Dock Scheduling and Loading Optimization

Business Case

An FMCG company in Sweden was facing lot of difficulties in scheduling its dispatch trucks on its loading bays. This was because of the many constraints that were supposed to be adhered to e.g. loading bay capacities, moving and loading time characteristics of multiple handling resources, compatibility of loading resources with the loading bays, suitability of use of its many handling and loading resources during scheduling, using adjacent loading bays and availability of material etc.

The complication in scheduling often resulted in huge delays in dispatching the trucks to the cross docks and thereby trucks arriving late at the customer’s location.
In addition to the regular features associated with any scheduling solution, some of the other complexities that were modeled were

- Allocation of adjacent lanes
- Ability to do scenario analysis by adding slack to the dispatch time
- Suitability of handling resources with loading bays
- Infeasibilities because of non availability or delay in material receipt

The objective was to find a feasible and close to optimal plan for the dock scheduling and loading operations.

**Solution**

Saddle Point Technologies developed a Dock scheduling and loading solution using constrained programming with additional objective functions for driving optimality. The entire modeling was done in a very generic way so that various scenarios with multiple loading bay layouts, handling resource types, handling resource capacities, moving and loading times etc. could be modeled without changing the formulation.
Some of the main reports provided were:

- Shipment Moving Schedule
- Shipment Loading Schedule
- Shipment Departure Schedule

Scenario planning and evaluation was also an integral part of this solution.