

### ► Challenge

To utilize the high-availability potential of the township's IT infrastructure, in order to consolidate storage, and provide 100% disaster recovery failback, all under a very limited budget.

### ► Solution

Dual SANRAD iSCSI V-Switches in an active-active failover configuration control 1.5 terabytes of RAID storage with 750 gigabytes at each site running as mirrored disk

### ► Benefits

- Full storage network services provided under low township budget
- Centralized storage management & virtualization
- 100% failover and failback
- Eliminated the need for host-based storage application deployment
- Based on familiar IP infrastructure

*"The failover occurs between sites so if you were to come over to my building and drop a grenade in my data center, the nodes on the other side would essentially begin running the services. I'm very excited because it's really worked out extremely well for us. I'm certainly pleased with SANRAD. They had a solution that scaled to our level and there really wasn't anyone else out there who did."*

Jonathan Zygmunt, Chief Information Officer  
CRANBERRY TOWNSHIP



## Cranberry Township, Pennsylvania: Where Affordable Storage and Networking Intersect

### *SANRAD provides IP SAN for quaint PA suburb*

Cranberry Township, located in Western Pennsylvania, was primarily a rural farming community until the middle of the last century. Until the 1940s, few homes were wired for electricity, telephones were rare and crystal radios were the height of technical modernity. Since the highway arrived in the 1960s, along with industry, commerce, the Blue Ridge Truck Stop's jukebox, and the roller rink, time has brought technological amenities that would have stunned the ancestors of the 28,000 residents that live in Cranberry Township today. However, the charm of this quaint suburb and its rustic past belies a cutting-edge information technology infrastructure that has recently grown to include a consolidated data storage project that delivers high availability and business continuance for the city's many administrative departments.

#### **Business and Budget Issues**

The benefits of storage consolidation – increased utilization of storage assets, improved data availability and lower storage administration costs are well proven, but despite these benefits, the initial expense of deploying Fibre Channel-based storage networks is beyond the reach of many small to midsized organizations. Cranberry Township faced two major roadblocks in achieving their storage consolidation goals: a limited budget, typical of most municipalities, and modest requirements of a small enterprise that was below the radar of many mainstream storage vendors.

"We spoke to some of the players like Dell and EMC and couldn't even begin to talk to them about a solution that cost at least twice as much as our budget," said Jonathan Zygmunt, Chief Information Officer of Cranberry Township. "Veritas software could have done our clustering, but that's all it did, and the software would have cost twice as much once we factored in the licensing.



A key part of the storage consolidation project was to implement a Storage Area Network (SAN) to liberate the direct server-attached storage that was limiting the high-availability potential of the township's IT infrastructure, said Zygmunt. "We were in a position where we primarily ran all of our business operations out of a single primary data center," he said. "We also have a lot of redundant systems and high availability systems where we're using clustering and failover and load balancing. The only reason they're close together is the storage has to be readily accessible. We looked at storage management to provide a way to geographically disperse storage, that would also enable us to geographically disperse the systems and maintain the high availability while getting the additional level of business continuity."

While designing a solution within tight budget constraints was challenging for Zygmunt, he did have one major advantage from the start. Several years ago during a traffic signal upgrade project, the township had the foresight to install high-speed fiber optic cabling throughout the town. Cranberry Township was already building a remote data center for some of its high-availability applications and Zygmunt immediately recognized the potential of deploying an IP SAN to meet both his cost and availability/disaster recovery requirements.

"I've had my eye on iSCSI ever since people started talking about it. I instantly saw that as the way to deal with these capacity and utilization issues," said Zygmunt. "We understood the value and that it doesn't matter where the storage is located. If you can get a fast IP link to it over commodity equipment, a small business can suddenly achieve with commodity equipment what typically only the big guys were able to do before."

"We already had the IP infrastructure, we already had virtually unlimited fibre optic bandwidth, and knew that if we could leverage this with our storage management initiative, we should be able to replicate our storage in a high availability scenario and geographically disperse that architecture."

### **The Solution**

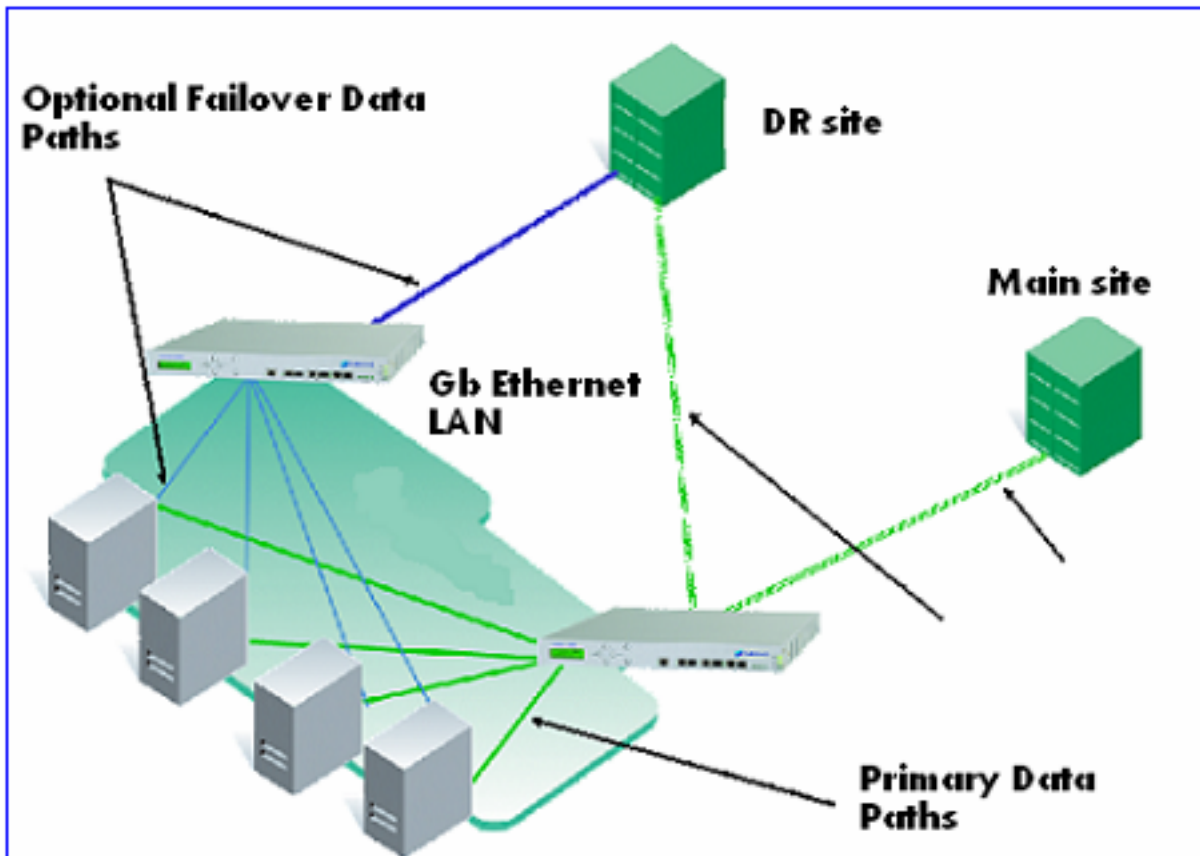
Creating a consolidated storage solution with data mirroring posed no special challenge, according to Bob Olmstead, Chief Technology Officer at New Jersey-based reseller Virtustor Inc., but those requirements, combined with Cranberry's need for a clustered failover environment and limited budget, led Virtustor to architect an entirely new approach. In essence, Cranberry wanted two data centers with full redundancy and both server and storage failover with full data mirroring between the sites.

"They needed to solve the problem of mirroring the data across two sites, which in and of itself is not a big deal, and they needed to solve the problem of doing a geographical cluster, in and of itself not a big deal," said Olmstead. "Putting the two together, however, turns out to be a challenge, especially given the budgets that townships normally have, which is essentially low."

To keep the cost of the project to a minimum, Olmstead and his team attempted to leverage any available functionality that was built into the Windows OS, such as the mirroring capability, which proved to be insufficient for the complexity of the high-availability architecture required by Zygmunt. According to Olmstead, the key piece of the solution was the embedded software functionality of the SANRAD iSCSI V-Switch. SANRAD's StoragePro software suite delivered a broad range of storage services, eliminating the need for host-based storage application deployment while improving performance and data availability. The software enabled the high-availability data mirroring architecture for Cranberry Township with active/active system failover, failback and multi-pathing to ensure continuous data availability for its diverse business applications. StoragePro also supports storage fault tolerance with integrated mirroring, replication, and data migration across Cranberry's redundant storage arrays.

"That allowed them to do more of the mirroring and replication at the V-Switch / network level and move these functions off the hosts," said Olmstead. "By performing synchronous mirroring with the V-Switch, we eliminated data replication inconsistency issues, the data at each site is always 100% identical. If any link goes down or if a site failed, failover and failback is handled by the V-Switch"

### Cranberry Township Topology



The iSCSI switch combines the functionality of a multi-protocol switch, storage virtualization appliance, storage router and Fibre Channel gateway into a single integrated solution. With its multi-protocol support and intelligent storage routing functionality, SANRAD's V-Switch protects the customer's investment by enabling legacy SCSI and Fibre Channel storage to be easily integrated as part of a new iSCSI SAN deployment. The iSCSI V-Switch supports the new, standards-based, iSCSI TCP/IP storage protocol in addition to the existing Fibre Channel protocol, providing iSCSI and Fibre Channel networked hosts with secure and trusted access to a variety of logical volumes residing on diverse storage systems within a SAN architecture. The iSCSI V-Switch operates in the data-path of a storage network, independent of hosts and storage, providing a single, easy to use connectivity and management platform for IT professionals responsible for administering small to enterprise class storage resources.



### **Business Benefits**

By leveraging the unique functionality of the iSCSI V-Switch, Cranberry Township was able to get the high availability services and consolidated storage it wanted at a price point within its budget. Zygmunt is now operating two data centers with full redundancy. The servers running primary applications – such as SQL database services, Lotus Notes and Domino for messaging and collaboration, and file and print services – are deployed as high-availability clusters. Dual iSCSI V-Switches in an active-active failover configuration control 1.5 terabytes of RAID storage with 750 gigabytes at each site running as mirrored disk. The high-availability server and storage architecture protects Cranberry Township against the catastrophic loss of a complete data center site.

“The failover occurs between sites so if you were to come over to my building and drop a grenade in my data center, the nodes on the other side would essentially begin running the services,” said Zygmunt. “I’m very excited because it’s really worked out extremely well for us. We just went live with the majority of the services a couple of weeks ago and it couldn’t be more beautiful. I’m certainly pleased with SANRAD. They had a solution that scaled to our level and there really wasn’t anyone else out there who did.”

