

► Challenge

To find a cost-effective, feature-rich storage solution to handle increasing storage requirements (additional servers & RAID arrays) on campus setting

► Solution

A tiered storage approach based on the creation of an IP SAN using SANRAD's V-Switch 3000 iSCSI switch, in conjunction with the school's existing FC SAN

► Benefits

- Significantly reduced CAPEX and OPEX
- Based on familiar IP infrastructure
- Centralized storage management & virtualization
- Dynamic storage allocation
- Compatible with wide range of storage arrays and server operating systems
- ASICs-based (non-PC-based) architecture
- No SCSI or Fibre Channel HBA card required

"Put simply, the V-Switch has been solid and dependable since day one. Dramatic improvements like dynamic storage allocation have made previously complex tasks so much simpler"

Chris Harwood, System Administrator
HAAS SCHOOL OF BUSINESS AT UC BERKELEY



University of California at Berkeley chooses a tiered storage approach

IP SAN - A Smarter, More Affordable SAN Solution

The Haas School of Business at the University of California's Berkeley campus was founded more than 100 years ago, making it the oldest US business school at a public university. Today, 160 faculty members oversee a student enrollment of nearly 1,700 in six academic degree programs.

The Haas School building, a mini-campus of three connected buildings set around a central courtyard, serves as the focal point of the Haas community. This building is also home to Haas' Fibre Channel-based storage network, managed by system administrator Chris Harwood.

With available FC ports becoming scarce and an increasing number of servers to connect, Harwood recently set out in search of a more cost-effective SAN solution. Already familiar with the benefits of the iSCSI protocol, he was confident that an IP SAN solution would be a well-suited complement to his existing FC SAN. Harwood's research led him to evaluate iSCSI switches from StoneFly and SANRAD – the latter a definite consideration based on the company's recent "Product of the Year" award from Storage Magazine.

Product comparisons revealed a stronger feature set in the SANRAD V-Switch 3000 iSCSI switch. Harwood explains: "I especially liked that the V-Switch was ASICs-based and had a true 'open architecture' design. The fact that there's no hard drive to crash was a big plus."

RADirect, Inc., a value-added reseller of SANRAD products, sent Harwood a SANRAD V-Switch 3000 evaluation unit to "take for a spin". Harwood and his colleagues installed the unit, creating an IP SAN as an extension of their FC SAN. This new, tiered storage approach allowed them to offload backup server traffic to the more cost-effective IP SAN, thereby freeing up the more expensive Fibre Channel storage space for e-mail, production clustered SQL server services and general file sharing.



Today, with the SANRAD V-Switch already six months in production, Harwood enjoys significantly reduced network deployment and operational costs, and a greatly simplified job. As an example of cost savings, he cites, "The servers we use most often come with dual port onboard NICs, allowing us to use one port for public network access, and the other as a storage adapter. Even when we have to purchase a dual port GigE NIC, it only costs about \$300. Compared to the \$1,000 to \$1,500 cost of a typical FC HBA card, we're looking at some pretty serious savings – especially when you consider the number of servers we intend to use. Prior to the IP SAN, the cost of storage was often higher than the cost of the server itself."

From a time savings perspective, Harwood especially appreciates the fact that volumes can now be quickly exposed to various test/development VMWare servers on the fly, with no zoning of Fibre Channel switches or HBA compatibility matrices to check. If the VMWare host server has a major brand GigE card, guest OS iSCSI initiators are typically able to access the volumes exposed on the V-Switch.

Harwood is also impressed with the V-Switch's seamless compatibility. "The servers on our network run several different operating systems, and the SANRAD V-Switch works perfectly with all of them."

"Put simply," he says, "the V-Switch has been solid and dependable since day one. Dramatic improvements like dynamic storage allocation have made previously complex tasks so much simpler."

Still, for Harwood, the improvements have only just begun. Plans for the near future include using virtualization for simplified array management. "Essentially, we'll distribute quorum, data and backup LUNs to an MSCS server pair by allocating one large LUN from an array to the SANRAD V-Switch, letting the V-Switch partition the LUN into sub-disks, and exposing several smaller LUNs to the cluster." He is also considering the use of mirrored volumes for redundancy, as well as snapshot capabilities for backup purposes. Harwood expects to purchase an additional V-Switch unit shortly for use in a high availability storage scenario.