IBM

Japan Airlines' ticketing system—an Internet money-maker

In the increasingly competitive air travel industry, successful airlines stay profitable by capitalizing on new revenue opportunities and finding innovative ways to reduce costs.

Japan Airlines (JAL), Japan's leading airline with $1.7 billion in revenue, had been using its Web site for over two years to provide information about the airline and its services. As JAL's competitors began launching their own Web sites, the company became determined to be the first airline in Japan to offer its customers the convenience of online reservations. The new system would also provide a cost-effective way to expand its market reach and capture sales outside of Japan.

JAL wanted to implement the system as quickly and as inexpensively as possible, and chose IBM as its partner. "IBM has the technology and the technical ability. They will do or design whatever we need, and we know it will be reliable," says Naoto Honda, director of system planning, information systems, Japan Airlines.

JAL used IBM hardware, software, and middleware—and leveraged IBM's systems experience—to build a powerful and secure online service on top of JAL's existing host-based IBM Transaction Processing Facility (TPF) application. TPF is an operating system optimized for delivering the exacting and extreme requirements of highly scalable, mission-critical computing, such as JAL's ticket

reservations. Over 90 percent of the world's airlines use TPF processing.

The site was up and running within three months. During the next three months, it generated $4 million in revenue. With 4,000 visitors accessing the site each day, the online reservation service is expected to yield $20 million in ticket sales by the end of its first year in operation.

Tsukasa Maeda, manager of open systems, system administration department, JAL information systems division, comments: "We focused more on the connection to the host than anything else, and IBM has the unique ability to transform the way key business processes are carried out by combining the Web and information technologies. While the development period was just three months, the

Application	Internet ticket reservation system
Business Benefits	Improved customer service options; low-cost access to customers worldwide
Software	IBM® DB2® Universal Database™ IBM MQSeries® IBM Net.Data™ IBM TPF, IBM MPIF IBM Internet Connection Secure Server
Hardware	IBM S/390® Parallel Enterprise Server IBM RS/6000™

Japan Airlines combines IBM hardware, software, middleware, and systems' experience to build a powerful, secure Internet ticket reservation system.

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fact that the cut-over went without incident was greatly due to the strength of IBM."

Using the Internet to expand customer options

Enhancing customer service is one of the most effective methods for businesses, particularly airlines, to attract new customers and retain loyal ones. By offering customers the added convenience of an online reservation system, JAL has taken its service offerings to the next level—extending its reach into new markets around the world.

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JAL's Internet Flight Service Web site provides flight schedules, fares, seat availability, and reservations, as well as airport departure and arrival information. In addition, the Web site provides useful information to travelers. It includes general background on JAL, Frequent Flyer Program information, JAL CARGO information, Priority Guest Service, the JAL Shopping Arcade, JAL Group Hotel Information, and JAL's Travel Information featuring a theater guide and tour details.

Although all of the information on the site works to enhance the relationship between JAL and its customers, the reservation system probably has the most direct impact on ticket sales. The convenience of the online system is key to its success. Customers can view flight schedules at a glance instead of reviewing options one at a time over the telephone. In addition, the online system is accessible 24 hours a day, compared to the phone reservation system, which is open only from 5:30 a.m. to 10:00 p.m. local time.

Linking JAL's host to the Web

The performance and 24-hour availability of the online system is the result of seamless integration between the IBM TPF transaction processing system and the Web server, an IBM RS/6000, which delivers the information to Web browsers. According to Maeda, this integration created a win-win situation, in which customers now benefit from the convenience of the Internet, while JAL benefits by successfully responding to changing business demands and speeding the delivery of new applications and services. "To the host, there is no difference between a reservation coming from the Web server and one coming from a reservation terminal," Maeda says.

This seamless integration was achieved by using IBM MQSeries messaging software to manage the information transactions between the Web server and the host, an IBM S/390 Parallel Enterprise Server. IBM Japan and JAL developed a special host system interface, called TPF Multimedia Station (TMS) to connect CGI data from the Internet into the transaction format required by TPF. In addition, IBM Multi-Processor Interconnect Facility (MPIF) was used to provide high-speed communications between TMS and TPF. And finally, a firewall was installed to prevent unauthorized access to JAL's corporate information systems.

The Web server, an IBM RS/6000, houses IBM Internet Connection Secure Server (the predecessor product to Lotus Domino Go Webserver™). IBM DB2 Universal Database, which also resides on the server, holds the Pax Name Records (PNR)—essentially passenger information—for those who reserve seats over the Internet. Any information customers enter into their Web browsers is translated by IBM Net.Data Web/database connectivity software into SQL statements, which insert the information into the database. Both Net.Data and Domino Go Webserver are available as part of the DB2 Universal Database package.

Adding new services

JAL's online system handles both domestic and international reservations, and the airline is already well on its way to implementing electronic ticketing. A magnetic card, which can be inserted into an airport kiosk to obtain printed tickets, will be issued to passengers who can then use the card each time they make a reservation.

Electronic commerce is the next step for JAL. The company plans to implement a solution based on IBM Net.Commerce to sell consumer products over the Internet. Full electronic ticketing will follow soon after, eliminating the need for customers to pick up their tickets at a travel agency or at the airport.