

## East Carolina University



### East Carolina University registers cost savings with EMC information infrastructure—IT consolidation postpones costly data center expansion

#### Challenges

The IT department at East Carolina University (ECU) had hit a brick wall. As 27,000 students and 7,000 faculty and administrators expanded their use of e-mail, online research, distance learning, and other online functions, ECU's information storage had doubled annually for three years in a row.

Consequently, ECU's data center was running out of power and floor space, and backup windows were growing. IT staffers were often called into the data center at all hours to address server crashes, failed backups, and other issues.

To gain more efficiency, ECU engaged EMC® Global Services to help them virtualize, consolidate, and upgrade its information infrastructure.

Brent Zimmer, ECU's Assistant Director, Enterprise Storage Technologies, said, "Our primary data center was so maxed out we couldn't add a single server. We faced a moratorium on new services or building a new data center, which was too expensive. Virtualization and consolidation really saved the day."

#### EMC Efficiency Solution

EMC Global Services recommended several strategies that would provide ECU with scalability, increased reliability, and lower costs. Global Services also assisted ECU with design and implementation of the EMC solutions.

ECU consolidated standalone file servers to an EMC Celerra NS80G network-attached storage (NAS) gateway that is connected to an EMC CLARiiON CX-80 storage area network (SAN). ECU also deployed VMware ESX Server software to virtualize servers as virtual machines that are stored on the SAN. Servers with intensive workloads were converted to an EMC CLARiiON boot-to-SAN. The EMC infrastructure supports a range of applications, including departmental folders, blackboard course management, Web portals, Microsoft Exchange, Microsoft SQL Server, Microsoft SharePoint, and Oracle databases.

As its Exchange user base reached 50,000, ECU began archiving Exchange e-mails older than 90 days from CLARiiON to cost-effective Centera content-addressed storage (CAS).

ECU uses the EMC Rainfinity File Management Appliance to archive high-resolution images of the university library's historical documents from Celerra to Centera. The university also digitizes administrative documents and stores them on CLARiiON Fibre Channel disk. With EMC DiskXtender software, inactive documents are automatically archived to less costly Celerra ATA disk.

In addition, ECU backs up its enterprise servers to the CLARiiON SAN rather than tape. ECU has deployed several EMC and VMware solutions to provide multi-pathing and load balancing among the storage systems, servers, and virtual machines, as well as replication of data stored on different EMC storage tiers, to a disaster recovery site.

#### Challenges

- Increasing use of online applications, such as e-mail and distance learning, was driving rapid growth of storage.
- The University data center was running out of floor space and energy resources.
- Server crashes and failed backups were becoming more frequent.
- Growing economic crisis has increased pressure on the university to continue to lower operating costs.

#### EMC Efficiency Solution

- EMC Celerra® NS80G network-attached storage (NAS) gateway
- EMC CLARiiON® CX3-80 storage area network (SAN)
- EMC Centera® content-addressed storage
- EMC Rainfinity® File Management Appliance
- EMC DiskXtender® software
- VMware® ESX Server™

#### Results

- Eliminated 156 servers and enabled \$1.8 million savings in reduced equipment overhead and cost avoidance.
- Reduced power consumption by 900 megawatts per year—the equivalent of taking 90 cars off the road for one year.
- E-mail archiving reduced Microsoft Exchange database storage from two terabytes to one and cut backup times in half.
- IT staff spends less time on storage management, server administration, and e-mail restores.

## Results

NAS consolidation and server virtualization enabled ECU to eliminate 156 servers and avoided the need to purchase 30 more. ECU also generated \$1.8 million in savings—more than 18 percent of its budget—in reduced equipment overhead and cost avoidance and decreased power consumption by 990 megawatts a year—the equivalent of taking 90 cars off the road for one year.

Garrett Killian, ECU's Operations and Systems Analyst, said, "Instead of buying servers, we simply carve out more storage or create more file systems in our existing EMC environment. We use a single pane of glass for managing different applications, data, and protocols, which frees up a lot of time. We can do a lot more with less, which is especially important with tight budget constraints."

By archiving onto Centera, pressure on growing backup operations has been alleviated. With a reduction of eight terabytes of production storage for large files containing images of historical documents, backups now take a couple of minutes versus 10 hours when the documents resided on primary storage. Archiving also has sliced the Exchange database from two terabytes to one, and backups now take half the time.

Zimmer noted, "Our backup infrastructure used to have holes, so we wouldn't always find e-mails for litigation or compliance, which could have serious consequences. Even when e-mails were backed up, 60 hours of staff time were needed to find the right one. Now, we put e-mails back in users' mailboxes in minutes and with minimal resources from IT."

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**Garrett Killian, ECU's Operations and Systems Analyst**

ECU has increased information availability and reliability, reducing the amount of time IT staff devotes to managing unexpected downtime and day-to-day operations. If a catastrophe struck its data center, ECU could recover its critical applications from the remote site in 30 minutes, reduced from seven days with tape recovery. ECU can also perform upgrades, migrations, and other maintenance with zero downtime.

Despite the efficiencies achieved, ECU continues to focus on lowering costs—especially as the economic crisis has required spending cuts across campus.

Jack Brinn, ECU's Chief Information Officer, said, "There is almost no end in sight to our data growth, so we still need to plan for expansion with smaller budgets. With our consolidated infrastructure, we're able to scale up to gain more capacity and services, which is enormously more efficient than growing out."



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