

# Cancer Therapy and Research Center Uses iSCSI Technology to Mirror Data to Site 22 Miles Away

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## Products:

EMC CLARiiON disk  
arrays, Cisco storage routers,  
VERITAS NetBackup  
software

## Datalink Services:

Solution analysis, design,  
implementation, support

## Industry:

Healthcare



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## About Cancer Therapy and Research Center

The Cancer Therapy and Research Center (CTRC), based in San Antonio, is a not-for-profit organization that conducts cancer research and provides radiation treatments for more than 200 patients a day.

Patients typically undergo radiation treatments over a four-week timeframe, receiving a dose of medicine at the same time every day (Monday through Friday). It's important that patients receive their doses in a regulated manner because the human body can only absorb a certain amount of radiation at a time. Missed doses cannot be made up.

The CTRC has eight radiation treatment devices; each device may be used for a different patient as often as every 10 minutes throughout the day. All of the treatment machines "talk to" an NT server, which acts as a record and verify device.

## The Issue

CTRC did not feel it had an adequate data protection plan in place in the event the record and verify server went down. They needed to eliminate the single point of failure that existed within their infrastructure and build in redundancy. Additionally, they wanted to ensure that they would never have downtime of more than 10 minutes.

Mike Luter, chief technology officer for CTRC, explains, "Ten minutes of downtime multiplied by eight machines could equal up to eight patients—eight patients whose treatment would have to be postponed. Twenty minutes of downtime could equal 16 patients, and then it really starts backing up and you have all these patients waiting. They have cancer. They're stressed. Any

delay in their treatment causes frustration and we are very sensitive to that."

## The Solution

To solve the problem, CTRC implemented a storage area network (SAN) at its medical center and tied the record and verify server into the SAN. The SAN—which consists of an EMC CLARiiON disk array and 16-port Brocade switch—provides multiple points of entry, so if the record and verify server (or any other server within the SAN) were to go down, the other servers in the SAN would assume the workload of the down server. The SAN also offers many other benefits of storage networking, such as more efficient storage management, better utilization of storage resources, and improved access to data.

CTRC wanted to take it one step further though and protect itself against the "what-if" scenario of the SAN going down due to a site outage. To meet this need, they added an identical disk array in the research facility 22 miles away, with the intent of creating a real-time mirror copy of the data. "We wanted the two SANs to talk to each other and back each other up in the event that one failed," Luter says.

To create the mirror, CTRC engaged Datalink and Cisco Systems to implement four Cisco storage routers (two at the primary site and two at the secondary site), with VERITAS NetBackup Data Center as the managing software. Using iSCSI technology, the router provides universal access to storage over IP networks. This means CTRC was able to use its existing Ethernet infrastructure to mirror data from the servers in the SAN to both RAID devices. There was no need to install a Fibre Channel network with switches and host bus adapters (HBAs) at the remote location.

CTRC chose the iSCSI solution to mirror the data because it was more cost effective than “server-to-server” or “storage-to-storage” replication architectures. Plus, it was the only way they could meet their standard to not be down for more than 10 minutes.

## Minimal Downtime

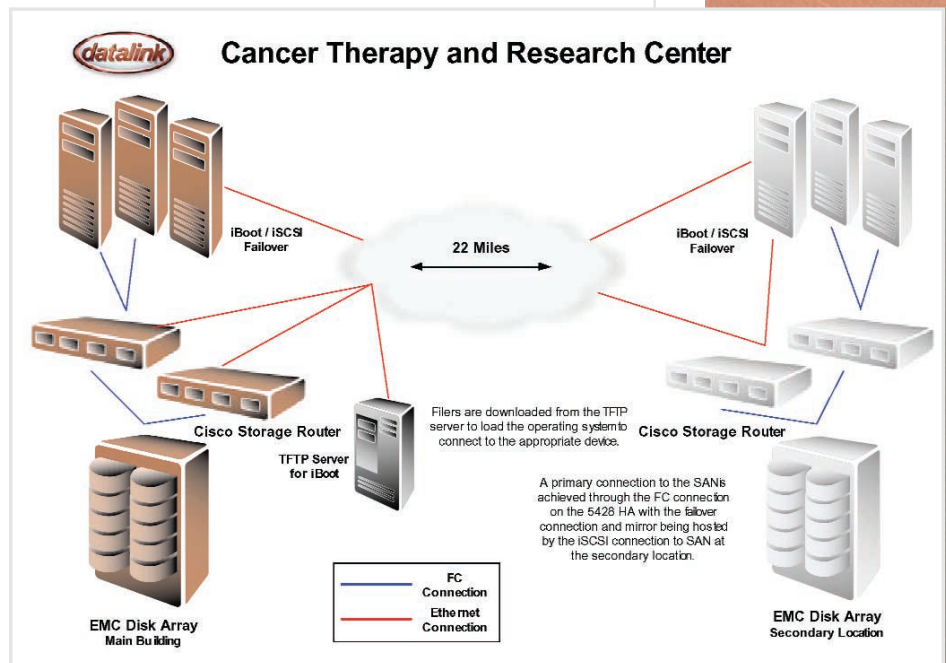
CTRC achieved its downtime objective through the router’s network boot feature, which allows servers to be booted from an external storage device across an iSCSI network. Working with Datalink and Cisco Systems, the center placed a boot volume from the record and verify system on the EMC disk array at the medical center. They also placed a boot volume from the disk array at the medical center on the disk array at the research center.

As a result, if the primary disk array goes down, the server will access the backup copy at the remote site via iSCSI. When the failed unit is back up, the active unit will supply it with the data necessary to rebuild itself within 10 minutes. “This has never happened in real-life. But we’ve tested it several times and it does work,” Luter says.

## Benefits

In addition to the mirroring of data and the ability to re-boot from the SAN, the iSCSI configuration provides several key benefits:

- Able to use current Ethernet network for mirror; did not have to add more Fibre Channel
- Able to utilize in-house Ethernet expertise
- Able to replicate over a longer distance versus Fibre Channel
- Cost-effective
- When adding servers to SAN, no need for HBAs or switches on the mirrored configuration (only requires a network interface card)
- Takes less time to set up new server to disk array on mirrored configuration



## The Experience

According to Luter, this solution was anything but “routine.” “We broke the mold and Datalink and Cisco helped us do it,” he says.

He adds, “From a development and SAN storage routing standpoint, we said, ‘here’s what we want to accomplish.’ We worked with the development engineers to modify and fine-tune it to come up with the product we have today. Datalink has been part of this whole solution—helping us understand how to do this and filling in the weak links of our SAN knowledge because they are SAN savvy.” He also notes that he has been impressed by the teamwork of everyone involved. “This was our first approach to a multi-vendor project and we weren’t used to seeing that level of teamwork.” ■



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