



MaximumASP

Overview

Country or Region: United States

Industry: Professional services

Customer Profile

MaximumASP provides Windows®-based Web hosting and managed IT services. Based in Louisville, Kentucky, MaximumASP has 35 employees and hosts 48,000 domains in more than 60 countries.

Business Situation

MaximumASP wanted to expand its services without sending data center costs soaring. Also, constant server provisioning and management were hurting business flexibility, innovation, and customer service.

Solution

MaximumASP is using Hyper-V™ virtualization technology in the Windows Server® 2008 operating system to consolidate servers, and Terminal Services to give customers easy access to their hosted servers.

Benefits

- Improved customer service
- Low-cost high availability
- Lower data center costs
- Improved server utilization
- Enhanced security

Hosting Company Implements Virtualization to Expand Services and Cut Operations Costs

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Chris Morrow, Chief Information Officer, MaximumASP

Based in Louisville, Kentucky, MaximumASP is a Web-hosting company that prides itself on its innovative offerings and outstanding customer service. The company’s growth, however, led to a proliferation of servers that took increasing amounts of time to provision and manage, pulling staff away from researching new services and hurting business agility. MaximumASP is now using the Windows Server® 2008 operating system with Hyper-V™ technology to consolidate servers and offer more flexible and competitive products, such as high-availability clusters and self-service server provisioning. The company anticipates saving U.S.\$350,000 in hardware costs by virtualizing 200 servers, in addition to saving on power and IT management costs. MaximumASP is also using Microsoft® System Center Virtual Machine Manager 2008 to streamline server deployment and management.

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Situation

Founded in 2000, MaximumASP provides Windows®-based Web hosting and managed IT services. The Louisville, Kentucky-based company has grown rapidly by strategically seeking customer feedback and continuously introducing new offerings. Today, MaximumASP has 35 employees and hosts more than 48,000 domains for customers in more than 60 countries. The company provides comprehensive network protection, automated server patching, and advanced server monitoring on more than 2,400 servers.

Web hosting has become extremely competitive and even commoditized in many parts of the world. “There’s tremendous market pressure to come up with new products, yet pricing tends to be commoditized in the hosting space, which makes it difficult to be competitive,” says Chris Morrow, Chief Information Officer for MaximumASP. “To offer new services, we have to add hardware, which raises costs.”

As MaximumASP became more successful, its server holdings skyrocketed. “We started out with one tiny rack of six Dell servers, and today we have rows and rows of servers,” says Dominic Foster, Chief Technology Officer for MaximumASP. As the number of servers increased, they created a drag on the bottom line and an impediment to innovation. “Our staff spent increasing amounts of time provisioning new servers, decommissioning unneeded servers, and managing servers,” Foster says. “Before we expanded the business further, we needed to get server proliferation under control.”

Deploying each new server took roughly four hours, and MaximumASP deployed hundreds more servers each year. Lengthy server deployment times sapped staff productivity and hurt business agility. “We couldn’t respond as quickly as we wanted to customer

needs or competitor moves, because it took so long to scale our infrastructure,” Foster says. “Also, the time spent provisioning servers and managing hardware hindered our staff from researching new services and working with customers to better meet their needs.”

MaximumASP also wanted to reduce the rising cost of physical servers and the related real estate and power costs. The company was spending thousands of dollars every year on new hardware, software licenses, and electrical power, and wanted to avoid outgrowing its Louisville data center and having to build another. Funding dozens of new servers each year was especially hard to swallow when most of the company’s 2,400 servers operated at low capacity. “Customers usually order more server horsepower than they need, to meet peak performance requirements, but average server utilization was about 5 percent,” Foster says. “We wanted to be able to set up a server and dynamically add processing power as it is needed.” That kind of dynamic scaling was hard to do in a physical server environment because of the time needed to deploy and reboot servers.

MaximumASP had used Microsoft® Virtual Server 2005 and the Parallels Virtuozzo server virtualization product to consolidate some servers. However, there was a limit to the types of servers MaximumASP could virtualize with these technologies because of their lack of support for multiple processors, clustering, 64-bit applications, and hypervisor technology.

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Dominic Foster, Chief Technology Officer,
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Solution

When Microsoft announced the Windows Server® 2008 operating system with Hyper-V™ technology, MaximumASP was one of the first in line to try it. Hyper-V is a server virtualization technology built into Windows Server 2008 that eliminates the need for third-party virtualization software. “We liked the cost-effectiveness of Hyper-V, its support for multiprocessor servers and clustering, and its familiarity,” Foster says. “Plus, we already had a heavy investment in Microsoft System Center management solutions and could use those programs to back up, monitor, and manage Hyper-V-based virtual servers.”

Another factor supporting the MaximumASP move to Hyper-V was the strong support from Microsoft and the greater Microsoft community. “There’s a large network of people that you can turn to for ideas and help,” Foster says.

In April 2008, Microsoft invited MaximumASP to join the Microsoft Go-Live program, which helps Microsoft partners gain access to early-release software. As program participants, MaximumASP received help in setting up Windows Server 2008 with Hyper-V and training its staff. “The Microsoft Go-Live program gave us an easy way to be in touch with Microsoft while we were evaluating Hyper-V and to provide input to product teams that were fine-tuning the product,” Morrow says. “We delivered a lot of feedback and felt that our input was valued. The Go-Live program has been important in building relationships with Microsoft and giving us access to Microsoft virtualization experts.”

Early Consolidation Results

In early 2008, MaximumASP deployed Windows Server 2008 Enterprise and Windows Server 2008 Datacenter with Hyper-V on 20 physical servers in a Server Core configuration. Server Core is a Windows

Server 2008 installation option that enables customers to install a pared-down operating system to reduce performance overhead and the attack surface.

MaximumASP is currently running 5 to 10 virtual machines on each physical server. The virtual machines run a combination of the Windows Server 2003 Standard and Enterprise operating systems and a variety of workloads, including Microsoft SQL Server® 2008 data management software, Internet Information Services 6, Microsoft Exchange Server 2007 messaging, and multiple application servers. In one area of its business alone, MaximumASP was able to consolidate 40 physical servers down to 5.

The company has identified another 200 servers that are easy physical-to-virtual (P2V) migration candidates and anticipates achieving an 8:1 consolidation ratio (eight virtual machines running on each physical server). Long term, MaximumASP will continue to make upgrades to its virtual server model.

MaximumASP exclusively uses Dell hardware in its data center because of Dell’s reliability, innovation, and support. The Hyper-V-based servers are Dell PowerEdge 1950 computers, each with two Quad-Core Intel Xeon processors and 16 gigabytes of RAM. “The reliability of Dell hardware has contributed to our rapid growth,” Foster says. “Instead of worrying about servers going down, our engineers can spend time innovating new and better products for our customers.”

Tools for Virtualization Management

MaximumASP uses Microsoft System Center Virtual Machine Manager 2008 to manage its virtual landscape. With System Center Virtual Machine Manager 2008, IT staff can centrally provision and maintain virtual machines using the familiar Windows interface. “P2V migration is very easy with the new software,

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and Intelligent Placement is a nicely evolved feature,” Foster says. Intelligent Placement analyzes performance data and resource requirements for a new virtual machine and makes deployment recommendations.

MaximumASP has plans to use System Center Virtual Machine Manager 2008 in conjunction with other System Center programs to achieve server management efficiencies. For example, it will use System Center Data Protection Manager 2007 to back up virtual and physical servers, System Center Operations Manager 2007 to monitor virtual and physical servers, and System Center Configuration Manager 2007 to configure and tune virtual machine performance.

MaximumASP took advantage of the Server Management Suite Enterprise licensing arrangement to obtain all these Microsoft System Center programs in one package. “All the components purchased individually were cost-prohibitive for us,” Foster says. “With this new bundle, we can completely manage our environment with a single family of tools.”

Easy Remote Access through Presentation Virtualization

Always looking for new ways to give customers more control over their hosted servers, the company uses Terminal Services in Windows Server 2008 to virtually present specific applications running on its servers. For example, in November 2007, MaximumASP released the beta version of Microsoft SQL Server 2008 in a hosted environment to give first movers in the SQL Server developer community an opportunity to try the new database for free. By using Terminal Services, MaximumASP could provide its customers with access to their MaximumASP-hosted database servers and let them manage the servers remotely.

MaximumASP continues to use Terminal Services to give customers easy remote access to their applications. MaximumASP presents the server management console across a network using the Remote Desktop Connection. Running on a client computer, this software communicates with Terminal Services using the Remote Desktop Protocol (RDP), sending only key presses, mouse movements, and screen data. RDP also encrypts traffic, allowing more secure access to applications.

Benefits

By taking advantage of Hyper-V and Terminal Services in Windows Server 2008, and Microsoft System Center Virtual Machine Manager 2008, MaximumASP is using virtualization to expand services, increase business agility, improve customer service, lower costs, and enhance security.

Improved Customer Service and Business Opportunity

Evaluating Windows Server 2008 with Hyper-V as part of the Microsoft Go-Live program made it possible for MaximumASP to get an early competitive lead on new services and hosting capabilities. “We were proactive with virtualization because our data centers were filling up, but we also polled customers and heard that they were eager to explore it,” Foster says. “Now that we’ve proven the production-readiness of Hyper-V, we are busy scoping out new virtualization services that will make us and our customers more competitive.”

One idea is to offer a low-cost starter-server offering that runs on virtual machines rather than on physical servers. MaximumASP could host multiple customers on one physical server, increasing revenues and lowering infrastructure costs.

“High-availability services are another revenue opportunity for us and provide a huge benefit to our customers. Instead of customers having to purchase two servers and license two operating systems, we can include high availability in the price of our standard offering.”

Dominic Foster, Chief Technology Officer,
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Another idea is to give customers the ability to configure hosting services online, on-demand. “Using Hyper-V, customers could deploy and decommission their own virtual machines online, as needed, on the fly,” Morrow says. “For example, if a customer needs 100 servers for a project, they, or we, could roll the servers out in minutes. We wouldn’t have to order and provision 100 physical servers, which could take weeks. The sooner we can put servers in customers’ hands, the better. Instead of a two or three-day turnaround, we can deliver a server in minutes. This helps our customers meet their business objectives faster.”

By implementing new hosting offerings on virtual machines, MaximumASP can quickly, easily, and cost-effectively scale its offerings depending on customer demand. “If a new service turns out to be more popular than we’d anticipated, we can scale up servers in minutes,” Foster says. “Conversely, if a service is less popular than anticipated, we can quickly scale back or decommission servers. We won’t have invested in a whole rack of physical servers.”

The use of Windows Server 2008 Terminal Services to enable customers to remotely log on to their MaximumASP-hosted servers gives customers finer control over their hosted solutions and better secures their remote access. MaximumASP is also able to provide customers with the latest version of applications without customers having to uninstall or reinstall software.

Low-Cost High Availability

MaximumASP plans to take advantage of the clustering capabilities of Hyper-V in the Windows Server 2008 Enterprise and Datacenter editions to provide customers with low-cost, high-availability services. “We can use Hyper-V to create low-cost highly available services, because we can now put multiple customers on a single cluster

instead of building dedicated clusters for each customer,” Morrow says. “Virtual machines can fail back and forth across those machines to achieve high availability.”

MaximumASP wants to set up a 16-node cluster to provide node fault tolerance. It would use Windows Server 2008 Network Load Balancing to distribute the processing loads across the nodes. “We already use clusters for larger customers, primarily to provide more application performance; however, Hyper-V will enable us to use clusters to improve uptime for all customers,” Foster says. “If a hardware node in a cluster fails, the virtual machine running that customer’s application will automatically come up on another node. High-availability services are another revenue opportunity for us and provide a huge benefit to our customers. Instead of customers having to purchase two servers and license two operating systems, we can include high availability in the price of our standard offering. This will help us grow our business and encourage existing customers to add new services.”

Lower Data Center Costs

By consolidating 40 servers to 5, MaximumASP reduced a 46U-sized rack to a 5U rack, reduced electrical power by 50 amps, and reduced operating system licensing costs by U.S.\$7,000 annually. The more money that MaximumASP saves in its data centers, the more it has to invest in new services and customer support.

In its next phase of server consolidation with Hyper-V, MaximumASP plans to consolidate 200 servers. “With a consolidation ratio ranging from 4:1 to 8:1, this could potentially lead to hardware savings of up to \$350,000,” Morrow says. “We also get a much more efficient use of data center floor space.”

“We have seen server provisioning times drop from four hours to less than one hour. Virtualization also reduces the amount of support that a new server requires.”

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Fewer physical servers yields a reduction in server management time. “We have seen server provisioning times drop from four hours to one less than one hour,” Foster says. “Virtualization also reduces the amount of support that a new server requires. Using System Center Virtual Machine Manager 2008 features such as the P2V migration tools and Intelligent Placement really simplifies virtual machine management.”

MaximumASP estimates that a combination of hardware and management savings has yielded a three-month return on its Windows Server 2008 investment.

Improved Server Utilization

Average server utilization has increased from 5 percent for physical servers to 65 percent for Hyper-V-based virtual machines. If one virtual machine’s processing load becomes too heavy, MaximumASP can easily move the workload to another virtual machine. “With Hyper-V, we are better able to optimize server resources,” Foster says.

Overall application performance has also improved because of the Hyper-V support for multiple and multicore processors. “I’ve moved applications from Virtual Server 2005 to Hyper-V-based servers containing more processing power and memory and seen great improvements in application performance,” Foster says. “You can throw more resources at Hyper-V.”

Enhanced Security

MaximumASP has found that Hyper-V enhances server security through a combination of features. First, Hyper-V can take advantage of newer hardware-level security features such as Execute Disable Bit, which prevents execution of the most prevalent viruses and worms. Also, because Hyper-V is a streamlined, lightweight software layer, it presents a smaller attack surface than other virtualization solutions. Also, with

Hyper-V, MaximumASP can set up a private network on a physical server in which the Web server is able to communicate with a database server. This allows the company to isolate the database server from contact with the public Internet.

More Virtualization Possibilities

MaximumASP has clearly demonstrated the benefits of virtualization to reduce data center costs, give the business more flexibility and agility, and dynamically meet customer needs. The company is eager to explore other Microsoft virtualization technologies to optimize its infrastructure and provide even greater customer convenience. Currently, it is exploring application virtualization as a way to give customers early online access to new MaximumASP features and services.

“We’re focusing on Hyper-V and Terminal Services right now, but we like what Microsoft is doing with application virtualization,” Morrow says. “The Microsoft virtualization story is looking better and better every day. We’re all about putting more control in customers’ hands, and virtualization is helping us do that.”

For More Information

For more information about Microsoft products and services, call the Microsoft Sales Information Center at (800) 426-9400. In Canada, call the Microsoft Canada Information Centre at (877) 568-2495. Customers who are deaf or hard-of-hearing can reach Microsoft text telephone (TTY/TDD) services at (800) 892-5234 in the United States or (905) 568-9641 in Canada. Outside the 50 United States and Canada, please contact your local Microsoft subsidiary. To access information using the World Wide Web, go to: www.microsoft.com

For more information about MaximumASP products and services, call (866) 925-4678 or visit the Web site at: www.maximumasp.com

Microsoft Virtualization

Microsoft virtualization is an end-to-end strategy that can profoundly affect nearly every aspect of the IT infrastructure management lifecycle. It can drive greater efficiencies, flexibility, and cost effectiveness throughout your organization. From accelerating application deployments; to ensuring systems, applications, and data are always available; to taking the hassle out of rebuilding and shutting down servers and desktops for testing and development; to reducing risk, slashing costs, and improving the agility of your entire environment—virtualization has the power to transform your infrastructure, from the data center to the desktop.

For more information about Microsoft virtualization solutions, go to: www.microsoft.com/virtualization

Software and Services

- Microsoft Server Product Portfolio
 - Windows Server 2008 Datacenter
 - Windows Server 2008 Enterprise
 - Windows Server 2003 Standard
 - Microsoft System Center Configuration Manager 2007
 - Microsoft System Center Data Protection Manager 2007
 - Microsoft System Center Operations Manager 2007

- Microsoft System Center Virtual Machine Manager 2008

- Technologies
 - Hyper-V
 - Terminal Services

Hardware

- Dell PowerEdge 1950 servers with two Quad-Core Intel Xeon processors and 16 gigabytes of RAM