CASE STUDY

Intel® Xeon® Processor E7 Family

Transportation

Mission-Critical Computing

Optimized data center boosts aviation tourism business

Migrating from a RISC-based architecture to an Intel® Xeon® processor E7 family-based platform, China TravelSky Holding Company improves both data center utilization and energy efficiency

China TravelSky Holding Company is the leading information technology and business service provider in the Chinese aviation tourism industry. It provides quality IT business services to more than 200 domestic and foreign airline companies, 169 airports and nearly 7,000 ticket agents. As its clientele continues to grow, TravelSky's data center has been facing challenges in space and energy supply. The company needed to integrate resources in its data center for higher efficiency.

CHALLENGES

- **Improve data center utilization.** Place more servers in each rack to improve utilization in the data center while ensuring system stability and operation performance.
- **Reduce power consumption.** Expand power capacity of the server to achieve energy efficiency.

SOLUTIONS

- **Migrate from RISC-based platform to Intel® architecture.** Transfer key business system platform to Intel® Xeon® processor E7 family-based servers, which would replace the old platform to improve data center utilization.

IMPACT

- **Reduced power consumption.** Server power consumption was reduced from 4.4KW in the old RISC platform to 0.8KW in the new Intel architecture-based platform. Overall, TravelSky was able to save up to 15 percent in power consumption, lowering energy expenses and environmental impact.
- **Improved business operations.** The new data center can accommodate more servers to meet growing business demands.
- **Increased computing density.** The new data center has higher computing density and gains the capacity in lateral expansion of the computing resources, providing more computing power for business applications.

"With Intel's assistance, TravelSky's data center has smoothly transferred its database server that carries the data of the company's critical business from a RISC-based architecture to Intel® architecture. Employing the Intel Xeon processor E7 family, the new server now only takes up less than half of its original space while providing performance four times better than the previous server and saving about 15 percent in power consumption."

Qi Qianfang
General Manager, Operation Center
China TravelSky Holding Company

Business opportunities abound

TravelSky's data center undertakes real-time data transmission and exchange services for airline companies, airports, and aviation business agencies. It also provides information exchange services such as flight information for various cities, airports, and the public across the world. With the rapid growth of the global economy, the air travel industry has also grown, providing more business opportunities for aviation business companies like TravelSky. But such growth has also presented huge challenges to TravelSky's business system.

Facing the challenges of a growing business

TravelWeb* is a service software product that TravelSky provides for air ticket agents. This software is equipped with a wide range of functions including travel booking, electronic ticketing, order management, and account management. As a ticket sales platform and agent development sales platform, TravelWeb is also one of the key businesses of TravelSky. Along with other applications, TravelWeb has been placing a huge power consumption demand on TravelSky's data center.

"In March 2012, an internal report showed that after the data center operating the TravelWeb system completed its power capacity expansion, there was a serious power shortage in the computer room. This will be a major problem when a new business needs to be launched, since it will need a good power supply in the data center to ensure continuous operation. But due to physical constraints, the

TravelSky enhances the performance of its database server by migrating to Intel® Xeon® processor E7 family-based platform, providing optimized data center utilization and power savings

computer room was not suitable for any more power supply expansion," explains Qi Qianfang, general manager of the operating center at TravelSky.

Except for the database server, most application servers in the data center have adopted Intel architecture as the new platform. The database server, purchased six years ago, is still based on RISC architecture, taking a room of 10U computer racks with each computer consuming about 4.4KW in electricity. Since the database server is critical for all business operations and all the applications of the airlines, airports, agents and the public it serves, TravelSky relies heavily on this database server. Any tiny failure may result in huge business losses. Since it consumes a lot of power, it was only a matter of time before it caused performance problems as well as having an effect on the database.

With a great urgency to optimize the data center's power supply, TravelSky compared the performance and power consumption of the application servers on the Intel architecture to that of the RISC-based database server and received favorable results. TravelSky concluded that it was time to transfer the database server to Intel architecture.

Migrating to a superior platform for better computing environment

Intel helped TravelSky complete the concept validation and feasibility test in transferring the database server from the RISC-based platform to Intel architecture. Relying on the architecture transferring experience and best practices of Intel, migration was less difficult than expected.

The new database server employed the Intel Xeon processor E7 family, which is optimized for reliability. Advanced features like the Machine Check Architecture Recovery (MCA-R) function allowed the system to run normally when some specific memory errors occurred.

Since the cost of the Intel architecture-based system was lower, TravelSky got to acquire two servers as hot backup to further improve the overall availability of the system.

"After migrating to the Intel architecture, our key business computing environment solution has been operating successfully. We are very happy with the process and the results of the transfer. Furthermore, the lateral expansion capacity of the Intel architecture-based server was able to push the server's performance to meet our business's growing demands," shares Qi.

Optimized data center utilization

TravelSky was also impressed with the computing capacity of the new data center based on the Intel architecture. Test data showed that the computing capacity of the Intel architecture-based server was four times greater than that of the RISC-based platform, but only took up 4U space, which was half as much as the old server.

"Obviously, since the Intel architecture-based server takes less space, the current data center can now accommodate more servers. Other than providing more space, the new server provides better computing performance and higher computing density, allowing the data center to achieve higher asset utilization," adds Qi.

An energy-efficient data center

More importantly, the new database server enables TravelSky to save on power consumption. The architecture based on the Intel Xeon processor E7 family only consumes 0.8KW, a big improvement from the 4.4KW the old RISC-based platform consumed.

Along with other advantages such as the Intel® Node Manager, TravelSky's data center has saved up to 15 percent in power consumption.

"After our key business's database server was transferred to Intel architecture, we are now confident as we face the challenges posed by new business demands. Next, we are looking at gradually replacing our other old servers which consume too much energy with Intel architecture-based servers," shares Qi. "In the future, TravelSky plans to work with Intel again to adopt its cloud computing solutions and Intel® Virtualization Technology to enable it to provide higher-quality IT business services for its customers."

Key learnings

- The Intel platform not only provides the performance, reliability and stability necessary for TravelSky's key business, it also takes less space and consumes much less power.
- Migrating servers based on RISC architecture to servers based on Intel architecture helped TravelSky to reduce data center energy costs by 15 percent.
- With new Intel architecture servers occupying less space in the server room and requiring less energy to run, TravelSky has gained renewed flexibility in expanding its computing capacity in the previously fully occupied data center.
- Migration from RISC architecture to Intel architecture was easier than TravelSky expected.

Find a solution that's right for your organization. Contact your Intel representative, visit Intel's Business Success Stories for IT Managers (www.intel.com/itcasestudies) or explore the Intel.com IT Center (www.intel.com/itcenter).

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