Case Study
Intel® Xeon® Processor E5 Family
Server Performance
RISC Migration
Government/Public Sector

Reducing the Costs of Government Workloads with Intel® Xeon® Processors

British Columbia Assessment Authority doubles performance and reduces annual costs by 82 percent with the Intel® Xeon® processor E5 family

BC Assessment

"[W]e found that we could improve the performance of our overnight batch processing by approximately 100 percent using the Intel® Xeon® processor–based servers.... By completing those workloads faster, we can handle up to 50 percent greater capacity overnight without affecting the performance of systems during regular business hours."

– Brent Chan, Assistant Director, Services Delivery, British Columbia Assessment Authority

The British Columbia Assessment Authority (BCA) depends on technology to assess the value of millions of real estate properties for its Canadian province. Until recently, a Sun SPARC* infrastructure hosted the Oracle Database* used to store property information and generate assessments. At the recommendation of IT service provider MYRA Systems, BCA ran a proof of concept (POC) that showed significant potential cost savings and performance gains by moving to HP ProLiant* Servers equipped with the Intel® Xeon® processor E5 family. After migrating, BCA expects to reduce annual operating costs by approximately 82 percent while doubling batch workload performance.

Challenges

- **Rapidly process a large volume of property assessments.** Generate property value assessments needed by municipalities and continually recalculate changing values for millions of properties in British Columbia.
- **Cut costs.** Work within a tight government budget by reducing the total cost of ownership (TCO) for running the property assessment database environment.

Solution

- **HP servers with Intel Xeon processors.** BCA migrated its Oracle Database from a RISC environment to HP ProLiant DL380p Gen8 Servers equipped with the Intel Xeon processor E5 family. The new environment runs the Red Hat Enterprise Linux* operating system.

Technology Results

- **Significant performance gains.** BCA can run batch workloads 100 percent faster with the new infrastructure, enabling the organization to handle a greater volume of work in less time than before.
- **Reduced footprint.** BCA reduced its infrastructure from 32 cores to just 6 without any performance degradation. A smaller footprint will drive down power, cooling, and real estate costs.

Business Value

- **Lower TCO.** The new infrastructure is helping BCA reduce operating costs by approximately 82 percent annually. The organization can fund new projects while accommodating budget constraints.

The BCA database environment is vital to the organization's core function of producing property value assessments. "Our database holds key information for every property within the province of British Columbia," says Brent Chan, Assistant Director, services delivery, for BCA. "We draw on that information to generate property valuations that are used by the municipalities for tax purposes."

To operate within the tight budget set by the provincial government, BCA is always looking for ways to contain costs. When IT service provider MYRA Systems recommended moving to a new, more cost-effective hardware platform and operating system for its primary database, the BCA team was receptive to a proposal. "The MYRA team suggested that we could significantly reduce capital and operating expenses by moving from a Sun SPARC infrastructure running the Solaris* operating system to a new infrastructure running a Linux operating system," says Chan. "We decided to explore that opportunity."

The time was right for a change. "We were moving to a new data center facility," says Chan. "We wanted to retire our current equipment and build the database infrastructure from the ground up for that new facility."

Capitalizing on the price/performance of Intel Xeon processors

Demonstrating the Value of a New Infrastructure

The IT group from BCA worked with MYRA consultants on a POC that included both technical evaluation of hardware and software plus a full cost analysis. The teams assessed the performance of online transactional workloads generated by BCA staff as well as overnight batch processing workloads, which can include the recalculation of millions of property valuations based on new information or the replication of data into a data warehouse.

The team migrated its Oracle Database to the Red Hat Enterprise Linux operating system on HP ProLiant Servers based on the Intel Xeon processor E5 family. "We had been using HP servers for several years for Microsoft Windows* applications and were very happy with the platform and the support we received from HP," says Chan.

The Intel Xeon processors easily met the price/performance goals for the new environment. "Because of the way Oracle Database licensing works, using fewer, more powerful processors can help save money," says Eric White, the MYRA project manager. "According to the benchmarks we evaluated, it was clear that Intel Xeon processors could deliver far superior price/performance for Oracle Database than any other available architecture."

Accelerating Batch Workloads by 100 Percent

The POC demonstrated some significant potential performance gains. "We proved that we could migrate our current database processing service to a new platform without any degradation in transactional performance," says Chan. "In addition, we found that we could improve the performance of our overnight batch processing by approximately 100 percent using the Intel Xeon processor–based servers. We have seen even better performance for some workloads. For example, we have reduced the time for preliminary runs of roll processing by more than 150 percent while accelerating quality assurance audit reports by 200 percent. The raw computational performance, combined with the Intel® Turbo Boost Technology, which boosts the processor frequency when necessary, contributed to that result. By completing those workloads faster, we can handle up to 50 percent greater capacity overnight without affecting the performance of systems during regular business hours."

The Intel Xeon processors delivered those gains while helping to reduce the size of the infrastructure. "BCA went from using 32 cores in the previous environment to just 6 with the Intel Xeon processor E5 family," says White. "Achieving the performance improvements we recorded with fewer processors was very impressive."

Reducing TCO by 82 Percent

The cost-analysis component of the POC also showed dramatic potential savings. "We estimate that we can reduce the total cost of ownership by approximately 82 percent every year as result of this migration," says Chan. "We are reducing hardware acquisition, hardware maintenance, software licensing, and ongoing operating costs."

Lessons Learned

BCA stresses the importance of conducting a thorough evaluation of new technology. "Take the time to do the proof of concept properly," says Brent Chan, assistant director, services delivery. "When you're dealing with mission-critical production systems, it is crucial to make sure everything will work as expected. Our proof of concept gave us great confidence in moving the database from the RISC environment to an HP platform based on Intel Xeon processors."

By using fewer, more powerful processors, the organization is substantially reducing power, cooling, and real estate expenses. "We will see a tenfold reduction in power consumption, from 15 kilowatts to just 1.5 kilowatts," says Chan. "We're not only saving money, we're also decreasing the environmental impact of IT."

The savings will be put to good use. "We apply the money we save to other projects, such as building an identically sized environment for disaster recovery, and we can reduce our ongoing operating budget," says Chan. "At a time when all public agencies are under serious budget pressure, these savings are a huge benefit."

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