CELEBRIS

Innovative Ground Handling Software

FLIGHT INFORMATION SYSTEM

SERVICE & OPERATIONS MANAGEMENT SYSTEM

CONTRACT MANAGEMENT SYSTEM

PLANNING & RESOURCE MANAGEMENT SYSTEM

QUALITY MANAGEMENT SYSTEM

INVOICE MANAGEMENT SYSTEM

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Celebris is a state of the art solution to meet the specific needs of ground handling companies. It combines Flight Information Management, Service and Operations Management, Resource Planning, Contract Management, Invoice Management and Quality Management facilities in a single system. The fine architecture and design save on costs, offer unlimited flexibility and aid decision support.

■ **CELEBRIS Flight Information System** is a real time, user friendly, easy to use centralized system for tracking the Flight Operations in multiple airports. It contains definitions for Airport and Park Position, Airline Group and Airline, Aircraft Model-Registration, Fleet, Representative and Delay Code information. The flight information can automatically be generated in bulk from flight plans with the Flight Generator Tool, by automatic bulk copy from a range of previously realized flights with the Flight Copy Tool or manually by user input. The system supports the online update of flight data from SITA MVT, LDM, CPM, PTM and PSM messages which are to be supplied in XML format by a preparser. The base aircraft registration data can be imported and kept up to date by periodic imports from the JP database with the external data transfer utility. The IATA Standard Delay Codes are already defined in the system while the system also supports airline specific delay code definitions and the mapping of those to standard codes. SITA MVT messages are generated on the fly for arrival and departure and are automatically sent to SITATEX on manual approval. The landings can be created on arrival-departure or, only arrival and only departure basis. The system has the ability to dynamically merge linked flights for planning, pricing, and reporting purposes even if they are entered as separate landings. The system reports erroneous or missing information to the user on demand.

■ **CELEBRIS Service & Operations Management System** is where the information about services given in multiple airports is collected. It supports a service charge form model where the given services' quantity, begin and end times and the external price information, in case the service is sought from an external company, are input via a service charge form linked to a flight, landing, or an aircraft already on the ground. The system is able to prepare work orders depending on obligatory services from contracts or predefined rules defined with any information like flight type, aircraft type, airline, representative, airport or even park position. Service Groups, Service Billing Groups, Services and Service Packages can be defined per company. Service Packages are multiple services packed together with quantity and total service time restrictions to facilitate single pricing for a set of services in contracts. Services can be cross referenced with other companies' services for automatic calculation of extra prices for related service codes like automatic calculation of airport royalty fees. Although the current implementation only supports manual input of service charge forms, it is also possible to implement the gathering of this data from wireless handhelds or PDA's on demand.

■ **CELEBRIS Quality Management System** consists of a performance survey system based on criteria defined in AHS 1000 (AHM 804), and a customer compliment and complaint tracking system. The compliments or complaints from the customers are entered for a single handling operation or a group of operations. This system functions in a work flow logic from automatic forwarding of input complaints, to the definition of actions taken as a precaution. The survey system includes an automated flight sampling tool that samples the to-be surveyed flights from planned

HIGHLIGHTS

- *Single centralized system, clients connecting from different locations*
- *Multiple company support, base data and flight info data can be shared among companies*
- *Localization and Internationalization*
- *Pluggable security, role based authentication, dynamic menus*
- *Address database imported from UN/LOCODE database*
- *Unit conversions database*
- *Aircraft registration and fleet data imported and updated from JP database*
- *Predefined IATA Delay codes*
- *On the fly SITA MVT message generation*
- *Automatic work order generation and obligatory services from contracts or custom defined rules*
- *Contract based flexible pricing, MS Excel like mathematical expressions*
- *IATA Standard based GHA definition*
- *Flexible Surcharge periods for different companies and airports*
- *Automatic pricing and customizable invoice generation, contract based invoicing*
- *Strong integration with external general ledger applications like SAP*
- *Basic Resource Planning, custom resource type and resource group definitions*
- *Quality Management, AHS 1000 (AHM 804) based performance survey*
- *External Systems Support*
- *Powerful Reporting*
- *Online help*

flights' information according to the predefined parameters. The survey system is easily adaptable to any future change in the survey criteria. Quality Management System also includes strong graphical reporting facilities.

CELEBRIS Contract Management System is based on a cleverly designed flexible contract based model to facilitate the very complex and dynamically changing pricing schemas of ground handling companies, which is very difficult to define and keep up to date with static pricing schemas. A contract may be an IATA Standard Ground Handling Agreement or a simple contract with any company. The agreement definition contains main agreement details as well as invoicing and payment specific information like invoice group, invoice currency, royalty currency, invoice generation periods, payment types, payment days and invoice postage days. The system keeps track of agreement history by supporting definition of addendums, amendments or replacements for agreement. Different pricing schemas for different pricing periods can be defined in one agreement. The agreement details contain Annex B definitions: technical discount ratios, commission rates for external services and services included in the agreement with a specific pricing schema for each service. Apply conditions and prices in the pricing schema are defined by the user, by editing mathematical formulas with the supplied context variables. The context variables can either be simple field values like aircraft model or very complex functions' results like yearly revenue from a particular airline. The types and number of these context variables are only limited by one's imagination. The flexibility in the definition of the pricing schema leads to success in ground handling agreements. All prices can be defined royalty or VAT included or excluded at the service price level. The surcharge rate for any given price can be defined by a surcharge ratio or a mathematical expression. Alternate surcharge period definitions for different companies and airports are supported. The text based representation and generation of agreements from standard templates are soon to be implemented.

CELEBRIS Invoice Management System includes a sophisticated automatic pricing system, a smart invoice preparation system and a very flexible invoice generation system with strong integration properties open to any external general ledger interface implementations like SAP by means of flexible transfer code and VAT definition facilities. The pricing system supports automatic batch calculation of prices, commissions and royalty fees using the information already present in the flight information, service and operations, and contract management systems. The Invoice Preparation Tool uses the invoice related specifications in the contract definitions to prepare an automatic preview of the invoice. It is customizable and flexible letting the user to freely play around and manipulate the invoice. It also offers three different options which are to present the royalty fees apart from service prices, to present the royalty fees added to the service prices and to present the royalties according to how the service prices were defined. The Invoice Generation Tool supports multi language invoice generation and generates detailed reports to be attached to the printed invoice. It also functions as a standalone invoicing system and is able to generate invoices of multiple companies in one system, which is a very important facility for companies that have a holding like structure.

CELEBRIS Planning & Resource Management System supports custom resource type and resource group definitions. Required resources are defined with such parameters as the landed airport, the park position type, park position, the airline, the aircraft model, flight properties like transit, domestic/international, scheduled/charter, ferry, transportation, military, general aviation, passenger, cargo, combi and/or baggage and the resource availability for arrival, departure, and the nature of the service. Information on the required quantity and how many minutes before and after an operation the resource is required is also defined. This system uses the planned flights' information from the flight information system in order to prepare a resource plan. The automatically generated resource plan is a colorful and schematic report and is supplied as formatted Microsoft Excel sheets to assist the planning personnel in further manual planning.
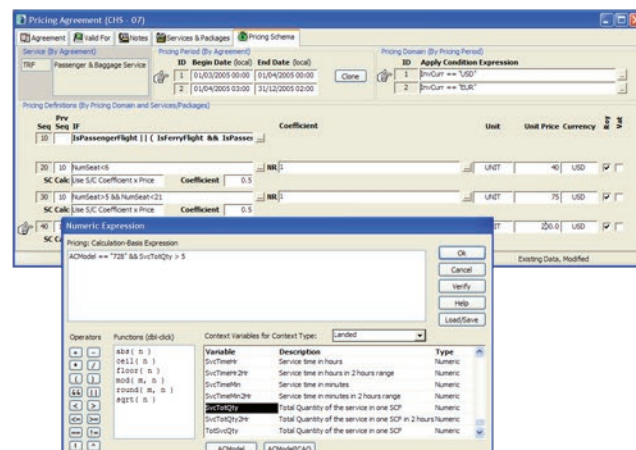
CELEBRIS TECHNICAL SPECIFICATIONS

Celebris is developed on top of the J2EE technologies which is the standard for developing component-based multitier enterprise applications using Java Language. This makes Celebris a platform independent and easily extendible open system.

Celebris is built upon an EJB based server framework and a client framework that had been developed by IGonline using Sybase Powerbuilder and knows how to communicate with the server framework.

CELEBRIS Technical Highlights

J2EE Technology
JAAS Based Authentication
Platform Independance
Runs on Opensource Software
  Linux OS
  JBoss Application Server
  MySQL RDBMS
Easy integration by means of open standards
  JDBC
  XML Technology
  JMS Java Messaging
Windows Clients
  Remote Clients
Minimized Network Load
High performance on low hardware configurations
Powerful Reporting with the use of Sybase DataWindow technology

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Celebris Frameworks

The server side framework facilitates JAAS based authentication and authorization, middle tier object cache, middle tier query cache, persistency, business process flow automation, synchronous and asynchronous event notification services and internationalization while the client side framework facilitates a client cache, authorization on the basis of client objects, automatic master-detail data input and traversal, dependent dropdown controls, external data entry editors and flexible option domain handling. The two frameworks simplify the development of new modules and the maintenance process.

Celebris Clients

The clients connect to the J2EE application server using the JVM on the client machine. As a result of the precautious approach, the clients can work comfortably even with very low network bandwiths such as 56 Kbit/s connections. The network load is minimized by means of client side cache implementations which are instantly notified of change events on the server processes, and transfer of data in compressed forms. The Celebris clients are developed using Sybase Powerbuilder on top of the client framework.

The clients only facilitate the representation logic while all business logic is implemented on the server side as EJB business objects.

External Systems

Celebris uses open standards like JDBC, XML, JMS for external system interactions. Both synchronous and asynchronous messaging is supported.

Reporting

Powerful reporting is achieved by the use of Sybase Datawindow technology, which enables different presentation formats and automatic export of the report data to widely known external formats like PDF, Excel, XML, XSL-FO, HTML.
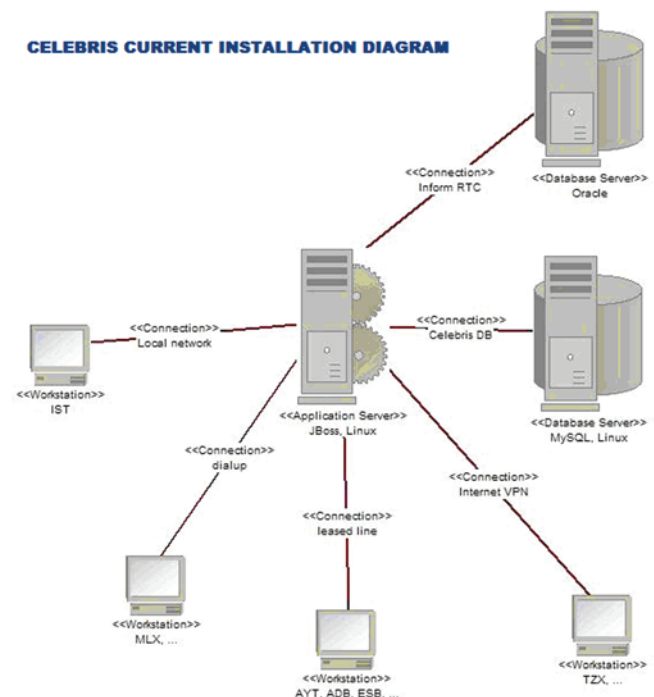
Current Installation

The current Celebris installation at Celebi Ground Handling Inc. runs on Linux Operating System, JBoss application server and MySQL RDBMS which are all open source software, while it is also possible to run it on any commertial software from well known vendors like Sybase, IBM, Oracle, Microsoft and so on, since the serverside of the software is vendor independent.

CELEBRIS CURRENT INSTALLATION DIAGRAM

	COMPUTER	MEMORY	OPERATING SYSTEMS
JBoss Application Server	one Intel Xeon 3 GHz processor	2.5 GB RAM	Linux OS
MySQL RDBMS	one Intel Xeon 2.8 GHz processor	2 GB RAM	Linux OS
Client Executables	Pentium III	256MB RAM	Windows 2000 or Windows XP

Hardware resource list of current installation of Celebris at Celebi Ground Handling Inc. The clients connect from 20 different geographical locations. There are approximately 100 online users working comfortably without facing any performance issues.

CELEBRIS
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