

Los Angeles County votes for HP's scalable, virtualized storage solution

Los Angeles County Dept. of Registrar-Recorder/County Clerk



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- Network Administrator Kevin Sasaki, County of Los Angeles Registrar-Recorder/County Clerk

HP is bringing state-of-the-art technology to the state of California, specifically the Los Angeles County Department of Registrar-Recorder/County Clerk (RR/CC). With the general public and numerous business and public sector offices relying on the RR/CC for a multitude of records – from real estate documents to voter registration – the RR/CC elected to work with HP, its trusted hardware solutions vendor, when it came time to enhance and upgrade its systems.

Choosing a future-ready, storage forerunner

According to the RR/CC's Network Administrator Kevin Sasaki, HP has an outstanding reputation of offering the



broadest range of storage virtualization solutions in the industry. Consequently, the organization's newly installed HP StorageWorks Enterprise Virtual Array 5000 (EVA5000), which is configured in a storage area network (SAN), helps the RR/CC build upon its strategy of implementing an adaptive storage infrastructure and respond promptly to business changes.

The RR/CC has used HP StorageWorks solutions since 1988. Sasaki recalls: "We've always had great success with HP StorageWorks systems and wanted to continue implementing the latest, most innovative storage technology in the industry. We believe that the HP StorageWorks Enterprise Virtual Array system – with its array-based virtualization capabilities – protects our investment by providing scalable, manageable storage well into the future."

Reforming backup operations

In choosing a storage solution, the IT staff sought a reprieve from lengthy backup cycles caused by a complex, yet efficient data-logging process. The real property system – a large, complex recording operation of official filed and recorded documents – represents millions of pages of images via a proprietary Lexign



Keyfile database, which portrays these images as separate files, not as relational tables and rows as in open-standard databases. This arrangement creates up to 45 million files, resulting in excruciatingly slow backups.

The RR/CC's Systems Supervisor Jerry Wanha explains: "Thanks to the fast throughput and controller performance of the HP StorageWorks Enterprise Virtual Array system, we increased our backup speed by about 300 percent – even though we aren't yet using the system's

"We've had great success with HP StorageWorks systems and HP ProLiant servers. We've standardized on HP hardware almost 100 percent, and see no reason to change our strategy."

virtual snapshot (Vsnap) and cloning (snapclone) technology." Sasaki adds that the staff plans to initiate Vsnap and snapclones to complete backups within designated times after the staff migrates other applications and systems to the SAN. The staff backs up the virtual disks of its real property system to an HP StorageWorks tape library.

Tabulating gains from easier management

Even with virtual storage pools and substantial capacity, the current platform requires less management than the previous one. HP's virtualization functionality makes management and administration straightforward. "It just takes a few minutes to create new disks, add hosts, or form storage sets," Sasaki says. "Now, I may only spend 10 minutes all week managing the SAN."

When he must change virtual disks or hosts, the HP OpenView Storage Management Appliance is a helpful resource. "The HP OpenView Storage Management Appliance does everything we need it to do," Sasaki emphasizes. "The intuitive, Web-based interface lets us configure, monitor, and provision storage components on the SAN from a central point."

To aid management and data availability, the IT staff uses HP StorageWorks Secure Path multi-pathing software, which provides continuous data access from HP RAID arrays to host servers. "The user-friendly, graphical display of HP StorageWorks Secure Path makes it a breeze to attach a server with one or more host bus adapters to the SAN," Sasaki comments. "We can make changes in the SAN without constantly having to monitor

them because the software performs any failover to alternate paths to ensure data availability."

Migrating additional servers and consolidating direct-attached storage to the SAN are both easier because the RR/CC uses HP infrastructure switching solutions with the StorageWorks EVA. Sasaki says that with these solutions, the staff can attach and configure a ProLiant server for storage access in 30 minutes or less. "Because HP infrastructure components integrate easily, any changes to the HP SAN require less time," Sasaki notes. "This reduces complexity, frees us to focus on other IT responsibilities, and makes us more productive in our jobs."

The staff also gained more productivity – and more floor space – by consolidating real estate files in three separate storage cabinets to the StorageWorks EVA. "I'm thrilled that we've added quite a bit of floor space," acknowledges Wanha, who also manages the computer



room. "We're delighted to have three times more storage capacity, but fewer arrays to administer."

Electing record performance

Standardizing on HP servers, the RR/CC deployed approximately 30 ProLiant servers, including models ML350, DL360, and DL380. The IT staff chose four ProLiant ML370 servers to support the real property system. "HP ProLiant ML370 servers are reliable, versatile servers," Sasaki says, "giving us amazing uptime and resilience with hot-plug and redundant drives, power supplies, and cooling fans. ProLiant servers are the best fit for our real property system because they require

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Challenge

- Handle exponentially growing need for storage
- Boost storage capacity
- Upgrade functionality of storage system
- Simplify management of storage solution
- Speed data-backup processes

Solution

Hardware

- Two HP StorageWorks Enterprise Virtual Array 5000 (EVA5000) systems
- 34 HP ProLiant servers, including models ML350, ML370, DL360, DL380, 6400, and 1600
- HP OpenView Storage Management Appliance

Software

- HP StorageWorks Secure Path V4.0B for Windows
- HP OpenView Storage Management Appliance software
- Microsoft Windows NT and Windows 2000 operating systems
- Veritas NetBackup
- Lexign Keyfile database

HP Services

- SAN consultation and configuration (with Nth Generation Computing)

Results

- Provides a stable, scalable, fault-resilient technology platform, which handles highly specialized real estate and voter system databases and applications effectively
- Lessens storage administration and management time from hours to minutes
- Increases backup speed by about 300 percent
- Provides flexibility in resource utilization and expansion ease, which helps the IT staff manage growth incrementally and without downtime
- Enables quick migration of servers to the SAN by the IT staff, reducing staff time and cost
- Frees up floor space in the data center, as a result of consolidating property files on three storage systems to the HP StorageWorks EVA

almost zero maintenance, so we spend little time managing them."

Assisted by HP Services, HP reseller Nth Generation Computing, Inc. configured the ProLiant ML370 servers and the StorageWorks EVA system into a SAN. "The partnership of Nth Generation and HP provides us with a great deal of value," Sasaki offers. "They are knowledgeable and responsive technology specialists, and I'm pleased with their contributions. Since they know so much about HP StorageWorks systems, Nth Generation made the StorageWorks EVA implementation stress-free for us."

Nth Generation will install a second StorageWorks EVA that the RR/CC recently purchased to increase the flexibility and growth options of its file servers; voter system, database, and applications; and birth, death, and marriage system. Data growth for these systems is at an all-time high, as well. The Los Angeles County RR/CC serves and must maintain records for more than 4 million registered voters. Each year, the office participates in approximately 200 elections for schools, cities, and special districts. Added to these records are approximately 75,000 marriage licenses and 125,000 fictitious business name filings annually. Only the Pentagon, Social Security Administration, and Library of Congress contain more than the 200 million records that the RR/CC stores.

"Without robust HP StorageWorks systems and HP ProLiant servers, we'd encounter troubling issues," Sasaki concludes. "System downtime would have a spiraling effect on the real estate industry, and there are legal implications if we can't conduct elections. However, with HP we don't worry about availability. HP supplies the



equipment and services we need to do our jobs for Los Angeles County taxpayers."

Customer profile:

The County of Los Angeles Department of Registrar-Recorder/County Clerk (RR/CC), located in Norwalk, Calif., maintains the registration of 4 million voters; conducts county, state, and federal elections; issues marriage licenses; files and indexes business names; and maintains and issues certified copies of birth, death, marriage, and real estate property documents. The RR/CC (<http://lavote.net>) serves 10 million Los Angeles County residents and is the largest voting jurisdiction in the United States.

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