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Enterprise**

Maricopa County Sheriff's Office boosts response rates with streamlined infrastructure

HPE 3PAR StoreServ and StoreOnce saves time and money for law enforcement office

Objective
Move from a silo environment to centralized storage to support new developments for the law enforcement agency

Approach
Went straight to its trusted supplier HPE for a solution

IT Matters
- Ensures data security and availability, and mitigates risks associated with critical law enforcement data
- Increases storage flexibility and speeds up recovery to support vital availability for emergency dispatch system
- Lessens troubleshooting issues to save time for helpdesk and support staff
- Cuts restore times and reduces hardware deployment time from days to hours
- Saves LAN administrators up to 18 hours a week on tape swaps
- Deduplication with HPE StoreOnce backup system increases storage efficiency showing a very high 135:1 ratio initially

Business Matters
- Supports a new and improved computer-aided 911 emergency dispatch system supported by highly available, secure data
- Saves $3,000 a month paid to an external maintenance company for servers that were no longer supported
- Delivers 50 percent cost saving when virtual desktops are compared with physical PCs

Arizona's Maricopa County Sheriff's Office wanted to increase and centralize its data storage to support ambitious new projects including the introduction of an HPE Client Virtualization Infrastructure and a new computer-aided 911 emergency dispatch system. HPE 3PAR StoreServ Storage was central to the new solution.

Challenge

Need for centralization
With a population of over 3.8 million, Arizona's Maricopa County is one of the largest counties in the United States. Sheriff Joe Arpaio is responsible for policing Maricopa County's 9,200 square miles. In addition to the law enforcement mission of the Office, the Sheriff is mandated to operate jail facilities for the care and control of pretrial inmates. Average daily population for the seven jail facilities has been as high as 10,000 inmates. Sheriff Joe ensures the provision of these services through the efforts of 3,300 employees and a volunteer posse of 3,000 men and women covering every corner of this huge territory.

Headquartered in Phoenix, Maricopa County Sheriff's Office (MCSO) is one of America's most innovative law enforcement agencies.

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"Implementing a Virtual Desktop Infrastructure (VDI) has been on our radar for many years now. Doing this with HPE Client Virtualization ensures the high availability and security of data that is essential for protecting our citizens."

— Chip Lemons, senior systems/network administrator, Maricopa County Sheriff's Office

The Sheriff recognizes how efficient IT can support its professional law enforcement, detention and administrative services and has used Hewlett Packard Enterprise technology for many years. Existing equipment included its 80-strong server fleet, an HPE c7000 class blade enclosure and an HPE 4400 Enterprise Virtual Array (EVA) storage system.

MCSO also anticipates significant time savings, especially for the help desk and desktop staff because the need to troubleshoot specific issues will be lessened in a virtual desktop environment. System management time is also expected to decrease once the system is fully implemented.

Storage was becoming an issue for the Sheriff's Office. With no Disaster Recovery site, it relied on storage for its data security and with 12TB to 14TB of data, its EVA storage system was fast running out of space. The need to move towards more flexible and efficient storage was made even more urgent by a number of new projects.

The Sheriff's office was introducing a new data-intensive computer-aided dispatch system for emergency 911 calls. Client Virtualization was introduced to protect the county security and ensure high availability of data. Alongside this a VMware virtualization program was embarked upon, covering 95 percent of its servers.

Running out of space
"Our original EVA had been expanded but it was soon going to be completely maxed out," explains Chip Lemons, senior systems/network administrator at the Sheriff's Office. "We also knew that more capacity would be needed for the new 911 project which would include a ton of data feeds from multiple sources. We needed to build out the storage as big as we could to support all the new data coming in."

The organization also faced consolidation challenges with ambitious plans to combine three existing data centers into one purpose built location.

"We had this huge server fleet and in the past everything was built in silos. Servers would have a dedicated tape drive and even a dedicated cabinet or rack in some cases," says Lemons. "This meant our data center just kept expanding. We had racks in there that would have just one server and a tape drive. Funding is also a challenge so these things went way beyond their useful life. We needed to start modernizing and to get out of this silo mindset. The decision to construct a new data center provided the budget and a starting point."

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Solution

Introducing Client Virtualization

To provide constantly available, secure data for remote and local task workers, the Sheriff's Office considered a new EVA solution but when it consulted HPE, it became convinced that centralizing storage with the HPE 3PAR StoreServ 10400 storage system would best meet its needs. It bought two 3PAR StoreServ systems which are used with HPE StoreOnce centralized backup and longer-term backup to an HPE MSL4048 tape library.

"The two HPE 3PAR StoreServ systems were built out in such a way that they mirror each other," says Lemons. "We located the 3PAR StoreServ systems and blades we purchased in one of our existing data centers with the understanding that when our new building was completed they would be physically relocated. The challenge was to build them in such a way that we minimized or eliminated downtime during the move.

"The ultimate goal is that when the 3PAR StoreServ systems get moved to the new building and server consolidation is done, that will be our new production environment and the blade enclosure and EVA we are currently using will be more of a test and development environment."

The Sheriff's Office worked with local HPE partners Milestone Technology, IT Partners and Prencipia, as well as HPE specialists who delivered design and implementation of the solution which also includes an HPE StoreOnce backup system and HPE Data Protector automated backup and recovery software. HPE also flew in other experts to provide 3PAR StoreServ training and the solutions are covered by five-year HPE Care Pack support.

An important innovation for the Maricopa County Sheriff's Office has been the introduction of HPE Client Virtualization (CV) based on HPE 3PAR StoreServ Storage which delivers unique architectural advantages and platform features that directly address client virtualization requirements.

"Each new 911 dispatcher workstation will have multiple computing environments so there was a specific need to cut down on the amount of equipment, cables, heat, noise and power at each workstation," says Lemons.

Benefits

Vital availability and security

"With HPE Client Virtualization, we can cut down on the amount of equipment and also reduce the cost of the equipment by 50 percent, if you compare a $600 thin client with a $1,200 PC. CV also allows increased flexibility and the ability to quickly recover if we're having issues with a workstation," adds Lemons.

Customer at a glance

Hardware
- HPE 3PAR StoreServ 10400 Storage
- HPE MSL4048 tape library
- HPE Client Virtualization
- HPE StoreOnce backup system

Software
- HPE Data Protector

HPE services
- Design, implementation and training services
- Five-year HPE Care Pack support
- HPE Care Pack support

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"The first phase involves 100 virtual desktops for 911, where high availability is vital and we have to get as close to 100 percent availability as we can.

"We expect a great increase in availability, flexibility and scalability with this solution which is important because 911 cannot afford any downtime."

Lemons also anticipates significant time savings, especially for the help desk and desktop staff because the need to troubleshoot specific issues will be lessened in a virtual desktop environment. System management time is also expected to decrease once the system is fully implemented.

Deploying virtual machines is much quicker than traditional PCs as Lemons explains: "The Sheriff's Office is now discussing two future CV phases – one for our training division for use in their computer labs and another large-scale phase for our detention facilities that will likely replace around 1,500 PCs with thin clients. We foresee that the hardware deployment process will be reduced from days to just a few hours."

Financial savings
Other benefits of the centralized storage will be to eliminate problems with disk capacity and introduce easier monitoring. The new solution will also save about $3,000 a month paid to an external maintenance company for physical servers that were no longer supported. Since one Local Area Network (LAN) administrator had to spend two or three hours a day on tape-swaps, using StoreOnce backup will also save a considerable amount of time. Sheriff Arpaio is particularly pleased with the reduced resource requirements associated with the HPE solution. "Today, because budgets are tight, local government has to do more with less. That means our technology has to take us further, faster."

"We put in a new HPE MSL4048 LTO-5 tape library for long-term archiving, and we're doing disk-to-disk-to-tape backups using StoreOnce, which allows for quicker backups and brings a huge efficiency increase across the board. At the moment it's only backing up the 3PAR StoreServ data and the systems that were put in for the 911 project. Within a year we will have the majority of our server fleet on StoreOnce," says Lemons.

"Today the restore process is lengthy because our LAN administrators have to identify the tape, have it pulled from our other data center and brought back to our main server room, which can take days. With Data Protector and our centralized backup the time it will take can be reduced to one to two hours at the very most. There is a huge efficiency increase there because the LAN Admins won't have to retrieve and run tape, except in extreme circumstances."

Deduplication with StoreOnce is also increasing storage efficiency. Initial figures show a very high 135:1 ratio (for 135GB, de-duplication means that only 1GB needs to be written). However, this is expected to fall in future when the data becomes more diverse.

"One of the neatest things we've seen is the fact that HPE 3PAR StoreServ Storage has the ability to call out to support when they identify a problem," says Lemons. "There have been a couple of cases when I didn't even realize there was a problem until support called me. Recently, we had a weird power outage at our data center and within minutes of the power going out and shutting the 3PAR StoreServ down, support was calling me. They knew about it almost immediately, which is pretty incredible."

Learn more at
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