AURIZON

CASE STUDY

Maximising profitability by using optimisation based decision support

Image courtesy of Aurizon

RACE by Polymathian

The Customer

Aurizon is Australia's largest rail freight operator providing customers with integrated freight and logistics solutions across an extensive national rail and road network. Aurizon transports more than 250 million tonnes of Australian commodities annually; connecting miners, primary producers, and industry with international and domestic markets.

RACE has delivered a substantial increase in effective asset utilisation resulting in higher throughput and profitability

Business Function

Rail supply chain

Planning Function

Rail scheduling & operations

Product

RACE - race.polymathian.com

The Problem

In Queensland, Aurizon operate a mixed fleet of over fifty trains which services over forty load points delivering to ten terminals in four different systems. Every week over four hundred different train journeys need to be planned and scheduled to service customer demand and commercial priorities. These journeys are planned based on track access, unit availability, unit maintenance, crew considerations, load point and terminal maintenance.

Running efficient and profitable operations requires the continual optimal utilisation of rolling stock assets, making planning dynamic operations of this scale and complexity a very daunting task. Aurizon were looking to revolutionise their existing time consuming manual planning processes by introducing an optimisation based decision support tool.

The Solution

Polymathian's RACE, a sophisticated numerical optimisation decision support tool, used to solve cargo assembly planning and product delivery problems, was an exceptional match for Aurizon's complex requirements. In consultation with their internal planning team, Polymathian was able to rapidly deploy RACE for use in all four coal chains.

Aurizon can now automatically produce optimal plans in minutes, allowing them to configure and compare multiple scenarios in the time it took to produce a single manually generated solution; exploring "what-if" type scenarios, such as: What if we add in an extra consist? What if we change the terminal mix of demand? What is the impact of network maintenance? When is the best time to undertake rolling stock maintenance?

The Benefits

Since implementation, RACE has been able to dramatically reduce planning timeframes, deliver substantial increase in effective asset utilisation resulting in higher throughput, increased profitability and improved levels of service for their customers.

Automated planning processes from hours to a few minutes

Increase in effective asset utilisation

Increase in throughput

Initial Design to delivery: 4 weeks

Scoping	Configuration	Implementation & Training	Ongoing Enhancements
1 week	1 week	2 weeks	4 - 8 week projects

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