State Department of Health

State's Department of Health Deploys VMware Virtual SAN to Increase Storage Capacity and Performance

The Bureau of Women, Infants, and Children (WIC) plays an important role in health departments' mission of delivering healthy outcomes to all of their state's inhabitants. Thus, when an aging, out-of-capacity storage solution began to hinder efficient delivery of the bureau's services in one state, the Department of Health (DOH) there needed to take action. To do so, it turned to VMware Virtual SAN™, which delivered more capacity for less cost and also improved application and system performance.

For more than 100 years, state health departments have been promoting healthy lifestyles, helping to prevent injury and disease, and ensuring the safe delivery of quality healthcare to the communities they support. To provide these services, they employ thousands of people and work in partnership with a variety of agencies—many of which are federally funded, such as the Bureau of Women, Infants, and Children.

The Challenge

To ensure easy access to high-quality healthcare for its populace, an East Coast DOH relies on partnerships with numerous federal and community-based agencies. The Bureau of Women, Infants, and Children (WIC) has played a critical part in this effort. Because good beginnings are key to optimal long-term health, WIC provides a wealth of services—including nutrition and education assistance, breastfeeding support, healthcare and social service referrals, and healthy foods—to low-income pregnant, breastfeeding, and non-breastfeeding postpartum women, as well as infants and children at nutritional risk. Supported by federal grants and administered by the state DOH, the program was being hampered by an aging IT infrastructure that was rapidly reaching its storage limit.

As the DOH network administrator for the state explains, "All of WIC's web servers, database servers, and application servers were running in an aging physical environment consisting of four IBM blades connected through a Brocade switch in the old SAN. With only 13 terabytes of storage—and roughly 8 terabytes of that unusable—performance had slowed to a crawl, and system crashes were far from unusual."

This meant that the four-person server team was kept busy doing things like destroying test environments to make room for new servers, dealing with the aftermath of crashes caused by latency issues on the drives, and trying to provide adequate backups. Not surprisingly, the issues at WIC were taking up an inordinate amount of time for a group of employees responsible for the entire DOH environment.

Worst of all, WIC's customers—the state's women, infants, and children—were suffering. "Every time WIC's system goes down, it's a major issue throughout the state, because suddenly the bureau can't do things like print out checks for women to use to buy food," says the DOH network administrator. "Obviously, this is unacceptable."

INDUSTRY
State and Local Government

KEY CHALLENGES
- Replace aging and out-of-capacity storage solution
- Improve application performance
- Reduce system downtime
- Reduce system maintenance and free up server team to work on other priorities

SOLUTION
A state's department of health turned to VMware Virtual SAN—integrated with VMware vSphere ESX—to increase storage capacity, improve performance, and deliver better customer care for the Bureau of Women, Infants, and Children.

BUSINESS BENEFITS
- Provide more storage capacity for less money—reducing solution cost by 50 percent
- Make database updates easier and faster—reducing the time needed from 8 or more hours to 1 hour
- Spend 40% less time on storage and infrastructure-related issues
- Eliminate downtime and disruption in WIC services—providing better care for constituents

vmware®

VMWARE FOOTPRINT

• VMware Virtual SAN

• VMware vSphere

• VMware NSX

APPLICATIONS VIRTUALIZED

• Microsoft SQL

• Applications Developed In-House

PLATFORM

• Lenovo 3650-M5 servers

The Solution

Aware of the problems presented by WIC's aging environment, the server team evaluated replacement storage solutions from several vendors. In the end, it chose VMware Virtual SAN, which could scale to provide an enormous amount of storage and tightly integrate with the virtualized infrastructure already in place at DOH through VMware vSphere. In addition, it delivered enormous efficiency and performance gains when used in conjunction with the Lenovo 3650-M5 servers the department had already picked out.

Migration could not have been simpler. Says the DOH network administrator, "Since we already had experience with VMware, there was no steep learning curve. Once the environment was setup, we ran a fibre cable from the old SAN to one of the new systems; and then we were able to migrate and power up again with only about two minutes of downtime."

Today, WIC uses four rack-mounted Lenovo servers to host 23 virtualized servers through its VMware vSphere environment with a Virtual SAN datastore for a total of 45 terabytes of storage capacity. Within that environment, WIC is running SQL, a couple of FTP servers, a few Web servers, and a number of application servers. Eventually, says the network administrator, all of WIC's production, development, and testing will take place within the hyper-converged infrastructure setup.

"We'll probably end up doubling our environment," he says, "and it won't be a problem. In the past, we were always worried about over-provisioning, but with the thin provisioning afforded by Virtual SAN we've gained so much space, this is simply not an issue."

Business Results & Benefits

Four months after deploying Virtual SAN, system and application performance are no longer issues for WIC. Consider database updates: in the prior environment, it took eight or nine hours just to copy the data from one service to another for onsite backup. In the new environment, database updates take just under an hour.

One of the network administrator's favorite features of the new Virtual SAN environment is the ability to use a flash-based architecture with solid state drives: "It speeds up server activity and increases everything that our systems do. This in turn allows us to buy cheaper disks. All of this adds up to significant cost savings."

To get an idea of just how great those cost savings are, consider the following: The old system—which wasn't nearly as robust and had much less storage capacity—cost roughly $300,000. The new Virtual SAN environment from VMware was less than $150,000, representing a cost savings of 50 percent with more capacity and better performance.

And with no downtime since deploying Virtual SAN, the DOH server team no longer needs to spend 40 percent of its time resolving issues in WIC's environment and can focus instead on other priorities. Explains the network administrator, "With the VMware Virtual SAN environment, we can reboot and log back in within six seconds, so users don't even notice an outage. And because we can now snapshot with no issues, if the database team wants to upgrade or patch the SQL server, we can snapshot it first so that if they fail, they can roll back. Little things like that lower the risk of failure in other areas as well."

Looking Ahead

With the money left in the budget after purchasing Virtual SAN, the state's DOH was able to invest in another VMware solution—VMware NSX™—for WIC's firewall. What's more, says the DOH network administrator, as other agencies and bureaus within the DOH hear of the success WIC has had with VMware Virtual SAN, they're expressing interest in migrating as well. That is just fine with the server team, which would like to see a VMware hyper-converged infrastructure solution spread throughout the organization.

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