CASE STUDY
Intel® Xeon® Processor E7 Family
Education
Enterprise Reliability
Big Data Analytics

More Responsive Library Searches with the Intel® Xeon® Processor E7 Family

The University of Hawaii improves performance and cuts costs for its library management system by migrating to Intel® Xeon® processors

"The Intel® Xeon® processor E7 family can deliver the performance and mission-critical reliability the library management system needs to support hundreds or thousands of users simultaneously without slowing down."

– James Adamson, Head of Systems, University of Hawaii

The University of Hawaii uses an Ex Libris* library management system to enable faculty, students, and community members to rapidly search and access millions of books, journals, microfilm reels, digital content, and more. As the existing Sun* infrastructure reached the end of its service life, the university's IT group migrated the system to HP ProLiant* servers based on Intel® Xeon® processors. The new infrastructure has tripled the performance of transactions while saving the university approximately half the cost of refreshing the RISC environment.

CHALLENGES

- **Ensure continuous access to library materials.** Enable tens of thousands of library users to find the material they need around the clock.
- **Speed search results.** Deliver results of library searches rapidly to provide an efficient, responsive library experience.
- **Control costs.** Work within a tight university budget, avoiding the high costs of refreshing the existing RISC infrastructure.

SOLUTION

- **HP servers with Intel Xeon processors.** The University of Hawaii selected an HP ProLiant DL980 server based on the Intel Xeon processor E7 family for its database while using existing HP ProLiant DL360 servers based on the Intel Xeon processor 5600 series for application, proxy, test, and backup functions.

TECHNOLOGY RESULT

- **Tripled performance.** The new infrastructure delivers over three times the database performance of the previous one, speeding search results for users and accelerating back-end library catalog functions.

BUSINESS VALUE

- **Bolstered availability.** By implementing a reliable platform for this mission-critical library system, the university can improve user productivity by delivering around-the-clock access to a wealth of materials.
- **Cut costs in half.** The IT group saved over half the costs of refreshing the RISC environment. Savings will help fund new projects that benefit both students and faculty.

For the University of Hawaii, the Ex Libris library management system is critical to facilitating searches of library materials and streamlining a range of other library functions—from acquiring, cataloging, and distributing books to processing self-service renewals for patrons. The library management system supports all University of Hawaii libraries, used by more than 60,000 enrolled students plus professors, local community members, and researchers around the world. The library management system also supports several external private-sector libraries in the Hawaiian Islands.

For several years, the database component of the library management system—which holds between 5 and 10 million records—ran on the Sun SPARC* platform. But as that infrastructure reached the end of its service life, the university's IT group decided to consider alternatives. "It would have been too costly to refresh the existing environment," says Jerard Yagi, systems manager at the University of Hawaii. "We needed a more cost-effective solution that could still deliver the reliability and performance we and our users require."

Accelerating performance and sustaining availability with the Intel Xeon processor E7 family

Because users from across Hawaii—and around the globe—use this library management system to conduct research day and night, reliability and availability are critical. "Downtime can have a serious impact on the productivity of students, faculty, and other researchers," says James Adamson, head of systems at the university. "We need to make sure we can provide access to information and materials around the clock."

In selecting a replacement for the RISC environment, performance was also key. "We needed an infrastructure that could deliver a responsive experience to researchers while also helping speed up library management tasks," says Adamson.

Migrating the Library Management System to Intel Xeon Processors

After evaluating several possible hardware platforms, the University of Hawaii team selected an HP ProLiant DL980 server based on the Intel Xeon processor E7 family for the primary database used by the library management system. "The Intel Xeon processor E7 family can deliver the performance and mission-critical reliability the library management system needs to support hundreds or thousands of users simultaneously without slowing down," says Adamson.

The database server runs the Oracle Database* 10*g* instance on a Red Hat Enterprise Linux* operating system. The university also uses HP ProLiant DL360 servers based on the Intel Xeon processor 5600 series for its application, proxy, test, and backup servers.

Maintaining High Availability for the Mission-Critical System

The new infrastructure has enabled the university to maintain high availability for its mission-critical library management system. "To me, a single box was a single point of failure," says Adamson. "With the new infrastructure, we were able to cost-effectively implement a redundant, fault-tolerant environment to maintain high availability for our users. We can achieve our goal of providing 24/7/365 access to library information."

Saving 50 Percent of Refresh Costs

Migrating to HP servers based on Intel Xeon processors helped the university avoid the high costs of refreshing the existing RISC environment. "The IT budget was already very tight. There was no way the university would approve an expensive solution," says Yagi. "Fortunately, the new infrastructure enabled us to save over half of the costs of refreshing the RISC environment."

"By reducing acquisition costs and ongoing maintenance and management expenses, we are able to significantly reduce the total cost of ownership while still meeting our needs for reliability and availability," says Adamson. "With the money we are saving, the university can invest in additional IT projects that will benefit students and faculty."

Tripling Library Transaction Performance

The new infrastructure has also helped significantly enhance the performance of the database used for the library management system. "The database performance on the new platform has been very impressive," says Adamson. "Transactions are more than three times as fast compared with the previous infrastructure. We can support thousands of simultaneous transactions, delivering search results to researchers rapidly while also helping to speed up a range of other functions, such as updating library records. For example, our database regeneration function used to take five hours—now we can complete that task in just over an hour. We are providing a responsive experience to a large user base and helping to improve the efficiency of our library."

LESSONS LEARNED

Through the selection and implementation of the new infrastructure, the University of Hawaii team realized the value of strong vendor relationships. The IT group worked closely with the HP team, which in turn worked closely with Intel to select and implement the right components. "Because the HP team has a close relationship with Intel, they were able to recommend the right processors for our very precise needs," says James Adamson, head of systems at the University of Hawaii.

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