IBM® System Storage™ N series

IBM System Storage N series at IBM Global Technology Services for Viewpointe:
10PB of StaaS: how the experts deliver fast data access, efficiency, and world-class services

Highlights

The Viewpointe IT infrastructure delivers:

- Agility for world-class service to financial institutions
- Scalability for fast-expanding check image and data archives
- Efficiencies for pay-for-what-you-use model
- Fast, controllable accessibility to 10PB of disk and counting

IBM Global Technology Services and Viewpointe successfully achieve:

- Flexibility for IaaS, StaaS, and SaaS business models
- Scalability for 3X data growth in 3 years
- Fast data access with most retrievals from disk
- Rapid storage provisioning of 10-100TB+ increments
- Up to 90% faster recoverability of critical IBM DB2 instances
- Single-point manageability across all storage
- Administrative efficiency

Viewpointe

The business of Viewpointe

Viewpointe is a trusted provider of electronic content management and exchange solutions. The company's key business areas are electronic content storage, image exchange and settlement, payments solutions, and ACH association services. From its New York City headquarters and offices in New Jersey, North Carolina, Arizona, and Texas, Viewpointe provides services to a broad array of financial institutions and service providers. Customers include such industry notables as Bank of America, JPMorgan Chase, SunTrust, U.S. Bank, and Wells Fargo, among other institutions.

Viewpointe was recently named for the fifth consecutive year to the FinTech 100, an annual international listing of the top vertical technology vendors that derive more than one-third of corporate revenue from the financial industry. Viewpointe is jointly owned by Bank of America, JPMorgan Chase, SunTrust, U.S. Bank, Wells Fargo, and IBM.

(www.viewpointe.com)

The challenge: deliver Storage as a Service to an exacting industry

High data growth, expanding security and data protection requirements, 24x7 business operations, complex records management, regulatory uncertainty, resource-consuming technology updates, shrinking capital budgets—there's much for IT managers to worry about in financial services data management. But now imagine managing electronic content for not just one, but dozens of financial organizations, including major national banks. Could you build an infrastructure to meet the storage requirements for businesses of varying needs, storing any amount and type of data with a broad spectrum of performance, access, retrieval, and retention requirements? Could you do it cost effectively?

Kevin Kearns, Chief Technology Officer at Viewpointe, understands the challenge of delivering Storage as a Service (StaaS): "When Viewpointe was formed in 2001, our objective was to provide owner banks with a storage mechanism to support day-to-day operations related to check archives. At the time, that meant providing on-demand, pay-for-what-you-use capacity for a handful of banks storing and accessing billions of check images.

> *"To be successful in delivering value to those early customers, we needed a high-performance, highly reliable, flexible, and scalable IT infrastructure with advanced storage technology that would allow for secure storage and fast retrievals. Working with IBM, we were able to leverage world-class infrastructure without the prohibitive upfront capital and staffing investments."*

The solution: A cloud-based infrastructure service

Working with IBM Global Technology Services (GTS), the Viewpointe team built its check image archive solution using the IT infrastructure at GTS hosting centers in Colorado and Texas. This cloud-based infrastructure service gave Viewpointe the needed storage speed, flexibility, and scalability to deliver a usage-based pricing structure designed to help reduce risk and maximize efficiency for bank clients. Today that infrastructure supports Viewpointe's archive and records management business serving leading financial institutions and service providers, including top-tier U.S. financial institutions that collectively process a majority of the nation's check volume.

The IBM infrastructure integrates best-in-class server, software, networking, and storage technologies, including more than 10PB of disk capacity managed through IBM System Storage N series systems. GTS Advisory IT Architect Matthew Archer, says, "Leveraging the N series in this infrastructure gives us two major benefits. First of all, we can take advantage of N series provisioning, backup, and replication efficiencies to streamline processes, improve recoverability, and reduce capacity requirements.

> *"Secondly, the N series lets us take a highly efficient, holistic approach to storage. Using native N series capacity and standing up N series gateways in front of existing IBM System Storage DS8000 arrays consolidates all of our disk-based capacity—Tier 1, Tier 2, and WORM storage (write once, read many) protected with N series SnapLock software—under a single provisioning paradigm with a single point of management. As a result, administering capacity takes less time and fewer resources per petabyte of storage."*

Storage for the largest-known repository of check images

The Viewpointe archive was architected and built from the ground up to be a premier hosted solution for digital content storage and retrieval. The archive expands by some 1.8 billion images each month and currently contains more than 163 billion images (as of December 2010), making it the largest-known repository of check images in the world. The archive boasts a 99.99% average uptime with retrieval capabilities ranging from 150 to 3,500 images per second. Viewpointe's managed capacity of approximately 25 petabytes (including both disk- and tape-based storage capacity) is roughly equivalent to 554 billion pages of web content.

Today, IBM delivers Infrastructure as a Service (IaaS) to Viewpointe via a secure, multi-tenant cloud architecture deployed across four GTS Service Delivery Centers (SDCs) in Colorado, Missouri, Ohio, and Texas. Critical applications running in the cloud include IBM Content Manager OnDemand high-performance middleware used for storing check images. Kearns adds, "Our plans are to use IBM FileNet P8 and IBM Enterprise Records to securely store and manage content for the Viewpointe digital storage and records management solution, OnPointe."

N series OnCommand management tools include Operations Manager for central-console management of storage resources and Protection Manager to automate data protection. Space-efficient copy and replication technologies include N series FlexClone true-cloning software, SnapVault for disk-based backup, the Snap Creator Framework for application-consistent backups of DB2, and SnapMirror replication technology.

Delivering consistent service, meeting aggressive SLAs

Archer describes the benefits of using N series Snapshot point-in-time copy functionality and the technologies built on that foundation: "A unique capability afforded us by the N series is the ability to take crash-consistent snapshots across multiple servers and multiple storage systems to ensure a common recovery point across multiple databases.

> *"We maintain some of the largest single-partition databases in the world. One of the challenges we faced was ensuring rapid recoverability of our DB2 databases in the event of a lossful disaster or outage. Although we could complete backups of all of the databases, including multiple single-partition databases over 20TBs, within available windows and without impacting usage models, our concern was recovery timeframes. Since we began leveraging the N series, we've dramatically reduced backup times to continue to protect available windows for growth and have achieved an 80-90% improvement in recovery time objectives (RTOs)," notes Archer.*

Kearns adds, "The metadata stored in the DB2 databases is critical to providing access to client data, so protecting it, even in the event of a major disaster, is vital to maintaining customers' access to check images and other business-critical digital content. The recoverability enabled by the N series helps us meet aggressive SLAs and fine-tune services to address unique client requirements."

"Conventional wisdom might suggest that the bigger we get, the slower we'd move. But the GTS infrastructure with N series storage protects our ability to scale with expediency and efficiency," adds Kearns. "We can, for example, rapidly stand up and provision new capacity in 10 or 100 terabyte increments. While a 10% increase in capacity requirements would not be unusual for a modern business, in our case that percentage increase equals 2.5 petabytes. The GTS team and infrastructure have helped us stay agile and responsive to client needs. With the experience we've gained and the technology we have in place, our ability to be nimble has actually improved with our size."

– **Kevin Kearns,**
Chief Technology Officer of Viewpointe

Unprecedented efficiencies

Archer and Kearns both emphasize the importance of achieving efficiencies in a pay-for-what-you-use service model. "In our business, it's all about volume," maintains Kearns. "We need to rapidly deploy huge volumes of capacity, often in petabyte increments to support multiple client requests for 100-200 terabytes of additional storage. When we started this business, we talked in terabytes. Today, we measure everything in petabytes."

> *"One of the key benefits of the N series," continues Archer, "is the ability to scale non-disruptively and to maintain cost control as we add capacity. Leveraging N series technology to consolidate storage resources allows us to grow more efficiently."*

Performance + scalability = growth

"Storage efficiency, performance, and scalability are critical to volume growth," Kearns emphasizes. "Because of the shrinking cost of storage from increasing disk densities, N series efficiencies, and attendant savings in space and energy costs, we've been able to transition much of our archive to disk for faster and more reliable retrievals. Today, in addition to storing customers' seven-year check archives, we also store their short-term archives. Most banks maintain 45 days' worth of check images online to complete monthly processing for demand account holders. For every statement run, that means retrieving millions and millions of checks within a matter hours. With the ability to process those retrievals from disk, we can easily meet such performance demands."

The GTS infrastructure lets Viewpointe offer innovative methods to store and access all types of digital content. Kearns explains, "With the recent introduction of OnPointe, we have expanded beyond check archives to be able to provide storage for all types of electronic content, from loan application and mortgage documents to note files, audio clips, and virtually any other kind of document that a financial organization requires to run its business. We believe that taken together, the explosive increase in data provides Viewpointe with a tremendous opportunity to further our growth.

Agile IT for world-class service and competitive advantage

Viewpointe's secure, privately hosted and managed storage solution provides customers with security and scalability that often surpass the service levels the industry requires. Kearns acknowledges that the GTS infrastructure with N series storage has contributed to the company's ability to offer solutions that help financial institutions better manage costs, efficiencies, and risks inherent in data management: "Viewpointe has recently extended its business, offering value-added processing that works on the front end of the data archive to categorize and classify data so that it can be ideally stored for security, compliance, and cost-effective lifecycle management. This infrastructure allows for agility as we expand our business through our OnPointe offering and deliver ever-greater value to financial institutions."

> *Archer summarizes, "It has always been our goal to help customers derive maximum, long-term business value from their infrastructure dollars. In this case, from a single multi-tenant cloud architecture built on highly reliable, scalable, and flexible solution components like the IBM N series, we're able to support a broad range of business models, including our own IaaS and Viewpointe's traditional Storage as a Service offering. It's a very compelling example of doing more with less."*

Business Partner

IBM Global Technology Services

IBM System Storage N series

IBM System Storage N series N7900 with FC, SAS, and SATA drives

Protocols: FC SAN and NFS

IBM System Storage N series software and technologies, including:

- Snapshot
- Deduplication
- FlexVol
- FlexClone
- SnapMirror
- OnCommand management software, including Operations Manager and Provisioning Manager
- SnapVault
- SnapLock
- Snap Creator Framework

Environment:
IBM AIX and Linux-based servers
IBM Content Manager OnDemand
IBM Tivoli Storage Manager
IBM DB2 software

VMware vSphere 4

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