University of North Carolina at Wilmington Enhances Collaborative Computing with Dell SAN and Microsoft Exchange 2000

SOLUTION OVERVIEW

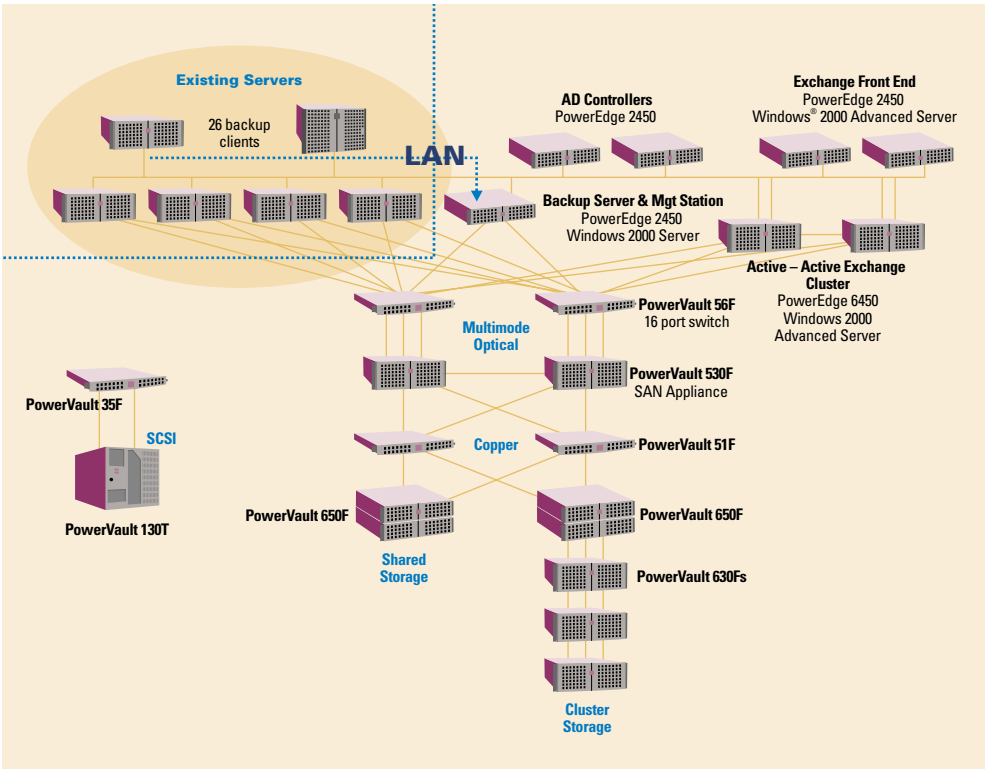
Challenge

Heterogeneous email clients limited collaboration, slowed email delivery, and presented a support burden. The tape backup system was being out-gunned in speed and capacity by a growing user base.

Solution

Migrate faculty and staff to Microsoft® Exchange 2000 running on Dell™ PowerEdge™ servers and a Dell Storage Area Network to increase email and backup speeds. This also centralized administration of both messaging and storage, and provided a richer collaborative environment.

The University of North Carolina at Wilmington has grown dramatically over the last decade, from a regional campus serving 6,000 students to a national university serving a student population of 10,000. The school's mixed bag of email clients and increasing demand on email turned into a big support headache for IT. Also, the school's disparate email clients could not provide collaboration capabilities that faculty demanded. UNC Wilmington decided to migrate its email infrastructure to Microsoft Exchange 2000 running on Dell PowerEdge servers and a Dell Storage Area Network. This gives the school improved collaboration, faster email and backups, and centralized administration.



The University of North Carolina Wilmington (UNC Wilmington) is one of the fastest-growing campuses in the 16-school UNC system. Started just 50 years ago, it was for most of its history a regional campus that drew from surrounding counties. All that changed 12 years ago when Dr. James Leutze took over as chancellor. He envisioned a national and even international profile for the school. He raised academic standards, recruited prominent faculty, and encouraged a more competitive atmosphere. The school quickly grew from a mostly undergraduate population of 6,000 to a mixed undergrad-graduate population of 10,000. Today, some of UNC Wilmington's graduate programs – such as marine science – are internationally ranked.

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Dr. Robert Tyndall
Vice Chancellor of Information Technology
University of North Carolina at Wilmington

Collaboratively Challenged

One casualty of rapid growth was a burdened messaging infrastructure. Over the years, faculty had augmented the school's text-based VMS mail with a variety of graphical email clients. Installation of fiber optic cable in 1993 improved data network speeds, but the hodge-podge of email clients (about 14 different clients campus-wide) was an increasing support burden for IT and also impaired the faculty's ability to collaborate. There were problems sending attachments and limited, fragmented campus-wide support for features such as calendaring, contact and task management, discussion groups, document-sharing, or video conferencing. With the school's new competitive charter, faculty members were expected to do more and to communicate fluidly with one another and with academics all over the world.

"With thousands of people popping into the same servers at the same time, we were getting complaints about slow response," explains Bobby Miller, Director of Computing Services at UNC Wilmington.

Exchange 2000 Provides Rich Collaboration at Reduced Cost

UNC Wilmington had already standardized on Microsoft client software – the Microsoft Windows® operating systems and Microsoft Office suite. The Microsoft Campus Agreement gives the school rights to new versions of Microsoft client software for faculty and staff, providing a low-cost, hassle-free way to keep PC software up to date. Included in this agreement was the Microsoft Outlook client.

"When we began to consider a new messaging infrastructure, Microsoft Exchange 2000 was a no-brainer," Miller says. "Every user on campus already had Outlook on his or her desk. They were all familiar with the interface through the Office products. We knew Exchange was maturing and full of great collaboration features. The available third-party virus protection is very good. And it would've cost us a lot more to integrate a non-Microsoft product."

Exchange gives UNC Wilmington a low-cost messaging and collaboration infrastructure that allows faculty and staff to communicate in a number of different ways, across campus and around the world. Out of the box, Exchange 2000 provides email, group scheduling, discussion groups, contacts, and group task lists. It supports Web-standard protocols, including Extensible Markup Language (XML) and Hypertext Transfer Protocol (HTTP) and can be augmented with data and video conferencing capabilities. The school began its rollout of Exchange 2000 in fall 2001 and will have all faculty and staff migrated by December 2002.

Dell SAN Speeds Up, Consolidates Storage

Miller's staff knew that bringing in Exchange would necessitate more storage, and they were already having storage challenges. They were laboriously managing disk space across racks of Dell servers. "We wanted to consolidate our storage in the form of a Storage Area Network," explains Dr. Robert E. Tyndall, Vice Chancellor for Information Technology at UNC Wilmington. "A SAN would give us more expansion capability as well as centralized management."

They also took the opportunity to improve their backup technology, bringing in a Dell 130T Tape Library. Previous tape backup systems were being out-gunned both in terms of speed and capacity by the growing user base. "One tape backup job ran for 28 hours, which made it close to worthless for purposes of disaster recovery," Dr. Tyndall says. Implementing a high-speed tape backup system connected directly to the SAN speeds backups by a factor of two or three and provides much vaster capacity.

"We now have best-in-class virus protection, single login support capability, and a standardized email client for all faculty and staff. This translates into lower administration, training, and end user support costs."

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Dell Premier Consulting Services Designs SAN

UNC Wilmington turned to Dell Premier Consulting Services provided by Dell Technology Consulting for help in preparing for Exchange and building and installing its SAN. In conjunction with university IT staff, Dell Premier Consulting Services designed, tested, and implemented the University's entire Windows 2000-Exchange 2000 solution. "I would say that our initial implementation was significantly faster than we anticipated because of Dell Technology Consulting," Dr. Tyndall says. "They brought a wealth of industry best practices to the table as well as extensive experience designing storage area networks and implementing Exchange."

The Servers

- The heart of UNC Wilmington's Exchange SAN is two **Dell PowerEdge™ 6450 servers**, running in an active-active cluster. They run Microsoft Windows 2000 Advanced Server and Exchange 2000 Enterprise Edition. Eventually, the school's faculty and staff mailboxes will be split between the two servers. Each is configured with four Intel® Pentium® III Xeon™ processors (running at 700MHz) and 3GB of memory.
- Two **PowerEdge 2450 servers** (dual Pentium® III processors, 2GB RAM) serve as front-end servers and provide for Outlook Web Access.
- Two **PowerEdge 2450 servers** (dual Pentium® III processors, 2GB RAM) serve as Microsoft Active Directory servers. The move to Active Directory is an important part of UNC Wilmington's Exchange implementation, providing the foundation for simplifying authentication for thousands of users, streamlining administration, and enabling collaborative file-sharing. Active Directory allows UNC Wilmington to centrally manage and share information on network resources and users while acting as the central authority for network authentication. In addition to providing comprehensive directory services to a Windows environment, Active Directory is designed to be a consolidation point for isolating, migrating, centrally managing, and reducing the number of directories that companies require.

The SAN

The UNC Wilmington Exchange SAN consists of:

- Two **Dell PowerVault™ 56F switches**. These 16-port Fibre Channel switches connect the servers to the SAN.
- Two **PowerVault 530F SAN appliances**, which partition and mirror physical LUNs (logical unit numbers) and present logical disks to the servers.

- Two **PowerVault 51F Fibre Channel switches** connect the PowerVault 530F appliances to the storage drives.
- A combination of **PowerVault 650F and 630F storage units** provide a total of 1.8 terabytes of raw SAN storage, 70 percent of which is allocated to Exchange.
- A **Dell 130T Tape Library**, with 28-tape capacity, provides high-speed tape backup. Four **DLT 7000** drives hold up to 80GB of compressed data per cartridge.

All connections from the servers to the SAN are fiber optic Fibre Channel with redundant paths; if any switch or PowerVault 530F fails, there's a separate path for the data to take. Connections between the PowerVault 51Fs and the disk arrays are copper. Dual host bus adapters in the servers as well as dual network interface cards provide failover capability on both the SAN and LAN.

A Platform for Growth

Immediate benefits of the new Dell/Exchange SAN infrastructure have been faster email speeds – for the seven hundred users running Exchange to date – and faster backup speeds. Staying with an Ethernet-based backup but switching to the new Dell 130T Tape Library slashed the 28-hour tape backup job 11 hours. "We estimate an additional 50 percent decrease in time when we move that job to the SAN," Miller says. "The consolidated SAN/Exchange solution will provide centralized administration and maintenance. The fact that there will be a single messaging system for all faculty and staff will speed response to problems. "We now have best-in-class virus protection, single login support capability, and a standardized email client for all faculty and staff," Miller says. "This translates into lower administration, training, and end user support costs."

UNC Wilmington's new Dell SAN-Exchange infrastructure gives the school a powerful platform for future growth. "Most of what we will do with this platform has yet to happen," Dr. Tyndall says. "We plan on implementing a world-class collaborative computing environment that will greatly simplify and enhance communications for faculty, staff and students."

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March 2002