Mohave County, Arizona

DataCore’s Rich Set of Storage Software Services, Features and Functionality Work across Any Storage Hardware at Mohave County

“Not only is the performance amazing, the rich feature set of the product provides the county with the features we desire to work across any storage we manage with DataCore.”

- Nathan McDaniel, IT Director at Mohave County

A virtualized software-defined storage solution enables this local government to minimize downtime related to storage hardware migrations. Mohave County is a local government entity in northwestern Arizona. Mohave County through their experience has become a vocal advocate of Software-Defined Storage (SDS), giving DataCore a “5” or “Excellent” rating (on a scale of 1-5) in response to the question “How well has DataCore delivered Software-Defined Storage to your organization?”

IT Challenges: Business and Data Disruption from Storage Migrations and Refreshes

The primary challenge for the county’s IT Dept. was migrating all of its servers to a new storage platform and avoiding the potential downtime associated with such a migration. Embracing the “new” and reducing risk was both an IT objective and a business driver for Mohave County.

“The fear among our IT staff was the overall disruption and planned downtime involved with the hardware upgrade as well as potential failure in migrating the data, which of course would result in a suspension of service to all users,” stated Nathan McDaniel.

An additional challenge at Mohave County was to become free from hardware vendor “lock in” and thereby reduce storage-related costs. McDaniel and his team were seeking to substantially reduce the capital and operating expenses associated with storage, while extending the life of storage investments and skipping expensive refresh cycles.

“We knew that we wanted to avoid costly hardware lock-in and open up our options to more attractive alternatives from competing suppliers,” McDaniel explained. “We wanted to position ourselves to take advantage of changes to the storage industry in the future and we did not want to be locked in with or tied to a specific hardware solution.”
Meeting the Challenge at Mohave County

DataCore SANsymphony-V software is a comprehensive and scalable storage services platform. It was deployed at Mohave County to transform disparate storage resources into a unified and efficient infrastructure that is flexible, fast, reliable and scalable. With DataCore, Mohave County now uses virtual disks and pooled storage resources to serve as a shared storage infrastructure for both physical and virtual host systems.

The DataCore SANsymphony-V software platform takes isolated storage devices that are often spread between different locations, and places them under one common set of infrastructure-wide services. Data is mirrored in real-time between separate storage devices to maintain continuous availability despite equipment and site outages.

Currently the servers that are hosting the synchronously mirrored DataCore SANsymphony-V SDS platforms are HP DL380 Gen8 servers. The servers are fiber channel connected to multiple Nexsan E60 storage platforms. Mohave County uses DataCore to present all the virtual disks to its production environment so that it can leverage the many features that DataCore brings to its IT environment.

In terms of data migration, SANsymphony-V simplifies the process of migrating data to new equipment at Mohave County. It eliminates many of the difficulties, delays and stresses usually associated with these moves. SANsymphony-V provides the services and facilities to migrate data contained within virtual disk pools to newer storage devices. SANsymphony-V also migrates data from storage devices that are not originally managed by DataCore. In either case, the migration is greatly simplified and can be accomplished, in both scenarios, with no impact to business operations.

Data Migration with SANsymphony-V at Mohave County

- Enables non-disruptive hardware storage upgrades and refreshes
- Clears and reclaims space occupied on the original drive(s)
- Decommissions active physical disks non-disruptively from pools and redistributes their contents among the remaining disks in the pool
- Provides pass-through access to storage previously used on other systems
- Sustains redundancy and performance during major maintenance operations, upgrades and expansion
VIRTUALIZED IT ENVIRONMENT

- DataCore Managed Capacity: Over 200 TBs
- Auto-tiering feature: Yes
- Number of Users: 1000+
- Number of Virtual Servers and Number of Hosts: 100+ (4 Hosts)
- Primary Server Vendor: Hewlett Packard
- Storage Vendor(s): Nexsan
- Server Virtualization Platform: VMware
- Desktop Virtualization Platform: VMware Horizon (future)

Mohave County has virtualized nearly 90% of its data center server environment. The key applications that are 100% virtualized for servers and storage can be found on the next page’s right column.

Better Data Protection, Better Performance, Better Capacity Utilization

Mohave County has mitigated risks and averted downtime by deploying two copies of SANsymphony-V to achieve non-stop business operations in a very practical and cost-effective manner so that it prevents storage-related downtime and costly disruptions. Currently, the two DataCore SANsymphony-V software nodes are located in the same data center. However, the software allows the nodes to be located at different sites and the plan is to move one node across town to avoid possible site related disruptions – thus becoming a stretched “metro cluster.”

“We have plans to stretch our VMware cluster and DataCore clusters from our primary data center to our secondary data center to achieve a higher level of fault tolerance and redundancy,” explained McDaniel. “The data centers are approximately four miles apart and will be connected by dark fiber. We will also be using CWDM equipment to channelize our fiber connection to create a 10GbE path as well as an 8Gb fiber channel pathway. Once we have completed this project, targeted later this year, we will have effectively a data center that spans two geographic locations.”

In addition, DataCore has also delivered better management of capacity management and performance at Mohave County. The county has maximized its productivity and reduced costs by increasing the performance of their storage and fully utilizing the storage capacity they already had.

DataCore uses high-speed in-memory caching to turn around requests quickly, while moving data between flash and spinning disks to optimize performance. It accelerated performance by 200% to 300%—speeding up workloads and ensuring faster response times at Mohave County. And in terms of capacity management, DataCore software increased utilization rates by 3 times going from the 30% norm up to around 90% at Mohave County.

Summarizes McDaniel, “DataCore has met the challenges we faced by providing a virtualized storage solution that enables us to minimize downtime related to storage hardware migrations. DataCore has also enabled Mohave County to have a rich set of storage services, feature and functionality across any storage hardware of our choice.”

Other Benefits Realized with DataCore: Risk Reduction, Cost Containment and Productivity Improvement

DataCore SANsymphony-V has provided a foundation for Mohave County to achieve reduced risk, lower costs and improved productivity. Risk reduction has been accomplished through the synchronous mirroring and continuous data protection (CDP) features of the product.

“We use these features to mirror virtual disks to different stacks of storage to create the redundancy we desire,” commented McDaniel. “Moreover, CDP allows us to add another layer of data protection to our most important virtual disks.”
Cost containment has been achieved at Mohave County through the thin provisioning and auto-tiering features. "We are now utilizing our storage more efficiently and effectively which has resulted in much less wasted storage," McDaniel noted.

Productivity improvement has been accomplished through the simple fact that DataCore has significantly increased the performance of Mohave County’s storage environment. Extensive automation frees system administrators to care for other parts of the IT infrastructure.

Software-Defined Storage with DataCore – A Whole New Approach at Mohave County

Software-defined storage with DataCore provides the storage virtualization dimension needed to complete a software-defined, fully virtual data center. At Mohave County, SANsymphony-V software serves as one unified storage services platform that maximizes the performance, availability and utilization of all storage resources. Importantly, the software is responsible for attaining these essential objectives for the county’s IT dept. –

- Centralizing and automating storage management.
- Pooling online storage and protect data.
- Making applications run faster and uninterrupted.

Because DataCore offers a software-based approach – the software lives beyond devices that “come and go” – thereby extending the useful life of storage and training investments.

DataCore SANsymphony-V enables Mohave County to save up to 60% on operating expenses through added market purchasing power gained by removing disk vendor lock-in. With DataCore, customers pay once for intelligent software and run it on the hardware of their choice – only buying what they need, when they need it.

"DataCore’s software-defined storage enables our county to have the performance, features and functionality we require across any hardware solution of our choice," summarized McDaniel.

KEY VIRTUALIZED APPS

- ESRI – Arc GIS server platform and associated components – Geographic Information System platform
- Latitude Geographics: Geocortex – Online GIS Map viewer that sits on top of the ESRI platform – Public Map viewer
- Tyler Technologies: Munis – Financial and Human Resources
- Tyler Technologies: Eagle Treasurer – County Treasurer Tax Billing and Account Management
- Tyler Technologies: Eagle Recorder – County Recorder application for all Publicly Recorded Documents
- Harris Systems (previously Colorado Customware INC): Realware – County Assessor CAMA system
- Messaging Architects: Netmail Secure & Netmail Archive – Email Security & Email Archive Platform
- Newdawn – Justware (Case Management software for Prosecution and Public Defense)

For additional information, please visit datacore.com or email info@datacore.com

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