NetApp®

Arizona Department of Economic Security: Helping Arizonans Save State Dollars with Cisco, VMware, and NetApp

DEPARTMENT OF ECONOMIC SECURITY
Your Partner For A Stronger Arizona

Another NetApp
solution delivered by:

Custom Storage
Business Advantage through Intelligent Storage

KEY HIGHLIGHTS

Industry
Government—state

The Challenge
Enhance services and implement DR while shrinking IT infrastructure footprint and costs.

The Solution
Build agile, resilient, and cost-saving private cloud on FlexPod®.

Benefits
• Build web servers in 5 minutes versus 3 months
• Implement pay-for-use model and avoid steep upfront costs
• Instantly expand/contract resources to match demand
• Deliver enhanced services with 4 fewer FTEs
• Reduce rack space by 93%
• Use 50% less storage
• Enable automated DR

Customer Profile

The Arizona Department of Economic Security (AZDES) works with families, community organizations, advocates, and state and federal partners to realize its vision that every child, adult, and family in Arizona will be safe and economically secure. AZDES is the largest government agency in Arizona. The department serves children, individuals with disabilities, the elderly, the homeless, domestic violence victims, low-income working families, individual job seekers, and others. Approximately 9,500 AZDES employees work out of 200 locations throughout the state. Annual expenditures are an estimated $4.5B (source: www.azdes.gov).

The Challenge
Expand Services, Add DR, Shrink Infrastructure Footprint

The department's Division of Technology Services (DTS) provides IT infrastructure to eight AZDES divisions. With Arizona citizens dependent on its services, AZDES must expediently match resources to the people who need them. To better achieve this goal, AZDES IT outlined requirements for making the transition to a virtualized environment. This would provide greater flexibility to deliver department services as well as essential IT and data center efficiencies. In conjunction with the move to a virtual-server environment based on VMware®, AZDES initiated a storage-technology refresh to replace aging storage area networks.

AZDES Data Center Server Operations Manager Eric Mayer says, "Our plan was to achieve the smallest infrastructure footprint possible to more expeditiously deliver information. Another key objective was to improve recoverability. Implementing a comprehensive disaster recovery plan was not practical with the existing footprint of 400 physical servers installed at our data center and another 100 at intake offices across the state."

To architect a solution, AZDES worked with Custom Storage, a leading provider of data storage solutions that protect and manage organizations' mission-critical data and a participant in the NetApp Partner Program. After evaluating solutions from multiple platforms, networking, and storage vendors, including Brocade, Cisco, EMC, HP, IBM, and NetApp, AZDES selected a FlexPod solution from Cisco and NetApp based on functionality, the ability to scale nondisruptively, technology integration, and proven interoperability for the shared IT infrastructure.

> "The FlexPod validated data center solution built on a flexible, shared infrastructure is a much better way of doing IT. It's cost effective and makes it easy to add storage, plug in blades, assign new server profiles, and bring up new multi-tenant environments. The real impact is that we're putting state dollars back into the front office, where the money is really needed to help people."

Eric Mayer
Data Center Server Operations Manager, Arizona Department of Economic Security

The Solution

Build Agile, Resilient, and Efficient Shared IT Infrastructure on FlexPod

Today, the AZDES private cloud delivers IT services to more than 10,000 AZDES staff and consultants. At the primary data center in Phoenix, Arizona, NetApp provides VMware storage resources (via NFS) for both Linux® and Microsoft® Windows Server® 2000/2003/2008 R2 production virtual machine environments running on the new Cisco Unified Computing System™ (Cisco UCS®) and VMware infrastructure. NetApp® MultiStore® software helps maintain separation and security of shared storage and networking resources.

Cisco UCS servers are configured into three VMware Distributed Resource Scheduler (DRS) high-availability (HA) clusters running:

- OLTP/production databases (including Microsoft SQL Server® systems)
- All other production systems, currently totaling some 300 virtual machines (VMs), including the Microsoft BizTalk Server host integration services (for communications with the AZDES mainframe), Microsoft Office SharePoint® Server, file servers, a wide array of application servers, and the web servers through which Arizona citizens access AZDES services

- The AZDES VMware Lab Manager development environment

All client data input via the web and other forms is also consolidated on NetApp storage. Client data includes documents scanned at the department's 200 geographically dispersed state offices and input into a Hyland OnBase enterprise content management system utilizing NetApp FAS2050 and FAS6080 storage. AZDES uses the OnBase Disconnected Scanning module to batch documents—birth certificates, licenses, and other citizen documents—for after-hours uploading to the AZDES mainframe, where the integrated data is made available to legacy applications.

Business Benefits

IT Flexibility: At Your Service, Arizona

Now in production, the FlexPod infrastructure delivers the performance, flexibility, and scalability AZDES requires to stay responsive to the residents of Arizona's requests for services. Clayton Sikes, AZDES server virtualization specialist, elaborates: "The shared IT infrastructure and tools like NetApp FlexPod give us the ability to quickly expand or contract resources to meet demand. For example, we're able to rapidly scale to handle unexpected surges in requests for services, such as spikes in unemployment claims during the recent economic downturn. Just as importantly, we can immediately rede-

ploy those resources when need diminishes. In the past, everything was capped at the physical resources of individual systems. And we couldn't afford to build a traditional infrastructure of sufficient size to handle peak demand because the majority of time its resources would have been underutilized."

Sikes reports that the new infrastructure helps IT keep up with the ever-increasing load on business-critical web servers, which currently handle more than one million hits per month: "With the private cloud, we can build and provision a new web server in five minutes—that took three months in the old environment."

Other NetApp technologies, including rapid provisioning and NetApp FlexClone® functionality, complement Cisco® and VMware tools to streamline processes and accelerate cycles in the AZDES dev/test environment. Sikes comments, "Deploying Lab Manager across the Cisco UCS infrastructure revolutionizes our development process. We configured the Cisco UCS blades with a heavy amount of RAM, so even with the load of our three HA DRS clusters, we have barely scratched the surface of performance and are running at just 20% memory utilization. To date we've moved more than one-third of our physical environment over, and the goal is to ultimately run everything in our data center on the NetApp, VMware,
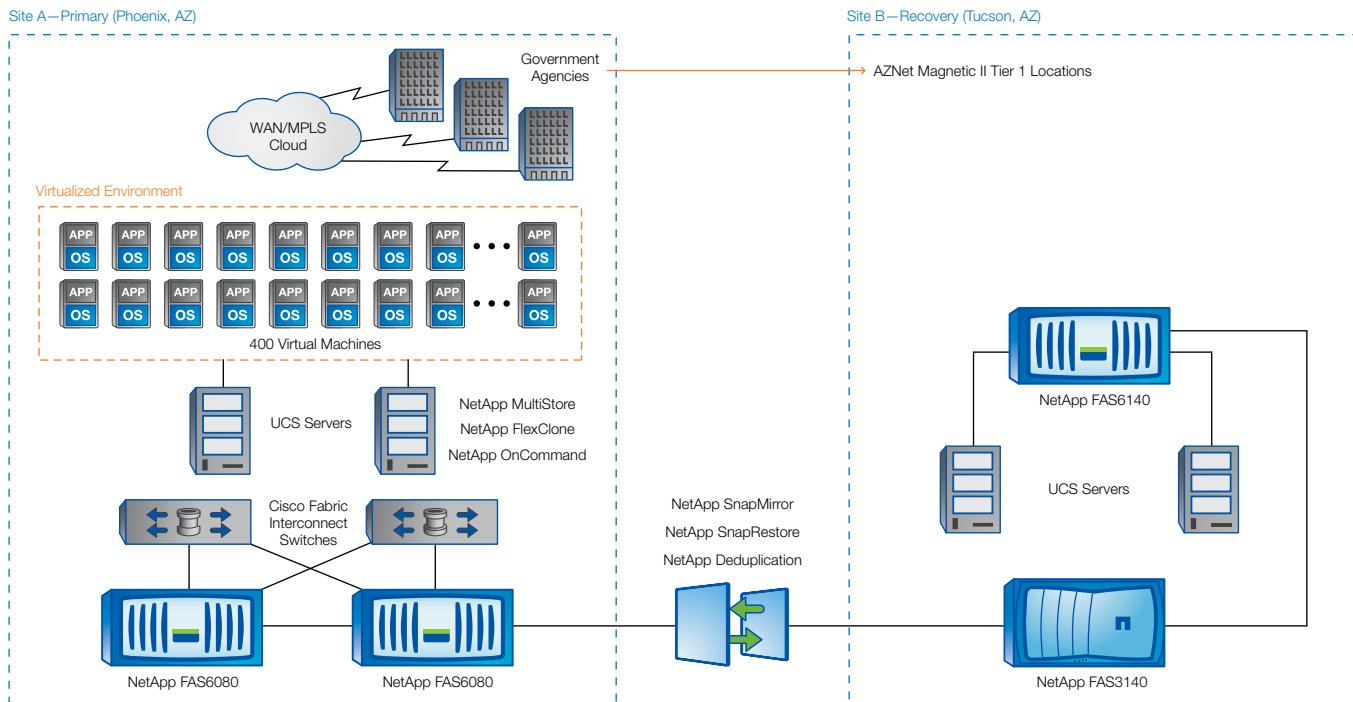
Figure 1) At the primary data center in Phoenix, Arizona, two NetApp systems provide storage resources (via NFS) to both Linux and Microsoft Windows Server running on the new Cisco UCS and VMware infrastructure. A NetApp FAS3140 provides capacity for the disaster recovery site in Tucson, Arizona.

and Cisco infrastructure. We plan to supplement some mainframe systems with virtualized platforms based on Windows® running on our FlexPod solution."

IT Efficiency: Putting the Dollars Where People Need Them Most

The private cloud based on a FlexPod infrastructure gives AZDES the means to deliver better services more cost effectively. Mayer continues, "We're using VMware vCenter™ Chargeback to implement a pay-for-use model. Previously our divisions were forced to make high-cost, upfront capital investments to deploy new platforms or scale platform and storage resources for projects. Because we had to buy capacity in 3TB increments, a team had to spend $45K even if they only requested 1TB of storage and even if they needed the space temporarily. Today they pay for only what they use, when they use it. In the past, a new server cost a division $8,500. Today we can run that server over five years for just $1,600."

The FlexPod validated data center solution built on a flexible, shared infrastructure is a much better way of doing IT. It's cost effective and makes it easy to add storage, plug in additional blades, assign new server profiles, and bring up new multi-tenant environments. End-to-end secure multi-tenancy also dramatically simplifies compliance.

Sikes relates other efficiencies, including:

- Unified, tested, and validated shared infrastructure. "We're achieving savings at every point in the process, from deployment to ongoing services, and routinely see the benefits of a cooperative support model where vendors intimately understand best practices across components. We looked at other solutions, but none offered the same level of integration and functionality. HP, for example, required 15 different products and 2 weeks of on-site implementation services to deliver equivalent capability."
- One storage platform for all environments. "NetApp's same-box multiprotocol support lets us do VMware over NFS, FC boot from SAN (we'll do FCoE in ESXi™ 4.1), and CIFS to meet all of our needs on a single system."
- 93% reduction in rack space. "Our footprint of four racks—two Cisco UCS and two NetApp—replaces seven rows of eight racks each. We estimate we'll save hundreds of thousands of dollars by consolidating our data center with a solution built on FlexPod."
- 50% capacity savings from deduplication and thin provisioning. "What took 20TB on our legacy IBM SAN required just 10.5TB when we moved it to NetApp. Last year we scaled from 14TB to 32TB of storage—if we had had a NetApp solution in place

then, we estimate that we'd have saved $298,000."
- Fewer IT resources to deliver more and better customer service. Through attrition, IT staffing has been reduced from 14 to 10 administrators. Because of this infrastructure, we've actually enhanced our increased level of service without replacing that staff."

The real impact of these savings, emphasizes Mayer, "is that we're putting state dollars back into the front office, where the money is really needed to help people."

Availability: Help When It's Needed

The Cisco, VMware, and NetApp infrastructure helps maintain around-the-clock availability of essential services. "For some of our programs," Sikes points out, "such as those in Child Protective Services, a down system or network could put lives at risk. Since deploying this solution, we've streamlined backups and can almost instantly recover data that used to take hours to restore. In the past, we weren't able to back up data fast enough to get tapes off site every day. And, we were dragging data from 500 servers across our network. With NetApp technology, we've totally eliminated that infrastructure. For disaster recovery, we're working with Cisco to leverage their router technology in conjunction with NetApp SnapMirror® and VMware Site Recovery

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Clayton Sikes
Server Virtualization Specialist, Arizona Department of Economic Security

Manager to enable automated, no-configuration-changes recoverability from our DR site.

"Custom Storage is helping us design our encryption solution. Working with them has also been a key factor in our overall success. We first used their services in a quick-turn project to bring our OnBase imaging in house. They used NetApp technology to move 6TB of data over a weekend so that we could avoid any disruption to intake services. No other provider offered us that turnaround—the competing best estimate was two weeks. The cost and time savings of bringing this service in house actually funded our permanent NetApp solution, which now stores more than 130 million images."

Mayer summarizes, "The AZDES virtualization project is a key step in Arizona's long-term plan to consolidate data center and applications from across

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a heterogeneous compute environment at some 130 state agencies. That project isn't just about moving equipment to one data center. Integrating functionality and moving mission-critical applications are the much more difficult tasks, and that's

where NetApp is helping us begin the transition by consolidating all of our front-end production data and by supporting the more dynamic and capable Cisco UCS and VMware infrastructure."

SOLUTION COMPONENTS	
FlexPod Components NetApp FAS6080 storage systems CIsco UCS with B200 Blade Servers Cisco Nexus® 7010 Chassis **Virtualization Components** VMware vSphere®, Lab Manager, vCenter Chargeback, Site Recovery Manager **NetApp Software** NetApp MultiStore software NetApp FlexClone and OnCommand® software SnapManager® SQL Server Deduplication	MultiStore SnapDrive® for Windows, SnapMirror, and SnapRestore® technology **Additional NetApp Components** NetApp FAS2050 and FAS3140 storage systems **Third-Party Products** Microsoft Windows Server 2000/2003/2008 R2 and Microsoft SQL Server BizTalk Linux: CentOS, SUSE, Red Hat **Partner** Custom Storage *www.customstorage.com*

www.netapp.com

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

Go further, faster®

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