



A fully integrated suite for planning and managing aircrafts and crew

Core Crewing Systems

Crew Rostering

CRS is the core of all the crewing modules and is designed to integrate pre-assigned activities of all types and produces a feasible roster for each crewmember.

- Allocates crew to all planned activities.
- Allows pre-assignments before auto assignments.
- Roster period is flexible.
- The roster is generated for any pre-defined crew activities.
- All activities are derived from other PegaSys modules; i.e. pairings, flight bids, training courses, leave periods, check renewals and ground duties.
- Parameters and weightings are set up in parameter tables.
- 'Fair Share' allocations or preferential bidding
- Ranks are rostered separately.
- Rostering policies can be defined by rank.
- Manual and Automatic modes of operation available.

Crew Tracking

The objectives of Crew Tracking are to maintain a record of crew movements, detect potential problems, and communicate changes to crew. Tracking is a real-time process, which starts from current day of operation and extends to a user-specified number of days into the future.

- Manages the day to day operation of Crew activities.
- Real-time automatic updates are received from various modules and systems.
- Flight changes (delays, reschedules, cancellations, additions) and crew changes themselves will affect the published roster and pairings. All modules are updated accordingly.
- Auto alerts on any activity start when the crew hasn't signed on.
- APIS and MCL are generated and transmitted either automatically or via user intervention.
- All rule violations detected are alerted upon.
- A crew's location is known at all times.

Crew Pairing

The objective of Crew Pairing is to produce pairings which minimise total costs subject to legal, industrial and company rules. User defined rule parameters are applied during the pairing process which can be both manual and automatic modes of operation in any combination.

- Utilises a selected flight schedule to create a legal set of crew pairings starting and ending at the same base.
- Pairings are optimised according to rule parameters set by the user.
- All rules (legal, industrial, company and lifestyle rules) are considered during the pairing generation.
- Utilises the DASH Express optimisation software.
- Rich pairing reporting function.

Core Rules Engine

A Standalone Rule Engine

- The standalone Rules Engine defines Rules Logic via the Rule Editor. The Rules Logic is external to any application.
- The Rule Engine allows high speed compiled rules to be applied to any data set. Output can be consumed via services SOAP. MQ, etc. Also, logic can be changed independently to binary apps.
- The Rule Engine provides the ability to perform "what if?" analysis. It allows new rules/thresholds to be defined as a new rule set.
- Only fully integrated system to support single common rule engine across all modules.



Core Aircraft Systems

Movement Control

This module is responsible for maintaining the operational schedule. The module is utilised 24-hours a day throughout the year. Operational emergencies, as well as the day-to-day running of the airline, are controlled using Movement Control.

- Decision Support System to manage the day to day operation of aircraft and crew.
- All aircraft movements are logged and tracked.
- All code share flight information visible.
- IATA compliant automatic message generation. and handling of incoming messages.
- Airline specific ACARS message handling.
- All maintenance activities and progress visible.
- Rich functionality to manipulate the schedule as required.
- Expansive Delay Prediction tool.
- Plan creation, distribution for review and publish functionality.
- Foreign carrier flights can be monitored and handled just like own flights.

Aircraft Maintenance

The Aircraft Maintenance System (AMS) checks that the flights planned by the Schedule Planning System (SPS) can be met in terms of planning, and performing aircraft availability and assignment, whilst providing for aircraft maintenance at the correct intervals, (long, medium and short term).

- Real-time tracking of aircraft hours and cycles (Planned into the future and actual).
- Dynamic maintenance requirements automatically warned upon, whether utilisation based or calendar based.
- Single action to convert maintenance expiries into scheduled maintenance slot.
- Maintenance requirements calculated as far into the future as a schedule exists.
- Committed Maintenance slots are distributed to the other PegaSys modules.
- Aircraft allocation or re-allocation performed to accommodate mandated maintenance.
- Aircraft utilisation and maintenance history.

Schedule Planning Module

The Schedule Planning System is designed to facilitate and control the flow of an airline's schedule from concept to implementation, with the ability to continue to refine the existing schedules, even after they have been published. The goal of the system is to provide the user with the means to manage a long term schedule extending two or more seasons into the future.

- Create and edit flight schedules to satisfy demand.
- Flight assignments to aircraft are done either manually or by invoking an assignment algorithm to perform the task automatically. A number of algorithms can be selected to suit differing requirements or objectives.
- Defined Rules and Constraints are considered when assignments are done.
- Passenger flow model can be used to evaluate the predicted loads.
- Schedule and Flight profitability are calculated; data dependent.
- Plans and Drafts can be created for internal PegaSys distribution to allow evaluation by the differing departments for resource planning.
- IATA compliant airport slot management.
- Publish of the airlines schedule via IATA standard messaging (SSIM and SSM).

Core System Applications

Acess Control Module

- Uniform method of access to PegaSys.
- Login is validated against defined rights to access applications.
- Second level determines permissions to functionality within the application.

System Configuration

- Controls the levels of access to the system.
- Parametric Application Controls allow site specific parameter control.

Data Management Module

- Provides the user interface to all accessible database tables.
- Data elements can be added, edited, date range restricted or deleted.
- Permissions are controlled by access rights.
- Hierarchical structure is shown and the user can easily open the parent or child tables.

PegaSys Crewing Add-on Applications

Renewal Scheduling

- Allows the maintenance of crew member's qualifications.
- Continually checks expiry dates and sets warnings at the appropriate times where renewal training is required, i.e. license, emergency procedures etc.
- Route checks are recorded and instructors are assigned the duties.
- These training requirements are immediately accessible in the training module.

Crew Leave

- Accommodates Leave bidding by crew.
- Calendar Controls to set bid periods.
- Remote access via the Crew Remote Access Module.
- Leave awarded as per defined company specific rules.

Crew Rule Workbench

- This module allows the quick construction and analysis of scenarios and disruptions.
- Analysis of legality and the impact of rules or rule changes.
- Allows thorough testing of the crew rules without affecting the real world.

Crew Training

- Records crew training requirements passed to it from the Renewal Scheduling.
- Creation of training plans to meet requirements.
- Schedule dates, classrooms, simulators and equipment.
- Scheduled training requirements are communicated to crew members and the results of all training are recorded.
- Assignment of crew and instructors to training duties is done in the Rostering Modules based on the released data from the Training Module.
- Schedule base training and conversion courses.

Strategic Crew Planning

- Determines manpower requirements to fulfil the schedule and associated activities.
- Forecast airline crew manpower requirements.
- Short-term requirements are based on crew pairings whilst long-term requirements are derived by applying various factors to the anticipated number of aircraft in service.
- Differences between the forecast figures and current actuals gives rise to vacancies.
- Vacancies are subject to category bidding whereby crew are invited to bid for new positions.

Fatigue Resource Management Solution

- Ability to consider fatigue during pairing and roster optimisation.
- Abiility to consider fatigue during crew tracking day of operations.
- Abiility to predict knock on fatigue effects through roster change.
- Advanced fatigue reports.

BSAFR Fatigue Analysis - Pairing



PegaSys Aircraft Add-on Applications

Schedule Management

- Automated support for code share operations.
- Publication of marketing flights on code share partners schedule.
- Extracts partner schedule flight data from IATA compliant SSIM and automatically populates the database with code share flights marketed by the host airline.

Telexes

- Automatically handles all standard IATA and other telex types.
- IATA compliant telexes are auto applied to the database.
- User actions requiring standard IATA messages auto create and sends the messages.
- Telex user interfaces are provided in all applicable modules for plain text message generation and telex receipt.
- e-mail is provided for within the same Module.



Disruption Recovery Solution

- A holistic optimisation solver considering fleet, crew and passengers.
- Fast solution generation in local world.
- Ability to cost solution against user-definable KPIs.
- Proven to return fleet to schedule in the most cost effective manner.



Mobile Crewing Solutions

CrewBuddy

- A comprehensive mobile crew management solution.
- Manage their own roster, receive alerts and notifications, manage duty sign-on/off procedures.
- Notifications to crew of roster changes and important company information.
- Peer to peer swapping capability.
- Swapping allows staff better control over their rostered activities.
- Notifications fully integrated into Pegasys.
- Port information: points of interest and weather.
- Works on iOS, Android and Windows.



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Intuitive Gesture Based Interface

- Enhanced productivity through advanced visualisation.
- Business case driven User Interface to provide best user experience for each business function.
- Touch and mouse enabled.
- Support 4K resolution displays, multiple form factors and operating systems.

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BALANCE CHANGE



IMPACT ANALYSIS

Minimum Fatigue Effectiveness reduced to 68% to 59% on 19th November.

KUL recency opportunity lost. Must visit by 12/01/2017.



Mobile Aircraft Solutions

Terminal Aware

- A collaborative Airport Ops awareness solution.
- Real-time airport traffic data is displayed on a mobile device.
- Gate allocations and conflicts displayed in real-time.
- Ability to interface with security cameras.
- Suitable to push real-time information to airport vendors and contractors.



Network Aware

- A collaborative Airline Ops awareness solution.
- Real-time airline fleet data is displayed on a mobile device.
- Multiple ops modes, Aircraft, Passengers and Crew.
- Empowers staff to be in touch at all times when carrying out their duties.
- Network Aware will integrate into your current systems using Network Aware mobile's open standard interface.
- Consolidation of multiple data sources.
- Manages disruptions by dispatching multiple problems to optimisers in parallel.
- Use cases in OCC, Hub, Passenger Services and Executive Management.



Constraint Technologies International (CTI) is a solutions & service company and a market leader for optimization software for the Transport, Travel and Logistics Sector.

For over 20 years CTI has been building tightly integrated and mission critical systems. For over 10 years we have been building and maintaining optimization solutions that optimize cost, service, equipment and capacity and that show actual cost against plan in real-time. Our systems are well engineered and reliable.

CTI is very much a technically driven organization and we take pride in the quality, performance and reliability of our products and solutions. A large portion of our revenues are invested in applied research and development within CTI, and more fundamental research with our University partners. CTI invest heavily in research and development and we apply our technology to challenging customer problems. We achieve continuous improvement in performance and capability using the latest software engineering techniques. All our products are backed by knowledgeable and professional technical support.

Our mission is to offer effective, scalable, state of the art software that is constantly evolving and improving. Our software is easy-to-use, configure and maintain. CTI has made a commitment to assure customer satisfaction.



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