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SERVER VIRTUALIZATION AND SAN UPGRADE
Increase Virtual Infrastructure Reliability for Maryland Health Department

What Data Networks Did for this Maryland Department of Health

- Design of new virtual infrastructure to support current and future growth

- Installation and configuration of EMC VNX5300 iSCSI SAN

- Install three Dell R720 servers into a 3-node cluster

- Data migration from the existing SAN to the new VNX 5300 storage platform

- Reconfigure backup software and verify new servers' successful backup

- Delivered reduced maintenance costs, more efficient use of data center and server resources, simplified and consistent operating environment, and effective management of enterprise IT resources

Abstract

This server virtualization and SAN upgrade included new servers, server backup, and storage technology for a reliable virtual environment.

The challenge

Maryland's Health Departments work to ensure quality community health by assessing health needs and advocating for public health issues. They provide information on health topics and delivers select medical and various environmental health services.

The Department's virtual infrastructure was beginning to show its age with reduced reliability and failures that could potentially impact services and productivity. A long-time Data Networks customer, they engaged us to upgrade their existing virtual server infrastructure including new servers and storage array technology at their data center location to meet current and future demand.

The solution

Data Networks began the project with a careful assessment of the existing virtual environment to ensure the in-depth understanding necessary to design a new virtual server infrastructure. The review included: SAN and iSCSI network configurations, SAN disk layout and LUN configuration, and VMware ESX server configuration along with each virtual machine's storage, networking, and virtual resource requirements.

With assessment data in hand, Data Networks engineers then designed a sound new infrastructure approach that included iSCSI switch fabric, SAN connectivity, disk layout, and ESX server configurations for each site. Planning also included the development of a migration services plan and schedule for migrating the data to a new EMC VNX5300.

The next phase of the project, SAN implementation, began with a site survey to verify data center rack space, power requirements, and electrical circuits along with network connectivity requirements at both sites. At the completion of this phase the Department had a functional

new VNX5300 running Unisphere software and system integration between host servers and the new SAN.

Installation, configuration and integration to accomplish this included:

- Rack and Stack VNX5300 system
- Install and configure Unisphere software on VNX5300
- Test and verify DPE and drives are functional on VNX5300
- Connect VNX5300 to the iSCSI SAN fabric – test and verify functionality
- Rack and stack Dell PowerEdge R720s
- ZONE servers into iSCSI SAN fabric using EMC best practices
- Configure RAID groups and LUNs for host servers
- Install and configure SnapView software for local data protection
- Configure Storage Group for host servers

During the final phase the focus turned to implementation of VMware VSphere 5 which included:

- Install and configure VSphere 5.x software per server design specifications
- Patch software to current versions, per VMware "best practice" guidelines
- Install and configure VCenter software as a VM per VMware "best practice" guidelines
- Migrate data from existing AX4-5 to new VNX 5300 SAN per migration plan and schedule
- Test and verify successful data migration
- Test VCenter and ESX system configurations, network communications, and services functionality

To complete the implementation and ensure that the Department had the information they need to maintain their new virtual server infrastructure, Data Networks delivered all systems diagrams and configuration documentation along with basic knowledge transfer to the Department's technical staff.

Mission accomplished

Upgrading this Health Department's aging virtual server infrastructure provided them with reduced maintenance costs, more efficient use of data center and server resources, a simplified and consistent operating environment, and more effective management of enterprise IT resources -- so they can continue to pursue their mission of being a valuable resource to the community in meeting public health needs.

"With this upgrade, the department now has a robust, flexible and reliable virtual server infrastructure to support their health services and business goals," says Robert White, Data Networks Account Executive for the State of Maryland.

About Data Networks

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By partnering at the highest levels with the industry's most respected manufacturers, Data Networks can deliver the right products for your environment with the most aggressive pricing possible. Our strong vendor relationships also bring technical training opportunities, expedited help desk resources, and professional service liaisons for consulting and project engagements.

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Our goal is to be your trusted technology advisor. So we staff highly-qualified engineers who bring years of experience and the most advanced technical certifications to every engagement. We assign them a single area of technical focus, a unique approach that allows them to continually update their skills and expand their specialized technical knowledge. And we arm them with documented best practices developed over more than 30 years of public-sector service.

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