

ALWAYS ON, ALWAYS AVAILABLE

Applied Innovations uses Dell and Microsoft products to build a Web-hosting offering that delivers high availability and scalability for up to 200 percent customer growth



In the highly competitive market for Web hosting and cloud computing services, Applied Innovations succeeds by staying ahead of the technology curve. The company strives to offer cutting-edge technology to its customers while also ensuring the reliability, scalability, and affordability that those companies require. That formula has yielded strong results. Applied Innovations has surpassed industry averages in customer growth year over year. Today the company hosts more than 25,000 Web domains, many of them for e-commerce businesses.

SOLUTIONS

- BACKUP/RECOVERY/ARCHIVING
- CLUSTERING
- CONSOLIDATION
- VIRTUALIZATION



CUSTOMER PROFILE

COUNTRY: United States
INDUSTRY: Technology
FOUNDED: 1999
NUMBER OF EMPLOYEES: 25
WEB ADDRESS: www.appliedi.net

CHALLENGE

Gain a competitive edge in the tight Web-hosting marketplace by launching an affordable new virtual private server (VPS) offering that delivers high availability and scalability for e-commerce customers.

SOLUTION

Applied Innovations built a virtualized environment for the VPS offering by running Microsoft® Windows Server® 2008 with Hyper-V™ technology on Dell™ PowerEdge™ servers, connected to a Dell PowerVault™ storage area network (SAN) with Dell PowerConnect™ switches.

BENEFITS

Get IT Faster

- Deployed the new service in just one month, helping to give the company a competitive edge in the marketplace
- Enabled customers to add new virtual private servers in 30 minutes instead of the three days required for dedicated hosting

Run IT Better

- Met demanding e-commerce requirements by creating an "always on, always available" environment

Grow IT Smarter

- Enhanced competitive position in tough economic times with a new offering that saved US\$80,000 on hardware acquisition and will achieve a six-month return on investment
- Prepared for up to 200 percent customer growth





HOW IT WORKS

HARDWARE

- Dell™ PowerEdge™ 2950 servers with the Intel® Xeon® processor 5400 series
- Dell PowerVault™ MD3000i storage area network (SAN)
- Dell PowerConnect™ 5424 switches

SOFTWARE

- Microsoft® Windows Server® 2008 with Hyper-V™ technology
- Microsoft System Center
- Dell OpenManage™

SERVICES

- Dell ProSupport
- Dell Deployment Services

“USING THE INTEL XEON PROCESSOR 5400 SERIES, THE DELL POWEREDGE 2950 SERVERS DELIVER THE PERFORMANCE WE NEED TO HOST MULTIPLE E-COMMERCE SITES ON EACH PHYSICAL MACHINE. OUR CUSTOMERS—AND THEIR CUSTOMERS—EXPERIENCE EXCELLENT RESPONSE TIMES EVEN DURING HIGH TRAFFIC PERIODS.”

Wayne Lansdowne, chief systems architect, Applied Innovations

Recently, Applied Innovations decided to launch a new managed virtual private server (VPS) offering, hosted on a high-availability virtualized server environment, to provide customers with an alternative to the shared and dedicated hosting typically offered by other Web hosting providers. With a VPS, each virtual server resides in its own environment, yet multiple servers can share the same physical hardware. “VPS is the best of both worlds,” says Wayne Lansdowne, chief systems architect at Applied Innovations. “Our customers can enjoy the rapid deployment, ease of management, and affordability of shared hosting without sacrificing the high availability, scalability,

and security they have come to expect with dedicated hosting. We expect VPS to play a key role in the future of Web hosting.”

The VPS offering will also give customers—and Applied Innovations—a flexible and cost-effective way to accommodate changing business needs. “In the past, when e-commerce businesses needed to increase performance or storage for seasonal demand spikes or temporary promotions, they generally had to move from an inexpensive shared hosting account to a costlier dedicated environment,” says Jess Coburn, CEO of Applied Innovations. “Accommodating those rapid changes was

costly for those companies, and it was challenging for us as well. The VPS provides them and us with much greater flexibility.”

In designing the virtualized environment for the new offering, the Applied Innovations team needed servers that could deliver not only the performance to handle numerous e-commerce transactions but also the reliability to support an “always on, always available” solution. “Downtime costs our customers money, and it could cost us customers,” says Coburn. “We needed robust, reliable servers that could deliver the performance our customers demand for e-commerce while minimizing the possibility of downtime.”

“WE SAVED UP TO US\$80,000 BY SELECTING THE DELL POWEREDGE SERVERS AND DELL POWERVAULT MD3000I INSTEAD OF COMPETING SYSTEMS. THAT SAVINGS ENABLED US TO MOVE FORWARD WITH THE OFFERING DESPITE THE CURRENT ECONOMIC CONDITIONS. BY USING DELL HARDWARE, WE CAN PROVIDE OUR CUSTOMERS WITH A ROBUST AND AFFORDABLE SOLUTION, AND WE CAN GAIN A COMPETITIVE EDGE IN THE MARKETPLACE.”

Jess Coburn, CEO, Applied Innovations

To help ensure that high availability for the new environment, the Applied Innovations team decided to implement a storage area network (SAN). “By creating a virtualized environment with a SAN, we can enhance system availability significantly,” says Lansdowne. “If a server fails, the data on the SAN is automatically assigned to a new server and keeps the customer in business.”

A SAN could also help Applied Innovations enhance storage scalability while controlling costs. “Once you have maxed out the drives in a server, that’s as far as you can grow,” says Lansdowne. “With a SAN, we can scale the amount of space offered to each server and save money by buying diskless servers.”

APPLIED INNOVATIONS BUILDS THE VPS OFFERING WITH MICROSOFT HYPER-V AND DELL SERVERS

The Applied Innovations team adopted the Hyper-V technology offered with Microsoft Windows Server 2008 to create the virtualized environment. As a Microsoft hosting partner and Microsoft Gold Certified partner, Applied Innovations has deep Microsoft expertise that helped facilitate an easy transition to managing a virtualized environment. “By implementing Microsoft Hyper-V technology, we could avoid the cost and steep learning curve of other virtualization software,” says Lansdowne. “As a result, we can offer our customers an affordable VPS option quickly, and we can gain a competitive edge.”

The Applied Innovations team chose Dell PowerEdge servers for the new Hyper-V environment to capitalize on the servers’

reliability and performance. The company had standardized on Dell servers three years earlier after frustrating experiences with white-box solutions. “With our previous servers, we were frequently faced with incompatible components, slow and incorrect shipments, and high failure rates. We spent too much time and money fixing problems, and it took us too long to deploy new servers,” says Lansdowne. “By working with Dell, we have virtually eliminated compatibility issues and failures, and we have significantly reduced the time for new server deployment from days to just hours. Now we can respond to customer requests for new services much more quickly than before.”

The reliability of the Dell PowerEdge servers helps Applied Innovations deliver the consistent uptime it promises to customers. “We offer a 100 percent guarantee for our customers—they do not pay for downtime,” says Coburn. “The redundant components and thoroughly tested configurations of the PowerEdge servers provide the reliability that we need to honor our service-level agreements and keep our customers up and running.”

The Dell PowerEdge servers also provide outstanding performance for the virtualized environment. “Using the Intel Xeon processor 5400 series, the Dell PowerEdge 2950 servers deliver the performance we need to host multiple e-commerce sites on each physical machine. Our customers—and their customers—experience excellent response times even during high traffic periods,” says Lansdowne.

DELL SAN PROVIDES AVAILABLE AND SCALABLE STORAGE

To provide the shared storage for the new environment, the Applied Innovations team chose the Dell PowerVault MD3000i SAN. The SAN is connected to the servers using Dell PowerConnect 5424 switches. The Applied Innovations team chose the Dell SAN in part because it could meet the company’s requirements for availability and scalability at a low price point. “We evaluated storage solutions from several vendors, but it was clear that the Dell MD3000i SAN provides the biggest bang for the buck,” says Coburn. “While other solutions could offer some of the benefits of the MD3000i, they often cost three or four times the price of this Dell SAN.”

The MD3000i includes several high-availability design elements and capabilities that help Applied Innovations ensure e-commerce uptime. “With dual active/active controllers, dual power supplies, and the ability to implement redundant server paths, the Dell PowerVault MD3000i helps keep our e-commerce customers online even if a component fails,” says Lansdowne. “If a drive fails, the SAN’s automated drive failure protection starts up a hot spare drive automatically and then rebuilds data. We also added snapshot capabilities—a premium offering—so we can make fast, space-efficient backups to ensure that our customers’ data is protected.”

The Dell MD3000i is configured with 4 TB of usable capacity, but that capacity can be scaled easily as the company continues to add virtual

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Wayne Lansdowne, chief systems architect, Applied Innovations

private servers for customers. “If we outgrow our current unit, we can quickly add an MD1000 array. We just plug a cable from one unit to another and we instantly increase our capacity,” says Lansdowne. “With the ability to add up to two additional arrays, this system provides plenty of scalability. We can add numerous customers and servers before we need to make a significant investment in more storage.”

By capitalizing on Internet SCSI (iSCSI) technology, the MD3000i also facilitates fast deployment and simple management. “The iSCSI connectivity played a key role in our decision,” says Lansdowne. “With the MD3000i, we didn’t have to build a new fiber infrastructure or hire administrators with specialized Fibre Channel SAN skills. We could use our existing network and our existing skills.”

Applied Innovations worked with Dell Deployment Services to use best practices for the design and implementation of the MD3000i. “We were very impressed with the knowledge and professionalism of the entire Dell team,” says Lansdowne. “We gained a storage solution that fits our needs and our infrastructure, and with help from Dell, we were able to deploy it in just a few hours.”

APPLIED INNOVATIONS CONFIGURES THE NEW ENVIRONMENT IN JUST ONE MONTH

By working with teams from Dell and Microsoft, Applied Innovations was able to acquire the right equipment and configure it quickly for the launch of the new offering. “Dell provided an inside support person who guided us through the configuration process and shared best practices based on our needs,” says Lansdowne. “We were able to bring the whole environment up

and running—from servers and switches to the SAN—in just one month instead of the several months it might have taken with multiple vendors and more complex technologies.”

The new Microsoft Dynamic Data Center Toolkit helped accelerate deployment. The Toolkit provides step-by-step instructions, best practices for provisioning and management, customizable marketing materials, and sample code and demos to use in the deployment. “With the Microsoft Dynamic Data Center Toolkit, we had the tools we needed to set up the new environment and produce a successful launch of our new offering,” says Coburn.

VPS PROVIDES AN ALWAYS ON, ALWAYS AVAILABLE SOLUTION

By using a virtualized Hyper-V server environment with shared storage to host the VPS offering, Applied Innovations can provide the high availability that e-commerce customers require. “With Hyper-V virtualization and the Dell SAN, it is simple to move virtual machines from one physical host to another in the event a component fails or another problem arises,” says Coburn. “We can minimize the threat of downtime and provide a true ‘always on, always available’ solution.”

APPLIED INNOVATIONS SAVES UP TO US\$80,000 AND ACHIEVES A SIX-MONTH RETURN ON INVESTMENT

By selecting Dell hardware for the new VPS environment, Applied Innovations was able to deploy this new offering even in difficult economic times. “We saved up to US\$80,000 by selecting the Dell PowerEdge servers and Dell PowerVault MD3000i instead of competing systems,” says Coburn. “That savings enabled us to move forward with the offering despite the current economic conditions. By using Dell hardware,

we can provide our customers with a robust and affordable solution, and we can gain a competitive edge in the marketplace.”

Given the potential demand for the VPS solution, the Applied Innovations team anticipates a swift return on investment. “Our conservative estimate is that we will earn our investment back within four to six months,” says Coburn.

DELL-BASED INFRASTRUCTURE PROVIDES SCALABILITY FOR AT LEAST 200 PERCENT GROWTH

With the current configuration, the Applied Innovations team has plenty of room for customer growth. “Clearly, we want to maximize the number of customers using our solution,” says Coburn. “We can currently accommodate more than 100 virtual private servers in this environment, but by adding storage arrays to the MD3000i, we could easily expand to 200 or 300 before we would have to move to a larger Dell storage solution.”

Because customers can add multiple virtual private servers cost-effectively, the Applied Innovations team anticipates that the number of server requests will rise even faster than the number of new customers. “A single customer could add numerous virtual machines—one Web server, others for back-end application servers,” says Lansdowne. “Businesses already see the value in this solution, and we’re prepared to accommodate the subsequent demand.”

APPLIED INNOVATIONS REDUCES TIME TO DEPLOY SERVERS FROM THREE DAYS TO 30 MINUTES

With the virtualized environment, the Applied Innovations team can now add new customers or respond to requests for new servers more quickly and cost-effectively than before. “In the past,

it might have taken us three days to add a new physical server for a dedicated hosting request," says Lansdowne. "Now we can add a VPS in under 30 minutes. Our customers can add a test or production environment in no time and without much cost to us."

The Applied Innovations team has been able to streamline new VPS deployment by adding the virtual disk copy feature to the MD3000i—another premium offering. "The virtual disk copy feature enables us to keep a master image of each of our virtual machine types on the SAN," explains Lansdowne. "To deploy a new virtual machine, we use the copy and deploy it quickly, without having to build and deploy a new virtual machine for each new request."

NEW ENVIRONMENT PROVIDES A FRAMEWORK FOR FUTURE PROJECTS

Through the deployment process, the Applied Innovations team saw the value of working with trusted partners whose technologies are well integrated with one another. "The teams from Dell and Microsoft helped provide a single, integrated solution," says Lansdowne. "The Dell PowerEdge servers, PowerConnect switches, and PowerVault storage provided an end-to-end

hardware platform that fit well with our existing infrastructure. And the strong integration of Microsoft System Center management software with the Dell hardware helps us manage the entire infrastructure from a central point of command. We also know that in the event of problems, we can work with Microsoft and with Dell ProSupport to resolve issues quickly."

Looking ahead, the Applied Innovations team will use the new environment as a model for deploying additional services. "We plan to build more virtualized clusters based on Hyper-V, Dell PowerEdge servers, and the Dell PowerVault MD3000i SAN for both customer offerings and internal services," says Coburn. "With Dell and Microsoft, we can achieve that 'always on' availability our customers require and continue to deliver innovative solutions to retain our competitive edge."

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