

**The Sky is the Limit for
the SkyVantage Network
Powered by KEMP's
High-Availability
Load Balancers**



SkyVantage, a provider of hosted airline reservation services, provides an industry-leading airline reservation and management system for specialized small-to-medium and start-up airlines, as well as airline charter organizations. In an industry with high operating costs and tight competition, SkyVantage was founded based on the need to deploy a web-based, lower-cost software management solution to the airline industry, without sacrificing features.

The SkyVantage Airline Management System (SVAMS) includes a comprehensive set of real-time modules to assist airlines with every step of business. Among these modules are management of passenger reservations, check-in counter, and dispatch, as well as gate and flight operations. Airlines also benefit from advanced reporting features to comply with Department of Transportation accounting processes, and a revenue/yield management module to enable airlines to increase their bottom-line with access to real-time airline data and detailed graphs. In addition, a threat-level monitoring service alerts airline employees of changes in the United States Department of Homeland Security, ensuring that airlines can respond appropriately, to keep their passengers and employees safe.

By offering airlines constant access to real-time passenger data, flight details and security updates, SkyVantage increases airline efficiency – directly connecting customers to airlines and eliminating intermediaries.

Keeping up with a growing web-facing business

Application service providers such as SkyVantage host web-based applications and systems for small-to-mid-sized airlines. SkyVantage enables these airlines to reduce operating costs, while focusing on business activities and customer needs, rather than hiring in-house personnel and managing on-site servers and other network infrastructure. As with most successful businesses, SkyVantage was growing quickly as demand for its services increased. However, as more airline companies and user traffic was increasing at the front-end of the SkyVantage hosted system, the back-end systems were beginning to experience growing pains trying to keep up.

Beginning in 2006, SkyVantage experienced explosive growth – doubling in size every quarter. As the company grew, the hosting system infrastructure began to show signs that it was not keeping up with the demand. The application servers were not adequately managing the web traffic, which began to decrease the performance of the applications for its users. In addition, deficiencies in the technology terminated connections such as splitting packets, which increased the

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bottlenecks. These bottlenecks included terminated SSL transactions as well as TCP connections. Each terminated TCP connection required starting up a new connection that utilized more time and resources. This further slowed the server response time, and required IT staff to continuously monitor and correct the connectivity issues and packet splitting errors on an ongoing basis. Customers would lose information and receive “lost connection with server” error message. This level of service was no longer acceptable for SkyVantage and its customers.

“We were very pleased with the success we were experiencing, but we realized that our technology infrastructure was creating a bottleneck, and beginning to inhibit the growth of the company,” said Cory Robin, CEO of SkyVantage. “Frustrated with the limitations of our equipment, we were determined to find a technology solution to get the company back on track – whatever the cost.”

SkyVantage began a rigorous research and testing process to find the best solution to manage its web-based airline management system. SkyVantage required a new load balancing and application delivery solution with hardware-based SSL acceleration to manage its cluster of 24 application servers. For the following eight months, the IT team tested multiple load balancing products that ranged in features and price from \$2,500 to \$100,000 - and up.

Based on its past technology challenges, SkyVantage determined a set of requirements based on technical capabilities, rather than price. The new solution needed to include high-availability and Layer 7 server content switching to ensure improved website traffic performance, as well as load balance traffic across multiple servers. SkyVantage would use Layer 7 load balancing to check and adjust settings accordingly amongst its servers. The servers would be monitored continuously to determine which ones could handle additional traffic and ensure the right balance amongst the servers. SSL acceleration was also required to keep data encrypted and secure, while simplifying certificate management across the server cluster.

The Solution

After extensive research and ongoing testing of several load balancer options, SkyVantage chose the KEMP LoadMaster to manage its growing datacenter. SkyVantage compared the load balancing solutions side-by-side based purely on technical merit. In the end, KEMP was the clear winner.

“We were very surprised to learn that the solution we selected was available at such an affordable price,” adds Robin. “The KEMP LoadMaster outperformed every other product we tested, and some of the products cost as much as 100 times more than the KEMP product. At first, we found it hard to believe that the product with the highest

performance also had the lowest price tag.”

As part of the new deployment, SkyVantage replaced its existing load balancers with two LoadMaster 1500 appliances for high-availability. The KEMP load balancers effortlessly handle high traffic loads, increasing the overall performance of the airline management system. Functioning in high-availability mode, and managing 24 servers in a Java-based Linux environment, the KEMP products have been up and running flawlessly, and without any of the previous technical and performance issues.

Along with the required features, the SkyVantage servers also benefit from health monitoring, which prevents requests from being sent to ill-performing servers – ensuring true high-availability for end-users. With 99.999% high-availability and stateful failover, the LoadMaster allows SkyVantage to provide a reliable hosted management system to its customers.

As for the required SSL acceleration/offloading feature, the LoadMaster devices provide an effective solution for keeping airline data secure. Passenger data is encrypted with a 256-bit method, and credit card information is immediately forwarded to merchant banks. Since no credit card information is stored, the risk of a security breach is significantly decreased.

Additionally, with the easy-to-use web interface included with the

management of the LoadMaster appliances, SkyVantage can manage its servers – removing and adding servers as needed – without effecting end-users. The easy management also means minimal support issues. If SkyVantage has a question for KEMP’s customer support, they receive a quick response. “We deal with many vendors at SkyVantage, and the customer support we get from KEMP is incomparable,” added Robin.

Summary

In the highly competitive and time-crunched airline industry, fast response time is essential, and any down time can be detrimental to any web-facing business. With the KEMP LoadMaster, millions of dollars in airline bookings are processed seamlessly every day through the SkyVantage Airline Management System. Every customer web click is processed and managed flawlessly through the LoadMaster load balancers.

The KEMP LoadMaster interacts with the servers in real-time, creating quick response times for the airline users – effectively eliminating the previous problems of slow response times. The Layer 7 load balancing improves overall cluster performance by efficiently distributing the application layer requests, enabling SkyVantage to deliver a highly available environment to its users.

“The KEMP devices paid for themselves upon installation,” states Robin. “The KEMP LoadMaster allows us to provide a high-quality,



cost-effective service to our customers. They keep our system running smoothly even during times of high traffic – helping to fuel our growth and business success.” Robin concludes, “The KEMP boxes are one of the heartbeats of our IT organization.”