RailMate

CTI Constraint Technologies

A comprehensive mobile solution
for Staff Management

Available on the
App Store

A Comprehensive Staff Management Solution

RailMate is a leading-edge mobile application that brings the convenience of managing staff information to smart phones and tablets.

Manage Roster

RailMate empowers staff to manage their own roster, receive alerts and notifications, manage duty sign-on/off procedures, and gain better control over swapping allocated roster activities.

Updates to published rosters are automatically retrieved and displayed with easily distinguishable highlighting.

Statistics

RailMate provides access to roster statistics over defined roster periods, allowing staff to keep track of metrics like remaining leave days, duty hours and allowances.

The display of the roster can be personalised to set weekends and default calendar month to view.
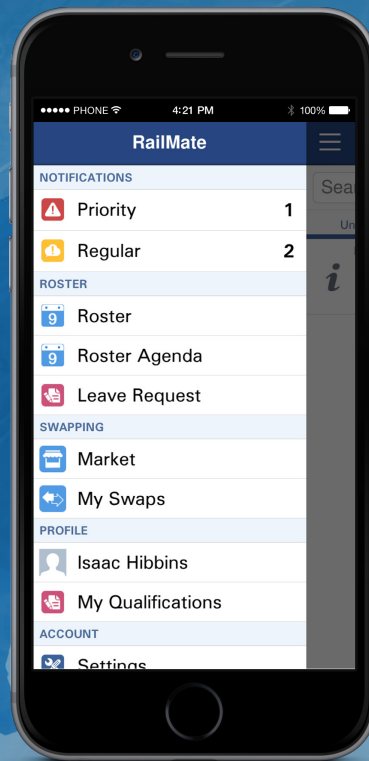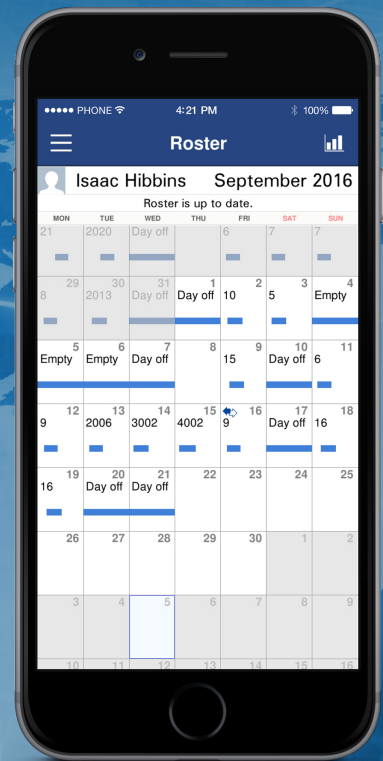

Fig.1 Main Menu
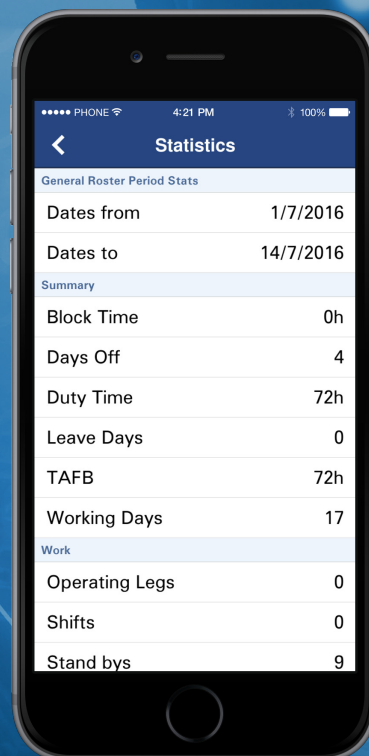

Fig.2 Roster highlighting with updated shifts

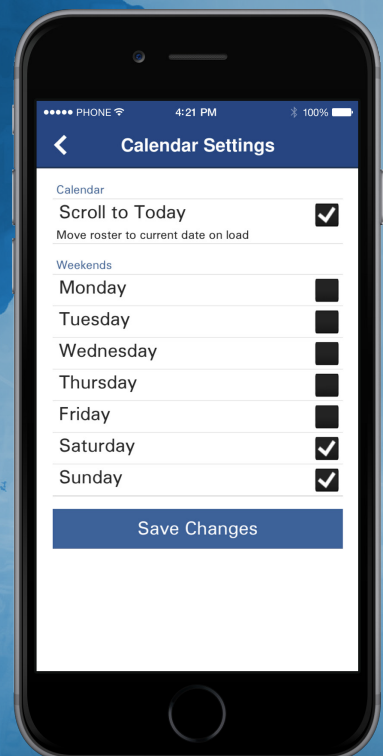*Fig.3 Query stats choosing roster period*

Fig.4 Choose the date to display in roster

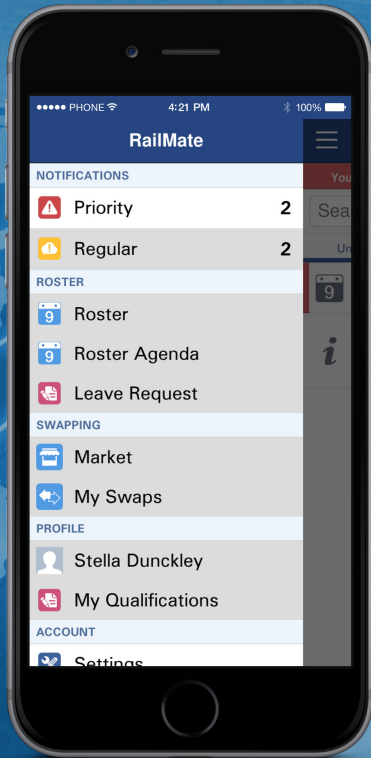*Fig.5 Main Menu with blocking notifications*

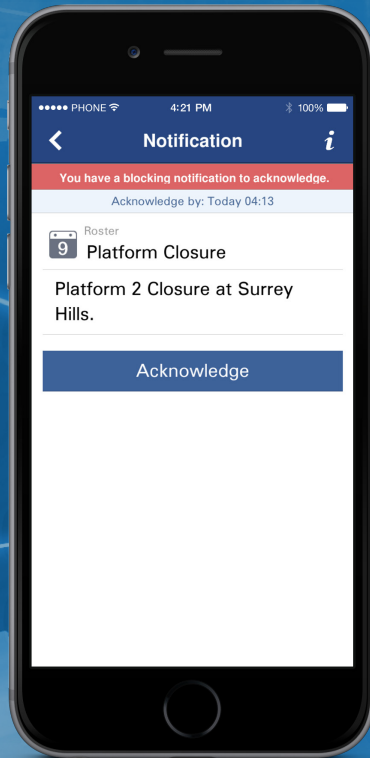*Fig.6 Blocking notification view - Block access to the app until acknowledged*

Fig.7 iOS push notification screen

Fig.8 Android notification screen

Notifications

RailMate allows rail companies to instantly notify all staff members regarding any disruptions like train delays, platform closures and provides a mechanism for staff to acknowledge these notifications. Priority notifications can be configured to block access to other areas of the app, until they have been acknowledged by the staff member.

Push Notifications

Notifications and alerts can also be sent as push notifications to the device's notification panel for continued connectivity when staff are not actively logged in to the application.
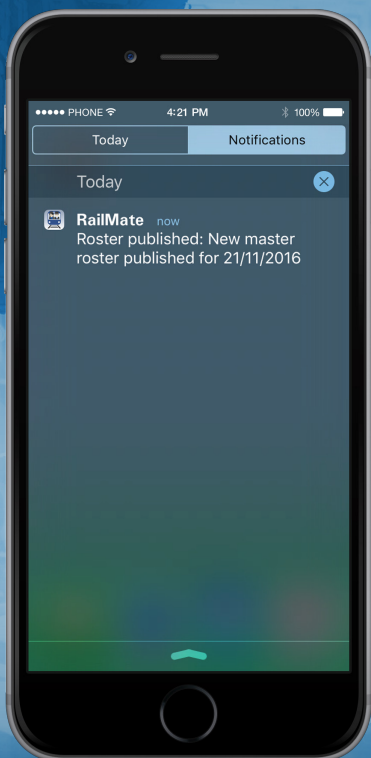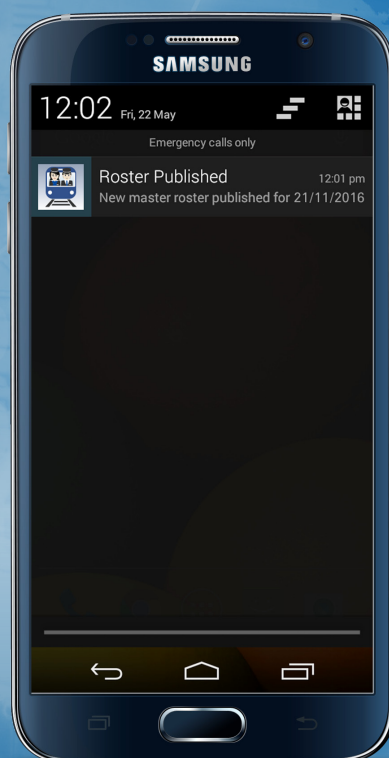
Devices

RailMate is designed to run on all of the following platforms:

▪ iOS Devices

▪ Android Devices

▪ Windows and Linux PCs

Shift Display

Staff can access detailed shift information by drilling down through the roster calendar.

Details like shift duration, start and end times of shifts and statistics of a shift are displayed in the Shift View.

Proximity-based Sign-On and Sign-Off

RailMate facilitates proximity-based sign-on and sign-off from duties using Bluetooth LE technology by detecting the proximity of staff to specially registered beacons.

Signing on or off can be customised using rule-based temporal controls. Eg: Disallow sign-on until 2 hours before duty is due to start.
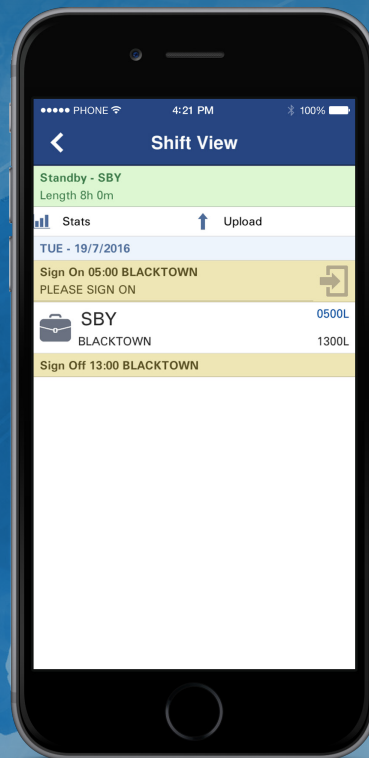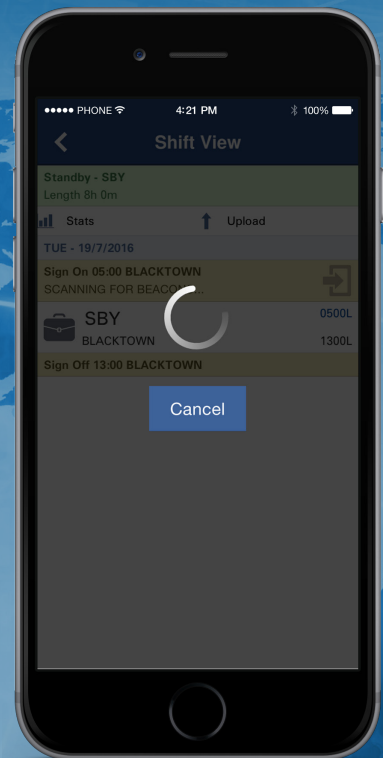

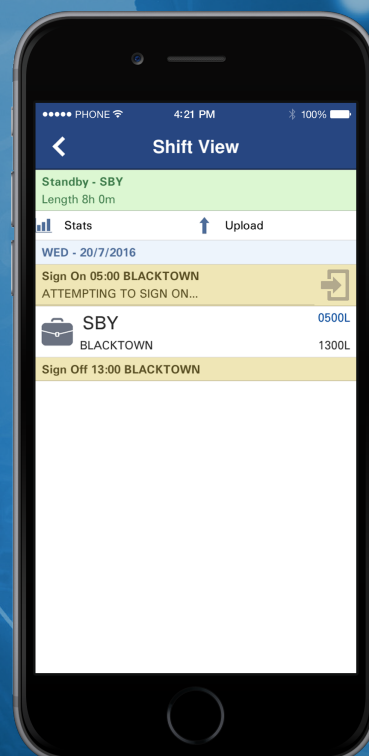*Fig.9 Shift view - Please sign-on*

Fig.10 Scanning for beacons

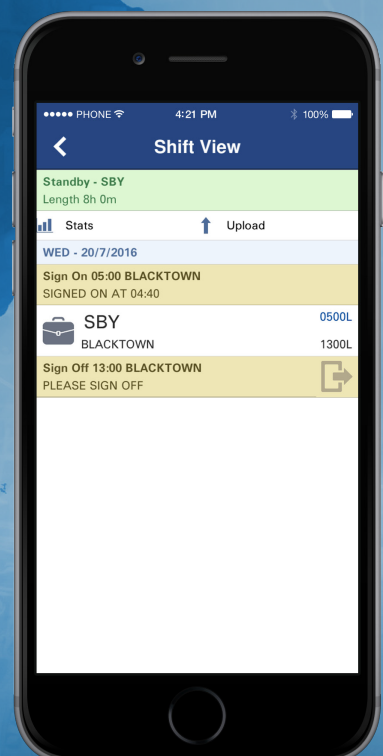*Fig.11 Detected beacons waiting for sign-on confirmation from Crewing System*
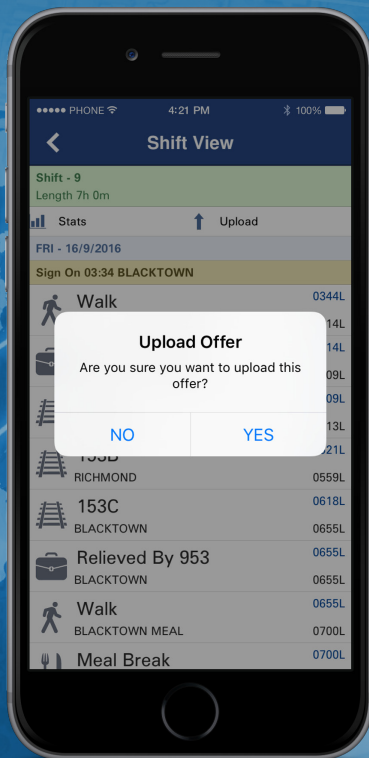

Fig.12 Signed on, ready for sign-off
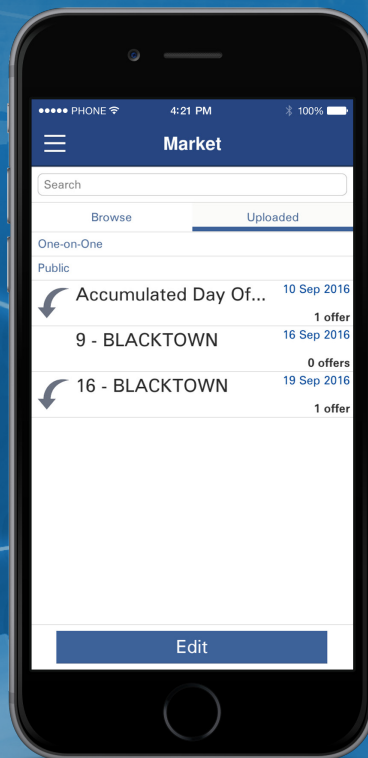
Fig.13 Upload shift to Swap Market

Fig.14 Uploaded shifts in Swap Market

Fig.15 Browse section in Swap Market

Fig.16 View My Swaps

Market Place to Swap Shifts

RailMate enables staff to swap work with others via an automated swap market. All proposed swaps are simulated and checked against a central rule base in real-time to ensure feasibility and legality.

Swap Legalities

The legality of a swap is dynamically pre-assessed by a standalone rule engine, which significantly reduces the swap management load on the Crewing System.
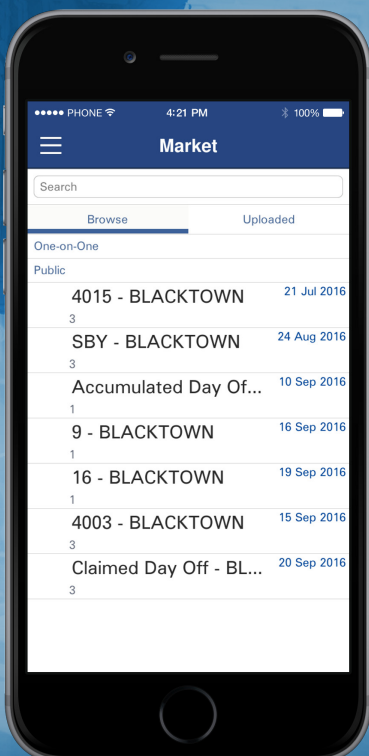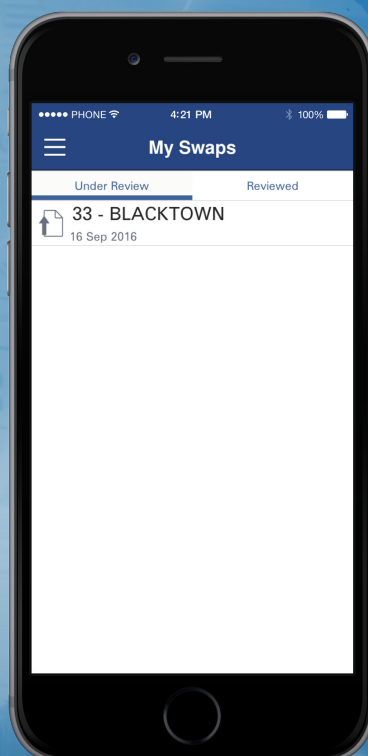
My Swaps

Once the swap request has been agreed to by both parties, RailMate passes the swap for final approval to the Crewing System operators.

The status of swaps sent to the Crewing System for approval can be viewed under the My Swaps section. Once they are processed by the Crewing System, swaps are categorised as Under Review, Rejected or Approved.

Dynamic Rule Evaluation for Swaps

As the Swap Market is peer-to-peer, it removes the need for operators to be involved in the feasibility checks of swaps, while retaining control over the final approval of swaps.

The management can shape the Swap Market by defining company rules, which are automatically enforced for all future swaps. Our solution provides staff with a tool to shape their roster, leading to improved staff satisfaction and efficiency of operations.
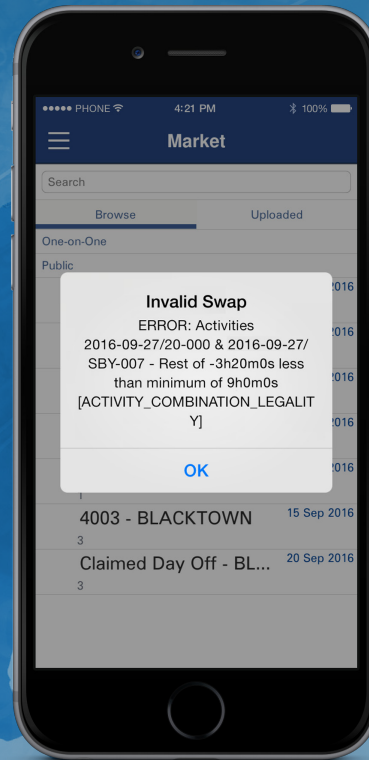

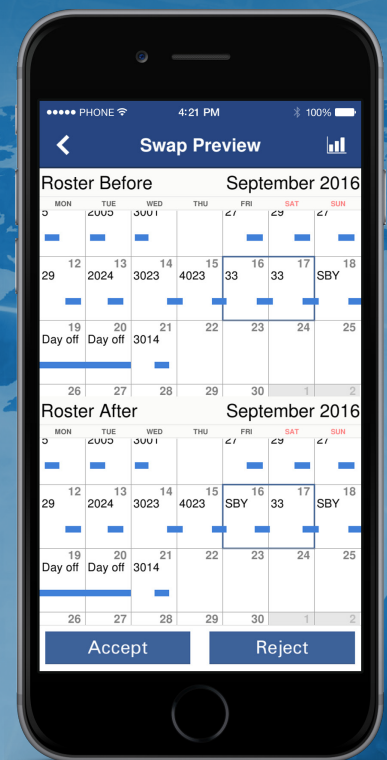Fig.17 Swap market illegality error message

Fig.18 Before/After swap view

Leave

RailMate provides the ability to submit leave application forms directly to the company's leave managment system.
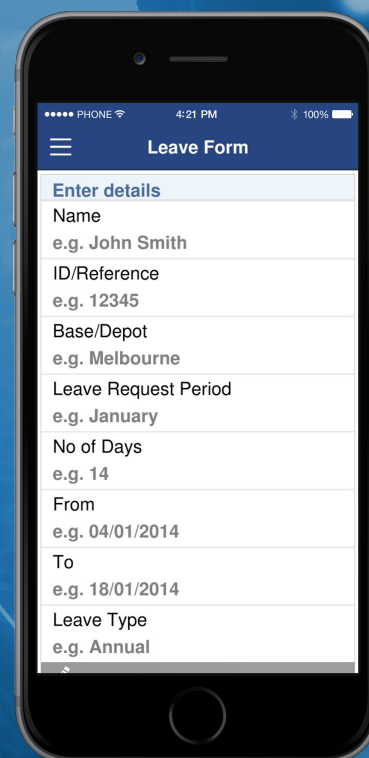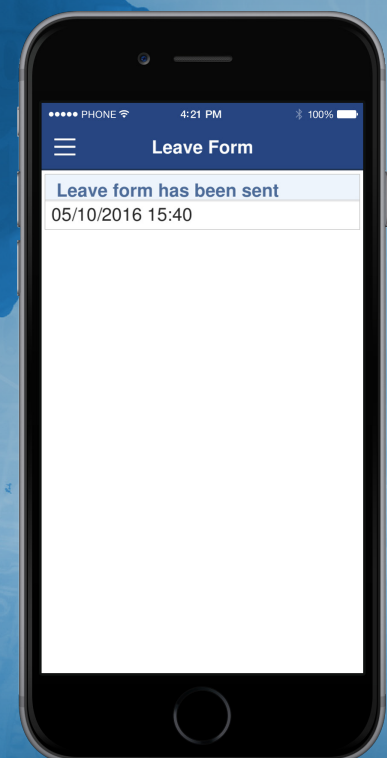

Fig.19 Leave form

Fig.20 Leave form submitted

Architecture

RailMate features a highly scalable architecture with the ability to deploy multiple servers that communicate with a clustered implementation of a High-Availability Data Cache. The High-Availability Data Cache replicates data across all instances in a cluster while assuring transaction consistency and automatic recovery if a cluster node fails. It is event-driven to avoid the need for polling. All client-server communications are encrypted with hot-failover mechanisms for servers in place.

Rule servers are used to dynamically evaluate the legality of swap requests, or any other business logic that is specific to a customer. They employ a rules engine that is provided a set of rules written in a custom Domain Specific Language (DSL) and data from the High-Availability Data Caches.

Integration

RailMate provides an event-driven integration server with which a third-party Crewing System's client integration module can interface. The integration server implements a database-agnostic message protocol for the exchange of data and events.

The Crewing System feeds staff, roster, notifications and other required data into the RailMate system in real-time. All changes are instantly reflected at the user's end by the mobile clients.
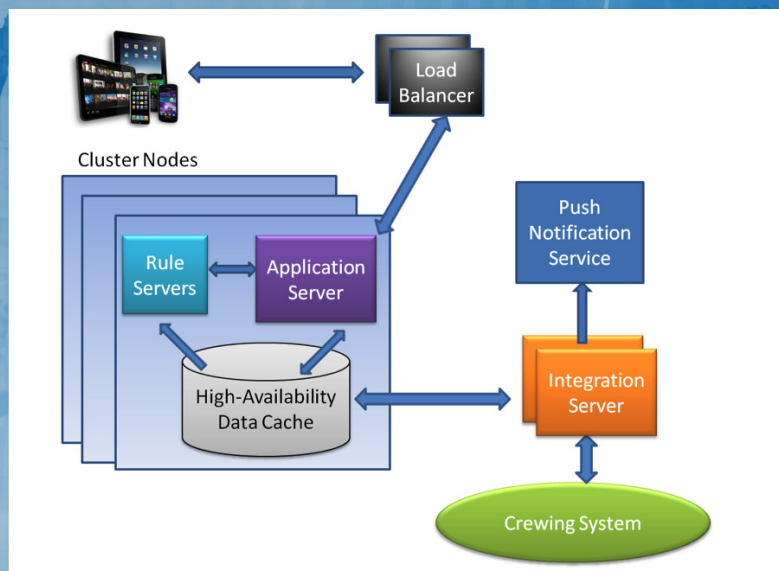

Fig.21 Integration Architecture - RailMate is fully integrable with existing legacy systems and able to be customised to suit your needs.

Constraint Technologies International (CTI) is a solutions & service company and a market leader for optimization software for the Transport, Travel and Logistics Sector.

For over 20 years CTI has been building tightly integrated and mission critical systems. For over 10 years we have been building and maintaining optimization solutions that optimize cost, service, equipment and capacity and that show actual cost against plan in real-time. Our systems are well engineered and reliable.

CTI is very much a technically driven organization and we take pride in the quality, performance and reliability of our products and solutions. A large portion of our revenues are invested in applied research and development within CTI, and more fundamental research with our University partners. CTI invest heavily in research and development and we apply our technology to challenging customer problems. We achieve continuous improvement in performance and capability using the latest software engineering techniques. All our products are backed by knowledgeable and professional technical support.

Our mission is to offer effective, scalable, state of the art software that is constantly evolving and improving. Our software is easy-to-use, configure and maintain. CTI has made a commitment to assure customer satisfaction.