

Teradata Corporation



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— Scott Gnau
Chief Development Officer for R&D
Teradata Corporation

KEY HIGHLIGHTS

Challenges

- Support rapid growth in customer base
- Increase efficiency of R&D infrastructure
- Use green business practices within the company

Solutions

- Perform internal proof of concept and communicate results within R&D
- Deploy private cloud based on VMware
- Streamline cloud administration with VMware vCenter Lab Manager

Results

- Recover investment in six months
- Enhance brand through public recognition of green efforts
- Reduce server provisioning time from hours to minutes

VMware at Work

- VMware vSphere 4
- VMware vCenter Lab Manager

Teradata Deploys A Private Cloud Based On vSphere While Streamlining Their Cloud Administration With VMware vCenter Lab Manager

It's difficult to find a technology company that is more focused than Teradata. The company is completely dedicated to delivering business intelligence using data warehouses and analytic tools.

Since being spun off from NCR in 2007, Teradata has deployed more than 2,000 implementations of its software and hardware solutions in 60 countries worldwide. Its customer base comprises more than 900 companies, including 3M, British Airways, Coca Cola, ICICI Bank, Poste Italiane, the United States Air Force, Verizon, and Wells Fargo. Teradata's headquarters are located in Miamisburg, Ohio, with R&D operations based in San Diego, California.

The Challenge

Support Rapid Growth in Customer Base

With success comes challenges, and no one knows that better than Scott Gnau, Teradata's chief development officer for R&D. Gnau has been with the company and its antecedent, NCR, for 15 years. His charter is to ensure that the research and development team continues to enable Teradata's business growth. That goal requires both the ability to scale resources—human and technological—and flexibility in how those resources are deployed.

Increase Efficiency of R&D Infrastructure

Scaling is easy if you have a blank check, but Gnau works under the constraints of a competitive marketplace. “We needed a way to scale the business without a corresponding scaling of our hardware spend,” he says. “In auditing our internal operations, we found low utilization rates for our R&D test servers, averaging 9 percent. That finding suggested a way to drive down hardware investment by increasing the utilization of our infrastructure.”

Think ‘Green’—Inside and Outside the Walls

Many corporations pay lip service to sustainable business practices. In contrast, Teradata walks its talk for a practical reason—green is an inherent part of the company's value proposition. “The Teradata mission is very consistent with sustainability,” Gnau explains. “Our products deliver more processing power per watt in the business intelligence space.”

That same logic works inside the walls. Reducing the energy consumption of the R&D infrastructure both aids the corporation's bottom line and is the right thing to do for the environment.

The Solution

To Gnau, the obvious solution for Teradata's R&D infrastructure was a private cloud based on VMware technology. Why a private cloud? “Teradata's product is basically a massively parallel processing engine implemented on a private cloud,” says Gnau. “So

we are no strangers to high-performance virtualization.” Why VMware? “We have a long-standing relationship with VMware,” he continues. “For example, we just announced Teradata Express for VMware Player in October 2009. We see VMware as an enabling technology for cloud-based offerings to our customers. So our two companies had a great deal of synergy in place.”

Prove the Concept—and Communicate the Results Internally

To investigate the feasibility of moving to a private cloud, Gnau’s team engineered a proof of concept (POC) using the VMware software to virtualize a key application. The POC was successful, so Teradata decided to move forward with the full project. Gnau charged his leadership team with communicating the results internally to achieve organizational buy-in. “With any new technology, there is resistance,” says Gnau. “Showing the results of the POC to our engineers helped build their confidence in the private cloud approach.”

Deploy Private Cloud Based on New Servers and VMware Software

Teradata moved forward by first refreshing its server architecture, replacing 319 legacy servers with 16 model Dell R710 servers. VMware vSphere 4 is deployed on 28 physical servers, which are running a total of 392 virtual machines for an average consolidation ratio of 14:1.

Automate Management of Private Cloud with vCenter Lab Manager

Teradata chose VMware vCenter Lab Manager, as the leading integrated virtual provisioning product, to streamline administration of its private cloud. “VMware Lab Manager makes it easier for our internal system administrators to manage and deploy multiple system configurations from the image library for our software engineers, speeding our development and test efforts by reducing time to create variants of configuration requests,” says Gnau.

Results

Achieve Full Payback on Investment in Six Months

Teradata’s implementation of a private cloud based on VMware resulted in the decommissioning of 319 legacy servers. That move saves 2.5 million kilowatt hours of energy yearly, which is sufficient to power more than 200 homes for one year. It also led to a speedy return on Teradata’s capital outlay. “Energy savings from deploying a private cloud paid back our investment in just six months,” reports Gnau.

Enhance Corporate Brand Through Public Recognition of Green Business Practices

San Diego Gas and Electric (SDG&E) is the local utility that provides power for Teradata’s R&D center. As part of its efforts to boost green business practices, SDG&E recently recognized Teradata for saving energy through a number of measures—of which server virtualization was by far the largest contributor (see table). The utility company rewarded Teradata with an incentive check for \$250,000 and lauded the company’s efforts in a joint press release.

As welcome as the check was, the positive impact on the Teradata corporate brand far exceeds the financial implications. As Gnau puts it, “Our customers, investors and communities are increasingly looking to Teradata to adopt innovative green business practices across our business.”

Scale to Support Growth of Business with Minimal Incremental Investment

The move to a private cloud brought Teradata to a new level of internal agility. Gnau can easily scale his workforce without worrying about the delay and expense of buying new servers. Even with the reduced server count, Teradata test systems are running at an average utilization rate of less than 20 percent. That figure leaves plenty of room to add new virtual servers as needed, with little or no hardware investment.

Reduce Server Provisioning Time

VMware has greatly shortened the cycle time for provisioning a new server by taking much of the overhead out of the process. “Before VMware, when we added an engineer or started a new project, our support group had to procure a server, install and cable it into the network and storage, then configure the operating system and application software—many hours of work,” Gnaou says. “Now it’s just a matter of a phone call or email—literally under 20 minutes.”

Looking Ahead

Teradata is on target to have its entire R&D infrastructure virtualized by the end of 2010. Gnaou reflects on the impact VMware has had on his organization: “Our private cloud based on VMware has made our engineers’ lives easier, and it has saved us money. It has made us a more nimble and efficient business.”

Teradata 2009 Energy Savings (Audited by San Diego Gas and Electric)

CATEGORY	DESCRIPTION	ANNUAL SAVINGS	% OF TOTAL SAVINGS
Server virtualization with VMware	Decommissioned 319 old servers and storage systems	2,024,927	80.5
Lighting	Replaced 4,364 fluorescent lamps with high efficiency lamps	273,650	10.8
Heating and cooling	Installed variable frequency drives (VFD) and controls on cooling tower fan motors	103,281	4.2
Monitors	Replaced or eliminated 538 energy-consuming CRT monitors in datacenter labs	113,880	4.5
TOTAL ANNUAL SAVINGS: 2,515,738 KWH			

