dcVAST Unleashes the Power of IT for Infrastructure-As-a-Service (IaaS) Customers
Executive Overview

Organizations that run VMware on x86 systems may be facing challenges similar to those experienced by dcVAST, an IT services and infrastructure management company.

dcVAST reached a tipping point with its infrastructure-as-a-service (IaaS) offerings due to rising license costs, multiple vendor management, lack of scalability, and need for greater flexibility. To lower cost and provide equal or better support to its Web commerce customers, dcVAST searched for a forward-looking alternative to its current configuration.

After evaluating the full range of potential solutions from other leading providers, dcVAST chose a bundled solution built around Oracle’s Sun x86 systems. dcVAST’s evaluations show that the Oracle solution delivers 50 percent lower TCO than a comparable solution in addition to superior virtualization, I/O capabilities, and scalability.

This paper provides insights into dcVAST’s situation, decision process, and results.

Introduction

Founded in 1990, dcVAST is an IT and managed services company with headquarters strategically located in Downers Grove, Illinois, that serves customers ranging from middle market to Fortune 500 organizations. For these organizations, dcVAST architects, implements, supports, and manages IT infrastructures.

dcVAST’s mission is to provide technologies, strategies, resources, and support that add efficiencies, and make it possible for IT departments to focus on their business priorities versus ongoing maintenance on the infrastructure. Its tagline, appropriately, is "unleash the power of your IT department."

dcVAST’s offerings include managed services, hardware support, software support, and professional services. By the end of 2011, the infrastructure included a mix of Oracle, HP, and Dell servers virtualized using VMware. The company’s growth strategy focuses on substantial increases in IaaS delivered via the cloud—hosted or on premise and public, private, or hybrid—as well as in managed services related to backup and disaster recovery.
It was clear to David Cintron, vice president of Managed Services, and his team that they needed a more flexible solution that could help dcVAST expand its offerings and support the company’s growth objectives while satisfying TCO requirements.

The Previous Solution

dcVAST’s IaaS solution consisted of VMware vSphere 5, VMware ESXi, and Dell PowerEdge 1950 and R610 servers, which were mainly two-socket, as well as Dell EqualLogic storage, Red Hat Linux and some Windows applications. A number of dcVAST’s IaaS customers use Oracle ATG Web Commerce, Oracle Endeca Commerce, and Oracle Database applications.

dcVAST wanted to be able to bring on new customers quickly, easily, and cost effectively. This became more challenging over time due to rising license costs, multivendor management, and lack of scalability. For example, if Cintron brought on an ESX server, there was additional licensing related to VMware Enterprise Edition that would trigger a budget increase. Other scalability concerns included core count and Red Hat’s per-socket pricing model.

In addition, customer requirements were increasingly diverse, posing potential future complexities and added cost. Cintron wanted to be able to offer different aisle characteristics, such as protocols, for computing power. “If a customer asked for Fibre Channel on a couple of blades, it would be possible, of course, but potentially cumbersome to implement and support,” said Cintron. “We are always looking for increased speed-to-performance and ease of implementation, especially when it concerns customers’ uptimes and budgets.”

Concerns about cost, scalability, and multivendor support led Cintron’s team to define requirements and search for a more elegant solution.

New Solution Selection

Cintron’s team identified requirements in areas of cost, scalability, tools, and support. Since dcVAST’s model is to fully test solutions prior to rolling them out to customers, the team members wanted to implement the solution internally as a use case.

“The definitions for requirements were based on what dcVAST offers today with VMware and Dell functionality and what the new platform should look like in view of our marketing around Oracle ATG Web commerce, along with potential benefits of Oracle licensing,” explained Cintron. Additionally, Cintron and his team looked at the monitoring and management tools, as well as automation initiatives, which could help bring on platforms as fast as possible for customers.

The dcVAST team assessed both single-vendor and multivendor solutions from all the highest-quality providers such as Dell, Cisco, Red Hat, Oracle, and VMware (Hypervisor). The team was especially interested in assessing “apples to apples” solutions.

The team also was concerned about providing scalable solutions that enabled customers to pay for what they needed and used versus being required to implement functionality that, though potentially
valuable, might be more than the customers needed or more than the customers had the bandwidth to use.

Commented Cintron, “We continually ask ourselves, are customers using 100 percent of the features they are paying for? In many cases they are not. Sometimes we can help them gain more value by helping them ‘unlock’ these features. But in other cases, the features are either outside their requirements or are simply ‘nice to haves’ and not mission critical. At first, we were hesitant to look at Oracle since we thought this would force customers to pay for more features and functionality than many customers needed, but we found the opposite to be true. Oracle VM is designed for enterprise applications, and the features and tools are exactly in line with our needs, at a cost-effective price. The solution lets us add functionality to match customer usage needs, so they are only paying for what they are using. In addition, Oracle is bringing on more capabilities all the time.”

Detailed analysis showed the Oracle solution, consisting of Oracle’s Sun x86 servers with Oracle Linux, Oracle VM, and Oracle Enterprise Manager 12c, could lower TCO by 50 percent compared to the Cisco and VMware solution. Given the strength of the TCO opportunity, the dcVAST team extended the Oracle evaluation with a proof of concept, which proved:

- Virtualization functionality of the Oracle solution was very similar to VMware.
- I/O capabilities of Oracle’s blade technology surpassed those of other vendors.
- Scalabilities of Oracle VM exceeded what VMware could deliver.
- Oracle Linux offered better scalability, reliability, and performance at a much lower cost than Red Hat.

Consideration of Oracle’s storage, a key component of scalability, was deferred because dcVAST had already selected a black box unified storage platform.

As to the final requirement, support, Cintron gave Oracle an A+. “We’ve been an Oracle partner for more than 20 years, so we are very familiar with their excellent level of support and their proactivity to help us support our customers,” said Cintron.

After evaluating the solutions against the requirements, the dcVAST team selected Oracle’s Sun x86 systems, which include, at no extra charge, a choice of operating system, virtualization, storage, blades, and 10 GbE.

The Oracle Solution

The Oracle solution supports the same Web commerce and database applications as the previous solution. The initial configuration, which has evolved, included:

- Oracle’s Sun Blade 6000 modular systems (x86), which allow mixing and matching of processors, operating systems, and I/O within the same footprint. Vertical integration delivers high-density performance.
- Oracle’s enterprise cloud infrastructure architecture, which provides a single-vendor solution for the entire hardware and software stack, is designed for rapid deployment.
Oracle Linux, with its Unbreakable Enterprise Kernel, offers 128,000 compute hours of testing per day on Oracle hardware for maximized uptime and offers the benefits of the latest Linux innovations. Oracle Linux is the only operating system to offer zero-downtime patching.

Oracle VM, which offers 4x the scalability of competitive offerings, and a lower cost for server virtualization for heterogeneous applications.

Oracle Enterprise Manager, which is Oracle's complete cloud lifecycle management solution. It is the industry’s first complete solution that includes self-service provisioning balanced against centralized, policy-based resource management, integrated chargeback and capacity planning, and complete visibility of the physical and virtual environment from applications to disk.

Oracle Enterprise Manager Ops Center 12c, which provides a comprehensive solution for operating system, firmware and BIOS configuration, bare metal and virtual machine provisioning, hardware fault analysis, automatic My Oracle Support service request generation, and performance management, all while leveraging integrated diagnostics with automatic server pool resource policies. Certain capabilities strengthen the abilities of Oracle Enterprise Manager 12c to establish, manage, and support enterprise-quality clouds delivered in an IaaS model.

The dcVAST team implemented the Oracle solution and described it as easy and intuitive based on the Oracle deployment documentation. A team of three architecture and software engineers spent less than three weeks to complete the implementation, which included an entire data center move.

“The implementation process was straightforward and, par for the course, Oracle’s support and documentation were user friendly and exceptional,” said Cintron. “Nothing unusual came up, and after implementation, everything worked as expected.”

Solutions similar to the one developed for dcVAST also are available as an Oracle Optimized Solution for Enterprise Cloud Infrastructure.

Figure 1. Oracle Optimized Solution for Enterprise Cloud Infrastructure.
Benefits of the Oracle Solution

Substantially Lower TCO

Six months after implementation, the Oracle solution is on track in delivering 50 percent TCO savings based on the low acquisition cost and ongoing operational efficiencies. Oracle’s virtualization, operating system, GUI-based management tool, and support are included at no extra charge, and Oracle’s licensing policy enables further savings—as compared to the previous configuration. See Figures 2 and 3.

With respect to virtualization, Cintron said, “The fact that Oracle VM and the Hypervisor are included means there is less cost to our customers. Also, our engineering staff finds the Oracle Enterprise Manager Ops Center, which includes a patch management tool, especially useful. Without it, we would have had to buy another product or cascade into operating system management around Red Hat. We need to run a supported Linux environment and be able to rely on security fixes and patch fixes, and now this is part of the solution with Oracle hardware. This is a valuable added benefit for us and our ability to service our customers.”

Another contributor to TCO is the speed at which dcVAST’s customers can be provisioned, primarily due to virtual templates and predefined VMs. The Oracle solution allows the dcVAST team to develop an implementation methodology enabling turnkey implementation and delivery of the Oracle enterprise cloud infrastructure as a service in as little as a week. “The use of Oracle Enterprise Manager Cloud Control makes provisioning even sweeter,” said Cintron. “It’s the key to a fully automated stack that can give our customers basically A to Z at the click of a button.”

In addition, Oracle Linux support is included with the Oracle solution. Part of the Oracle Linux support offering, Unbreakable Linux Network (ULN) is a comprehensive resource for Oracle Linux support subscribers, offering access to Linux software patches, updates, and fixes. Oracle Linux support also comes with Oracle’s Ksplice zero-downtime updates, making it possible for dcVAST to keep up with important Linux updates without burdening system administrators with the operational cost and disruption of rebooting for every update to Linux.

As a result, the dcVAST team saves a lot of time in the Linux environment. In addition, any bug fix from Oracle works up and down the stack so layers don’t have to be fixed individually. One dcVAST engineer said, “This is ten times easier than before.”

As these and other new Oracle features and functions are brought on, Cintron believes that TCO could ramp up from 50 percent.
Compelling Sun x86 Systems Performance/Price

Cintron believes that x86 systems align with dcVAST’s, Oracle’s, and the customers’ shared goals and priorities.

“For me, it’s about flexibility,” Cintron commented. “When we made the decision to go with Oracle, we saw a strategy that’s about tools, functionality, bundling, giving customers easier choices, and, an ability to tightly control costs. That was a game changer. The Oracle Enterprise Manager Ops Center manages the entire stack. Using it, we have considerable control of the OS, especially as compared to some point solutions we assessed.”
The Sun x86 systems are designed to run the most demanding clustered databases and virtualized applications. Studies have shown that Sun x86 systems utilizing Oracle’s complete “red stack” greatly increase productivity:

- Reduce time and labor by up to 68 percent by automating administration and maintenance.
- Speed up implementations by up to 50 percent with automated testing and provisioning.
- Reduce unplanned downtime by up to 30–90 percent due to policy-based monitoring and management.

Figure 4. Oracle’s “red stack.”

Superior Virtualization

According to the dcVAST engineers, the conversion to Oracle VM was even easier than they expected. Additionally, they find Oracle VM to provide a long list of benefits:

- The interface is easily navigated.
- Configuration of storage repositories is straightforward.
- Virtual networking configuration is straightforward and efficient.
- Oracle VM Server updates with Yum are easily manageable.
- Provisioning with Oracle VM is simple and not convoluted.

Recently, dcVAST migrated several customers from another virtualization solution to the Oracle solution in a new data center. The team was able to export and migrate existing VMs in Open Virtualization Format and import them into Oracle VM without any issues. After the assemblies were loaded, it was just a few minutes before the VMs were up and running—all transparent to dcVAST’s customers.

No Limits on Scalability
dcVAST supports many types of customers whose future requirements and scale can be somewhat unpredictable. A small customer might need 30–50 cores and a half terabyte of memory. And a large customer? Cintron commented, “Since we also support Fortune 500 companies, I want to be able to say to all our customers, no matter their size or requirements, or whether it’s an immediate or potential need, that we can deliver, and we can do so cost effectively.”

Oracle continues to add pretested virtual templates and tools that help dcVAST bring up applications and provision customers faster. According to Cintron, the Oracle platform runs Windows and Red Hat as well as Solaris, and it’s a solution that can easily scale horizontally with an application like SAP. In his view “nothing stops dcVAST from scaling out.”

Moving Forward with Oracle Software and Storage

A few months after implementing the Oracle solution, Cintron’s team decided to move forward with Oracle Enterprise Manager Cloud Control, a feature of Oracle Enterprise Manager, and to do some testing with Oracle Fusion Middleware and Oracle’s Sun ZFS Storage Appliance.

The Oracle Enterprise Manager Cloud Control enhances dcVAST’s automation initiatives and does so cost effectively. “The key for us is building virtual templates and automation,” said Cintron. “Plus we are planning to deploy more Oracle software technology not only for us to host, but also to build on-premise solutions.”

The goal is to put control into the hands of end-users for at-will creation of systems. End-users can purchase the functionality they need, and they won’t need hand holding. This way, end-users are free to develop and go to market faster. This approach fits with dcVAST’s “unleash the power of your IT department” service model, which is designed to give customers the best possible combination of self-reliance and high-touch dcVAST support and service.

In addition to extending automation capabilities, dcVAST has begun field-testing Oracle Fusion Middleware, which provides a complete, open, and integrated approach across social, mobile, and cloud technologies. And, because Oracle’s Sun Blade 6000 modular systems support SPARC as well as x86, and dcVAST has some hybrid installations, SPARC testing is planned. Finally, Cintron’s team plans to conduct a proof of concept with the Sun ZFS Storage Appliance because its management hooks into Oracle VM are expected to simplify storage deployment and management for dcVAST’s customers.

Few Calls for Oracle Support

One of the advantages to running “all Oracle” is that there’s no room for finger pointing. This is an important selling point when Cintron talks with prospective customers. “We know and use My Oracle Support, but we really don’t call Oracle for support very often,” Cintron said. “The platform’s been running fine since launch, with no unplanned downtime. It just works. That’s huge for a service provider.”

If there is an issue, resolution happens faster because Oracle runs the same configuration used by dcVAST. Issues can be mimicked, analyzed, and diagnosed quickly.
Recommendations

Cintron summarized dcVAST’s experience with the Oracle solution, as follows:

- If you’re running Oracle software, look at the complete Oracle solution. There is an expression that states “Oracle runs better on Oracle.” Our experience proves that this is not just marketing talk. The tests speak for themselves.

- Oracle’s bundled solution, tools, automation capabilities, and scalability can reduce TCO dramatically.

- Oracle’s virtualization capabilities can simplify tasks, such as provisioning and configuring storage repositories.

- Since the Oracle platform can handle the full range of technologies, customers can increase flexibility and scalability.

- Customers and service providers can have confidence in Oracle’s Sun x86 systems and strategy.

Conclusion

Due to rising license costs, lack of scalability, complexity related to managing multiple vendors, and the need for greater flexibility, dcVAST decided to use Oracle’s Sun x86 systems to support Web commerce customers through IaaS.

Oracle’s Sun x86 systems deliver 50 percent lower TCO as compared to other assessed solutions, and they enable faster provisioning, as proved by multiple customer migrations.

Other benefits include:

- Superior virtualization functionality

- Unlimited scalability

- Superior I/O capabilities

- Reliability, with no unplanned downtime

“We knew to expect a robust, stable, and easy-to-support solution,” said Cintron. “We expected performance to be strong. What surprised us, to be honest, was the impressive short- and long-term cost effectiveness. And the ability to help our customers better control their own costs.”

In addition to TCO and performance considerations, Cintron’s team has experienced streamlined support that gives them more time to focus on proactive management of the environment, including dashboard reporting and quarterly updated patching.

Cintron summarized the overall experience by saying, “We were looking for the greatest combination of availability, support, cost effectiveness and, just as important, peace of mind. In all these cases, the Oracle solution didn't miss a beat.”
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Hardware and Software, Engineered to Work Together