NetApp and Microsoft Technologies Reduce Costs and Fuel Growth for Cloud Provider
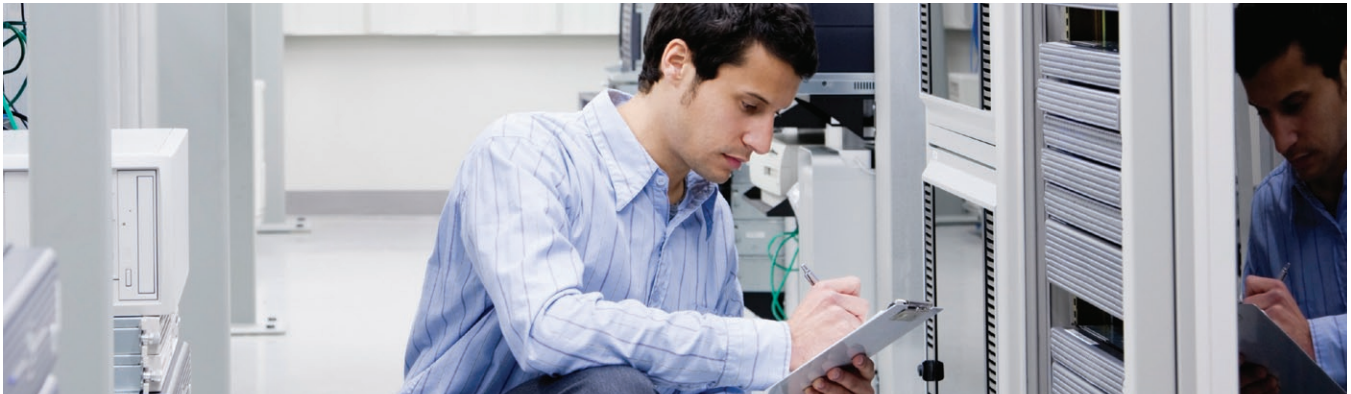
KEY HIGHLIGHTS

Industry
Cloud services

The challenge
Deliver affordable, enterprise-class disaster recovery services to small and medium businesses.

The solution
Safeguard client data with a cloud-based, service-oriented infrastructure that includes over 500 VMs supported by integrated technologies from NetApp® and Microsoft®.

Benefits
- Launched new, affordable, enterprise-class cloud services
- Demonstrated complete VM failover in three minutes over 500 miles
- Reduced support costs by 40%
- Used 50–60% less storage in Hyper-V™ environment
- Supported 32% annual growth

CUSTOMER PROFILE

With the tagline "Guardians of Data," Microsoft Gold Certified Partner nGenX has been a pioneer in the on-demand IT services industry in the United States since 2000. Today, nGenX provides its Office Anywhere® application and environment management solution for Microsoft Office, Exchange, and SharePoint® and its customers' line-of-business software. The company offers Guardian Data Center® collocation and data center services and Guardian DataStor® for automated online data backup. It has also launched Guardian Cloud®, a cost-effective, enterprise-class cloud solution; and Guardian GeoCloud™, a service to be launched in the third quarter of 2010, for replication and disaster recovery (DR) across geo-diverse data centers. Five state-of-the-art nGenX data centers are linked by a fiber network spanning 26 states and more than 30,000 route miles.

Traditionally, nGenX serves small to midsize businesses (SMBs), providing infrastructure as a service and cloud computing for customers' data, applications, servers, and backup. The company is also seeing increasing demand from larger organizations—and is enjoying 32% annual growth overall.

THE CHALLENGE

Offer SMBs cost-effective, enterprise-class DR
Enterprise-class data protection has historically been too expensive for most SMBs to implement themselves. nGenX wanted to find a way to provide enterprise-class DR, clustered failover, and backup/recovery services to its customers. To accomplish this, nGenX needed to build an exceptionally cost-effective infrastructure with a highly reliable, efficient storage infrastructure and proven processes to protect its customers' data and deliver business continuity. For nGenX, this includes allowing multiple customers to tap into the same physical storage infrastructure—all while ensuring the highest levels of security and fast, reliable data backup and recovery to support stringent service-level agreements (SLAs).

"Many of our SMB and even our larger customers have needed DR for a long time, but have not been able to afford it. We wanted to offer services such as DR that typically only large enterprises can support—all at very reasonable costs to keep our services attractive to SMBs," says Robert Bye, executive vice president and general manager, nGenX.

"Guardian GeoCloud, built using NetApp and Microsoft virtualization solutions, are enabling customers 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."

Robert Bye
Executive Vice President and General Manager, nGenX

THE SOLUTION

NetApp storage, integrated with Microsoft virtualization and management tools
nGenX for years has relied on a scalable, redundant shared storage area network (SAN) solution from NetApp. NetApp storage provides flexible online storage for the Guardian DataStor product, as well as storage and recovery for the company's hosted Microsoft and line-of-business application hosting, including supporting thousands of Microsoft Exchange mailboxes. When it came to selecting storage for the Guardian Cloud product line, nGenX evaluated several storage vendors and again selected NetApp for its highly redundant and fault-tolerant capabilities and because the same NetApp unified platform used for the SAN can also support iSCSI storage protocol to deliver storage to virtual machines (VMs) across the environment.

"During evaluations, some systems were too costly and more suited to supporting highly defined data sets," says Marc Spindt, vice president and chief operating officer, nGenX. "Other systems, though more reasonably priced, did not provide the features we needed. NetApp delivered the right price, plus features like deduplication; fast, protocol-agnostic replication; and the ability to scale easily and cost-effectively to support our growth."

Another factor driving nGenX's choice of NetApp was NetApp's tight integration with the Microsoft environment. To support Guardian Cloud and the forthcoming new Guardian GeoCloud services, nGenX chose to implement a Microsoft Dynamic Data Center, based on Windows® Server 2008 R2 Hyper-V. The integration between Microsoft and NetApp technologies leverages Microsoft's Dynamic Data Center Toolkit (DDTK) for Hosters. The DDTK provides sample code and guidance for building cloud services powered by Windows Server 2008 R2 Hyper-V and the Microsoft System Center Suite. NetApp is currently the only storage vendor to integrate seamlessly with the DDTK, enabling service providers such as nGenX to leverage NetApp's industry-leading integrated data protection capabilities.

BUSINESS BENEFITS

Demonstrated complete VM failover within 3 minutes over 500 miles
Prior to launching Guardian GeoCloud, nGenX worked with NetApp to build a proof-of-concept for automatically failing over a virtual machine from one data center to another using two data centers approximately 500 miles apart and linked by a high-speed, low-latency Ethernet connection. "With NetApp's fast replication and failover performance, even over hundreds of miles we were able to fail over a VM in less

than three minutes," says Spindt. "We proved that NetApp was ideal for building out our Guardian GeoCloud services."

Because nGenX has multiple data centers, the company knew it could deploy mirrored clusters in different data centers, achieving a geocloud computing environment tied together with its existing fiber network and a storage solution from NetApp. Over the course of the next year, nGenX plans to have redundant facilities in all five of its data centers.

"Guardian GeoCloud, built using NetApp and Microsoft technologies, is enabling customers 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," says Bye. "Using geoclustering with Hyper-V, together with replication and failover using NetApp, nGenX will ensure that our customers will have the highest levels of availability anywhere."

nGenX is also using the live migration feature in Hyper-V, the hypervisor technology built into Windows Server 2008 R2 that provides high-availability cluster capabilities to help meet agreed-upon SLAs and ensure business continuity for customers. Says Spindt, "We were excited about the live migration feature in Windows Server 2008 R2
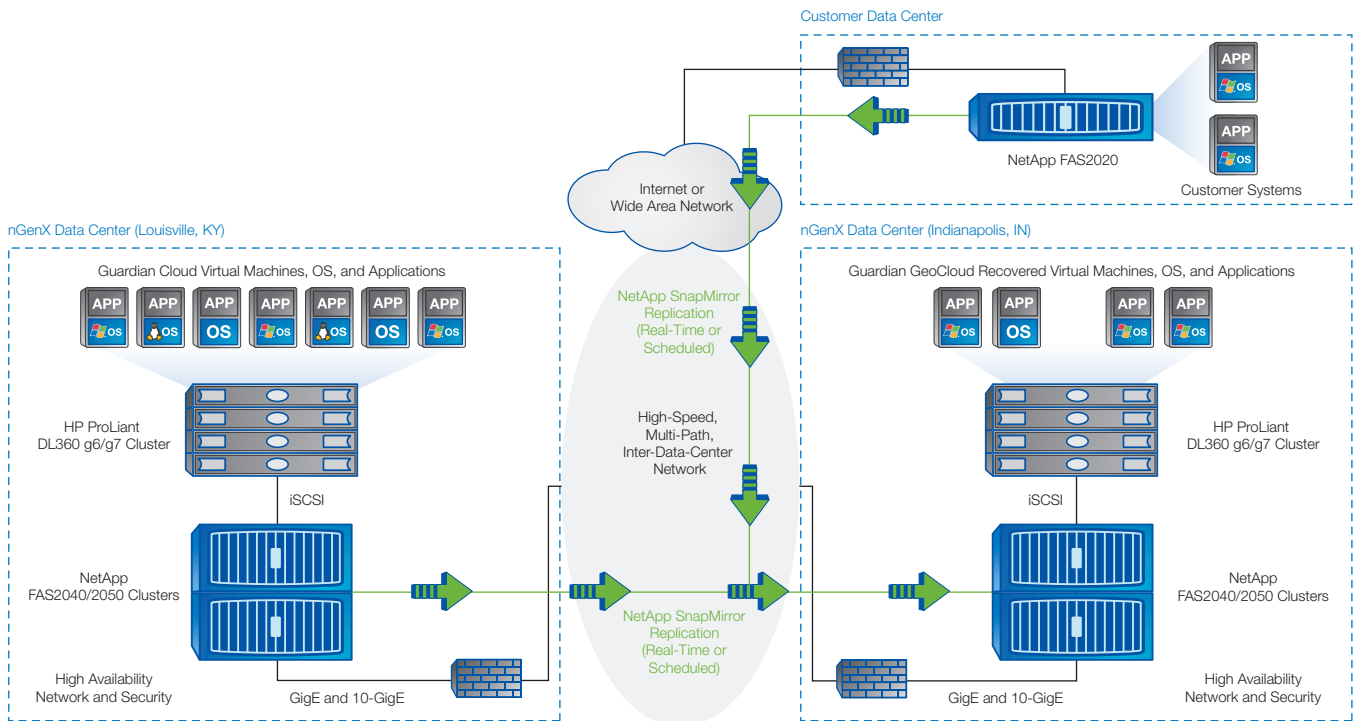
Figure 1) nGenX Guardian GeoCloud Service infrastructure summary.

Datacenter because of the business value it brings, offering high availability and improved service levels for customers."

40% lower support costs
nGenX has already deployed 500 Hyper-V VMs. The company 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. nGenX is also simplifying management by relying on Microsoft System Center and NetApp management solutions to help deliver improved server and storage management for both its customers and its staff.

nGenX staff uses Microsoft System Center to automate replication and failover within the NetApp storage environment. nGenX creates space-efficient, point-in-time copies of customer data using NetApp Snapshot™ and coordinates backups using policy-based NetApp SnapManager® for Hyper-V to replicate data to a remote site using NetApp SnapMirror®. SnapManager for Hyper-V allows users to create application-consistent backups of a virtual machine across Microsoft Exchange, Microsoft SQL®, and other Volume Shadow Copy Service–aware applications. In the future, staff will be able to take advantage of ApplianceWatch™ PRO, a free management pack from NetApp that enables them to manage NetApp storage via

System Center Virtual Machine Manager 2008 R2. Says Bye, "nGenX can monitor its entire environment—including NetApp storage—via Microsoft System Center. We can manage the entire environment of 500 VMs with relatively few full-time employees."

With the Microsoft platform integrated with a provisioning solution from Microsoft Gold Certified Partner EMS-Cortex, 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. "By using integrated NetApp and Microsoft technologies and empowering our customers to scale their own resources themselves, we'll be reducing planned customer support resources by as much as 40%," says Bye.

Used 50–60% less storage in Hyper-V environment
The Microsoft DDTK for Hosters allows nGenX to leverage NetApp technologies, which are a fundamental building block of the Guardian GeoCloud solution, to deliver enterprise-class services and cost-effective prices. "Using NetApp storage efficiency techniques like thin provisioning and

deduplication in Microsoft Hyper V environments, we can maximize infrastructure utilization and lower costs for the end user," says Bye. "By employing these techniques we use 50–60% less storage than we would otherwise need to support cloud services for our customers. We are really exploding some myths about the affordability of enterprise-class disaster recovery for our customers."

The company has also set up centralized reporting to trend its storage utilization and deduplication savings. Says Spindt, "The space we've saved through NetApp deduplication alone is estimated to support an additional year's data growth, so we can continue to add customers without new capital outlays on storage. NetApp's storage efficiency software like deduplication, thin provisioning, and efficient snapshots allows us to make enterprise-class services like DR affordable to SMBs."

Supported growth and increased revenues
By offering a new set of differentiated enterprise-class services such as high availability and DR, nGenX expects to grow its revenue and support increasing demand with integrated NetApp and minimal staff additions.

According to the director of IT infrastructure for a large private university in the U.S., students today grew up using the Internet

"Using NetApp storage efficiency techniques like thin provisioning and deduplication in Microsoft Hyper-V environments, we can maximize infrastructure utilization and lower costs for the end user… we use 50–60% less storage than we would otherwise need to support cloud services for our customers."

Robert Bye
Executive Vice President and General Manager, nGenX

daily and expect immediate access to data, without interruption. "We're excited about nGenX's Guardian GeoCloud disaster recovery solution because of the company's close relationships with Microsoft and NetApp, as well as their large, low-latency fiber-optic network," says the infrastructure director. "We need a disaster recovery solution that will keep us ahead of the curve, yet give us a degree of financial flexibility that wasn't available just a few months ago. Guardian GeoCloud from nGenX provides such a solution."

Adds Bye, "And with NetApp and Microsoft integrated technologies, we are now opening up new revenue streams by offering cost-effective, enterprise-class DR, clustered failover, and backup/recovery services to organizations that in the past have not been able to afford it."

SOLUTION COMPONENTS

NetApp products
NetApp 2040 storage systems

Data ONTAP® 7

Deduplication

SnapMirror

SnapManager for Hyper-V

NetApp Operations Manager

SnapManager for Virtual Infrastructure

Snapshot technology

ApplianceWatch PRO

Protocols
NFS, Fibre Channel, iSCSI

Third-party products
Software: Microsoft Dynamic Data Center, based on Windows Server 2008 R2 Datacenter, Microsoft System Center Operations Manager, Microsoft System Center Virtual Machine Manager 2008 R2

Technology: Hyper-V

Environment
Applications: Office Anywhere, Microsoft Office, Exchange, SharePoint, over 400 line-of-business applications, others

Server platform: Windows Server 2008 R2 Datacenter, VMware® ESX and vSphere™

Databases: Microsoft SQL Server 2000, 2005, and 2008

NetApp creates innovative storage and data management solutions that deliver outstanding cost efficiency and accelerate performance breakthroughs. Discover our passion for helping companies around the world go further, faster at *www.netapp.com*.

www.netapp.com