Business Value Through Fleet Management Optimization

Cadec Global

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Introduction

While efficiency and cost remain critical focal points for any business with its own trucking fleet, new challenges pose an even greater threat to their success. Ensuring consistent safety records and superior levels of customer service have become executive-level issues demanding changes in how fleets are managed. Fortunately, recent technology advancements are addressing these issues, as new fleet management solutions provide unprecedented levels of automation, visibility and mobile asset optimization.

In this paper, we describe the foundational elements of today's advanced fleet management systems and the business impact they can have on organizations operating a private fleet. To introduce the business issues faced by most private carriers, we spotlight a fictional wholesale food distribution company, Exclusive Food Services (EFS) and its Chief Operating Officer, Bill Jones. We explore the many operational and business challenges Bill faces in managing his fleet and define how fleet management can impact an overall supply chain. To address these challenges, we review the features of the Cadec PowerVue system and its ability to integrate seamlessly with EFS' existing supply and transportation management systems. We conclude with a review of the benefits that fleet management systems can bring, including reduced costs, maximum efficiency and increased productivity, while providing high levels of customer service and improved driver safety and performance.

Scenario

It's 7:00 am and Exclusive Food Services' (EFS) COO Bill Jones is preparing for his weekly transportation update, reviewing notes and action items from last week's meeting. As the former Transportation Director for EFS, he recalls the tedious work required to prepare for these meetings, scrolling through multiple spreadsheets – cross referencing accounts, orders and drivers. So much paper.

Now he's tasked with making sense of it all and keeping EFS operating efficiently. He looks at his schedule for the day: vehicle maintenance updates, fuel tax payment review, driver performance meeting, customer conference call… how can he possibly prepare for all of these meetings when the data is in so many different places?

Bill starts to think about the technology investments he has approved to help EFS increase efficiency. EFS has used mobile communications in its 130 trucks for more than 10 years. GPS tracking allows the company to see the routes drivers took on a given day, and run reports on driver speed, etc. The company's maintenance management system enables it to monitor vehicle maintenance and EFS has already begun to realize steady progress on extending the life of its vehicles. Most recently EFS upgraded its routing applications and added hand-held systems so that drivers can verify deliveries; some drivers are now able to capture signatures electronically.

In spite of these new systems, however, EFS still faces critical business issues, and not much has changed at an operational level in the past 20 years. Bill has moved up through the ranks at EFS, from dispatcher to transportation manager to COO, and recognizes many areas that can be improved upon.

Putting his reports on hold for now, Bill visits Steve Spencer, who replaced Bill as transportation manager. Steve and Bill have been friends and colleagues for the past 15 years.

Bill shares his concerns with Steve, who confirms that not much has changed since he filled Bill's former role as Transportation Director. The company has implemented better reporting capability so Steve's team can better analyze past performance, but it's not easy. The maintenance system does not interface well with the mobile communications system, so data from the trucks must be uploaded manually. Drivers still use paper-based reports for their routes and manual, paper-based logs. Steve spends much of his day confirming drivers' hours-of-service data for their availability and reviewing which drivers are complying with the company's established safety guidelines.

Bill and Steve agree that things are out of hand and EFS needs a way to integrate its technology and processes more effectively. The systems the company uses are all independent applications, which act as silos of disparate data. The company needs a better way to improve visibility into how the business is doing, reduce manual processes and integrate existing systems to increase usability.

Bill returns to his office with a fresh cup of coffee and begins to scope out the challenges EFS needs to address.

- How can EFS eliminate the costly, paper-based administrative processes in its delivery operations?
- What does it cost to remain in compliance with DOT logs and state fuel-tax requirements?
- How does driver performance impact the company's bottom line?
- Is EFS retaining its best drivers and hiring the right new ones?
- Can EFS lower costs by reducing unauthorized vehicle use, unnecessary idling and DOT fines?
- How can EFS maximize the capabilities of its existing routing, mapping and supply chain management investments?
- With competitors fighting to steal their accounts, how can EFS continue to improve customer service, and what is the financial impact of losing one account?
- Is EFS using its fleet efficiently? Could it reduce overhead costs by having fewer vehicles and still maintain operations?
- Could EFS reduce insurance premiums by proving safe-driver behavior?

Great questions, but there's no silver bullet. However, Bill can't help but think that addressing any of these concerns could make an impact. Not only could his day be more productive, but the business could really benefit. More importantly, Bill is convinced that without answers to these questions, EFS' distribution operations are at risk.

Fleet Management

As private fleets build out their supply chain processes, one of the most critical yet often overlooked aspects of any supply chain is the enterprise-wide impact of enhanced fleet management. While the concept of fleet management has been around for many years, the relevance of managing distribution vehicles and the impact of optimizing fleets for maximum productivity have never been greater. An effective fleet management solution can increase a company's profitability, reduce costs and improve service levels.

Today, fleet management encompasses vehicle tracking, mechanical diagnostics, driver behavior tracking, route tracking, fuel consumption, delivery accuracy and visibility, mobile communications and more. Within private fleets especially, advanced fleet management technologies have extended supply chain management into the cabs of vehicles. On-board and hand-held computer systems now add supply chain intelligence and business process automation through point-of-delivery electronic signature capture, dynamic route updates, real-time inventory management, proactive communication between vehicles and dispatch centers and much more.

Additionally, fleet management systems also offer significant impact for other business functions. Human resources benefits from accurate time and attendance information on drivers, as well as driver performance evaluation data. Service and sales representatives can update customers with timely delivery notifications and improved order accuracy, while finance and warehouse teams benefit from real-time delivery validation, automated electronic invoicing and up-to-the-minute inventory updates – including overages, shorts, mispicks, damaged goods, returns and backhauls.

To improve EFS' fleet management strategy, Bill begins to understand the need to address the following key requirements:

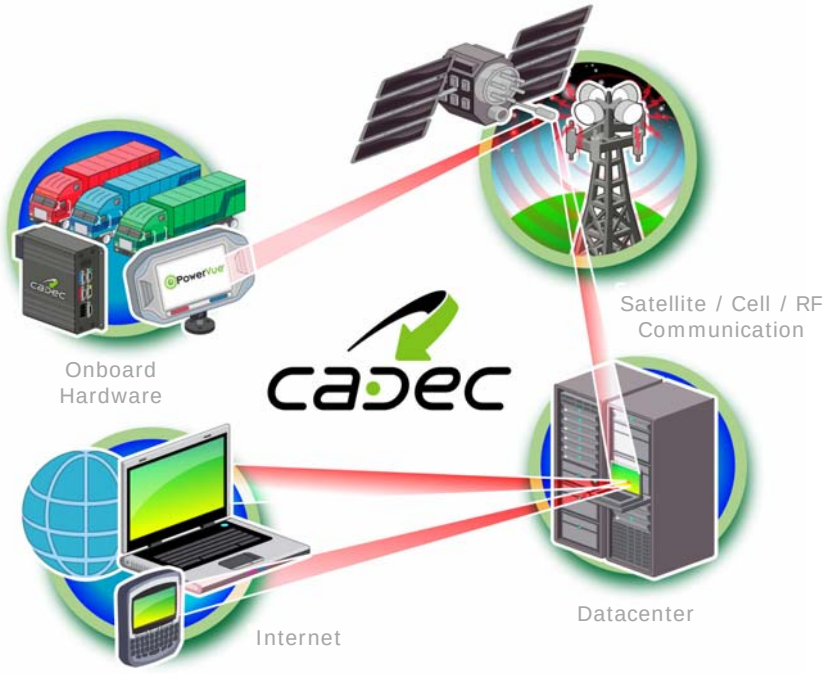
- Improving customer service with automation and real-time visibility into delivery information
- Continuous tracking of driver behavior and performance to improve driver retention and safety as well as help to conserve fuel
- Integration with other internal systems to improve ROI and increase effectiveness throughout the supply chain; and

- Improving dispatch efficiency and HOS tracking/compliance using electronic logs and a system that can track driver availability.

The following sections provide an overview of the system Bill identifies as the recommended fleet management system for EFS – Cadec PowerVue.

Overview of Cadec PowerVue

Cadec PowerVue is a fully hosted fleet management solution that combines the power of a web-based, enterprise-class application platform with a new, state-of-the-art on-board computer (OBC) system with multiple communications options. Cadec PowerVue provides actionable information and business intelligence for executives, fleet and logistics experts, and transportation and distribution managers, to reduce costs, enforce compliance and safety regulations, improve driver productivity and enhance customer service.



Align fleet intelligence with supply chain and business objectives.
PowerVue is a centralized fleet management system with customizable, real-time views into an organization's comprehensive mobile asset portfolio: vehicles, drivers, customers, resources and costs. Through executive dashboards, PowerVue gives executives access to real-time, actionable information to ensure fact-based investment decisions and better alignment with business objectives.

Industry standards-based Service-Oriented Architecture (SOA) design.
PowerVue uses a SOA design built on the Oracle Fusion and 10G platform for unlimited scalability, and application integration based on industry-standard, XML-based web services technology. This unique approach facilitates the development of modular business services that can be easily integrated and reused—creating a truly flexible, adaptable IT infrastructure.

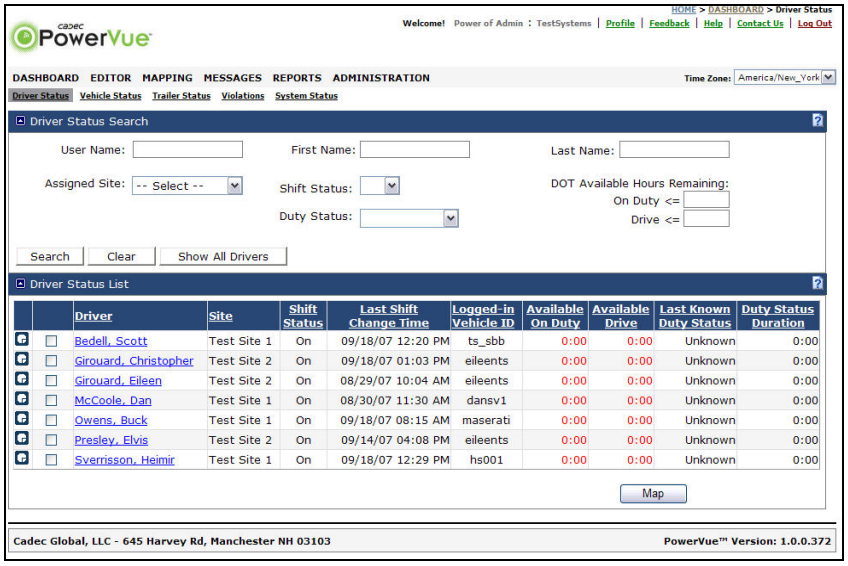
Tier one, fully redundant hosting facility.
The PowerVue infrastructure is built with the most advanced IT infrastructure available and hosted in a fully redundant, highly secure, high availability hosting facility. The PowerVue datacenter is also certified SAS70 compliant. With PowerVue, your IT organization will focus more resources and budget on innovation and delivering new business services.

PowerVue provides a management solution for companies with fleets of all sizes. This system tracks assets, creates DOT logs based on driver data entry, indicates available hours of service for drivers, tracks deliveries/pick-ups, provides real-time mapping of vehicles, route tracking, messaging and much more.

PowerVue Web Application
The PowerVue web application is used by company staff to view the current status of vehicles, drivers, trailers, dollies, recent violations and recent shifts. Data is delivered to PowerVue via wireless communication with Cadec on-board computers mounted in each vehicle. Depending on the communication method chosen by your company, this data can be updated only when a vehicle returns to the site, or as frequently as every few minutes. Other options on the PowerVue web application allow you to enter setup data, print reports, map vehicles/drivers based on last known location, send messages, create routes and edit driver logs to assign unassigned drive time.

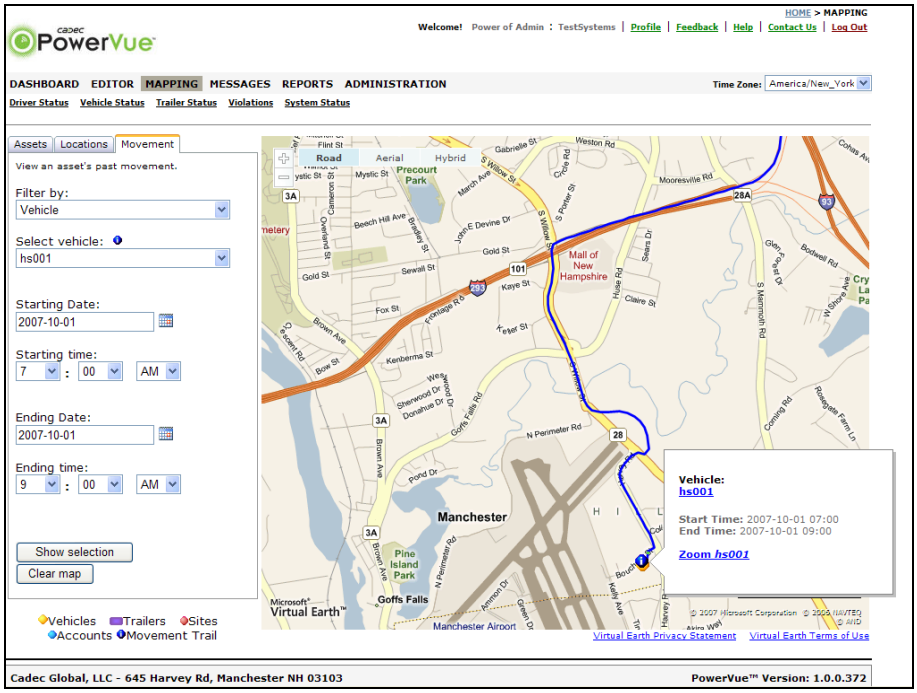
PowerVue Dashboard

The PowerVue Dashboard allows you to view real-time data about drivers, vehicles, trailers, violations and shifts. Users are provided with the most recent known information about their mobile assets as well as their last known location. Customizable driver score cards and key performance indicators (KPIs) present a consolidated view of a fleet's business impact. Mapping icons provide methods to display the selected asset on a map at its last known location. Screens are updated dynamically as new data is received from the onboard computers. Data is received at different intervals depending on your communication method and how often the system/vehicles ping each other. The PowerVue Dashboard provides unprecedented visibility across the entire fleet.



Mapping Feature

The mapping feature in PowerVue is used to locate and track assets (vehicles, drivers and trailers), violations (speeding, sudden decelerations, etc.), locations (sites and accounts) and movement (the path or trail of a vehicle) on a map. The map can be viewed as a simple road map, an aerial view based on satellite pictures or a hybrid option that combines both views. When mapping assets or locations, multiple items can be displayed on the map at the same time.



Optional Routing

A route is simply a pre-planned series of scheduled stops. Routing is an optional component of the PowerVue system that gives you the ability to import from an external routing package. As the route is run, the actual drive, stop and start times are written to the database. You can export the route and send it back to the routing package for comparison and analysis. Route Status is available on the Dashboard, giving the dispatcher realtime data regarding deliveries and pickups. The system tracks each stop and indicates whether it was on-time, early or late. Deviations from the original route are tracked and stored in the database.

Message Browser
The Message Browser lets you stay in touch with your fleet in real time. Depending on the communications method you are using, you can stay in touch within the yard and/or throughout each driver's route. Messages can be initiated by the office or driver. This capability helps dispatchers inform drivers of route changes, update customers on expected delivery times, schedule back haul more efficiently, etc. It also helps drivers keep in touch with the office without interrupting their trips, enabling them to transmit requests for assistance, inform dispatchers of delays as they occur, etc.

Editor
The Editor is used to view driver's DOT Logs and correct data entry errors. For example, if a driver pressed the wrong key on the OBC, you can use the Editor to change the DOT Duty Status to correct entry mistakes. In addition, you can use the Editor to add, change or delete on duty events, including pickup, delivery, drop and hook. If you have unassigned drive time because the driver could not log in, that time can be assigned to a driver. Both the edited DOT Duty Status information and the original, non-edited DOT Duty Status information are saved in the database.

Reporting
PowerVue includes a number of built-in, standard reports and the ability to create custom reports based on individual or departmental needs. All reports are generated from the PowerVue database. Reports can be exported or viewed in a variety of formats, including PDF, Excel, text, GIF, PNG and more. Additionally, PowerVue can store and execute report queries on a scheduled basis and proactively deliver them to the appropriate audiences, eliminating the manual reporting processes.

PowerVue Onboard Computer

PowerVue leverages Cadec's 100-Series on-board computers (OBC). The OBC is designed with your drivers in mind. The two-piece design consists of the TU100, a low-profile, intelligent telematics system running Microsoft Windows CE 5.x; and the DI100, a separate, color touch screen driver interface. OBCs mounted in the vehicles serve as telematics units, recording and sending real-time information – such as speed, RPMs, sudden decelerations and idle time – from the engine to the hosted PowerVue server. The OBC also sends driver-provided information, such as login data, duty status, delivery data, route information, etc.

The driver can enter as much or as little data as the company requires. The driver responds to a series of customizable prompts that guide him or her through the data entry. Prompts can be created and assigned to groups of drivers. The driver must log into the OBC using an ID and optionally a password. The OBC prompts the driver for that information. The server responds by sending DOT log history, account, route, configuration, product and commodity data back to the OBC to make it available for use by the driver.

As the shift progresses, the driver indicates each duty status as it changes. There are four duty statuses recognized by the DOT; Driving, On Duty, Off Duty and Sleeper Berth. PowerVue also tracks Shift Activities. Shift Activities is a feature that allows a company to track driver activities that do not belong on the DOT Log.

Electronic Logs

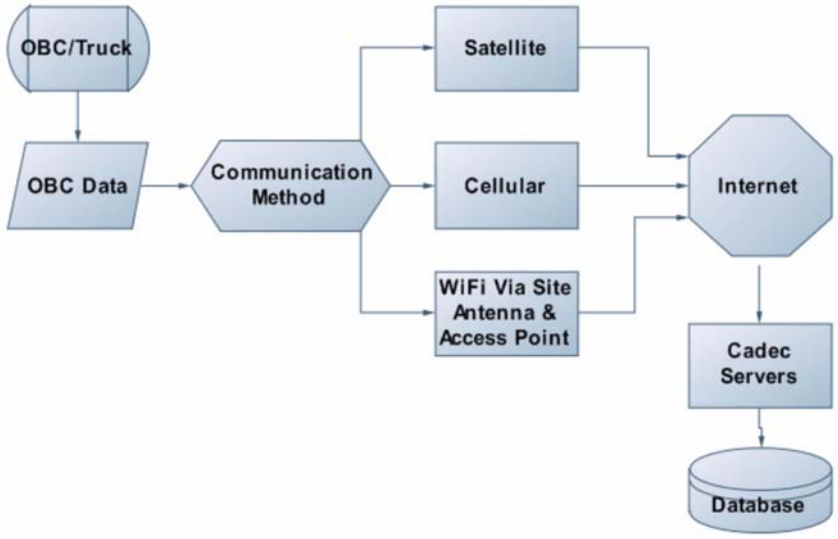
Drivers' Hours of Service (HOS) Logs, designed for both U.S. and Canadian compliance, are readily available at the touch of a button. Drivers log into the OBC and use it to create their HOS Log. Drivers indicate when they go on duty, start driving, stop driving, change duty status and much more. All of this data is recorded by the OBC and can be viewed in the appropriate HOS format. A GPS receiver is used to track vehicle location at all times. Vehicle location information is collected at user-specified intervals, first stored in a database on the OBC, and then sent back to the PowerVue database, which collects all of this information and makes it available to managers via the Internet in real-time dashboards for viewing and reporting.

Drivers use the Series 100 OBC to replace their paper DOT logs and to provide their company with additional information about the work being done throughout the day. Any activity selected by the driver is considered on-duty time by the DOT; however, the DOT does not need the detail. By using shift activities in conjunction with duty status, a company can create a record of exactly what an employee is doing all day. Drivers indicate when they are driving, doing a delivery or pickup, dropping or hooking a trailer, on-duty but not driving, etc. With this comprehensive data, DOT logs can be viewed and printed. Hours of service remaining can be calculated. Detailed shift activity reports can include everything done by the driver and can be used by the office to pin-point an issue. Availability of OBC data depends on the frequency with which the OBC communicates with the PowerVue servers.

In addition, when errors occur in drivers' DOT logs, the company has the ability to edit them. Both the original data and the modified data are stored and used for reports.

PowerVue Wireless Communications

In order to transmit data, a vehicle must have one or more communication methods available. Communication between vehicle OBCs and the PowerVue database takes place using WiFi, cellular or satellite connections. When the vehicle is close to the Site, the OBC can transmit data via a wireless network using a wireless card in the OBC and an antenna. When the vehicle is too far from the Site to use the wireless network, data can be transmitted using a modem and a cellular antenna. In extremely rural areas, data could be transmitted using a modem and a satellite antenna. Companies can choose one or more of these communication options. When transmitting data, PowerVue can select either the lowest cost communication option first and work its way through the other options as needed; or the immediately available option for instantaneous data transmission.



For companies that choose to relay data using WiFi, the site receiving the information from the OBC must have an antenna. In addition, the site must have an access point which converts the data being received from the vehicle antenna into a format that can be transmitted through the company network to the Internet and finally to the PowerVue database.

Companies that opt to use cellular or satellite connections do not require a building antenna. Data is sent to the cellular or satellite service provider using a modem. That data is then sent to the PowerVue database on the Internet.

In addition to the OBCs, optional hardware is available to track temperature in the trailer (TempTracker) and/or to track whether or not a trailer door is open (DoorTracker). This equipment is typically used in refrigerated trucks.

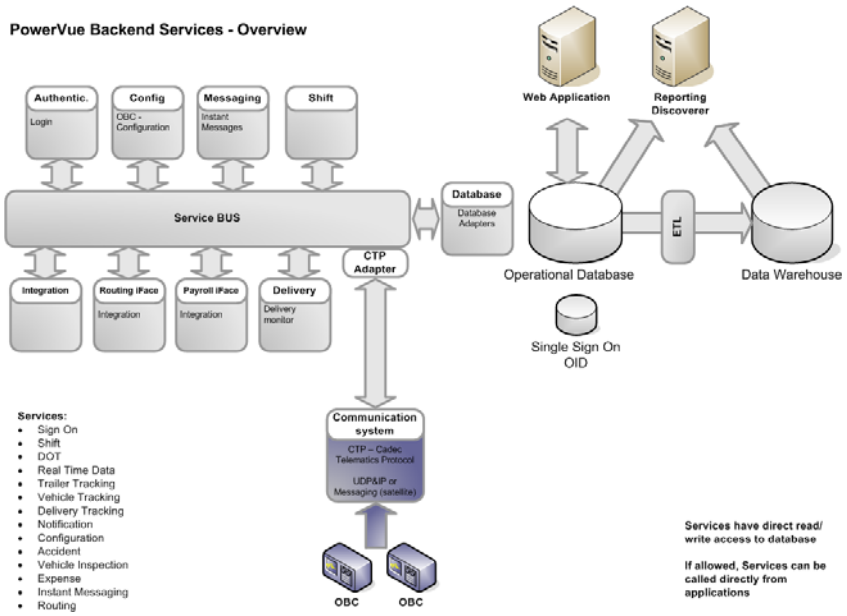
PowerVue Bridge

PowerVue Bridge is the first and only fleet management system built using web services and service-oriented architecture (SOA) technology. The PowerVue Bridge integration platform provides seamless integration, using proven industry standards (SOAP, WSDL, XML, etc.). With PowerVue Bridge integrations, fleet data can be easily tied to other systems in a company's supply chain; dispatch, routing, fuel tax, DOT compliance and supply chain management applications can now leverage the detailed fleet intelligence collected by PowerVue. More importantly, solutions are easily sustainable based on the loosely coupled nature of XML-based services in a service-oriented architecture.

SOA Extends Your Supply Chain into your Trucks

Enterprise technologies are rapidly evolving from traditional, client/server designs to service-oriented architecture. The adoption of SOA is allowing organizations to become more agile, by transforming siloed data into actionable information across many business functions and processes. PowerVue's SOA design allows real-time information pertaining to vehicles, drivers, deliveries, customers and more to be easily integrated into mission-critical supply chain, human resources and financial management systems.

While simple, browser-based tools are limited to providing access over the web, PowerVue's use of web services technology combined with its dynamic web interface provides new levels of end-user customization to accommodate the way each person needs to view their data, as well as ensure integration to systems throughout the supply chain. Users can easily create role-based dashboards to present data to different types of stakeholders within the organization and even create customer service portals for their clients to view real-time information about when to expect their deliveries, including a map that tracks truck locations.



Benefits to the Enterprise

Integrating the PowerVue fleet management solution into EFS's supply chain strategy will add a number of valuable technology features to its operation. But what are the real business benefits to the organization? Bill summarizes the value of PowerVue as follows:

Provides real-time **visibility** into the performance of mobile assets – both vehicles and drivers.

- *With its browser-based interface accessible from any Internet connection, PowerVue enables anyone within EFS who has login rights to access performance data. Users from any department can easily access the data they need to analyze the status of drivers, vehicles and deliveries, while business executives can view business summary information from intuitive dashboards and reports.*

Delivers unprecedented **flexibility** and **adaptability** to meet specific business requirements — executive dashboards, in-cab screens and application/data integrations.

- *Cadec's PowerVue system is designed to integrate with and extend the functionality of existing supply chain and transportation management systems. The back-office application leverages an XML-based service-oriented architecture for standardized data communications across multiple systems and applications. The web-based interface of PowerVue is tailored to specific roles, providing access to only relevant data based on a user's interest and responsibility. The on-board computers are Internet-ready and operate with Microsoft Windows CE operating systems for in-cab applications and multimedia to improve driver satisfaction.*

Enables companies to **automate** many time-consuming, administrative processes associated with delivery operations.

- *PowerVue eliminates or streamlines many time-consuming manual processes associated with transportation and distribution operations, including automated electronic driver logs, fuel tax, driver performance metrics, route optimization, delivery status/validation, invoicing and signature capture, pre- and post-inspection verification and more.*

Increases and accelerates the effectiveness of existing transportation and supply chain infrastructure by **optimizing** those systems with integrated, actionable data.

- *PowerVue improves the return on investment on existing applications by integrating real-time driver, vehicle and route data. Applications like dispatching, routing, inventory, maintenance and payroll become more efficient and accurate with the addition of data from PowerVue, improving the overall business.*

Allows businesses to provide unprecedented levels of **customer service** with real-time, proactive identification of delivery status and ETA.

- *Particularly in the food industry, meeting delivery windows and ensuring accurate and compliant deliveries is what sets competitors apart. PowerVue enables drivers to deliver their goods and regularly meet customers' expectations. Additionally, customer service representatives can view, track and analyze delivery information for each account to effectively communicate with their customers that service levels are being met.*

Empowers managers to accurately measure and influence **driver behavior** through real-time and historical Key Performance Indicator (KPI) dashboards.

- *PowerVue's driver performance reports and KPI dashboards provide the dual benefit of incentive-based pay for compliant drivers, and improved safety records by tracking poor drivers. PowerVue even allows drivers to see for themselves how they rank against other drivers, to encourage safe driving. By modifying driver behavior, EFS can reduce risk and recognize significant cost savings in reduced fuel consumption, lower insurance rates and fewer accidents and safety violations.*

Ensures **compliance** with state and federal regulations.

- *Hours of service regulations are going through more changes and maintaining compliance is a challenge for many fleets. In addition to federal regulations, individual state rules combined with MOT rules in Canada pose on-going difficulties ensuring that drivers are compliant. PowerVue alleviates many of these challenges with its electronic driver laws and built-in rules for state, US and Canadian transportation regulations.*

Summary

Bill's recommendations are well received by the management team at Exclusive Food Services. This paper reviewed the importance of an effective fleet management strategy for the problems Bill and EFS faced as their business evolved. Aligning the business with information technology systems while integrating actionable fleet, driver and delivery data throughout their organization would have a significant financial and operational impact.

The Cadec PowerVue fleet management solution is optimized to provide real business results from improved automation and visibility across the supply chain. Organizations managing their own fleet have determined that effective fleet management is a strategic requirement that goes well beyond simple GPS tracking and basic collection of vehicle performance. Private fleets must take the time to explore an integrated solution that extends their supply chain management initiatives into the cabs of their vehicles.

Learn more

To find out how PowerVue solutions can help you enforce compliance and safety regulations, improve driver productivity, reduce costs, and enhance customer service, call **800-25cadec** to talk to a Cadec sales representative, e-mail **sales@cadec.com** or visit us on the web at **www.cadec.com**.

About Cadec

Cadec Global enables mobile asset optimization, process automation and operations visibility through its advanced fleet management solutions. With more than 30 years of innovation and experience in the trucking industry, Cadec enables transportation and distribution managers, fleet and logistics experts and business executives to reduce costs, enhance customer service, enforce compliance and safety regulations, and improve driver productivity. Cadec's marquee customer list includes market-leading private and for-hire fleets across multiple industries throughout North America.