Mazda North American Operations

PROFILE

Industry
Automotive

Corporate Headquarters
Irvine, California

Employees
800

Annual Revenue
Approximately 30 percent of ¥2.326 trillion global revenue

Website
http://www.mazdausa.com

THE NUMBERS

- 80 percent virtualized
- 360 virtual machines
- Performance of SAP back-end systems boosted 400 percent

IN BRIEF

Objective
Mazda needed to upgrade its North American Operation's SAP environment without putting the business or data at risk. The company also needed to improve its SAP environment's disaster-recovery capabilities.

Solution
Mazda engaged VMware partner Texperts, which virtualized its SAP servers, hosted a private cloud for rehearsing and testing the upgrade, and assisted with replicating the validated upgrade procedures within Mazda's SAP production environment.

Business Impact
- SAP capital expenditures were reduced by 50 percent.
- SAP environment can be successfully recovered in the event of a datacenter disaster or hardware failure.
- Provisioning new SAP servers takes hours instead of weeks.
- Development and QA environments are now always synced with production environment.
- Virtualized environment is easier for infrastructure team to manage.

Mazda Virtualizes SAP Using VMware Cloud and Texperts' Expertise

"By rehearsing our SAP upgrade on a VMware private cloud hosted by Texperts, we eliminated the chance that the upgrade would put our business operations at risk. Virtualizing our SAP environment has also reduced our capital and operating costs, improved availability, and simplified disaster recovery."

— Paula Neil, IT System Manager, Accounting, Finance, Human Resources, and Legal for Mazda North American Operations

Upgrading an enterprise resource planning (ERP) system can be nerve-wracking. After all, a company's entire business depends on the technology every minute of the day. An ERP upgrade slip-up could affect everything from day-to-day operations to brand reputation to the bottom line.

So it's no surprise that Paula Neil, IT System Manager, Accounting, Finance, Human Resources, and Legal for Mazda North American Operations, invested considerable thought when planning her company's move from SAP R/3 4.7 to SAP ECC 6.0, and SAP Exchange Infrastructure (XI) to SAP NetWeaver Process Integration (PI). "It was a major upgrade," Neil says, noting that she began researching strategies for the upgrade some 2 years before the actual event.

Neil's research included coming up to speed on VMware® virtualization technology. Mazda's infrastructure team had already virtualized most of North American Operation's servers, including its Microsoft SharePoint and IBM WebSphere environments. The team was in favor of virtualizing SAP as well, and assured Neil that running SAP on a VMware platform would help ensure a smooth upgrade while also improving the ERP system's performance and disaster-recovery capabilities.

But Neil wanted more. "I was hearing the right words, but I also know that SAP is a highly specialized application," she says. "I needed to know that virtualization was the right fit for SAP." And with only four employees, Mazda's infrastructure team is lean. It was important to avoid overburdening them with full responsibility for the upgrade.

The turning point came when VMware introduced Neil to Texperts Inc., a VMware channel partner that specializes in SAP virtualization. Neil was highly impressed with Texperts' SAP knowledge and expertise. "They were able to talk through all aspects of virtualizing and upgrading SAP so that both our technical team and our management could follow," Neil says. "They educated us so that we understood what our options were and what they meant to us as a company."

With a technology partner it could trust, Mazda gave the green light to a project that combined virtualizing its SAP environment and performing the SAP upgrade.

Two Hundred Interfaces and More than 2TB of Data

The approach Texperts took for the project was designed to minimize the risk associated with performing an upgrade of such business-critical magnitude. IT addressed several hurdles. One is the complexity of the environment. Mazda North American Operations employs about 800 people, 75 of whom use SAP for accounting, finance, business planning and forecasting. The SAP environment includes more than 200 interfaces with other applications; these facilitate transactions critical to the company's network of 638 U.S., Mexican and Canadian dealers. "Ninety-five percent of what we do in SAP is through the interfaces," Neil says. "It's not feasible to replicate those processes manually." The upgrade therefore had to be performed in a way that would protect the integrity of those interfaces.

Another hurdle was the size of the environment's Microsoft SQL Server databases: over 2TB and growing by 25GB monthly. "We track every car by vehicle identification number," Neil says. "Our parent company in Japan requires very detailed reporting and traceability, so we've set up our SAP environment to accommodate that."

The upgrade would also require multiple cutovers, because it involved upgrading from Microsoft SQL Server 2000 to 2008 and moving from 32-bit to 64-bit hardware.

"A key reason our SAP upgrade was a success is that we partnered with Texperts, and they have such deep knowledge of SAP and virtualization. It was a very collaborative effort, and any time there was an issue, we came together and worked it out."

— Paula Neil, IT System Manager, Accounting, Finance, Human Resources, and Legal for Mazda North American Operations

Rehearsing the Upgrade on a Private Cloud

For the SAP upgrade project, Texperts recommended a phased approach in which the actual SAP upgrade phase follows a virtualization phase (P2V) and hardware-migration phase (32-bit to 64-bit). By virtualizing Mazda's existing SAP environments under VMware vSphere® first, Mazda was able to reap the benefits of virtualization and take advantage of the faster, state-of-the-art 64-bit hardware infrastructure. Mazda decided to venture into the cloud by leveraging Texperts' proprietary vUpgrade cloud technology, which enabled it to test the upgrade in the cloud. This strategy gave Mazda the flexibility needed to prepare the SAP upgrade of mission-critical applications with a minimum of business disruption, at a lower cost. "Texperts did all of the proofs of concept, testing and upgrade steps within their cloud," Neil says. "We knew in advance of the upgrade exactly what to do and how our systems would behave."

In fact, by the time the testing phase was complete, Mazda had so much confidence in the upgrade path that it decided to tackle its production environment first—before touching its development and quality-assurance (QA) systems. "Our production environment had gotten out of sync with dev and QA," Neil says. "Because we were so comfortable with the upgrade plan, we decided to move forward on production, and then make a copy of that to create our new dev and QA environment to realign our SAP production landscape."

All the same, Neil admits to some nervousness during each of the four cutovers. Her concerns were put to rest one weekend when the team ran into an issue and used VMware Storage vMotion® to roll back to an earlier snapshot of the production environment. "We'd given ourselves a 12-hour window to roll back if we needed to," she says. "But since it used to take us 70 hours to fully rebuild our databases, we were a bit nervous about whether we'd allotted enough time." The actual rollback, however, proved anticlimactic. "Within 40 minutes we were back up on the last version again."

Better Performance, Lower Costs

Today, the upgrade is complete, and Mazda is enjoying the benefits that have accrued from a combination of VMware virtualization technology, 64-bit hardware and the upgraded SAP software. "We gained a lot in application performance," Neil says, noting a 400 percent performance improvement in background jobs. The capitalization costs of the virtualized SAP environment are half those of the old physical server platform. Provisioning now takes hours instead of weeks, and thanks to ease of management, the infrastructure team has the resource bandwidth to support more virtual machines as needed without adding staff.

The virtualized environment leverages VMware High Availability to ensure it can be restored swiftly in the event of hardware failure, and VMware vCenter™ Site Recovery Manager (SRM) to improve and simplify disaster recovery. "Better disaster recovery was a key reason we needed to virtualize," Neil notes. In the past, the infrastructure team lacked confidence that it could successfully restore the most recent SAP databases if needed. Today, the team's disaster-recovery tests have shown that it can, even given the interdependencies of the environment and the need to synchronize them as they are brought back online.

"Now that our SAP environment is virtualized, we know we always have a really good backup copy and can roll back to it easily if we need to. The peace of mind that gives counts for a lot."

— Paula Neil, IT System Manager, Accounting, Finance, Human Resources, and Legal for Mazda North American Operations

Mazda retained Texperts to provide ongoing production support for its virtualized SAP environment. It also uses Texperts' vMonitoring software-as-a-service (SaaS)-based cloud service—built on VMware vSphere—for proactive end-to-end monitoring of mission-critical business applications such as SAP. The vMonitoring solution allows Mazda to perform real-time checks, record system changes for compliance, perform trend analysis and forecasting, and provide automated alerts on a monthly subscription basis—without investing capital to build a monitoring infrastructure onsite. "If anything happens, like an aborted job, I know within minutes, and I can even check it on my iPad," Neil says. "I don't have to check on the system or wait for users to tell me there's a problem.

"At Mazda, we don't try to do everything ourselves," Neil concludes. "We want to focus on our business, so we go out and hire expertise when we need to. We're so pleased that VMware introduced us to Texperts, because they gave us exactly the resources we needed to ensure our SAP virtualization and upgrade were a resounding success."

IMPLEMENTATION OVERVIEW

VMware Products

VMware vSphere 4.1

VMware Storage vMotion

VMware vCenter Site Recovery Manager

VMware High Availability

Applications

SAP ECC 6.0, SAP NetWeaver Process Integration (PI)

SAP Business Warehouse

SAP Solution Manager

Microsoft SQL Server

Partner:

Texperts

Platform:

DellT PowerEdge R710 servers

Dell Compellent storage

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VMware, Inc. 3401 Hillview Avenue Palo Alto CA 94304 USA Tel 877-486-9273 Fax 650-427-5001 www.vmware.com