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QTRS

Adding intelligence to
refrigerated transport

Customer reference story

 **QTRS** QUALITY TRANSPORT with trace
REFRIGERATION SERVICES

“We achieved a lot more than I ever expected and we are continually developing as we discover more about what Cumulocity IoT has to offer.”

– Daniel Oxley-Boyd | Managing director, QTRS



Customer Profile

Quality Transport Refrigeration Services (QTRS) has been providing high-quality refrigeration products, repairs and services to the refrigerated transport industry across Victoria, Australia since 2007. QTRS is the sole Australian distributor for Mitsubishi Heavy Industries Thermal Systems, Ltd. (MTH) Refrigeration for Trucks and Trailers equipment and is the only provider of built-in real-time monitoring for Mitsubishi refrigeration units for Trucks & Trailers in Australia.

New challenges

- Differentiate refrigeration offerings to win business
- Help growers, drivers and fleets protect perishable cargo
- Give drivers and fleets visibility of truck, refrigeration unit performance

Solutions

- Internet of Things & Analytics

Key benefits

- Avoids breakdown of refrigeration units
- Increases sales of refrigeration units
- Prevents spoiled cargoes for producers, operators
- Increases profits for operators by saving wasted produce

Telematics saves Christmas lunch

On the day before Christmas Eve, a truck driver was taking a large load of fruit and vegetables from Melbourne to Brisbane when his refrigeration unit broke down. He was in the middle of nowhere, a town called Goondiwindi, and it was another 4 ½ hours' drive to Brisbane—and more than 15 hours back to Melbourne, where his transport operator was based. Unaware that the unit had failed, and that his cargo of melons and cucumbers was at risk of spoiling in the heat, he pulled into a rest area and got ready to bed down for the night.

Luckily, his refrigeration unit was equipped with Mitsubishi's Mitsi-TRACK telematics feeding data back to the headquarters of QTRS, the provider and service company for its MTH unit. An alert warned the service department that the unit had failed, and they swung into action. They called the driver within minutes (it was that quick) and talked him through the repair; it started ... then stopped again. They then advised that he continue driving through to Brisbane as quickly as possible (and legally). Once at the depot, he was to plug it into mains electricity to save the load.

“He did, and delivered the load a few hours later—at the right temperature—and saved thousands of dollars' worth of cucumbers and melons,” said Daniel Oxley-Boyd, Director of QTRS. If the truck had not been equipped with Mitsi-TRACK telematics, feeding data to Cumulocity IoT, he would not have known the unit had failed—he would have spent the night in Goondiwindi and the cargo would have been spoiled.

Refrigerated transport's important in Australia

Refrigerated transport is essential in Australia, and without it much of its agriculture, food processing, preservation and distribution, and even the pharmaceutical sector, would not be able to function properly. The global market for refrigeration is increasing, partly due to consumers becoming more health-conscious and wanting more fresh, healthy food, much of which is perishable. Producers must adapt to overcome logistics constraints and, at the same time, reduce the level of waste in the food industry. Nearly all of the produce eaten in Australia is grown there and Australia produces about three times as much as is consumed in the country. Each region has a different season, so seasonal produce has to be trucked from the growing region to the consumers in other regions. Refrigeration therefore is critically important to the Australian (and global) food chain.

QTRS and real-time monitoring

In the 1990's, a shake-up in the transportation industry led to two big trucking companies dominating refrigeration. Because they had to squeeze costs down, they chose to no longer hire/train drivers to work with refrigeration units, so today's refrigerated truck drivers have little or no experience with the units. QTRS fills that gap.

To differentiate its product and appeal to smaller or bespoke operators, QTRS decided to use telematics and the Internet of Things to build real-time monitoring into all the Mitsubishi units that it sells and services.

Refrigeration units have many sensors—from monitoring the cargo being carted temperatures to monitoring the drive train of the cooling unit. Some can even monitor the truck's cornering and braking for insurance purposes.

As sole supplier of MHI in Australia, QTRS knew it needed a telematics system to match. With limited and outdated technologies available, QTRS wanted its own system. It hired a recent computer science graduate who had the ideas and the skills for the job and, within a short period, QTRS was able to diagnose refer issues live, contact drivers and resolve issues “live.” A Sensor-Technik Wiedemann (STW) telematics controller was deployed to provide the data, and its partner Cumulocity IoT provided the IoT platform.

“We had the STW box, but it was only using 5% of its potential. With Cumulocity IoT we could open up that potential,” said Oxley-Boyd.

Cumulocity IoT had all the rich features QTRS was looking for, so much so that it is using the platform to further develop new solutions with the data, such as monitoring total asset – truck ECU communication, tire pressure, anti-lock braking, etc.

“The Cumulocity IoT platform is cleaner and easier to manage than the telematics solutions we saw,” said Oxley-Boyd.

For quality and inventory purposes, major supermarkets want to know where their product is from paddock to shopping trolley. In the supply chain, refrigerated transport is the most vulnerable link—if there is going to be a failure, it is most likely to be during transport. If the refrigeration unit fails, a supermarket can reject the truck’s load, potentially costing the grower or shipper thousands of dollars.

In one example, an operator using QTRS’ service was shipping a truckload of strawberries from Western Australia to a supermarket in Perth. The store was overstocked already, however, and did not want any more loads.

When the driver arrived at the loading dock, the supervisor told him the load was rejected due to temperature. The driver called QTRS service department, where they checked the telematics history and determined that the temperature was in fact correct.

The grocery store had to accept the load, and to pay for it—saving the strawberry producers a \$180,000 loss. Had the truck not had Mitsi-TRACK telematics, the driver would have had to close the door and drive to the nearest landfill to dump the strawberries—for another \$110 cost per ton.

To ensure that the refrigeration units are in tip-top condition, QTRS has added features like periodics as standard for servicing, to notify the customer when the unit is due for a service.

Looking ahead

Predictive maintenance is also applied to certain situations. For example, on a hot and humid day a unit that is running while being loaded potentially builds up ice on the evaporator and can hinder cooling and block the air flow. But with parameters and temperature setpoints, Cumulocity IoT triggers the defrost automatically.

QTRS is continually discovering new use cases and business ideas from using the STW/ Cumulocity IoT solution. It is currently talking to Mitsubishi about offering other distributors from around the world a full asset management solution, with data from their refrigerated trucks displayed on one platform.

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