



Hoster Uses Virtualization to Support Automation, Geo-Diversity, and Cost Savings

Overview

Country or Region: United States

Industry: Hosting

Customer Profile

Headquartered in Overland Park, Kansas, nGenX is a subsidiary of a telecommunications provider and has 25 associates dedicated to cloud computing at five data centers in the United States.

Business Situation

nGenX needed a more flexible virtualization solution to support its business plan to offer expanded cloud computing services.

Solution

nGenX used Windows Server 2008 R2 Datacenter and a System Center data center solution for its cloud computing solution that works with tools for customers to manage their virtual and physical servers.

Benefits

- Reduces costs
- Increases revenue
- Improves customer service
- Simplifies management
- Supports competitive-edge product

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Robert A. Bye, Executive Vice President and General Manager, nGenX

Since 2000, Microsoft Gold Certified Partner nGenX has been a pioneer in the on-demand IT services industry in the United States. Today, nGenX has built a new cloud computing offering that provides customers a single portal to manage virtual and physical environments hosted and/or co-located in nGenX’s five data centers. It is also finalizing development of a geo-diverse solution to support disaster recovery within its cloud computing infrastructure. Its existing virtualization solution had interoperability issues and was not a profitable platform to build on, so nGenX migrated to the Windows Server 2008 R2 Datacenter operating system and the Hyper-V virtualization technology. It plans to market its new cloud computing offerings on the Windows Server environment in 2010 and expects to add 1,000 virtual machines by the end of the year, while reducing support costs by up to 40 percent.



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Situation

nGenX provides a broad spectrum of outsourced IT services and operates under a business model that emphasizes customer service above all else. nGenX enables its customers, most of which are small to midsize businesses, to offload the burden of building and managing their IT resources so that they can focus on their core business strengths. To that end, nGenX needs to ensure the highest level of security and reliability. All of its services are Statement on Auditing Standards (SAS) 70 Type II certified, which signifies that nGenX processes and facilities are tested to ensure that its customers' data is protected. Five, state-of-the-art nGenX data centers are linked by a fiber network that belongs to its sister company. The network spans 26 states and more than 30,000 route miles.

To take advantage of hardware consolidation, nGenX had virtualized approximately 65 percent of its servers to run in the VMware ESX 3.5 environment.

Offering Cloud Computing

The company had reached a stage in its growth that prompted the IT department to evaluate how well its VMware solution supported the company's evolving cloud computing business strategy. For cloud computing, public hosters provide self-serve capabilities to customers so that they can manage their virtualized environments, including servers, storage, and network resources, to scale capacity up or down as their business requirements change.

“We had a vision to take advantage of our geographically dispersed data centers and network facilities and offer a hybrid approach to cloud computing that includes self-serve management of both virtualized and physical environments,” says Marc Spindt, Vice President and Chief Operating Officer at nGenX.

For its customers, nGenX could offer both hosted services for virtualized workloads and co-location of physical servers. “The key differentiator for nGenX would be providing customers with a single tool to manage both their virtualized and physical infrastructures, and the applications they support,” Spindt continues. “Our version of cloud computing would give customers the flexibility and autonomy to manage their own way down the path of virtualization, remaining at our facilities for the duration of the journey.”

Additionally, nGenX wanted to get ahead of the cloud computing market by capitalizing on the geo-diversity of its data centers. It wanted to expand its cloud computing product line to provide a replicated infrastructure offering for disaster recovery.

Evaluating Existing Virtualization Solution

Before it could achieve these goals, nGenX needed to address the viability of its VMware solution. “The VMware environment allowed us to virtualize a good percentage of our infrastructure that we used for hosted application services to our customers,” says Spindt. “However, the VMware platform required a lot of manual intervention for us to provision servers internally, and it didn't provide nGenX with any means of exposing to our customers any control over their systems.”

To make up for the shortcoming in regard to self-serve capability, nGenX deployed a provisioning solution from Microsoft Gold Certified Partner EMS-Cortex. The IT staff at nGenX uses it to provision servers, and nGenX customers use it as an interface to administer many of their virtualized workloads. “The provisioning solution from EMS-Cortex is key to our vision around cloud computing,” says Robert A. Bye, Executive Vice President and General

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Manager at nGenX. "We'd seen how the EMS-Cortex control panel benefitted our Exchange and data backup customers, and we thought it would work for building out our concept of cloud computing."

nGenX envisioned a single console from EMS-Cortex that its customers could use to manage virtual and physical servers, applications, and other resources such as storage and network resources. "However, VMware did not interoperate well enough with the EMS-Cortex solution for us to get more heavily engaged in a cloud computing environment," says Spindt. "There was also the cost factor. We needed to determine whether we should stay with VMware or find an alternative, more cost-effective virtualization platform that would integrate better with EMS-Cortex."

Solution

To meet its goals, nGenX chose to use Microsoft virtualization technologies to support its new cloud computing service offerings, called Guardian Cloud, with EMS-Cortex technologies as the core of its Guardian Control Panel for automation and provisioning. The company is leaving its existing VMware solution in place for internal purposes.

With the Microsoft platform, nGenX can offer Guardian Cloud as a fully automated cloud computing solution. Customers can use the Guardian Control Panel to select computing resources, such as processor speed, storage, and bandwidth, on demand. These resources are automatically provisioned through the Guardian Control Panel and available to the customer within seconds.

In 2010, nGenX will expand this product line to include a geo-diverse offering that replicates the virtual machines and will use a back-end storage solution from Microsoft

Gold Certified Partner NetApp for disaster recovery. The development of this offering would not have been possible without updating its systems to the Microsoft solution.

Choosing a Microsoft Virtualization Solution

nGenX made its decision to use a Microsoft virtualization solution in December 2009 and joined the Microsoft Dynamic Data Center Fast Start in January 2010. During this time, nGenX chose HP DL360 servers with Xeon Quad core processors as the hardware for the Hyper-V virtualization technology.

"Microsoft was much more willing to work with us on creating a cost-effective solution through the Microsoft Service Provider License Agreement," says Bye. With the Microsoft Service Provider License Agreement (SPLA) program, nGenX can license all the Microsoft products it needs for hosting software services and applications for its customers, including the Windows Server 2008 R2 Datacenter operating system. Software services are services that are provided to customers that display, run, access, or otherwise interact with Microsoft licensed products.

"We chose Windows Server 2008 R2 Datacenter edition because it offers low-cost licensing for large virtualized environments," says Spindt. "At the end of the day, we gained a simplified, more cost-effective licensing program."

Windows Server 2008 R2 includes the Hyper-V virtualization technology with the live migration feature, which provides high-availability cluster capabilities. "With Hyper-V, we saw a good progression of features and functionality over the last couple of years," says Spindt. "We were excited about the live migration feature because of the

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business value it brings: offering high availability and improved service level agreements that we can pass on to our customers.”

Other than cost, the driving factor for choosing Microsoft was the interoperability between Hyper-V and EMS-Cortex technologies that the company needed in order to include cloud computing within the Guardian Control Panel. “EMS-Cortex had recently completed a remote provisioning solution that works seamlessly with Hyper-V,” says Spindt. “We worked with EMS-Cortex and Microsoft to understand what it would take for the Hyper-V model to be installed at our data centers, which turned out to be a fairly straightforward process.”

Taking Advantage of Microsoft Tools

To boost its planned cloud computing capabilities, nGenX decided to take advantage of the Microsoft Dynamic Data Center Toolkit for Hosters. The toolkit provides guidance, sample code, and best practices to help hosters offer managed services with Hyper-V. And, to streamline management of the Hyper-V infrastructure, nGenX deployed the Microsoft System Center suite of products, including System Center Virtual Machine Manager 2008 R2 and System Center Operations Manager 2007 R2, that nGenX systems administrators can use to manage physical and virtual servers, as well as the VMware environment.

“We used the Dynamic Data Center Toolkit together with the provisioning piece from EMS-Cortex to bring all the elements together and provide the monitoring and automation capabilities we envisioned for our customers with the Guardian Cloud offerings,” says Bye.

Guardian Cloud capabilities include using a Web interface for customers to connect with their hosted virtual workloads in order to manage their cloud computing activities, such as adding or removing resources for both physical and virtual environments. It also enabled customers to monitor and manage their Microsoft products, such as Microsoft Exchange Server e-mail messaging and collaboration software, Microsoft SQL Server data management software, or Microsoft Office SharePoint Server 2007. “The EMS-Cortex solution interoperates with System Center data center solutions,” says Spindt. “That means we could offer customers access to System Center product capabilities, as well as all the cloud computing and application management capabilities, through our Guardian Control Panel, which operates as a single pane of glass.”

By March 2010, nGenX had completed equipment installation at its Evansville Indiana data center. Testing at this facility showed virtually no difference in performance between VMware and Hyper-V.

“Working with the folks at Microsoft and EMS-Cortex was a gratifying experience,” says Spindt. “Microsoft understood what we wanted to deploy and helped us tweak a little bit here and there to make our cloud computing offerings work more effectively with the tools that we had.”

“It has been our intention to keep the existing VMware solution until the licenses run out. But for our customer-facing cloud computing services, we’ll be provisioning servers exclusively with Hyper-V,” says Bye.

Building a Scalable Storage Architecture

To accommodate expected customer growth, nGenX relies on a scalable, redundant shared storage area network

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(SAN) solution from NetApp. For the Guardian Cloud product line, the storage available to the virtual machines is delivered by another highly redundant and fault tolerant NetApp system based on the iSCSI storage protocol. This storage networking standard links data storage facilities and facilitates data transfers over intranets and local or wide area networks.

Today, nGenX is working with NetApp to extend its Guardian Cloud product line with its geo-diverse, redundant cloud solution, Guardian GeoCloud, to be released in the third quarter of 2010. The two companies are building a proof-of-concept for automatically failing over a virtual machine from one data center to another in a real-world environment using two data centers approximately 500 miles apart and linked by a high speed, low latency Ethernet connection. Over the course of the next year, nGenX plans to have redundant facilities in all five of its data centers.

“Because we have multiple data centers, we could deploy mirrored clusters in different data centers, achieving a kind of geo-cloud computing environment tied together with our existing fiber network and a storage solution from NetApp,” says Tony Cariota, System Architect at nGenX. “Guardian GeoCloud will provide customers with an option to run their critical servers and applications in an environment that will be able to tolerate the failure of an entire data center with minimal to no impact to their mission-critical systems. Using geo-clustering with Hyper-V, together with replication and failover of our NetApp storage, nGenX will ensure that our customers have the option to select the highest level of availability anywhere.”

Benefits

By deploying a Microsoft virtualization solution, nGenX expects significant

business and technical benefits. These include reducing costs, increasing revenue, improving service, simplifying management, and building a market-leading geo-diversified cloud solution.

Reduced Costs

nGenX saved 33 percent in licensing costs by choosing the Microsoft SPLA program to acquire the Microsoft technologies it needed for expanding its cloud computing services. In addition to this initial cost savings, nGenX is projecting a labor cost savings. Over the years, the company had developed a set of criteria and business standards to ascertain when to add more support staff. Using this criteria to plan for staffing levels following the implementation of the Microsoft virtualization solution and the EMS-Cortex provisioning solution, nGenX expects to scale back on its traditional level of support staff.

“We’ll be empowering our customers to scale their own resources themselves, so we’ve reduced planned customer support resources by as much as 40 percent,” says Spindt. “Now we can grow our business without having to add resources. We’ll still have to maintain staff for some customer support, but we don’t expect the same call volume and the same ticket volume.”

Increased Revenue

By offering a new set of services around hybrid cloud computing, nGenX expects to grow its customer base and increase revenue. “Giving customers the choice of hosted services in a virtual environment, or physical server co-location services, or both, is a new revenue-generating service for us,” says Bye. “It’s our expectation that we’ll need to scale our Hyper-V infrastructure for at least 1,000 virtual machines before the end of the year.”

"Because of our partnerships with Microsoft and NetApp, we are able to implement a flexible and scalable GeoCloud offering that benefits our customers."

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Because customers can start slowly, with small, self-managed virtualized environments, and scale their environments to match evolving business needs, nGenX expects customers to remain loyal.

"Providing flexible services will keep our customers for longer periods of time, so we'll generate more revenue per customer," says Bye.

Another area where nGenX expects to differentiate its services relates to geo-redundancy. "We see a great deal of potential with Hyper-V and our NetApp shared storage solution to be able to deploy our geographically diversified cloud computing environment called Guardian GeoCloud," says Bye.

Better Customer Service

nGenX expects that customers using the planned cloud computing services will see a huge difference in the time it takes to get things done. "Using the Guardian Control Panel, customers will be able to take care of most of their needs in a fraction of the time that it took before," says Bye. "Where previously it would be necessary for a customer to interact with one of our support staff to make a change to a service, in the future they could use the Guardian Control Panel and bypass the middle person, getting the job done in minutes instead of waiting for hours."

Simplified Management

nGenX will be relying on the System Center data center solutions to help deliver improved server management for both its customers and its staff. Customers will have access to these management and monitoring tools through the EMS-Cortex management console for their own environments at nGenX data centers.

"In the interest of minimizing the number of systems that we use internally, we are

working with the group that manages our VMware servers to introduce them to System Center Virtual Machine Manager 2008 R2, which covers both environments," says Spindt.

Supports Competitive-Edge Product

According to the IT staff at nGenX, the company might well be the first customer of EMS-Cortex that has fully deployed the newest version of the Hyper-V-based provisioning solution. "We foresee a competitive advantage by bringing self-management services through Hyper-V and our Guardian Cloud automated cloud computing product line," says Spindt. "With the benefit of our geographically diverse data centers and our broad and deep networking services, as well as the ability to offer co-location, cloud computing, geo-diverse redundancy, hosted applications, and managed applications, we're offering something new."

And with the introduction of Guardian GeoCloud later in 2010, nGenX will have a whole new service offering for customers that will differentiate the company from its competitors. "Because of our partnerships with Microsoft and NetApp, we are able to implement a flexible and scalable GeoCloud offering that benefits our customers by offering an economical alternative to building, managing, and maintaining their own mission-critical systems and environments," says Bye.

Using the Microsoft virtualization solution and Guardian Control Panel, nGenX can also add cloud computing to its existing white-label partner program. The white-label partner program allows partner companies to re-brand the nGenX services provided by nGenX to make it appear as if they are offering the hosting services. The partners own the customer relationship and do their own billing and Tier 1 customer

For More Information

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www.microsoft.com

For more information about NetApp products and services, call (877) 263-8277 or visit the Web site at:

www.netapp.com

For more information about nGenX products and services, call 888 my-nGenX (888) 696-4369 or visit the Web site at:

www.ngenx.com

support. Partners can provision their own services on the Guardian Control Panel and can even re-brand the Web interface so that the partner's end customers are operating under the partner's brand when ordering services or managing their resources. "Our white-label partners love the fact that they can add monthly recurring revenue and expand their current product offerings without making the large capital investment necessary to get into this business," says Bye. "And they know that the infrastructure is highly available, more secure, and staffed 24 hours a day, seven days a week." Adding cloud computing to its white label services creates a channel through which nGenX can sell its products and results in a consistent experience for end customers who use the cloud computing solution.

"Now we could have a whole suite of offerings that our white-label customers could take to market in their own brand," says Spindt. "From a managed services perspective, the Hyper-V and EMS-Cortex solution is shaping up to be a rich, dedicated environment that bodes well for the future."

Microsoft Virtualization

Microsoft virtualization is an end-to-end strategy that can profoundly affect nearly every aspect of the IT infrastructure management life cycle. 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 R2 Datacenter
 - Microsoft System Center Operations Manager 2007 R2
 - Microsoft System Center Virtual Machine Manager 2008 R2

- Technologies
 - Hyper-V

Hardware

- Server: HP DL360

Partners

- NetApp