





# Rockingham County Case Study

Necessary improvements for Rockingham County IT services were:

- Reduction of the risk of a single point of failure
- Redundancy for mission critical systems
- Capacity for data growth
- Data protection requirements driven by past data loss
- System response time and reliability improvements
- Consolidation of duplicate systems and services

Server virtualization activity and consolidation of computing for different departments was also driving the need to standardize hardware and retire obsolete systems. Storage was continuing to double yearly and a government initiative to consolidate the Department of Social Services, Register of Deeds, and others resulted in comprehensive IT architecture planning that included ample consideration for rapid expansion of storage capability.

## Storage Environment Beginning of 2010

- 8 physical servers with direct attach storage w/500-1000 GB each
- Internal software RAID 5 solution
- One direct attach storage solution with 1TB of storage
- Budget is tight, but data reliability & protection are essential.
- Goals: consolidate and virtualize IT infrastructure and increase performance and capacity.

IT Architecture Planning for Rockingham County was initiated by David upon his appointment in to the position of Director of Information Services in February of 2010. Bringing in key sales consultants from a Dot Hill Gold Reseller Partner, David was introduced to Dot Hill AssuredSAN storage array solutions. Gov Connection an arm of PC Connection was instrumental in working with David to specify a Dot Hill AssuredSAN disk array.

## Storage Issues

When Whicker entered his new role at Rockingham County Government, he was faced with disk drive failures, complaints about data access, and rapidly growing storage needs for the Departments. He immediately needed to add 10-100TB of scalable storage without disrupting government services to the public.

With a limited budget, price and performance were key considerations, Whicker decided his new approach should meet several criteria that would ease decisions going forward:

- Must support a wide variety of applications and operating systems.
- Midrange storage that is expandable and scalable beyond 100TB.
- Must be compatible with a Microsoft environment.
- Desired a single storage system that could span across non Microsoft environments now and in the future.
- Low entry point as well as inexpensive expansion desired.

## Backups

Within the Rockingham County data center, incremental backups are taken for certain classifications of public data. Some of this is backed up every half hour which involved a manual process. The preferred new storage solution would have automatic snapshot capability, as in the AssuredSAN backup solution. In addition, AssuredSAN solutions can be easily expanded using JBOD's, which is a low cost way to expand storage.

## The Solution

In the chosen solution, Rockingham County was able to put in place an expandable high performance SAN solution with dual controllers that eliminated the risk of a single point of failure. Several older storage systems were consolidated into a single storage area network. The addition of VMWare virtualization software saved time, money and resources.

In 2010 Q4, the County IT department installed a Dot Hill AssuredSAN 3920 array with 24, 300GB SAS drives and a 3120 JBOD for a total of 19.2TB raw capacity. These products are configured as a RAID 6 array but also supports RAID 0, 1, 3, 5, 10, and 50 for different application needs. The 3920 was configured to The AssuredSAN 3900's combine both 8Gb Fibre Channel and 1Gb iSCSI hosts in one SAN array which allows maximum flexibility in configuring storage, enabling county departments to leverage both iSCSI and 8Gb FibreChannel storage and perform both file and block level storage, easily adapting as needs change with a single unified SAN storage solution.

## Data Protection Built In



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Another key feature for the County Government was the ability to perform data protection at various levels. Previously, the backup process involved daily incremental backups. However, with the Dot Hill AssuredSAN storage solution with snapshot functionality, automatic snapshots are scheduled at various points in the day. This approach provides fast and frequent backup sets for greatly improved RTO (Recovery Time Objective) and RPO (Recovery Point Objective).

## CUSTOMER BENEFITS AND OUTCOMES

Ease of installation and use

Automated backups of key data

Expandable midrange system that will grow inexpensively with data needs

iSCSI and Fibre Channel connections allow greater flexibility

## Ease of Use

Another important feature of the AssuredSAN systems was its ease of management through its RAIDar 2.0 management interface. RAIDar 2.0 was easy enough that a new user could set up and configure the system without any reliance on technical support. The ease of use speeds implementation and helps customers avoid training costs.

*"The interface and understanding using the quick start guides seems very intuitive. The biggest thing I liked about it is when it came in there was limited reliance on support and there was no specialized training required. The documents were clear, cut, concise, easy to understand, and really allowed for quick implementation," said David Whicker.*

## Results

Rockingham County replaced 6 servers with 3 IBM 3560's load balanced over Fibre Channel and created 10 virtual servers with access to 19.2TB of RAID storage (easily expandable to 144 HDD's). Then it migrated critical data

from legacy direct attach storage to the AssuredSAN 3920 and installed VMware (vSphere) business virtualization infrastructure. As a result of the implementation, the County was saved purchase new servers while still supporting new county governance requirements, and positioning the IT infrastructure for future expansion in capacity and performance. Now the County is positioned for the planned implementation of remote site replication with DotHill AssuredRemote™ software. Rockingham County Government is able to demonstrate data response, reliability, and security advancements on a daily basis.

## AssuredSAN™ 3000

The AssuredSAN arrays are equipped with 2.5-inch drives or 3.5-inch drives, supporting mixed drive configurations of SAS, SATA, and SSDs. AssuredSAN arrays also features a number of eco-friendly enhancements such as energy saving drive-spin-down and Dot Hill's patented EcoStor™ battery-free alternative for cache memory, which leverages a combination of super capacitors and flash memory that outlasts traditional batteries nearly fivefold.

Dot Hill's AssuredSAN 3000 Series arrays are easy to configure and manage via the RAIDar 2.0 intuitive web-based interface which provides storage setup and monitoring without the need for host-based software. AssuredSAN users gain configuration and installation efficiencies via wizards and schedulers for snapshots and replication.

Optional AssuredSnap™, AssuredCopy™, and AssuredRemote™ data protection software is available offering necessary protection for business-critical applications. AssuredSnap and AssuredCopy data protection software can be easily added at the point of sale or afterwards, through the Try & Buy menu in the management interface.

