CARMEN SYSTEMS
RESOURCES IN BALANCE

Carmen Crew Control

Airlines

Carmen Crew Control is the process to recover quickly and produce recovery options for disruptions with as little change as possible with maximum service level retained.

Minimizing disruption time while keeping crew stability

The process

Define scope

Define areas of responsibility, for example a fleet or a specific hub.

Detect

The integrated view presents an alert when crew members are affected by a problem. The alert can for example be 'Short connection'.

Solve

By clicking the alert in the view you can see the affected flights. Based on this you can make changes manually, such as use standby crew, move flights between rosters. You can also use the optimizer to solve one or several problems. The optimizer produces various options, using many different solution strategies.

Evaluate

The recovery options are ranked in efficiency order, but you can always select any option. The system presents an overview of the consequence of each option in terms of changed rosters, use of standby crew and reduced service levels. You can inspect each option in detail using a graphical view, which can be manually adjusted if required. You may also evaluate one or many proposed crew recovery solutions from a fleet and passenger perspective.

Communicate

Once a repair option is chosen it is communicated to the central database as soon as you have confirmed the changes. The changes are now available for everyone using the system.

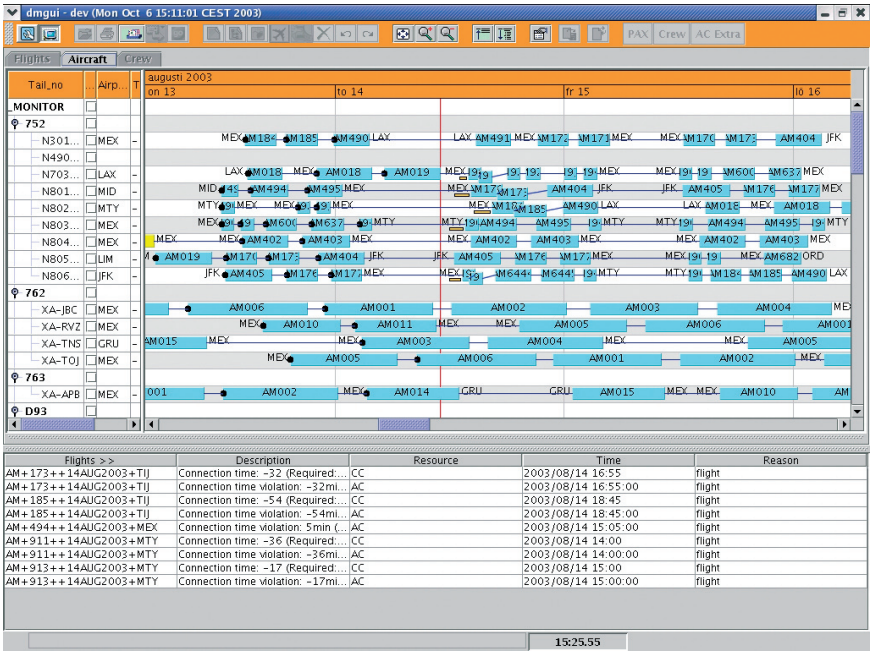
Recovers disruptions on the day of operation as quickly as possible with as little crew changes as possible to retain maximum service levels for passengers

Integrated with

Carmen Fleet Control and Carmen Passenger Recovery to guarantee solutions that are feasible and effective for the entire operation.

Existing day-of-operation systems to recover as quickly as possible with as little change as possible.

Existing systems for operational data management to ensure maximum service levels for passengers.



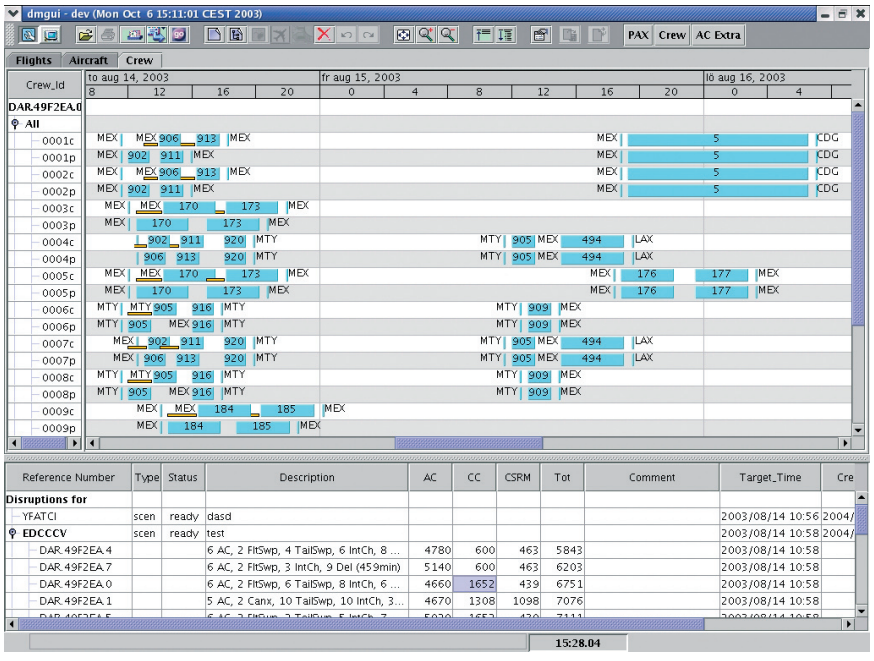
This view shows alerts for a set of delayed flights.

Product content

- Crew Recovery optimization
- Graphic User Interface
- Carmen Rave (rule and quality modelling language)
- Reports (Carmen Rave Publisher)
- Regular new releases
- Standard support (office hours support and regular Installation Quality visits)

Technical information

- Web clients
- Unix or Linux server
- Standardized XML interface
- Oracle database



This view shows a detailed crew recovery option.

Basic functionality

Carmen Crew Control produces recovery options for major and minor disruptions. An option can contain any combination of flight swaps, activated standby duties and controlled legality relaxation.

Speed

The optimizer will rapidly produce high quality solutions within one minute for any kind of disruptions such as a closed hub or an impaired aircraft.

Setting objectives

You can easily investigate different trade-offs, for example between a quick recovery and a low operational cost or between minimum changes and a stable operation. You can also set exact limits, for example an upper limit for the number of standby crew or various rule deviation limits.

Legality control

All legality and quality is controlled with Carmen Rave. This guarantees that alerts and suggested recovery options will always respect the company's legality and quality policies. With Carmen Rave you can monitor exactly what rules and quality constraints that are possible to relax in critical situations (long-term legality to temporary push problems ahead or minor violations of check-out time to negotiate a special solution with a crew member).

Changes can be introduced at short notice by the local system administrator. This ensures that the system delivers the best possible solutions, even after changes to crew agreements, timetables, company policies, planning processes, etc.

Integrated operations control

Carmen Integrated Operations Control is a platform for integrated disruption management. It integrates the Carmen tools for Fleet Control, Crew Control and Passenger Recovery.

System integration

Carmen Crew Control is a stand-alone system designed to work in an integrated operations control environment. It can also work as a decision support tool on top of existing systems for operational data management.

Questions & Answers

What value can optimization bring on day of operation?

The main benefit from introducing optimization is that it provides control. The crew tracker's role is changed from simply reacting to individual alerts to being in control of the consequences of different recovery strategies. The optimizer can also be used proactively to analyze the stability of the current operation, for example to detect a greater need for airport standby crew.

The optimizer evaluates the possible solution strategies and provides effective means for comparing the different solutions. In order to find solutions for problematic situations it is possible to relax union and quality rules in a controlled way. It is also possible to decide if legality deviations can be suggested for the whole crew community or for specific crew members.

How can the optimization help us with major problems, such as a closed hub?

By solving the entire problem, rather than trying to solve each sub-problem separately, it is possible to evaluate the full effect of a solution strategy before applying it. Recovery optimization focuses on specific properties such as the number of changes, the time to recover to original patterns, cost impacts, passenger disturbances etc. You can combine a number of required properties to look for the best trade-off between a quick recovery and a low operational cost.

How can you prevent the optimizer from producing solutions that require too much crew communication?

To avoid an unrealistic number of crew members being contacted, the optimizer can consider how difficult a solution would be to communicate to the crew members. By imitating the original rosters, the number of crew members who have to be contacted is reduced. It is also possible to differentiate between changes that have to be communicated (earlier check-in times) and changes that may not require crew member contact (changed flight numbers or earlier check-outs).

You can prioritize crew member changes that will be received positively (additional granted lifestyle requests) and crew members that are possible to contact via a safe contact point (check-in on base or staying at a hotel where communications work smoothly).

If you have any questions about Carmen Crew Control, please contact us at carmen@carmensystems.com

CARMEN SYSTEMS
RESOURCES IN BALANCE

www.carmensystems.com

Carmen Systems AB Odinsgatan 9, SE-411 03 Göteborg, Sweden, Phone +46 31 720 81 00, Fax +46 31 720 81 20, e-mail: carmen@carmensystems.com

040425