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VIRTUAL SERVER AND STORAGE ENVIRONMENT UPGRADES help St. Mary's College of Maryland Plan for Future Growth

What Data Networks Did for St. Mary's College of Maryland

- Analyzed the capabilities of existing host servers, SAN and backup and recovery infrastructures

- Documented a recommended design for new architecture

- Upgraded existing 2-node Dell server cluster

- Upgraded and incorporated a third, existing Dell server into the cluster

- Installed and configured a new Dell EqualLogic PS6100 series ISCSI SAN

- Brought SAN online and documented all changes

Abstract

Data Networks upgraded this local college's virtual server, SAN, and data backup and recovery infrastructure to help plan for future growth.

The challenge

St. Mary's College of Maryland is a liberal arts college located 70 miles southeast of Washington, DC. Boasting several honors undergraduate and master's degree programs, SMCM has a total student enrollment of approximately 1,800. The college maintains a 10-to-1 student-to-faculty ratio, and 90% of its students live on campus.

SMCM's Office of Information Technology (OIT) had originally installed and maintained virtual machines (VMs) hosted on a two-node (active-active) cluster of Dell PowerEdge R710 servers. This cluster supports the college's enterprise software applications, including critical systems such as those for student information and tuition payment recordkeeping. Within two years, the college's academic and business needs began outpacing its current environment. With many of the college's academic and administrative departments seeking to upgrade existing applications in order to provide better services for its students and faculty, OIT began considering significant enhancements to the VM cluster.

OIT needed to provision more VMs from the cluster, ensure that all VMs and their host servers had sufficiently-scalable disk space and memory to operate, and facilitate regular backup and recovery procedures. The Dell cluster and its portion of the accompanying iSCSI storage area network (SAN), however, were running out of the requisite memory and disk space. Moreover, the cluster needed to scale for future growth. OIT staff understood the requirements, but needed external consulting assistance in order to create a realistic, affordable solution that would meet or exceed these requirements.

The solution

OIT tapped Data Networks to analyze the current situation, then design and deliver short- and long-term solutions. Overall, DataNetworks' recommendation was three-pronged: the memory shortage was resolved by adding 32 GB of RAM to each of the two Dell servers in the cluster, for a total of 96 GB per server; a third server, originally purchased for the purpose of testing backups, was upgraded to the same amount of RAM and incorporated into the cluster; and a new Dell EqualLogic PS6100 Series iSCSI SAN was installed to provide more dedicated hard drive space.

Data Networks and OIT project team members executed the ensuing engagement as planned. During an analysis phase, DataNetworks verified the details and capabilities of existing host servers, SAN and backup and recovery infrastructures, and then documented a recommended design for the new architecture. With approval from OIT, Data Networks engineers first undertook the PS6100 SAN implementation. From racking, configuring and connecting the SAN hardware, through allocating storage resources to the Dell cluster and updating the IT Department's current backup and recovery documentation to reflect the new SAN's presence, DataNetworks provided comprehensive services to bring the SAN online.

Once Data Networks completed the new SAN-related services, their engineers next upgraded the RAM on all three Dell Power-Edge servers, and incorporated the third server into the cluster. DataNetworks accomplished this using step-by-step best practices and extensive experience with similar projects, moving the VMs off of the clustered host servers before powering them off, installing and verifying the additional RAM, powering the host servers back on, confirming that the additional RAM was accessible, and finally migrating the VMs back to their host servers.

Mission accomplished

Data Networks delivered the solution within the promised budget and timelines. They then performed a thorough knowledge transfer to OIT staff related to the enhancements made, and informed them of what to expect going forward. Since project completion, OIT leadership at SMCM has noted substantial improvements in their ability to add new VMs as needed to the cluster environment, and to support contingencies with a more robust backup and recovery platform.

As OIT's Assistant Director of Infrastructure Support Services, Robert Brown, put it, "The RAM and SAN upgrades allowed us to bring all three host servers up-to-par with one another in a true active cluster. With three servers in the cluster, there are still two active servers if one server is down for maintenance or experiences problems. Data Networks was instrumental in bringing this needed solution about."

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.

INSPIRED ENGINEERING

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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