



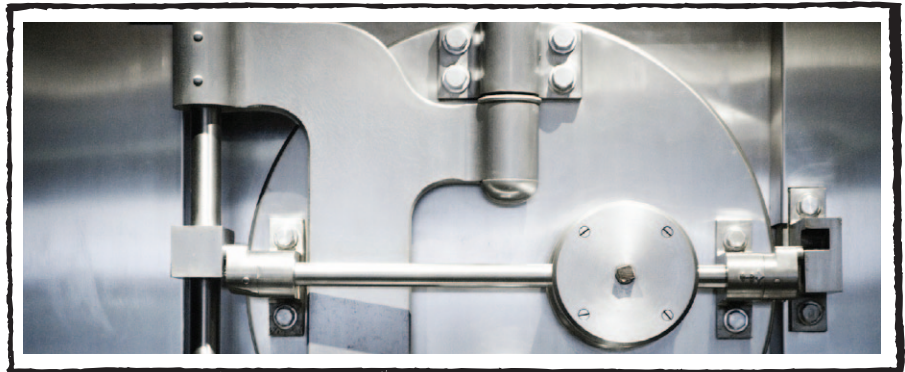
NetApp®

## Success Story

# WSFS Bank IT Delivers Private Cloud Services on NetApp and VMware for Agility, DR, Efficiency



Another NetApp solution delivered by:



### KEY HIGHLIGHTS

**Industry**  
Financial services

**The Challenge**  
Improve DR, reduce complexity, and gain flexibility.

**The Solution**  
Deploy VMware® on NetApp® for a resilient, efficient, and agile cloud environment.

#### Benefits

- Deliver on-demand IT services for new bank products
- Achieve rapid failover and recovery within minutes
- Save 1.5TB, use up to 76% less capacity
- Reduce server/storage footprint by 63%
- Manage 50TB with 0.2 FTE

### Customer Profile

With \$4B in assets, the Wilmington Savings Fund Society, FSB (WSFS Bank) bank and trust company is the primary subsidiary of the multibillion-dollar WSFS Financial Corporation. Serving the Delaware Valley since 1832, WSFS Bank is one of the 10 oldest continuously operating banks in the United States. The bank maintains 47 offices in Delaware, Nevada, Pennsylvania, and Virginia, providing financial services that include commercial and retail banking and wealth management through the Christiana Trust division. (Source: [www.wsfsbank.com](http://www.wsfsbank.com))

### The Challenge

**Improve DR, reduce complexity, gain flexibility**

By all accounts, WSFS Bank is thriving, experiencing above-peer loan and deposit growth, strong earnings, and ample expansion opportunities through acquisitions and *de novo* branch activity. How does this bank succeed while others struggle to cope with an economic down-cycle? WSFS Bank's mission statement, "We stand for

service® and strengthening our communities," suggests that one key factor is the company's uncompromising emphasis on service.

Peter Ghosh, WSFS Bank's network services manager, elaborates: "The entire organization is focused on delivering the best possible customer service. The positive results of our efforts are borne out in our earnings and in consistently favorable customer advocacy reviews. We also know that there is a direct link between customer engagement and internally engaged associates. For IT, that means we must stay responsive to both internal and external customers, ensuring that they have enabling technology for new-product development and client services."

Ghosh acknowledges that keeping up with a never-ending stream of project requests can be challenging: "Like other IT organizations, we struggled with staffing limitations and long lead times on compute resources. But in this business climate, we couldn't afford to take months to respond to a client or to incur inefficiencies like server sprawl

“People expect IT to be able to turn on a dime, and that’s what we’re able to do with the VMware on NetApp infrastructure. In just four years, the bank has experienced a nearly 25% growth in revenue and increased headcount by some 250 people. This infrastructure has allowed IT to grow with the business.”

**S. James Mazarakis**

Executive Vice President and Chief Technology Officer, WSFS Financial Corporation

and infrastructure complexity. Business continuity was another concern—no bank can risk downtime that might impact productivity or delay electronic statements and other services.”

In 2008, WSFS Bank addressed these issues by consolidating physical server and direct-attached storage resources onto a more reliable, scalable, and flexible VMware infrastructure with an iSCSI-only SAN. Ghosh says that the shared-storage configuration met early virtualization requirements, but concedes that the bank fairly quickly recognized its limitations: “The feature set was limited, expanding or contracting LUNs was difficult, and we were unable to take advantage of NFS—a change we wanted to make as we gained VMware experience and worked to further reduce complexity. We needed a storage solution that better complemented the VMware environment.”

### **The Solution**

#### **Deploy VMware on NetApp**

With help from Alliant Technologies, a New Jersey-headquartered IT engineering and operations firm and participant in the NetApp Partner Program, the WSFS Bank team evaluated storage options, including products from Dell EqualLogic, EMC, Pillar Data Systems, and NetApp. Ghosh says that NetApp differentiators included same-box

multiprotocol support and robust features for storage virtualization, deduplication, and disaster recovery (DR).

Today, WSFS Bank has standardized enterprisewide on NetApp storage solutions. The shared IT infrastructure provides cloud-based services to internal bank users and to a growing base of commercial customers accessing check processing and other services.

NetApp also provides local storage resources—typically NetApp FAS2000 series—to select WSFS Bank sites such as the Cash Connect Division, where developers use a VMware on NetApp private cloud to design cash management and other applications for the ATM division that provides vault cash on a national basis. All told, NetApp provides some 50TB of storage capacity to corporate data centers that support 5 operational sites and 47 branch offices.

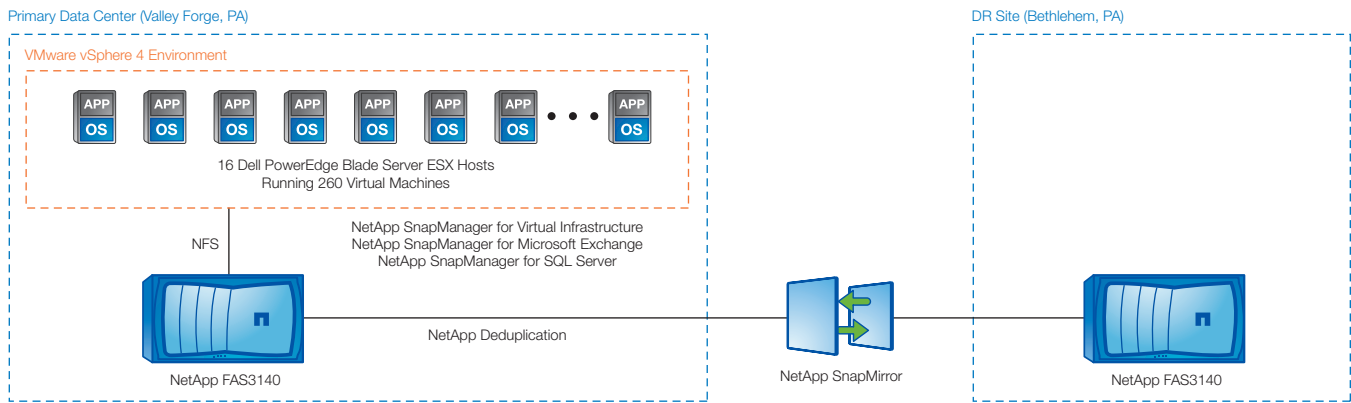
For administration, IT utilizes VMware vCenter™ and NetApp management software, including the NetApp Virtual Storage Console, for managing storage directly from vCenter and NetApp OnCommand™ software that includes the SnapManager® suite of software to streamline and automate routine tasks in VMware, Microsoft® Exchange Server, and Microsoft SQL Server® environments.

### **Business Benefits**

#### **Turn-on-a-dime IT**

“People expect IT to be able to turn on a dime, and that’s what we’re able to do with the VMware on NetApp infrastructure,” attests S. James Mazarakis, executive vice president and chief technology officer at WSFS Bank. “In just 4 years, the bank has experienced a nearly 25% growth in revenue and increased head count by some 250 people. This infrastructure has allowed IT to grow with the business, giving us the agility and scalability to respond to every level of request from our divisions, whether it’s rapidly provisioning resources for Project Management Office initiatives, carving out capacity to accelerate delivery of e-statements, or scaling services to integrate an acquisition, as we’ve recently done with a new trust operation.”

“In the past,” adds Ghosh, “scaling services was cumbersome and time consuming, and in some cases we simply didn’t have the infrastructure to meet the need. Today, we have that infrastructure, and NetApp is a critical enabler. In the virtual world, the gating factor is typically storage—do we have enough capacity for unexpected incoming data, to support new applications, add users, and bring on new businesses?”



**Figure 1) WSFS Bank storage infrastructure.**

A NetApp high-availability FAS3140 system provides resources to a VMware vSphere 4 environment running 260 virtual machines on 16 Dell PowerEdge Blade Server ESX hosts. NetApp SnapMirror software enables automated replication to a high-availability FAS3140 at the DR site. Networking elements include a Cisco Nexus 7000 Series and Cisco Wide Area Application Services (WAAS) WAN optimization software.

Systems and applications in the Microsoft Windows Server environment include: Microsoft Office SharePoint Server; a 1,000-mailbox deployment of Microsoft Exchange Server; Microsoft SQL Server; item processing systems; loan processing; branch automation and bank budget systems (including both production and development/staging tiers).

NetApp makes it easy to scale and provision new storage or to resize for better utilization or to eliminate space contention among applications or business groups. And we don't have to endure the painful rearchitecting processes and white-boarding sessions that we used to face nearly every year as capacity issues became critical.

"NetApp also gives us much-needed protocol flexibility—SMB/CIFS for file sharing, VMware over NFS, and iSCSI to Exchange and SQL Server data. This is not a single-use solution, but rather a long-term architecture that will continue to meet the needs of our growing business."

#### **On-the-money recoverability**

Efficient data protection, high availability, and robust DR are other key benefits. "Our processing systems simply cannot go down," Ghosh emphasizes. "Any disruption in interactions with the Federal Reserve and trading partners could result in regulatory fines and other negative business impact. Implementing the VMware on NetApp infrastructure allows us to keep critical services available 24/7, even in the event of a site disaster."

Ghosh states that the new infrastructure allows the bank to exceed its operational risk targets for recoverability. Using NetApp Snapshot™ technology's point-in-time copy functionality, the bank can achieve nearly instantaneous data recovery and eliminate traditional tape backup windows for a recovery point objective (RPO) of less than four hours across essential environments, including item processing. Because critical systems and data are automatically and routinely replicated to the DR site, in the event of a failure at the primary data center all WSFS Bank essential processes can be operational remotely within a matter of minutes.

"Although we had site-to-site replication capabilities in the past," adds Ghosh, "the data at the DR site was not in an immediately usable format. Bringing up a single system required hours, potentially days, of work, and turning on basic services consumed the better part of a day. Limited capability and system costs forced us to rank applications by criticality. Today we protect more of our application set for less cost—and all critical systems can be back online within minutes."

"As a financial institution that plays a crucial role in our region's economy, we must work to ensure that disaster events—whether short-duration, limited-scope natural and man-made disasters, or more impactful pandemic events—create minimal disruption to our clients and to the area's economic activities. This infrastructure has allowed us to implement full DR and enhance preparedness to maintain critical financial services, even in worst-case scenarios."

#### **Income not spent**

Ghosh reports that beyond eliminating server sprawl and the inefficiencies of traditional infrastructures, the VMware on NetApp solution delivers additional savings from:

- **Deduplication.** The bank has recovered some 1.5TB of capacity and in one virtual desktop deployment uses 76% less storage.
- **Cascading efficiency.** Deduplication on primary storage creates cascading downstream benefits, reducing the bandwidth necessary for replication and storage required at the DR site. Space-efficient Snapshot copies let the bank store 30 days' worth of backups online and eliminate 20 monthly tape runs.

- **Reduced data center space.** WSFS Bank has achieved significantly more functionality and expandability in a 63% smaller footprint. “We do more today in three racks than we could in eight in the old infrastructure. Before virtual servers and NetApp shared storage, a single application such as an enterprise content management system would have required another full rack of equipment. Later this year we’ll be moving to Exchange 2010 and will run that in the VMware environment as well. Rack space is expensive, so a virtual-first policy makes good financial sense.”
- **Administrative simplicity.** WSFS Bank manages some 50TB of NetApp storage with 0.2 FTE.

Ghosh comments, “The project world tends to be unpredictable—it can be feast or famine—so agile IT is critical to business innovation. Because it allows us to more quickly and efficiently address the demands of bank business units, the VMware on NetApp infrastructure has really helped foster a sense of partnership between IT and the other areas of the enterprise.”

### Invaluable investment guidance

Ghosh summarizes the project’s success, highlighting the value of working with Alliant Technologies: “I couldn’t estimate how long the transition to this new infrastructure would have taken without the contributions of the Alliant team—we simply did not have available staffing or in-house experience. From integrating quality-of-service parameters to helping us understand the nuances of networking requirements, the Alliant Technologies team helped us to deploy a powerful yet elegantly simple infrastructure that enhances our business and ensures that we can deliver reliable, innovative financial services solutions to internal and external bank clients.”

### About Alliant Technologies, LLC

Headquartered in Morristown, New Jersey, with sales and service offices across the Northeast, Alliant Technologies, LLC, is a certified and experienced IT engineering and operations firm delivering integrated IT infrastructure solutions. Alliant’s services include borderless networking, IP collaboration, server and desktop virtualization, data storage, Alliant Managed Services, and infrastructure cabling. Alliant assures success with a proven Project Management methodology, consistent engineering oversight applied from pre- to post-sale, and a comprehensive set of lifecycle services.

## SOLUTION COMPONENTS

### NetApp Products

NetApp HA FAS3140, FAS2040, and FAS2020 systems

NetApp SnapManager for Virtual Infrastructure, SnapManager for Microsoft Exchange, and SnapManager for SQL Server

System Manager software

NetApp Virtual Storage Console

NetApp deduplication and SnapMirror® technologies

### Protocols

NetApp SAN (iSCSI) and NAS (NFS and SMB/CIFS)

### Environment

Cisco Nexus 7000 Series and WAAS

Dell PowerEdge Blade Server solutions

VMware vSphere™ 4.0, vCenter Server

Microsoft Windows Server® 2000/2003/2003 R2/2008

Microsoft Office SharePoint Server 2007

Microsoft Exchange Server 2003

Microsoft SQL Server 2000/2005/2008

### Partner

Alliant Technologies  
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Go further, faster®

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