

# BUILDING A SCALABLE CLOUD

Salesforce.com migrates its databases to Dell hardware, achieving cost-effective scalability with twice the performance and 10 times less cost than the previous systems



What began as a small San Francisco startup during the dot-com boom is today a thriving global enterprise that is transforming how software is delivered and used by a wide range of businesses. Salesforce.com is the leader in enterprise “cloud computing” services—sometimes known as software as a service (SaaS) and platform as a service (PaaS). These services enable organizations to manage every part of the customer relationship and provide a platform for developing any type of custom enterprise application.

## SOLUTIONS

- CLUSTERING
- CONSOLIDATION
- DATABASE



## CUSTOMER PROFILE

**COUNTRY:** United States

**INDUSTRY:** Technology

**FOUNDED:** 1999

**NUMBER OF CUSTOMERS:** 67,900\*

**NUMBER OF EMPLOYEES:** 4,000

**WEB ADDRESS:** [www.salesforce.com](http://www.salesforce.com)

## CHALLENGE

Salesforce.com needed to achieve more cost-effective scalability for its global database infrastructure to accommodate rapid customer growth. To make sure customers have fast and continuous access to their data, salesforce.com needed hardware that could help deliver outstanding performance and high availability.

## SOLUTION

Salesforce.com moved its Oracle databases from Sun SPARC-based systems infrastructure to Dell™ PowerEdge™ servers with AMD Opteron™ processors running the Red Hat® Enterprise Linux® operating system.

## BENEFITS

- Achieved rapid provisioning of new servers, cutting deployment time by half
- Doubled database performance, giving customers faster access to data
- Reduced total cost of ownership by 10 times compared with the previous infrastructure, enabling the IT group to build in more redundancy and help ensure greater availability for customers
- Made room for new, innovative services and customer growth by reducing data center floor space 30 percent
- Ensured easier global data center expansion by working with a vendor that can supply and support hardware around the world





## HOW IT WORKS

### HARDWARE

- Dell™ PowerEdge™ R905 servers with AMD Opteron™ processors
- Dell PowerEdge R610 servers

### SOFTWARE

- Oracle 10g
- Red Hat® Enterprise Linux® operating system

### SERVICES

- Dell ProConsult
- ProSupport for IT Enterprise

The popularity of the cloud computing model that salesforce.com helped to introduce is evident in the company's impressive customer growth. "Since the company was launched, salesforce.com has achieved double-digit growth every year," says Claus Moldt, senior vice president of technical operations at salesforce.com. "Today we have 67,900 customers around the world."

That growth has been great for business, but it also has presented challenges for the IT group. In particular, the IT group has had difficulty scaling the database infrastructure to keep up with demand. "The most critical part of the salesforce.com infrastructure is the database layer—as the backbone for our cloud computing platform and customer relationship management [CRM] services," says David Fearnley, senior director of technical operations at salesforce.com. "We were using Sun SPARC-based servers and the Solaris operating system to host our Oracle databases, but it was too costly to scale that infrastructure. We needed hardware that could help us scale more cost-effectively."

At the same time, any new hardware platform had to meet the company's high standards for performance and availability. "To gain

customers, we need to prove that our cloud offerings can deliver fast and continuous access to their applications and their data—and we publish real-time information on our infrastructure so current and future customers can see how we're doing," says Fearnley. "Clearly, we need a robust hardware infrastructure with redundant systems so we can continue to deliver on our promises."

The salesforce.com team also needed a global vendor that understands cloud computing. "First of all, we wanted to work with a company that would still be around in 10 years. We also wanted a vendor that shares our vision for cloud computing," says Moldt. "Finally, we needed a global vendor that could supply and support our data centers around the world."

### **SALESFORCE.COM REBUILDS ITS DATABASE INFRASTRUCTURE ON DELL HARDWARE**

The salesforce.com team was already using Dell PowerEdge R610 servers to host its application infrastructure, but the IT group still evaluated servers from several hardware vendors for the database migration project. "We provided vendors with our database

statistics, and we asked for their best recommendations of how we could move from our existing environment to a more cost-effective, scalable one," says Fearnley. "The Dell team provided some compelling possibilities, and we decided to follow up immediately with a proof of concept."

"We had to make sure that we could achieve the same or better performance on Dell hardware as with our legacy systems," says Moldt. "Through extensive testing, we found that Dell PowerEdge servers could deliver superior performance in less space and at a much lower cost than our existing systems."

The Dell team could offer not only the hardware but also the partnership that salesforce.com required. "Through our previous relationship with Dell and this proof of concept, we've seen that the Dell team can provide deep engineering assistance, reliable hardware, and extensive support," says Moldt. "In addition, it's clear that the Dell team understands that cloud computing is the future—Dell is even adopting the cloud approach in-house. We have the confidence that Dell will be here to support our company's vision well into the future."

# “THE DELL POWEREDGE R905 SERVER ENABLES US TO DOUBLE PERFORMANCE WHILE SAVING 10 TIMES THE COST OF OUR PREVIOUS SYSTEMS.... THE COST SAVINGS WILL ENABLE US TO OFFER NEW, INNOVATIVE SERVICES TO CUSTOMERS AND KEEP US COMPETITIVE AS MORE COMPANIES ENTER THE CLOUD COMPUTING MARKETPLACE.”

**Claus Moldt**, senior vice president of technical operations, Salesforce.com

## **DELL FACILITATES A SMOOTH TRANSITION TO THE NEW ENVIRONMENT**

Dell ProConsult services helped the salesforce.com team to fully validate the Red Hat Enterprise Linux operating system as the new software platform for running its Oracle databases. “Dell invited our engineers to Dell headquarters so they could see how Dell tested various software stacks,” says Fearnley. “As we began to configure the software for our servers, we were impressed with how the Dell team worked with Red Hat to resolve issues and help us create a standardized platform for our databases. Through their extensive testing and their strong relationships with software vendors, the Dell team was able to help us achieve a smooth migration to the new platform.”

On an ongoing basis, the Dell team helps to streamline the provisioning of new servers. “The Dell team provides media access control (MAC) addresses and serial numbers prior to the arrival of servers so we can prepare ahead of time. When the servers arrive, our engineers can rack them, install software, and get them up and running quickly,” says Fearnley. “Deploying the Dell PowerEdge servers in our facilities is a turnkey operation. We estimate that we have cut our deployment time by half compared with the previous infrastructure.”

## **DELL HARDWARE DELIVERS TWICE THE PERFORMANCE AT 10 TIMES LESS COST**

Dell ProConsult services helped the salesforce.com IT group select Dell PowerEdge R905 servers equipped with AMD Opteron processors as the

new standard hardware platform for the database infrastructure. “With four multi-core AMD Opteron processors in each Dell PowerEdge server, we are achieving two times the performance per server compared with our previous systems,” says Moldt. “That improved performance provides additional headroom for our databases and helps our customers achieve fast access to their information.”

By moving from proprietary systems to servers with industry-standard hardware and software components, the IT group also reduced the total cost of ownership considerably. “The Dell PowerEdge R905 server enables us to double performance while saving 10 times the cost of our previous systems. In addition to acquisition costs, we are saving on hardware management and maintenance, software licensing, and a host of other costs,” says Moldt. “The cost savings will enable us to offer new, innovative services to customers and keep us competitive as more companies enter the cloud computing marketplace.”

## **USING DELL HARDWARE HELPS SALESFORCE.COM DELIVER OUTSTANDING DATABASE AVAILABILITY**

With the money saved by standardizing on Dell servers, the IT group has built larger database clusters that can help increase the availability of databases. “In the past, we could build only four-node database clusters,” says Fearnley. “By moving to a Dell hardware platform with a Linux operating system, we can afford to build eight-node clusters. Losing a single server would have much less of an impact on database availability.”

The IT group also has built secondary clusters that help ensure database availability during planned maintenance. “It used to take hours to perform software upgrades and other maintenance,” says Fearnley. “With the cost savings we achieved by moving to Dell, we were able to build mirrored database clusters so we can toggle customers to secondary clusters during upgrades. Now we provide a ‘five-minute upgrade,’ giving our customers the latest software without interruptions. Dell is helping us deliver on the promise of the always-available cloud.”

## **NEW INFRASTRUCTURE HELPS PROVIDE 30 PERCENT MORE ROOM FOR GROWTH**

By packing more processing power into less space, the new Dell servers are helping the salesforce.com team to conserve real estate and power. “Moving from a Sun SPARC-based systems infrastructure to Dell PowerEdge servers, we were able to reduce our database infrastructure footprint by 30 percent while still improving performance,” says Fearnley. “We have achieved commensurate power savings as well. In the short term, consolidation lets us cut costs. In the long term, it will allow us to expand our IT infrastructure to support additional customer growth without having to rebuild our data centers.”

## **GLOBAL DELL SUPPORT FACILITATES WORLDWIDE EXPANSION**

Working with a global hardware partner is helping salesforce.com to simplify server deployment and bolster support around the world. “We are deploying the new Dell servers in multiple U.S.

data centers and our Singapore facility,” says Fearnley. “Because Dell is a global enterprise, we can count on rapid delivery of products plus outstanding support wherever we operate.”

The salesforce.com team has enhanced its level of Dell ProSupport for its new database infrastructure. “As we moved to Dell hardware for those mission-critical databases, we decided to integrate additional Dell support options,” says Fearnley. “We now have direct access to the Dell Enterprise Expert Center at Dell headquarters so our administrators can reach specialized technicians if and when they need to. We are also working to set up a parts depot within our data centers and to enable more of our administrators to earn Dell repair certification so we can repair hardware on the spot. With all of these Dell support capabilities, we can help deliver a reliable, consistent experience for our customers.”

#### **MORE DELL IN THE SALESFORCE.COM FORECAST**

The Dell account team provides regular briefings on its technology road map so the IT group can plan purchases well ahead of time. That planning

has already benefited salesforce.com. “We initially selected Dell PowerEdge servers with four quad-core AMD processors for this database project,” says Fearnley. “When AMD released a new six-core architecture, the Dell team helped us modify our planning and standardize on that new architecture, moving from 16 to 24 cores per server.”

The salesforce.com team now has the cost-effective, scalable infrastructure it needs to move forward. “The new Dell hardware infrastructure will enable us to build larger database clusters, introduce new cloud computing services, and add more customers all while controlling our costs,” says Fearnley. “With help from Dell, we can remain a leader in this burgeoning field.”

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