

Radia Inc. Examines Midrange Storage Systems and Uncovers Enterprise Caliber Solution

Radia Inc's selection of the Celeros EzSANFiler XD Series storage system provided Radia the availability it needed from a storage solution; the capacity, ease of management and performance it desired; and, a price point that other storage solutions could not come close to matching.

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Company

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Industry

Radiology and Vascular Surgery
Founded 1997

Challenges

- Application with direct attached storage
- Inability to account for bursts in performance
- Limited retention period for application data
- No windows for system maintenance

Solution

- Celeros EzSANFiler XD Series with its Synchronous Replication Software

Benefits

- Inexpensive storage system with high availability
- Two systems available to handle peak periods of high performance
- Add more storage capacity without application disruption
- 24x7 window for system maintenance

"We can, in real time, drop an entire storage unit and do a firmware upgrade without any application disruption on the SAN."

—David Revell,
Radia CIO



Overview

CIO Dave Revell knew Radia needed to change its storage infrastructure to meet the growing demands of the hospitals and physicians it served. However a cap on his IT budget coupled with enterprise-like application availability requirements dictated that he identify an innovative solution. What he found was Celeros. It provided Radia with the availability characteristics it required; the capacity, ease of management and performance features he desired; and, a price point that helped seal the deal.

Radia's Profile

Radia is the largest radiology and vascular surgery practice in the Pacific Northwest. Radia has over 70 physicians highly trained in the practice of Radiology and Vascular disease with an organizational culture that understands that its clients want both the latest technology and a personal experience.

teleRadia™ technology connects all of Radia's sites and physicians to maximize its collective sub-specialty knowledge. teleRadia™ allows intra group consultation on complex cases, provides sub-specialty expertise not available on-site, and emergency room coverage 24 hours a day, 365 days a year which amplifies the experience and knowledge that is brought to bear on a specific patient's examination.

IT Infrastructure Hinders Radia's Growth

Shortly after CIO Dave Revell arrived at Radia, he came to realize that Radia needed to upgrade its IT infrastructure to better support its teleRadia application and the hospitals and physicians that used it. Radia was storing all of its radiology images on a physical server with two (2) terabytes (TBs) of direct attached storage (DAS) which was presenting performance, scalability and uptime issues.

On the performance side, Radia needed to support data change rates of up to hundreds of gigabytes (GBs) per day. Hospitals in the region sent Radia their magnetic resonance (MR) and CAT scan (CT) images so it received a constant inflow of data throughout the day plus Radia physicians were also regularly downloading these images to view them. Since

these uploads and downloads could occur at any time, it caused performance bottlenecks when these two tasks competed for the same system resources.

Storage capacity and system maintenance were also a challenge. The 2 TBs of DAS limited Radia's ability to retain images as it could only keep about three (3) months of data online. Also, since both hospitals and physicians operate on 24x7 schedules, the teleRadia system had to be continually available. This left little or no time to perform system maintenance.

Enterprise Requirements, Midrange Budget

Revell recognized that a networked storage solution was the right answer to Radia's set of problems. However his budget did not allow him to purchase a high-end million dollar storage solution so he sought out a midrange storage solution that met his specific needs.

He placed the highest priority on identifying a solution that provided continuous system availability under any circumstances. Storage capacity and performance were next on his priority list with simplicity of configuration and management not far behind. An economical price was also a factor or else there would be no way Radia could afford the solution.

Revell looked at a number of midrange storage solutions from competing storage providers that included Celeros, EMC and Dell. Initially he was attracted to midrange solutions from EMC and Dell as they appeared to provide the features that met his budget.

It was only when he examined the underlying architecture of the EMC and Dell storage solutions that he uncovered some issues. Even though both of these solutions include many redundant hardware components to account for failures, he still found instances where individual points of failure existed within these systems.

A specific concern is that these systems are built on server architectures. The problem this presents is that even when their solution had two power supplies and two controllers, if a component such as the power backplane fails, the entire storage system would go down since there is no redundant power backplane on them.

His other major concern had to do with maintaining performance and availability while performing routine system

maintenance. Here again, he saw problems with these solutions. Not only will midrange storage systems experience degraded performance of 50% or more during firmware upgrades but if something unexpected happened, it could result in a complete system outage. This option was unacceptable.

Mirrored Storage Systems Better than Redundant Components

While Revell had not yet completely ruled out Dell and EMC, he took a closer look at the Celeros EzSANFiler XD storage system. Revell was acquainted with Celeros from his previous job but now wanted to see if its storage solution could satisfy Radia's specific requirements.

Revell was immediately attracted to Celeros' price point. He could purchase four of the Celeros systems for the same price as one Dell or EMC system and get up to four times as much storage capacity. However an individual EzSANFiler XD unit did not have the redundancy that Radia called for so a single unit would not meet his requirements.

What changed his mind was Celeros synchronous replication feature that mirrors data between two Celeros storage systems. Deploying the Celeros systems as pair units in a mirrored configuration, Revell could create a solution that delivered the availability that Radia sought at a price point it could afford. He says, "We brought in Celeros because it was one of the only midrange storage system vendors that did synchronization and tracked changes at the block level."

In the end, Celeros mirroring feature and low price point convinced Revell to proceed with Celeros as his new storage solution.

The Virtual Benefits of iSCSI SANs

Deploying Celeros EzSANFiler XD systems in pairs resulted in some benefits that were unavailable using competing storage solutions. Celeros support engineers were online to assist Revell in configuring the EzSANFiler XD as an iSCSI SAN that allowed Radia to assign virtual IP addresses to each unit that are then controlled by the Layer 3 Ethernet switch. In this circumstance, he found Celeros engineering support invaluable.

In this configuration, Radia can take down either unit with no hiccups in application performance. Since data between the two units remains synchronized at all times, if one storage unit needs to go offline for system maintenance, the Ethernet switch automatically reroutes application traffic to the available Celeros storage system with no service interruptions or performance degradation.

Then when the off-line unit is brought back online, Celeros first re-synchronizes the data between the two units. Once the synchronization of the data is complete, the Ethernet switch is made aware that the second system is again available and able to serve as a failover target should the primary storage system go offline. He comments, "We can now in real time drop an entire storage unit and do a firmware upgrade without any application disruption on the SAN."

Revell also found that it is very easy to add more storage capacity and performance to his Celeros iSCSI SAN. Because new Celeros storage units are so inexpensive and new technologies like VMware vMotion make it so easy to migrate data, he can move application data from an old pair of Celeros storage units to new units using vMotion. This occurs without any application disruption while giving him the flexibility to most efficiently use storage capacity and increase performance.

DCIG Conclusion

Midsized businesses today want enterprise features for more economical prices. They suspect that enterprise features like ease of management, availability, reliability, scalability and performance that meet their needs are available at better price points. The trick is sorting through the maze of storage vendors and finding the one that can deliver on their requirements.

In the case of Radia, it succeeded in navigating this maze to find the storage solution that met both its technical and financial requirements. It discovered that Celeros can deliver the features that midsized businesses need at a fraction of the price that more well-known storage vendors charge. Radia's Revell summed up it best when he says, "Celeros synchronization software and low price per storage unit gave it an edge over competing products in the midrange storage space."

About DCIG

DCIG analyzes software, hardware and services companies within the storage and ESI industries. DCIG distributes industry, company and product analysis by way of viral marketing and community building using the burgeoning BLOG infrastructures created worldwide.

About Celeros

Celeros is an ardent believer in choosing appropriate technologies that cost effectively solve today's problems and scale to address tomorrow's needs. Its mission is to make reliable, high performance storage solutions easy to operate and affordable.



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