



SOUTHWEST AIRLINES

Fourth-largest U.S. air carrier providing primarily short-haul, low-fare service.

Industry: Transportation / Logistics
Geography: North America

Deployment Summary

- New system replaces proprietary supply chain management system.
- Software includes guaranteed message delivery and dynamic load-balancing features.
- Simple, flexible integration tools simplify implementation.

Benefits

- Real-time information flow helps ensure reliable communications between different departments and their systems, results in excellent and cost-effective customer service, and prevents lost revenue caused by flight delays and cancellations.
- The scalability of TIBCO's solution eliminates system outages and adjusts to high business growth.
- New system deployed and operational in less than a month, enabling a quick return on investment.



“We needed a system that could be built quickly and could integrate smoothly with SWIFT’s publish-and-subscribe architecture, in which information is instantly delivered to the right parties as it changes. What really appealed to us was TIBCO SmartSockets’ complete and easily configurable API. Its simplicity and flexibility allowed us to implement the system in less than a month.”

Phil Hyatt, Technical Project Lead, Southwest Airlines

Southwest Airlines Flies High with Real-Time Flight Data

In the airline industry, Southwest Airlines is considered a true maverick. By shaking up the rules of flying and improving upon inefficient industry norms, Southwest has quickly grown to the fourth-largest domestic carrier.

Southwest didn’t play by the old rules. By introducing numerous key efficiencies – such as flying only 737s, eliminating seat assignments, introducing no-frills flights, and delivering high employee productivity – Southwest found it could deliver more flights each day and offer lower fares.

This successful formula brought rapid growth and expansion, but the airline’s flight tracking system barely kept pace with such explosive growth.

Southwest Focuses on Critical Data Management

For each of Southwest’s more than 2,800 daily flights, an enormous amount of data – including flight route, fuel requirements, and weather information – must be in the right place at the right time. If this information doesn’t arrive as scheduled, flights can be delayed or canceled. As any business traveler knows, this is definitely a question of critical data management. Southwest needed a flight management system that would guarantee delivery of this critical data to meet the airline’s

stringent requirements for efficiency. The result was the first generation of SWIFT – Southwest Integrated Flight Tracking system.

SWIFT is a flight management tool consisting of applications for managing the fleet of aircraft and dispatching flights. SWIFT made great strides toward notifying applications of data modifications by using a remote procedure call solution, which was developed in-house. However, the system wasn’t scaling to keep up with company growth. To solve the scaling issues, Southwest engineers attempted to develop a messaging layer that could be used within the suite of SWIFT applications. After months of development, however, it became clear that developing a real-time messaging tool that could interface with SWIFT and ensure the delivery of necessary flight data required expert help.

Southwest Seeks TIBCO’s Expertise

After carefully evaluating messaging solutions, Southwest Airlines chose TIBCO SmartSockets™. It was clear that SmartSockets would seamlessly integrate with SWIFT’s publish-and-subscribe architecture and provide guaranteed message delivery of the data required to keep Southwest running smoothly. SmartSockets is a

SmartSockets functions as the transport mechanism for distributing real-time updates for Southwest's fleet management and operations, and enables processes to communicate reliably and securely. It also supports Southwest's publish-and-subscribe architecture, request-reply and peer-to-peer communication, as well as multiple programming interfaces.

Because Southwest needs to track and dispatch thousands of weather messages, SmartSockets' guaranteed message delivery (GMD) and monitoring capabilities are important features. For example, if the system goes down for any reason, the thousands of incoming weather messages from the FAA will be queued in the system rather than being lost.

Southwest relies on SmartSockets' GMD and load-balancing features to manage the approximately 17,000 FAA weather messages received each day that are parsed out, filed in a database, and then published to several different SWIFT applications.

TIBCO Enables Quick, Efficient Implementation

Southwest's SWIFT was developed using a multithreaded, open server architecture. Clients are connected to the system database and to a replication server that captures completed transactions. All clients are X/Motif applications executed on UNIX® stations.

SmartSockets' seamless integration into the X/Motif event-driven graphics environment allows the system to use the standard event-loop mechanism. Real-time graphical user interface (GUI)

updates are cleaner and less likely to hang the application. "You make your original subscription to the data you are interested in, and the messages fold seamlessly into the event-driven application," explains Patricia Fernandes, a development contractor with Southwest. "You don't have to do anything weird; it just flows into the application. As a result, the implementation process was very quick and efficient."

Another benefit is that developers no longer must be trained in interprocess communication (IPC) calls or TCP/IP. Process-to-process communications can be implemented with just a base understanding of SmartSockets. And it also allows other applications to be added without making changes to existing applications.

SWIFT Really Flies

After a year of putting the new system through its paces, SWIFT has never been better. "The SmartSockets implementation was so easy that I think anyone outside of the development team initially didn't notice the transition," says Fernandes.

"It's difficult to communicate just how important this is to our success." The benefits of TIBCO's messaging solution for Southwest continue to be wide reaching, with ongoing implementations of new capabilities. "It's been a real eye-opening experience," agrees Kevin Dirks, systems engineer with Southwest Airlines. "We are continually discovering new applications for TIBCO SmartSockets and recommending it to other Southwest development groups." Southwest's users

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**Kevin Dirks, Systems Engineer,
Southwest Airlines**

also believe that the airline is miles ahead of the competition in terms of system sophistication, integration, and ease-of-use. And that means that Southwest will continue to rewrite the rules, win awards, and fly high as a leader in airline efficiency.



TIBCO Software Inc. (NASDAQ: TIBX) is a provider of infrastructure software for companies to use on-premise or as part of cloud computing environments. Whether it's optimizing claims, processing trades, cross-selling products based on real-time customer behavior, or averting a crisis before it happens, TIBCO provides companies the two-second advantage™ – the ability to capture the right information at the right time and act on it preemptively for a competitive advantage. More than 4,000 customers worldwide rely on TIBCO to manage information, decisions, processes and applications in real time. Learn more at www.tibco.com

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