

CASE STUDY

Increased profitability and throughput for rail based supply chains



The Customer

Pacific National is one of Australia's largest rail freight businesses and operates in all mainland states and territories. Pacific National rail services include bulk freight (coal, grain, steel, ore), intermodal containers (domestic and import-export), and specialised services such as 'hook and pull' for long-distance passenger trains.

RACE has dramatically reduced planning timeframes and substantially increased effective asset utilisation

Business Function

Rail supply chain

Planning Function

Rail scheduling & operations

Product

RACE - race.polymathian.com

The Problem

Pacific National operate a fleet consisting of over six thousand dedicated coal wagons and six hundred locomotives, providing rail haulage services in seven different coal chains on the east coast of Australia. Every week over six hundred train journeys need to be planned and scheduled to service varying customer demand and commercial priorities. These journeys are planned based on commercial priorities, track access, unit availability and maintenance, crew considerations, load point and terminal maintenance. Managing these operations efficiently requires the continual optimal utilisation of rolling stock assets, making planning dynamic operations of this scale and complexity very difficult.

Pacific National were looking to revolutionise their existing time consuming manual planning processes.

The Solution

In close consultation with their centralised planning team, Polymathian was able to rapidly deploy RACE, a sophisticated numerical optimisation based decision support tool used to solve cargo assembly planning and product delivery problems for complex rail based supply chains.

Pacific National 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 commercial priorities change? What is the impact of crew considerations? When is the best time to undertake rolling stock maintenance?

The Benefits

RACE has dramatically reduced planning timeframes and delivered a substantial increase in effective asset utilisation helping improve the profitability of Pacific National's bulk freight operations. It enables Pacific National to collaborate more effectively with other coal chain stakeholders and has resulted in 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: 7 weeks

Scoping

1 week

Configuration

3 weeks

Implementation & Training

3 weeks

Ongoing Enhancements

4 - 8 week projects

