



UCSB

The Alexandria Digital Library at UCSB is a major research facility that researchers, developers and educators from around the world access on a daily basis. Downtime is not an option. So when there was a problem segment in the private network linking the server farm and library, WideBand had a solution.

University of California Santa Barbara

Situation

Once a small independent teachers' college, University of California Santa Barbara (UCSB), is now an integral part of the nine-campus University of California system. Chartered in 1868 as a land-grant college, the university is now widely regarded as the nation's preeminent public system of higher education. Located on 989 acres on the California coast about 100 miles northwest of Los Angeles, UCSB has 998 faculty members and 19,800 students.

UCSB's Donald C. Davidson Library is a major research facility. The library has approximately 2.6 million books and bound journals. The collection grows by about 50,000 volumes annually. In addition, the library has an excellent collection of maps, technical reports, satellite imagery, government documents, manuscripts, and micro format materials.

One of the UCSB library projects is the Alexandria Project which includes the Alexandria Digital Library (ADL), a working digital library with collections of geographically referenced materials and services for accessing those collections. The original Alexandria Digital Library is headquartered on the campus of the University of California at Santa Barbara and is hosted by the Davidson Library's Map & Imagery Lab (MIL). The MIL team works with development teams throughout the world to establish remote ADL nodes in which local collections can be added and maintained easily and effectively. The datasets that the MIL team is in the process of loading include:

- Scanned aerial photographs
- Digital Elevation Models (DEMs)
- Digital Raster Graphics (DRGs)

- Landsat TM (UCSB Film Holdings)
- World Maps from the United States Central Intelligence Agency
- Ocean Drilling Program Cruise Info.

Opportunity

As a member of the MIL team, Network and Systems Manager Clayton Burnham is in charge of the storage and networking needs of the Library, which is housed on 50 terabyte servers. The UCSB digital data collection is the largest academic collection of geo-spatial materials such as physical sciences datasets, satellite imagery and digital mapping data of the United States and other Earth locations. Thousands of scanned aerial photographs are also part of this collection.

Because the digital data collection grows at about one terabyte per year, Burnham keeps an eye out for cost-effective, easy-to-maintain terabyte servers for the library server farm. In November 2001 Burnham attended COMDEX where he met ComTech Networking and WideBand. Representatives from ComTech and WideBand talked to Burnham about a new fs[ix] server that was in development. Burnham was intrigued. He agreed to be a Beta customer for the first release of the fs[ix] (pronounced "physics") Teran RAID 5 Server.

"The price was my incentive to trial a new server. We had just paid \$75,000 - \$80,000 for three servers and this was one-third of the cost," said Burnham. While price was the initial incentive, fs[ix] and WideBand responsiveness impressed Burnham even more "When the RAID 5 server arrived I noted some things that needed to be changed in order for it to be more functional - like it didn't support NFS for a Linux based system. They quickly added the support and then included it

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in their baseline package. They also incorporated other suggestions I made to later releases of the servers."

After trying out the Teran Server, Burnham was so pleased with the performance that he ordered four more. Because of the quality of the fs[ix] Teran Server, Burnham approached the ComTech/WideBand team with a nagging network issue.



Davidson Library at University of California Santa Barbara (UCSB)

Photograph © 2003 by Alan Nyiri, courtesy of the Atkinson Photographic Archive.

Problem

The UCSB Library system runs four Class C networks that are public Internet access and two Class C private networks. Because of the renown of the Library, researchers, developers and educators, in academic, public and private sectors from around the world access the libraries databases on a daily basis. Downtime is not an option.

One of the private networks serves as the backbone for the terabyte servers connecting the Alexandria Digital Library to the Davidson Library, which consists of three buildings. Segmented with VLANs in order to carry the private network to any switch in the building, this network must handle large Gigabit Ethernet transfers. Burnham installed a succession of Asente' and SMC switches in the section however the equipment was unreliable in VLAN mode.

WideBand Solution

Accessibility is vital to the Map and Imagery Lab, with more than five million information objects in its collection. To have

a network segment constantly fail because of faulty equipment caused frustration throughout the library's users.

Burnham needed a switch that would be able to withstand the network's heavy use and without having to regularly reboot or replace the switch. That's when Burnham talked with ComTech and heard about the superior performance of WideBand Professional Series Gigabit Ethernet switches that are able to transmit data at full gigabit speed with a bit error rate of less than 1 per million on all grades of Category 5 cables.

"WideBand and fs[ix] had proved their service record with their support of the RAID 5 Servers and network cards," Burnham stated. "They stand behind their products 200%. We also got a good price; because we got the COMDEX show special. We couldn't even touch a GigE managed switch at the sales price that WideBand offered."

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He purchased a WideBand Professional Series 16-Port Managed Ethernet Switch and 32-bit Ethernet NICs for the trouble spot. When Burnham ran into some initial problems, ComTech arranged for him to speak directly with a WideBand design engineer and the problems were quickly resolved.

Results

The fs[ix] RAID 5 Servers were installed in the UCSB network in January 2002. Burnham says that the servers have been running solid and the WideBand Professional Series Gigabit Ethernet Switch functions flawlessly out of the box in his network.

The quality of the manufacturing of the equipment impresses him. "I can tell that someone's heart and soul went in to it. It doesn't have the cheap, mass-produced feel to it. Someone's taken time and effort to hand produce this switch."

Now a WideBand Preferred Customer, Burnham refers ComTech and WideBand equipment to other UC campuses.