

## CASE STUDY

### Intel® Xeon® processor 5600 series

Virtualization: Dynamic resource management



# Reaching for the clouds

Airline communications and IT provider SITA standardizes on Intel® Xeon® processors to enhance application performance and move toward a flexible cloud computing environment

For more than 60 years, SITA has been providing communications and IT solutions that keep the air transport industry moving. To enhance the flexibility, scalability, and cost effectiveness of the infrastructure used to host its solutions, SITA transitioned from an outdated mainframe to a virtualized environment based on open, industry-standard platforms. Today, SITA has standardized on IBM® BladeCenter® HS22 blade servers equipped with the Intel® Xeon® processor 5600 series. This reference architecture provides the dense, high-performance environment for the organization's native and virtualized x86 deployments and the foundation for a cloud computing environment that will allow SITA to meet rising demand and deliver new solutions more rapidly and cost-effectively than ever before.



## SITA

"Using IBM BladeCenter\* servers with the Intel® Xeon® processor 5600 series enables us to provide a tremendous amount of processing performance in a highly compressed footprint. We are delivering better performance for mission-critical applications while substantially reducing our infrastructure."

– Chris Lofton,  
Head of Technology Planning,  
SITA

## CHALLENGES

- **Enhance business flexibility.** Build a cloud computing infrastructure that has the scalability to meet growing demand and flexibility to accommodate rapid change in the air transport industry.
- **Increase performance.** Define a reference architecture for running mission-critical solutions that can deliver the performance required to process complex transactions with low latency.
- **Control costs.** Sustain a competitive edge by building an efficient infrastructure that can reduce operational expenses and keep transaction costs low.

## SOLUTION

- **IBM BladeCenter\* servers with the Intel® Xeon® processor 5600 series.** SITA selected IBM BladeCenter HS22 blade servers with the Intel Xeon processor 5600 series as the reference architecture for its cloud computing environment and its grid-based international fares pricing solution.

## IMPACT

- **Improved performance.** The latest Intel® processors improved transaction response times by 32 percent for the fares pricing solution, enabling SITA to add features and functionality without increasing latency.
- **Smart growth.** Using Intel processor-based blade systems is helping SITA accommodate 50 percent business growth while reducing the infrastructure footprint by 30 percent.
- **Reduced costs.** Creating a virtualized environment helps decrease power, cooling, and real estate expenses so SITA can keep transaction costs competitive.
- **Business agility.** By building a cloud environment, SITA can deliver customized solutions and enhancements faster and more cost-effectively than before.



## SITA standardizes on Intel® Xeon® processors

"[T]he multi-core Intel® Xeon® processor 5600 series has allowed us to increase density by 3.5 times per server while improving transaction response time by approximately 32 percent....We can add a richer set of features and functionality for airlines, online travel sites, and travel agencies without adding latency."

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SITA provides airlines, airports, governments, and other organizations with solutions that address a broad array of air transport functions, from airfare pricing and lost baggage management to transportation security and air-to-ground communications. Over several years, SITA migrated mission-critical applications from mainframe systems to an open IT environment based on industry-standard hardware. The organization virtualized applications to enhance IT flexibility, consolidate data centers, and reduce costs. Today, the company is building on virtualization to construct a cloud computing, infrastructure-as-a-service (IaaS) environment.

"A cloud environment will enable us to increase business agility so we can rapidly adjust to changing business demand," says Chris Lofton, head of technology planning at SITA. "For example, our reservations and pricing solutions require greater capacity at certain times of the year. With a cloud approach, we can quickly scale our solutions to handle those periodic spikes and continue to deliver outstanding service to all our customers."

In 2009, the company sought to establish a reference architecture that would serve as the foundation for cloud computing while increasing the performance and efficiency of all hosted solutions. "We needed a standardized platform that we could deploy across our next-generation data centers," says Lofton. "We wanted to consolidate further, improve application performance, and work with a vendor that could provide a solid platform road map for the future."

### SITA selects Intel® Xeon® processors for its reference architecture

SITA had used processors from both Intel and competitors in the past, but when it was time to define a reference architecture, SITA chose Intel. "It was clear that Intel had made significant strides in

processing performance, memory capacity, energy efficiency, and density over the preceding years," says Lofton. "We realized we could achieve the best results across our portfolio of products—now and in the future—with Intel Xeon processors."

SITA initially selected IBM BladeCenter HS22\* blade servers with the Intel Xeon processor 5500 series as the reference hardware system. SITA has since progressed to the HS22 blade server with the Intel Xeon processor 5600 series. "Using IBM BladeCenter servers with the Intel Xeon processor 5600 series enables us to provide a tremendous amount of processing performance in a highly compressed footprint," says Lofton. "We are delivering better performance for mission-critical applications while substantially reducing our infrastructure footprint."

Several SITA-hosted solutions run in a virtualized environment that uses VMware vSphere\* software and a Red Hat Enterprise Linux\* operating system with Oracle Database 10/11g\* software. In addition, SITA's international fares pricing system uses the reference architecture in a grid computing model that operates outside of the virtualized environment.

A close relationship with Intel and IBM helped ensure a smooth deployment of the new reference architecture. "Since we first moved away from the mainframe environment, Intel and IBM have consistently shared their technology road maps, provided technical information, and supported our proofs of concept," says Lofton. "That assistance has been instrumental for selecting the right technologies and achieving successful deployments."

### Intel processors increase response time by approximately 32 percent

Moving to the latest Intel Xeon processors has boosted performance for a number of SITA applications, including its international fares pricing solution. That solution, which



## SPOTLIGHT ON SITA

SITA was founded in 1949 by 11 airlines that wanted to share the cost of communications. Today, SITA provides a broad array of communications and IT solutions for the air transport industry, covering functions such as passenger, flight, aircraft, airport, baggage, and cargo operations; air-to-ground communications; transportation security and border management; and more. SITA is one of the world's most international companies. Its global reach is based on local presence, with services for over 550 air transport industry members and 3,200 customers in over 200 countries and territories.

was the first to be migrated from the mainframe years ago, processes more than 70 million transactions per month.

Now the pricing solution can handle increasingly complex transactions while maintaining outstanding response times. "Compared with previous single-core Intel processors, the multi-core Intel Xeon processor 5600 series has allowed us to increase density by 3.5 times per server while improving transaction response time by approximately 32 percent—that is huge for our business," says Lofton. "We can add a richer set of features and functionality for airlines, online travel sites, and travel agencies without adding latency."

### **New pricing environment accommodates 50 percent growth in 30 percent less space**

Increasing the processor density for SITA's airfare pricing solution is helping the company meet rising demand without having to expand the footprint of data centers. "Transaction volumes are growing rapidly. In Asia, for example, the volume for our international pricing solution has grown more than 50 percent every year for the last three years," says Lofton. "By moving to IBM BladeCenter systems based on Intel Xeon processors, we are accommodating that growth while decreasing our footprint by 30 percent."

### **Virtualization helps consolidate IT and reduce operational costs**

Similarly, the virtualized environment used to host other solutions has helped significantly consolidate the company's IT infrastructure. Consolidation has increased with the latest move to the Intel Xeon processor 5600 series. "When we first implemented virtualization, we ran an average of 8 virtual machines on each host. Now we're up to 18, and targeting 20 on each host in 2011," says Lofton. "We have the scalability to keep adding virtual machines without having to buy and operate new physical hosts. On an ongoing basis, operating a virtualized environment helps us deliver better service to our customers while maintaining low transaction costs—and that keeps our solutions competitive."

### **SITA progresses to the cloud**

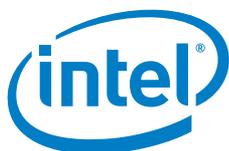
"By standardizing on Intel processor-based blades, we are taking important steps toward a service-based cloud environment," says Lofton. "We now have a dense, efficient infrastructure that can scale to meet rising demand, deliver new solutions and enhancements quickly, and keep costs down. As we continue to build and expand our IaaS cloud, we will improve our competitive position and help the airlines better serve their customers—the hundreds of millions of people around the world who fly every year."

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**Virtualization: Dynamic resource management.** Optimize server utilization and increase agility through virtualization and dynamic policy-based resource management.

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