilities. Service representatives could tell customers exactly when a shipment would arrive. Planners and operations staff would have increased visibility into the supply chain, enabling them to make better decisions. Drivers could be sent along routes that offer the best balance of speed and fuel efficiency, taking into account actual road conditions. It could even be possible to optimize trucking operations by monitoring vehicle telemetry and leveraging that information to take appropriate action such as adjusting engine settings, automatically correcting underinflated tires or performing proactive maintenance to avoid costly repair.

The foundation for the vision

Each truck in Rosenau's fleet will be equipped with a variety of sensors that can report location and motion, along with performance and maintenance telemetry such as load weight, fuel efficiency and engine data. In the cab, the drivers have mobile computers that can communicate with the company as well as perform other functions such as recordkeeping and signature capture to confirm delivery. But this is just part of the picture; transforming the raw data into useful information requires not just the mobile hardware, but a robust and multifaceted computing platform as well. IBM, in conjunction with IBM Business Partner and systems integrator Banks-Hill Systems, teamed with Rosenau to build an end-to-end technology infrastructure that would bring the trucking company's vision to life.

The data gathered by the various sensors is transmitted to an integration and analysis system housed on IBM System i5® 520 Standard Edition and IBM System i5 525 Express servers running Linux®. These flexible servers, capable of running multiple workloads through IBM Virtualization Manager, allow Rosenau to use the same physical

Smarter Transportation: Optimizing shipments to drive efficiency and competitive advantage



Instrumented

Sensors on trucks continuously report a range of data, including location, speed and maintenance information, via wireless links.



Interconnected

The remote data is aggregated on a central information management system for analysis and proactive, automated action.



Intelligent

Real-time information helps Rosenau optimize its operations, with automated truck routing and scheduling, up-to-the-minute delivery information, streamlined business processes and improved vehicle performance.



Solution Components

Software

- IBM Content Manager for iSeries®
- IBM DB2® for i
- IBM DB2 Web Query Tool for Multiplatforms
- IBM Virtualization Manager
- IBM WebSphere® Portal Express

Servers

- IBM System i5® 520 Standard Edition
- IBM System i5 525 Express

IBM Business Partner

- Banks-Hill Systems, Ltd.
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hardware to manage other key business functions, such as the company's VoIP-based call center and customer-facing Web portal. The data storage platform is based on IBM DB2® for i, with IBM Content Manager and the IBM DB2 Web Query Tool for Multiplatforms enabling sophisticated access to information, and presented via a Web-based interface built using IBM WebSphere® Portal Express.

Making the case

Much of the technology needed to make the system work—such as GPS—has been available for some time, but to deliver the kind of value that Rosenau sought, the system needed newer, more sophisticated technology that could turn raw data into useful, actionable intelligence. For this reason, Rosenau proceeded deliberately and carefully, according to Terry Rhode. “We conceived this kind of capability several years ago, but we felt the technology was not quite ready, nor was our corporate culture,” he says. “By waiting to invest, we’ve put ourselves in a better position to leap ahead of our competitors.”

Rhode also points out that the delay helped win support inside the company. “Waiting to build the system also gave us time to get buy-in from senior management, and build excitement and demand for it. Trucking operations tend to be pretty conservative, which leads to some built-in resistance to change. We used to have the view that ‘if it doesn’t have wheels, we don’t need it.’ But by showing how technology could help us lower costs, while also giving us a real competitive advantage, we were able to change attitudes. By the time we were ready to proceed, our leadership was fully behind the project.”

Convincing the workforce was also a challenge, Rhode says. “In this industry the average age of the workforce is increasing, so many of our employees are not used to technology being part of their job. Some of our drivers had never used a computer. There was also a fear of change on the part of the drivers; that the introduction of technology presented a threat. Added to this was resistance to what was initially perceived as extra work and hassle. What we learned during our training was that if we shared the value of the system with our drivers—why we were doing it and how it could make their jobs easier—then they became much more accepting.”

“Our slogan is ‘Our Business Is Built on Service,’ so everything we do is based on that.”

—Terry Rhode



Benefits from end to end

Rosenau's system demonstrates how a simple idea—the leveraging of real-time information—can produce a broad range of benefits for both the trucking company and its customers. The solution reaches across all aspects of their business—the trucks and drivers, the dispatchers, billing and tracking systems, customer relationship management and even the physical handling of the materials. Once fully implemented, the system will have a significant impact on the entire shipping process. For example:

- *Rerouting* – The system can tell if a truck is stuck in rush-hour traffic based on its location, speed and time of day. Using this information, the system automatically transmits a new route to the driver, via his or her mobile computer, to provide the best compromise between speed and distance to be traveled. At the same time, predictive information about the change in delivery time is provided to the customer, and any trucks following that same route are directed around the delay. A considerable amount of intelligence is built into the routing algorithms; waiting for left turns that cross traffic, for example, wastes both time and fuel, so routes that favor right turns are given higher priority.
- *Scheduling* – Knowledge of when each truck will actually arrive does more than provide up-to-the-minute pick up and delivery information to Rosenau's customers. The system knows if a truck won't make it to its destination before the customer closes for the day, and can automatically revise the driver's schedule and route to avoid a wasted delivery attempt.
- *Warehouse management* – More detailed tracking of cargo in its distribution centers allows Rosenau to load trucks faster and more efficiently, and manage inventory better by optimizing the movement of packages.
- *Fuel and maintenance cost savings* – When trucks are refueled, engine performance data is captured so preventative maintenance schedules can be modified to take corrective action to optimize fuel consumption and green house gas emissions. Real-time tire pressure monitoring and automatic inflation capability also allows the system to take corrective action automatically if a tire is running low, which helps prolong tire life, saves fuel and also increases safety.



- *Improving business process efficiency* – Drivers capture pick up and delivery confirmation digitally, which is automatically transmitted back to the company. This data allows Rosenau to collect payment immediately, improving cash flow.
- *Regulatory compliance and documentation* – The system helps Rosenau comply with increasingly stringent government regulations regarding environmental impact by providing the information needed to document not only emissions but the impact of maintenance activities as well.

Rhode points to the system's sophistication and ability to benefit both Rosenau and its customers as an important attribute. "We get lower costs and they get better service, but there's more to it than that," he says. "This technology goes beyond simply providing information to becoming a tool that gives us advice on the best decision to make—the decision that helps both us and our clients. The more factors we take into account, the better those recommendations will be. So we can combine things like local knowledge of the roads we travel on, individual customer preferences, or the expected impact of weather with the automated system to yield a better, more informed decision."

Competitive advantage that leads to transformation

The system's current capabilities are helping Rosenau achieve its goals of cost reduction and competitive advantage through superior service. As powerful as these benefits are, however, the company is looking ahead to far greater potential—a true transformation of the supply chain, in which Rosenau does much more than simply pick up and deliver cargo.

"Our slogan is 'Our Business Is Built on Service,' so everything we do is based on that," Rhode says. "The enhanced service we're giving our customers today is just the beginning. We're talking about possibly taking it to a whole new level and helping our clients to actually manage their shipping function. If we can hook into their back office systems, for example, we can make the entire chain more transparent and conceivably run some of their processes and workflows for them. In effect, we would become their shipping and receiving department. It's a logical step, because with our expertise we can likely do the job more cost-effectively than they can. That's a powerful business idea, and this system is what's going to take us there."

For more information

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