



NetApp®

## Success Story

# University of San Diego Manages Skyrocketing Data Growth with NetApp



Another NetApp  
solution delivered by:



### KEY HIGHLIGHTS

#### Industry

Higher education

#### The Challenge

Accommodate accelerated growth, optimize resources, and offer a rich learning environment with streamlined, efficient IT.

#### The Solution

Consolidate on two NetApp® FAS3140 storage systems and deliver a resilient, cost-effective virtualized infrastructure.

#### Benefits

- Increased IT efficiencies, reduced costs, and optimized IT resources by virtualizing on NetApp
- Accelerated development and test activities through NetApp cloning
- Reduced storage costs and enhanced data protection through NetApp storage mirroring and replication capabilities

### Customer Profile

The University of San Diego (USD) is a preeminent Roman Catholic institution offering an academically rigorous liberal arts education through more than 70 bachelor's, master's, and doctoral degrees. Chartered in 1949, the university enrolls 7,800 students and is known for its commitment to teaching, the liberal arts, the formation of values, and community service.

### The Challenge

#### Enhancing the learning environment

USD is committed to advancing academic excellence, expanding liberal and professional knowledge, and preparing students for success. The diversity of USD's academic programs, breadth of resources, and state-of-the-art facilities make sure that students will gain the maximum value from their educational experience. This forward-thinking university also strives to offer students a rich learning experience through advanced teaching methodologies and access to the content and technologies needed to learn and thrive.

Data proliferation has presented challenges and inefficiencies for the school's IT department, which manages USD's

four data centers. "Five years ago our data centers supported 5TB of data," says Mike Somerville, manager of Systems Support. "Today those same data centers support more than 90TB of data, and we need to effectively manage our growth with the same number of IT staff resources."

Data storage growth has largely been fueled by an increase in high-bandwidth education applications for e-learning, multimedia programs, and Web 2.0 applications, as well as business applications for day-to-day administration. The need to securely protect massive amounts of student, faculty, and staff data has put additional demands on USD's Information Technology Services (ITS) team.

A long-time NetApp customer, USD typically added storage capacity as needed to meet growing data center requirements. However, vice provost and CIO Christopher W. Wessells made a strategic decision "to upgrade USD's entire data center and network infrastructure for operational efficiency and to meet the demand for highly stable business and academic systems that are a necessity in a modern university."

# “NetApp efficiency helps the university to reduce overall technology costs while facilitating a highly dynamic and rich academic learning environment.”

**Chris Wessells**

Vice Provost and CIO, University of San Diego

Adds Somerville, “The efficiency of the ITS organization and IT environment is integral to the university’s success. The less time, effort, and resources required to deliver our IT infrastructure, the more we can focus on innovation and provide new educational opportunities to our faculty and students.”

ITS focused on achieving new levels of efficiency in its storage environment through consolidation, streamlining storage management, and furthering its virtualization strategy. By enhancing the IT infrastructure, USD could better leverage its IT resources for business-critical activities, meet growing application and data requirements, and increase service levels to students and staff. In addition, to protect university data and the applications that foster a thriving learning environment, the team needed a reliable disaster recovery solution that made sure of uninterrupted university operations.

Working with RestorWare, a business continuity solutions provider and participant in the NetApp Partner Program, USD compared numerous storage solutions to meet its objectives. USD leveraged RestorWare’s expertise in helping customers achieve their recovery time and recovery point objectives with reliable, cost-effective business

continuity infrastructures. After serious consideration, USD chose to consolidate its Microsoft® Windows® environment on NetApp storage.

## **The Solution**

### **Taking a “less is more” approach to IT**

For nearly a decade, NetApp has provided USD with a highly available and reliable enterprise storage environment. For even greater returns on its storage infrastructure, USD chose to consolidate its three NetApp FAS3020 storage systems to two NetApp FAS3140 storage systems, which provide all of the university’s tier one and tier two storage and support its current virtualization strategy.

“We’ve seen our data volumes skyrocket over the years and education applications reach new levels of complexity,” says Somerville. “Virtualizing our systems on VMware® and NetApp allows us to meet today’s organizational demands and continue to evolve our infrastructure to support our vision for the future.”

USD leverages NetApp storage management software to help control, automate, analyze, and optimize the shared storage infrastructure that delivers the university’s administrative, in-class, and remote applications. NetApp Data

ONTAP® enables ITS members to effectively manage all storage and protocols with minimal NetApp training. They use a single management framework, which allows the team to respond quickly to changing university demands.

For example, to protect the Microsoft Exchange environment, USD uses NetApp SnapManager® for Exchange to provide fast backups of university data, which has grown exponentially. “The Single Mailbox Recovery capability of NetApp SnapManager for Exchange allows us to retrieve individual messages, mailboxes, and attachments without disrupting other users,” says Somerville. “For instance, we can keep working, without interrupting remote students engaged in online class discussions or researchers collaborating in our biochemistry lab.” USD is integrating SnapManager for Exchange with NetApp SnapVault® to further reduce backup windows and store weeks of Exchange data.

The ITS team uses NetApp FlexClone® technology in its test and development environments for applications including Oracle® E-Business Suite, SunGard Banner Student System, and SunGard Higher Education Luminis Platform. Using FlexClone, ITS accelerates development and test activities by cloning

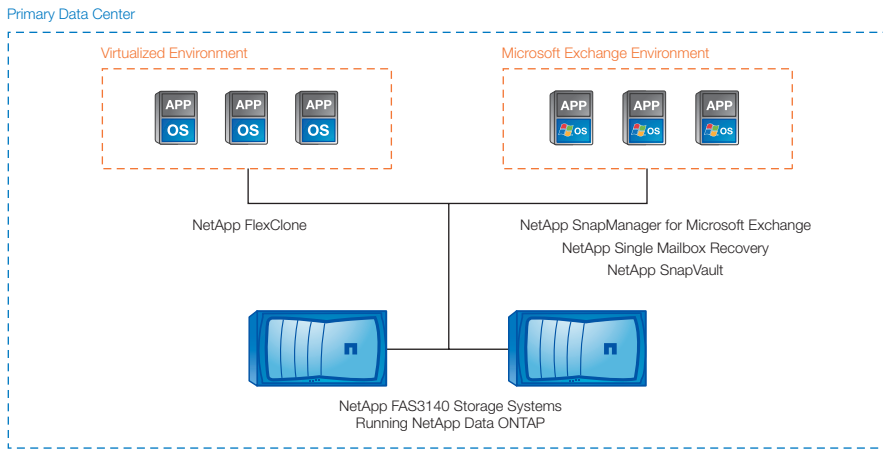


Figure 1) The University of San Diego storage infrastructure.

data volumes, files, and LUNs as instant virtual copies. “NetApp FlexClone has reduced the time required to replicate data volumes and datasets from more than 24 hours to mere minutes and even seconds,” says Somerville.

Cisco Catalyst 3560, 3750, and 4650 switches are widely deployed to provide an energy-efficient infrastructure, helping USD manage power consumption and reduce energy costs. USD relies on NetApp My AutoSupport™ to provide 24x7 diagnostic tools. My AutoSupport greatly reduces support costs, eliminating the equivalent of two full-time ITS staff positions and freeing up those resources for further enhancing learning environments.

### Business Benefits Realizing new efficiencies and opportunities

With help from NetApp, the university is turning to virtualization and consolidation to increase IT efficiencies, reduce costs, and optimize IT resources for greater impact on teaching and learning. Approximately 60% of USD’s IT environment runs on the Microsoft Windows operating system. USD’s infrastructure is currently more than 40% virtualized, including 35% of its enterprise applications, as well as its Microsoft SQL Server® and Oracle databases.

“By virtualizing on NetApp storage, we can maximize storage utilization and reduce power and cooling costs,” says Somerville. “We can also quickly provision storage without degrading performance and scale our virtualized environment to accommodate powerful IT systems and education applications.”

Though USD storage demands have increased in recent years, the size of the IT staff has remained the same. Somerville credits the ease of using NetApp for helping him optimize staff resources, who can focus more time on organizational innovation. “NetApp offers us an easy, centralized way to manage storage systems,” notes Somerville. He says that after taking several NetApp classes, any of the ITS staff can manage their storage resources effectively—whether creating Snapshot® copies, restoring files, or performing other storage management activities.

### Better protection for university data

NetApp SnapMirror® technology played a critical role in USD’s decision to choose NetApp. In the enhanced storage environment, NetApp SnapMirror protects staff and student data through replication, performed both automatically and manually. To improve its disaster recovery strategy, USD now mirrors Fibre Channel data from one

building to another and replicates more critical data to another data center on SATA storage, which reduces USD storage costs. “NetApp disaster recovery capabilities help keep university operations up and running, protect against data loss, and maintain our governance and compliance with industry regulations,” says Somerville.

USD uses NetApp Snapshot technology to securely store copies of staff, faculty, and student data for quick recovery. Snapshot protects vast amounts of data in environments such as USD’s WebCT/Blackboard Learning Management System, an online repository for managing instructional and course materials.

### High availability for superior service

In its growing IT environment, delivering consistently available data to students, faculty, researchers, and staff is imperative yet challenging. Faculty content, for example, has evolved from static presentations to videos and other rich-media content, requiring more and more from the storage environment. NetApp provides the reliability the university demands. Somerville credits the array-to-array and WAFL® technologies of NetApp storage for reliably storing and delivering critical USD data.

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**Mike Somerville**

Manager, Systems Support, University of San Diego

### Keeping pace with accelerated growth

USD’s reputation for academic excellence and preparing students for careers in a complex and changing world is in part supported by exceptional technology. With the university’s growth, it can be challenging to continually deliver an IT infrastructure that keeps pace with the demands and opportunities in education today. Vice provost and CIO Christopher Wessells states that “NetApp efficiency helps the university to reduce overall technology costs while facilitating a highly dynamic and rich academic learning environment.”

### SOLUTION COMPONENTS

#### NetApp Products

NetApp FAS3140 clustered storage systems  
Data ONTAP  
SnapManager for Exchange  
SnapManager for SharePoint® 2007, for SQL Server 2005/2008  
Single Mailbox Recovery  
SnapMirror  
SnapVault  
FlexClone  
Snapshot technology

#### NetApp Services

NetApp My AutoSupport

#### Protocols

Fibre Channel, NFS, iSCSI

#### Third-Party Products

Cisco Catalyst 3560, 3750, 4650 switches  
Microsoft Exchange 2007  
Microsoft SQL Server 2008  
Microsoft SharePoint 2007  
Oracle E-Business Suite  
SunGard Higher Education Luminis Portal  
Banner Software  
VMware

#### Environment

Database: Oracle10g  
Server platform: Microsoft Windows 2003/2008

#### NetApp Partner

RestorWare  
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