



### The Challenge:

Based in Toronto, Canada, RailCrewXpress (RCX) is a leader in transporting rail crew staff between trains, hubs and other locations. After transporting thousands of rail crew employees, the progressive management team set out to solve the common logistical problems that accompany offering staff transportation services.

To reduce costs and improve customer service, RCX needed improvements in the areas of driver communications, vehicle mileage/location tracking, trip data accuracy and faster retrieval of data from the field.

With hundreds of vans transporting thousands of rail crew employees, the solutions to these problems revolved around using always-connected mobile technology to enter data about the trip and transport it wirelessly to a SQL Server for billing, vehicle tracking and business analysis functions.

### The Solution:

MobileDataforce started the project by doing an in-depth on-site analysis of the problems and requirements. This study led to the creation of a Systems Requirements Document (SRD) that outlined the scope and provided a "blueprint" for developers and engineers to follow.

With the project scope now on paper, [MobileDataforce](#) PSO started planning and designing the solution using the PointSync 3.0 platform. This included features such as UDP-based messaging and on-the-fly synchronization. With these new features being added, PSO got started on the custom mobile application while working with Turnford to coordinate with an existing SQL Server data model.

Due to the rugged environment, RCX selected the ruggedized [PSION|Teklogix](#) Workabout Pro mobile devices. These devices were equipped with built-in 802.11 wireless to maintain a constant connection with the roof-mounted communications dome, provided by [Wireless Matrix](#). The dome maintains a continuous Internet connection using either GPRS (cellular) or satellite. Since data transmitted using the satellite connection involved higher cost, RCX had strict guidelines to govern what



### Technologies Used:

- PointSync Server 3.1 and PointSync Manager for management and data synchronization
- PointSync Developer 3.1 to create the mobile application
- PSION|Teklogix Workabout Pro ruggedized mobile devices equipped with PSION 802.11 wireless card
- Wireless Matrix WM2000 vehicle mounted dome, providing GPRS, satellite and 802.11 connectivity
- Web-oriented dispatching system designed by Turnford in Ontario, Canada.
- SQL database
- GPS data collection for tracking vehicle location every 10 seconds
- WiFi connection between mobile device and vehicle-mounted dome
- Full-time connectivity between dome and Internet over GPRS or satellite
- Bandwidth throttling based on available GPRS or satellite connection
- Instant-style messaging system between drivers and dispatchers



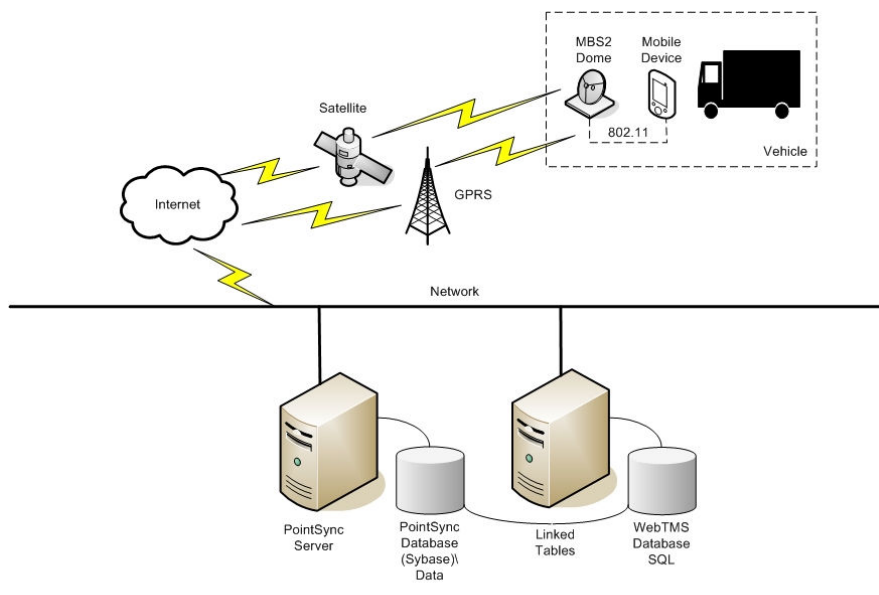
data was considered "high-priority". High-priority data was sent regardless of the available connection while "low-priority" data would only be sent when a GPRS connection could be obtained. The mobile application (built by MobileDataforce) was designed to be "connection aware" and throttle the bandwidth based on the availability of a GPRS connection.

One of the major features of the solution was to accurately report mileage traveled during a trip. To accomplish this task, the mobile application polled the dome every 10 seconds to obtain current GPS readings. GPS data was then processed using the mobile device to determine how many miles were traveled since the last reading. The result was a compiled number of miles driven at the end of each trip.

Communications between the dispatching team and drivers was another large requirement. Dispatchers needed to push trip to potential drivers for acceptance and communicate in open text similar to an instant messaging system. In case of a roadside emergency, the driver could also quickly summon help, similar to dialing 911 on a mobile phone.

### Results/Benefits:

Working with MobileDataforce, PSION and Wireless Matrix to build this solution, RCX is meeting its objectives to deliver a higher level of customer service (by receiving timely/accurate information from the field), cutting operating expenses (like cell phone usage) and improving communications between dispatchers and drivers.



RailCrewXpress Mobile Solution Diagram

