



**NetApp®**  
Go further, faster

## Success Story

# WhiteWater West Runs 24x7, Makes >50% Capacity Savings Splash with Exchange and Hyper-V on NetApp



Another NetApp solution delivered with:

**Microsoft** | Virtualization



### KEY HIGHLIGHTS

**Industry**  
Leisure

#### The challenge

Consolidate mixed-application e-mail environment and eliminate planned/unplanned downtime.

#### The solution

Virtualize with Microsoft® and NetApp for capacity savings, admin efficiency, and 24x7 Exchange availability.

#### Benefits

- Deliver 24x7 Exchange and SharePoint® availability
- Store 30 days of e-mail online
- Enable within-minutes mailbox/message recovery
- Use up to 59% less capacity for SharePoint
- Use up to 83% less capacity for virtual machines
- Run two times more servers, 260% more storage in 10% less space

### CUSTOMER PROFILE

Headquartered in Richmond, British Columbia, Canada, with regional offices in Asia, Europe, the Middle East, and the United States, WhiteWater West is a worldwide builder of water parks and aquatic attractions. The company specializes in water slides, AquaPlay™ interactive water play structures, wave pools, and water-based amusement-park rides. Clients include indoor and outdoor water parks, hotels and resorts, amusement and theme parks, and municipal aquatic facilities. The company boasts more than 4,000 completed projects, including the giant Olympic Rings and German bobsleigh ice channel featured at the 2010 Vancouver Olympic Games. (Sources: [www.whitewaterwest.com](http://www.whitewaterwest.com) and [www.formashape.com](http://www.formashape.com))

### THE CHALLENGE

#### Consolidate mixed-application e-mail environment and eliminate planned/unplanned downtime

On any given day, WhiteWater West engineers and account representatives might be setting up meetings with clients in Dubai, sending schematics to a customer in the Bahamas, or reporting on project milestones to water-park managers in Guangzhou, China. For this international business, information flow is as critical as water flow.

Dan Morris, a senior systems engineer at WhiteWater West, explains that one missed e-mail can mean a lost design change or other client communication that can put customer satisfaction and thousands—or even hundreds of thousands—of dollars at risk. “WhiteWater teams work all over the world, across all time zones, so our e-mail and Microsoft Office SharePoint Server 2007 collaboration tools must be available 24x7. If manufacturing, for example, doesn’t get a change order in time, the result can be costly rework or relationship-damaging delays.”

In total, the company provides e-mail services to some 250 users gaining access from 4 WhiteWater West sites. In 2009, the company initiated an e-mail consolidation and server-virtualization project to address vulnerabilities resulting from business growth and mergers. At the time, the IT team supported a mixed-application e-mail environment of Microsoft Exchange 2003 and IBM Lotus Notes running on physical servers with at-capacity direct-attached storage. The existing infrastructure was difficult to protect, scale, and manage.

To support the consolidation and virtualization project, WhiteWater West selected complementary NetApp storage technology to 1) improve reliability and streamline

“The combined efficiencies of Microsoft and NetApp virtualization technologies let us do more in significantly less capacity—for WhiteWater West, that means spending less to support high-availability configurations, run more systems, and store more data. The space we’ve saved through deduplication alone will support one year’s data growth with enough capacity left over to integrate another of our international offices into our Exchange system.”

Dan Morris

Senior Systems Engineer, WhiteWater West Industries

backup/recovery, 2) facilitate rapid capacity scaling and provisioning, 3) simplify administration, and 4) reduce costs.

#### THE SOLUTION

##### **Virtualize using NetApp and Microsoft technologies for reliability, savings, and admin efficiency**

Committed to leveraging Microsoft technologies, WhiteWater West reduced infrastructure complexity by standardizing on Microsoft Exchange 2007 and by virtualizing Exchange, SharePoint, and SQL Server® applications using Windows® Server 2008 R2 and Microsoft’s Hyper-V™ server-virtualization solution. Tight integration between Microsoft and NetApp technologies made NetApp the logical storage complement. “NetApp combines the reliability we require with technologies like deduplication and thin provisioning that deliver efficiencies competitive solutions simply cannot match,” states Morris.

Working with Open Storage Solutions, Inc., a North American storage solutions provider and participant in the NetApp Partner Program, WhiteWater West deployed NetApp storage for the new Microsoft Hyper-V virtual-server environment. Today, at WhiteWater West headquarters in Richmond, a NetApp FAS2050 system provides 4TB of capacity to the Hyper-V

environment with Windows Failover Clustering running across four HP ProLiant BL460s BladeSystem c-Class servers. To optimize scalability and availability, Hyper-V machines run Windows Network Load Balancing Service. Morris’s team manages the environment via Microsoft System Center Virtual Machine Manager 2008 R2 and utilizes Live Migration and Cluster Shared Volumes in Windows Server 2008 R2 Enterprise.

WhiteWater West has standardized on Microsoft Exchange Server 2007 and virtualized two Microsoft Hub Transport and Client Access servers running within the network load-balanced service to provide reliable access to remote users. Integration between NetApp SnapManager® for Exchange software and Microsoft technologies lets WhiteWater West create validated, application-consistent Exchange backups as well as automate routine processes. NetApp Single Mailbox Recovery software enables within-minutes retrieval of mailboxes, single e-mails, and/or attachments.

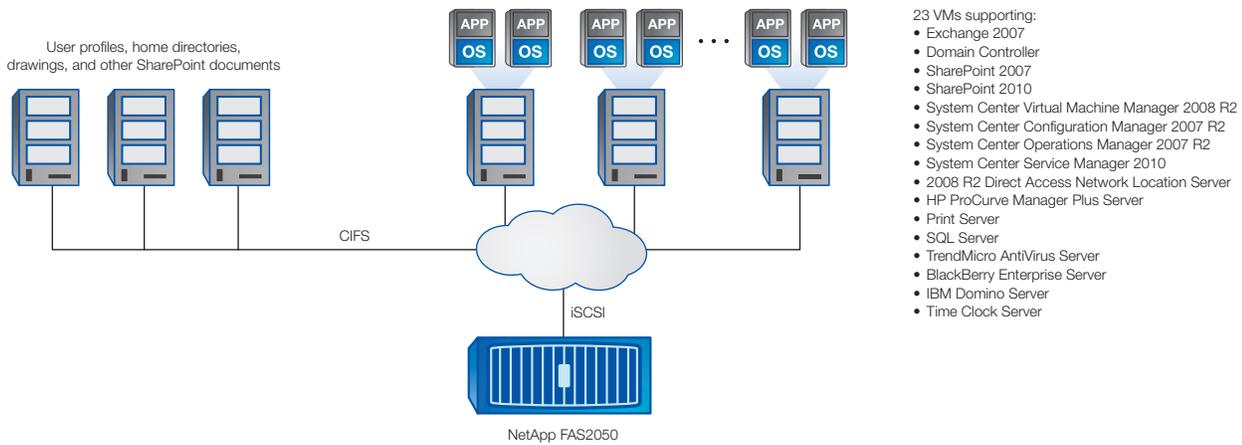
WhiteWater West monitors and manages the entire physical and virtual environment, including storage, using Microsoft System Center Operations Manager 2007 software with the NetApp ApplianceWatch™ PRO management tool, available as a no-cost, downloadable software pack.

#### BUSINESS BENEFITS

##### **Reliability and fast backup and recovery keep information flowing 24x7**

Combining Microsoft high-availability technologies like Windows Failover Clustering with highly resilient NetApp storage helps WhiteWater West maximize uptime for business-critical Exchange e-mail and SharePoint collaborative services. “Around the clock and across our global organization, WhiteWater users now communicate reliably on a single highly available e-mail platform,” comments Morris. “Since virtualizing our environment with Hyper-V and NetApp, we’ve had zero business-impacting downtime.

“On several occasions in the past, mail-system crashes kept users offline for hours,” Morris continues. “A failed upgrade might bring the system down for days. Today, even during routine maintenance or service-pack upgrades, we experience no more than a half minute of downtime while the server we’re working on fails over. Our clustered-failover configurations protect against both physical and Exchange virtual-server failures. We also routinely make two copies of every virtual server—with NetApp deduplication technology, it doesn’t cost us any more in storage, so there’s no reason not to maintain additional copies to use in the unlikely event that a virtual machine becomes corrupt.”



**Figure 1)** To date, WhiteWater West has consolidated data and applications from seven physical servers with direct-attached storage using Hyper-V and Windows Server 2008 R2 on a NetApp infrastructure. WhiteWater West runs more than 20 virtual machines, including 4 Microsoft Exchange 2007 servers, a Microsoft Office SharePoint 2007 server, and 2 Microsoft SQL Server 2008 systems, including 1 running Microsoft SQL Reporting Services for SharePoint. NetApp provides single-box support for both iSCSI (to the Hyper-V environment) and CIFS-based access to user profiles, home directories, drawings, and other SharePoint documents.

WhiteWater West uses NetApp Snapshot™ technology to perform instant data backups while applications are running, with no performance impact. NetApp's unique and highly space-efficient Snapshot technology copies only changed blocks, allowing WhiteWater West to cost-effectively maintain 30 days' worth of Exchange and other data online. WhiteWater also uses Snapshot technology to back up virtual machines.

Morris continues, "With traditional backups, we checked daily to ensure that each backup had completed successfully. We no longer spend time verifying backups, and we've never had a backup fail. We maintain multiple Exchange databases so, if one becomes corrupted, we simply use SnapManager for Exchange to bring it back online. Another benefit is that we can restore a user's mailbox in just minutes. Previously we'd have had to go back to tape for recovery—that process was time-consuming and not always successful."

#### **Simplicity + efficiency = a big savings splash**

The Microsoft System Center suite enables Morris to streamline administration and centrally monitor the applications, servers, and storage in the consolidated environment. "With NetApp ApplianceWatch PRO monitoring turned on," he says, "we don't

even have to log in to check for problems. From within System Center, we have set up automatic tracking of storage utilization and deduplication savings with regularly scheduled management reporting. It really is a set-it-and-forget-it solution."

In addition to administrative savings, WhiteWater West benefits from the combination of Microsoft virtualization with NetApp efficiency technologies. NetApp deduplication is turned on for all data sets. Morris reports achieving up to 59% capacity savings on SharePoint data and as much as 83% on Hyper-V virtual machines. Across all data sets, savings from NetApp deduplication approach 2.8TB. WhiteWater West also makes heavy use of thin provisioning to maximize utilization of existing capacity.

Morris describes the benefits to the business: "The combined efficiencies of Microsoft and NetApp virtualization technologies let us do more using significantly less capacity. For WhiteWater West, that means spending less to support high-availability configurations, run more systems, and store more data. The space we've saved through deduplication alone will support one year's data growth with enough capacity left over to integrate another of our international offices into our Exchange system.

"When we do need more storage capacity, we can easily add a tray to the NetApp. If at some point we want to move up to a larger system, it's a nondisruptive, data-in-place upgrade. In the past, we had to worry about running out of storage on 15 boxes, and scaling always meant buying a new system. Today, we have one box with a pool of storage from which we can quickly and easily provision capacity whenever and wherever we need it."

#### **Come on in, the water's great**

As a result of the consolidation and virtualization project, WhiteWater West now runs twice the number of servers and 260% more storage capacity in 10% less rack space. In the previous environment, an overloaded uninterruptible power supply (UPS) limited functionality and run time in power outages. Today, WhiteWater West's UPS supports the NetApp and BladeCenter at just one-third utilization. In an emergency, all virtual systems can be failed over to a single blade, so with the reduced load the UPS can maintain critical operations for a longer period of time.

In summary, Morris addresses the business impact of the new infrastructure: "Our IT staff can leave for the day knowing that Exchange and SharePoint services will be available overnight to our global users. We

“On a non NetApp SAN, if you carve out 10 100GB virtual machines, you need 1TB of storage. With NetApp, we take advantage of deduplication and use just 100GB for the same 10 virtual machines. Taken together with NetApp reliability, scalability, and manageability, these efficiencies make this the ideal solution for a Microsoft virtual environment. I see no reason why anyone would use anything else.”

**Dan Morris**

Senior Systems Engineer, WhiteWater West Industries

no longer worry about e-mail crashes or data drives filling up. Combining Hyper-V with NetApp storage and integrated management via System Center allows us to maintain availability of essential services that contribute to both user productivity and customer satisfaction.

“The infrastructure will continue to deliver cost savings. We’re currently in the process of setting up an extranet for a SharePoint site from which clients will be able to access project drawings. Giving customers online access will reduce our printing costs and accelerate design, acceptance, and production processes.

“NetApp storage is a vital element of our virtual environment. Other storage products we’ve used simply do not provide equivalent

multiprotocol thin provisioning or deduplication capabilities. On a non NetApp SAN, if you need to carve out 10 100GB virtual machines, you need 1TB of storage. With NetApp, we take advantage of deduplication and use just 100GB for the same 10 virtual machines. That’s a huge difference. Taken together with NetApp reliability, scalability, and manageability, these efficiencies make this the ideal solution for a Microsoft virtual environment. I see no reason why anyone would use anything else.”

#### **ABOUT NETAPP**

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](http://www.netapp.com).

#### **SOLUTION COMPONENTS**

##### **NetApp products**

NetApp FAS2050 system

NetApp deduplication technology

NetApp SnapManager for Exchange,  
NetApp ApplianceWatch PRO software

##### **Protocols**

NetApp SAN/NAS

##### **Environment**

Windows Server 2008 R2, Hyper-V

System Center Operations Manager 2007

System Center Virtual Machine  
Manager 2008 R2

##### **Partners**

Microsoft Corporation  
[www.microsoft.com](http://www.microsoft.com)

Open Storage Solutions  
[www.openstore.com](http://www.openstore.com)

Another NetApp solution  
delivered by:



[www.netapp.com](http://www.netapp.com)

© Copyright 2010 NetApp, Inc. All rights reserved. No portions of this document may be reproduced without prior written consent of NetApp, Inc. Specifications are subject to change without notice. NetApp, the NetApp logo, Go further, faster, ApplianceWatch, SnapManager, and Snapshot are trademarks or registered trademarks of NetApp, Inc. in the United States and/or other countries. Microsoft, Windows, SQL Server, and SharePoint are registered trademarks and Hyper-V is a trademark of Microsoft Corporation. All other brands or products are trademarks or registered trademarks of their respective holders and should be treated as such. CSS-6315-0510