Customer Case Study

Technology Company Achieves RISC-to-Intel X86 Migration

Executive Summary

Challenge

- Existing server infrastructure was at capacity and end of life
- Poor performance hampered user productivity
- EMC had no clear path to cloud computing

Solution

- Cisco Unified Computing System B440 powered by Intel® Xeon® Processors
- Cisco Unified Computing Services
- Cisco Technical Services

Results

- Improved application response and batch run-times by up to 20 times
- Greatly simplified management and improved provisioning productivity
- Significantly lowered costs and complexity while increasing scalability and flexibility

EMC Migrates Mission-Critical Server Infrastructure to Cisco Unified Computing System and Accelerates Drive to Cloud Computing.

Challenge

EMC Corporation, the leading supplier of information infrastructure technology, relies on one of the world's largest Oracle E-Business Suite implementations for its global manufacturing, finance, quoting, customer service, professional services, sales, and marketing operations. The company's customer relationship management (CRM) system supports 40,000 users with peak usage of more than 4000 concurrent users. This business-critical system also delivers data to the company's business intelligence and data warehousing infrastructure.

Approximately seven years ago, the Oracle E-Business Suite applications were deployed on a UNIX/RISC platform. In subsequent years, EMC's business grew, and the number of transactions processed by these systems had risen exponentially. EMC anticipated continued growth, which requires an open, scalable, and agile compute infrastructure. The existing RISC systems were at the end of their service lives and could no longer support EMC's required business service levels, in spite of numerous costly upgrades and optimization efforts.

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Paul Di'Vittorio
Director of Private Cloud Architecture for EMC

With its commitment to deliver solutions that meet customers' needs for virtualization and private cloud computing, EMC needed a clear path to implement its own fully virtualized, next-generation IT infrastructure. The current RISC systems could not meet EMC's virtualization requirements. The company also wanted to control costs and decided to migrate its Oracle applications to Linux-based systems. After evaluating several options for a next-generation compute platform, EMC decided to conduct a proof of concept using the Cisco Unified Computing System™ with the assistance of Cisco Services and the Intel Software and Solutions Group.

However, choosing a new compute platform was only the beginning. Migrating from RISC to Cisco® Unified Computing System was going to be complex, and the risk was high because everything was new: the implementation would include new hardware, a new operating system, and a new Oracle application. Moreover, EMC's IT team had aggressive timelines to meet, because the applications had to be migrated before the end of the company's fiscal year.

A smooth cutover to the new platform was critical, because the migration could not affect EMC's business operations. For its high-risk migration of servers and applications, EMC also chose Cisco Services to provide team members with Cisco Unified Computing System and Oracle application migration expertise, as well as 24-hour onsite technical support to mitigate the risk of deploying the new system.

Solution

EMC chose the Cisco Unified Computing System with B440 blade servers, Intel Xeon processors, and Cisco Virtual Interface Cards. The Intel Xeon processors provide record-breaking performance combined with advanced reliability, availability, and security features. The Cisco Virtual Interface Card provides dynamic virtual interfaces and can be optimized in a virtualized environment.

"The Intel Xeon architecture will now give us tremendous scale, allowing us to build really large systems with high performance," says Paul Di'Vittorio, director of private cloud architecture for EMC. "With our commitment to deliver solutions that meet customers' needs for virtualization and private cloud computing, we needed a clear path to achieving our own fully virtualized, next-generation IT infrastructure, and Cisco Unified Computing System was a clear winner."

The project began with architectural work. Cisco Services provided the Cisco Unified Computing Migration and Transition service delivered by team members whose Oracle expertise enables customers to optimize Oracle application performance and resiliency with powerful Cisco Unified Computing System capabilities. The Cisco Services team worked with EMC to create resilient high- and low-level designs and an interconnect network design to help ensure that there were no single points of failure. The team used the Cisco Validated Design for Oracle Real Application Cluster (RAC) to help ensure ongoing resiliency and formal certification of EMC's Oracle RAC deployment. The new architecture enabled EMC to triple the number of nodes in a cluster, compared with its previous platform, and improve application performance.

"Because the existing UNIX file system is so different than Linux, the majority of work required was converting our Oracle environment from Solaris to Linux," says Mike Norris, senior director of private cloud infrastructure for EMC. "We rebuilt it from the ground up as part of a comprehensive a 12-step migration process."

The migration was based on six Cisco Unified Computing System blade servers with a 10 Gb Ethernet Oracle RAC interconnect that was pre-integrated with the Cisco Unified Computing System Converge Networking feature. EMC used its Symmetrix VMAX storage array for back-end storage to the Cisco Unified Computing System.

A comprehensive test plan, developed by Cisco Services, enabled EMC to validate deployment resiliency prior to the formal Cisco Unified Computing System launch. Cisco Services' expertise in testing and test planning for the Cisco Unified Computing System enabled EMC to avoid potential performance issues after production deployment and to gain deeper insight into the underlying technology.

"We received great support from Cisco Services in helping us test and deploy the implementation on schedule," says Di'Vittorio. "They also helped us take advantage of features that we otherwise would not have known how to optimize for our needs. We were pleasantly surprised with Cisco's expertise and depth of experience with Cisco Unified Computing, Oracle, and data center technologies."

Throughout the project, Cisco Services helped EMC successfully migrate its Oracle database tier. Cisco Technical Services provided 24-hour onsite support during the migration, and Cisco Unified Computing System Optimization Service provides support for EMC's mission-critical operations on an ongoing basis. The Cisco Unified Computing System Optimization Service will help EMC achieve ongoing cost reductions in the data center, improve the performance of business-critical applications, improve productivity, and enhance business processes.

Results

"Our most important driver was performance," says Norris. "Performance testing delivered improvements that were up to 20 times faster with the Intel Xeon platform than we had been able to achieve on our existing RISC-based systems."

For example, customer service quote renewal transactions improved from 11.5 to 5.6 seconds. In EMC's Channel Express, "Save and Array configuration" transactions improved 800 percent, from 27.4 to 3.3 seconds. "Create a new version" transactions fell from 133.6 to 36.3 seconds, and "Save a configuration" transactions dropped from 27.9 to 3.4 seconds. As importantly, the migration cutover was achieved on schedule and with no user impact.

The Cisco Unified Computing System platform significantly lowers costs. EMC can use standard x86 hardware built on Intel Xeon architecture and reduce infrastructure requirements, because the Cisco Unified Computing System requires fewer switches, servers, adapters, and cables than alternative options. The Cisco Unified Computing System's design and highly efficient Intel Xeon processors also require significantly less energy, enabling EMC to further reduce power and cooling costs. The system offers high availability capabilities far more affordably than had been possible in the past.

Data center management is greatly simplified. The IT team needs to wire only once for storage area network (SAN), network attached storage (NAS) and Small Computer System Interface over IP (iSCSI) connections and can manage everything from a single management pane. Cisco Unified Computing System Manager capabilities, such as boot from SAN and service profiles, save time through rapid provisioning, provide centralized visibility, and reduce the costs associated with managing complex computing environments.

With the Cisco Services team on site, EMC accelerated optimization and deployment. Cisco brought deep expertise on both the Cisco Unified Computing System platform and Oracle applications, along with direct access to engineering experts. The Cisco and EMC teams worked hand in hand on all aspects of the migration, from architecture and test plan creation to implementing optimized ongoing operations and procedures.

The Cisco Unified Computing System will support EMC's goals for 100 percent virtualization with granular control, security, scalability, and high performance. The Cisco Unified Computing System architecture allows greater scalability without adding complexity, and allows IT to dynamically provision resources as needed. An open, scalable computing platform and a documented migration process will help EMC to accelerate its journey toward private cloud computing.

"We went from almost 100 percent CPU utilization to barely achieving 20 percent," says Di'Vittorio. "The Cisco Unified Computing System and architecture gives us a lot of room to grow."

For More Information

To find out more about Cisco Unified Computing System and Oracle, visit: www.cisco.com/go/oracle.

To find out more about Cisco Unified Computing System, visit: www.cisco.com/go/unifiedcomputing.

To find out more about Cisco Professional Services, visit: www.cisco.com/go/services; www.cisco.com/go/unifiedcomputingservices; and www.cisco.com/en/US/products/ps11148/serv_home.html

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