CASE STUDY
Intel® Xeon® processor 7500 series
Financial Services
Mission-Critical Computing
Performance for Data-Intensive Computing

Strengthening the Foundation for Online Bill Payments

Online Resources implements a new database environment with Intel® Xeon® processors on NEC servers to enhance availability and reduce its total cost of ownership

Online bill payment solutions from Online Resources (ORCC) power financial interactions among millions of consumers, financial institutions, and billing companies every day. The company needed to build a new database infrastructure to improve availability of its mission-critical solutions through clustering and reduce the hardware footprint without affecting performance. ORCC selected NEC servers based on the Intel® Xeon® processor 7500 series. The new environment uses error-correction capabilities built into the Intel Xeon processors, along with third-party clustering software from Symantec, to help prevent outages. With a robust, dense processing architecture, the new environment is also helping ORCC consolidate resources and cut costs while boosting database performance.

CHALLENGES

- **Consolidate databases.** Reduce the hardware footprint and control costs for the database environment that is the engine for the company's online bill payment solutions without affecting database performance.
- **Enhance database availability.** Meet strict service-level agreements (SLAs) for database availability by moving to a processing platform that supports the company's preferred third-party clustering software.

SOLUTION

- **NEC systems with Intel® Xeon® processors.** ORCC is migrating databases to NEC Express5800/A1080a-E (GX)* systems with the Intel Xeon processor 7500 series and plans to incorporate additional NEC systems with the Intel Xeon processor E7 family.

IMPACT

- **Improved performance.** Moving to new Intel Xeon processors has helped accelerate queries and deliver a responsive end-user experience.
- **Better availability.** By implementing a clustered database environment and using error-correction capabilities built into the Intel processors, ORCC is delivering high availability for its mission-critical bill payment processes.
- **Reduced footprint.** ORCC is consolidating its database environment and saving money while gaining the capacity to support customers with larger databases.

"By using NEC servers based on the Intel® Xeon® processor 7500 series, we can run more, larger databases in less space. As a result, we have reduced power, hardware acquisition, maintenance, and other costs."

– Peter Cuenco, Director, Systems Operations, ORCC

ORCC solutions facilitate smooth, secure, and rapid online interactions between consumers and the 2,000 financial institutions, credit unions, credit card issuers, and other credit providers that are ORCC clients. The company runs Microsoft SQL Server* databases on NEC servers to support the 200 million payment transactions ORCC processes annually.

In 2011, the company decided to refresh its infrastructure to help improve availability. "We wanted to use a different solution for our SQL Server high-availability databases, but the third-party clustering software we selected was not available for the existing platform," says Peter Cuenco, director of systems operations at ORCC. "We needed to move to a platform that could let us introduce the third-party clustering software we had chosen and support any other third-party applications we might want to implement down the road."

The new platform also had to help reduce the hardware and real estate required for its database environment. "We wanted to run multiple database instances on a single node but without sacrificing performance or reliability," says Cuenco. "We needed a

Facilitating payments with Intel® Xeon® processors

processing platform that could support consolidation of large databases while still delivering the high availability and response time that end users expect."

Moving to Intel Xeon Processors and Boosting Performance

With help from NEC, the ORCC team ran benchmark testing for typical database workloads on NEC servers equipped with Intel Xeon processors, which would support the clustering software ORCC had selected. "The benchmark testing demonstrated that the Intel Xeon processors could easily handle consolidated database workloads without performance degradation," says Cuenco. "That was enough to convince us to make the move."

The ORCC team selected eight-socket NEC Express5800/A1080a-E (GX) systems with the Intel Xeon processor 7500 series. The architecture of the Intel Xeon processor 7500 series helps to deliver the performance required by ORCC and the individual end users of ORCC solutions. "Intel® QuickPath Interconnect technology helps eliminate the memory access latency that can be introduced with other architectures," says Cuenco. "By giving the processors faster access to memory, the Intel Xeon processors can help deliver outstanding database performance. Queries run faster, and the individual end users conducting online banking, bill payments, and other transactions online gain a very smooth, responsive experience."

Enhancing Availability and Reliability

The Intel Xeon processors are helping to prevent outages that could frustrate online banking customers and ultimately damage ORCC's reputation. Intel® Machine Check Architecture Recovery, a feature of Intel® Advanced Reliability technology, helps keep the databases running smoothly even if memory errors occur. "With built-in error-correction capabilities, Intel Xeon processors help make sure that a memory error doesn't bring the whole system down," says Cuenco. "We can achieve mainframe-level reliability for these mission-critical databases."

With the move to the new hardware platform, the ORCC team also has implemented Symantec Veritas Cluster Server* clustering software to improve availability should serious hardware failures occur. Now any one cluster node can handle the database instances from all the other nodes in the event of multiple system failures. "The Intel Xeon processors enable us to run the clustering software we chose, and they give us the processing performance we need for failover situations. We've been able to build a robust environment with broad support for third-party applications by using Intel Xeon processors," says Cuenco. "As a result, we can meet our strict SLAs with our clients, and individual users can pay their bills on time."

SPOTLIGHT ON ORCC

Founded in 1989, Online Resources (ORCC) facilitates the financial interactions among millions of consumers, financial institutions, and biller clients. With its proprietary real-time payments gateway, which links banks directly with billers, the company provides Web- and phone-based financial services, electronic payments, and marketing services that support USD 100 billion in payments annually.

Reducing the Footprint and Expanding the Customer Base

The ORCC team expects the new database environment to help reduce hardware acquisition costs and conserve data center space. "By using NEC servers based on the Intel Xeon processor 7500 series, we can run more, larger databases in less space," says Cuenco. "As a result, we have reduced power, hardware acquisition, maintenance, and other costs. We expect even better consolidation, enhanced performance, and potentially greater cost savings as we transition to the Intel Xeon processor E7 family on NEC servers."

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