CompuGroup Medical

CASE STUDY

CompuGroup Medical Grows the Business Without Growing the Data Center with InfiniFlash™ System from SanDisk® and SDS software from DataCore

Solution Focus

- Healthcare
- DataCore Software
- MS SQL Server 2014
- Oracle ERP applications

Summary of Benefits

- 20X improvement in data access speed
- 3X power and cooling cost savings
- Data center space savings

Product

- InfiniFlash System

"In Koblenz, we have 15 to 20 milliseconds access time for our data from the SAN side—which is okay. But with the InfiniFlash System, we see just one millisecond for every bit of data we access."

Thomas Schend, Senior IT Systems Architect, CompuGroup Medical

Summary

Having successfully deployed Fusion ioMemory™ PCIe cards for a number of years, CompuGroup Medical (CGM) returned to SanDisk for another solution to support their diverse and complex workloads. By deploying the InfiniFlash System, CompuGroup Medical realized increased data access speeds, decreased power and cooling costs, and reduced their data center footprint—all in a cost-effective solution.

Background

A leading global eHealth enterprise, CompuGroup Medical provides software and communications solutions that assist doctors, dentists, hospitals, pharmacists, laboratories and other service providers with workflow, diagnosis, and therapy. The Company has a broad customer base of approximately 400,000 service providers worldwide that includes general practitioners, medical facilities, health insurers, pharmaceutical companies and public sector agencies. The Company's IT solutions keep pace with the latest developments in the field of medicine and meet the needs of the healthcare sector for storing, exchanging, and accessing medical information—when and where it is needed.

CompuGroup Medical was one of SanDisk's early customers of Fusion ioMemory PCIe application accelerator products. The Company deployed the first generation Fusion ioMemory devices in their Koblenz and Irvine data centers and has continued to be a customer throughout the years. "We are a long-time customer of Fusion ioMemory cards and have had a very low failure rate with the products. We have rarely seen outages with the cards and we have a lot of them running in our data centers. It is a "no-brainer" for us to use them," said Thomas Schend, Senior IT Systems Architect, CompuGroup Medical.

The CompuGroup Medical IT team prefers to work directly with vendors and is complimentary regarding interaction with SanDisk. "With some companies, the people cannot go as deep as we do into the technology," explained Schend. "However, with SanDisk, the support people have the technical knowledge to help us solve problems. We have tried to mimic some of the methodologies that SanDisk uses in their data centers because they are more efficient."

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The Challenge

The CompuGroup Medical IT team supports virtualized and very diverse workloads—from Microsoft SQL Server 2014 databases, Oracle billing applications, and terminal servers, to transactional data and hosting for customers of the software and services businesses. The Company stores data for patients; for example, patients can book appointments from their Smartphones and have the information stored in the system. Additional complexity arises from both organic growth and numerous acquisitions that contribute to CompuGroup Medical's ongoing and rapid expansion. "We cannot design for one specific application because, if we acquire a new company, we need to run those new applications in our data center and the infrastructure must support this. Maybe it isn't the highest performance for this single application, but for all the workloads at the same time, it is very good for the mixed workload."

Although CompuGroup Medical had deployed both standard hard disk drives and flash solutions in the form of Fusion ioMemory cards in their servers, they became limited in the way they could continue to deploy additional drives. The disks were attached through Fabric Attached Storage to the server to create the SAN. However, the point came where the need arose for additional PCIe slots.

Schend currently uses DataCore SANsymphony-V Software as the Software-defined Storage layer. The primary system was mirrored to a second system that was presented to the application server. "We needed something that is block storage, that is blazing fast, and that is low latency to accept the data," said Schend.

"Very large disks pose a potential risk. I believe that the all-flash data center will become an option for most companies over the next two years, but not only because the failure rate is so low. Moreover, the cost for power and cooling can be decreased significantly. InfiniFlash is something every company should consider."

Thomas Schend, Senior IT Systems Architect, CompuGroup Medical

The Solution

Schend conducted research in the marketplace to evaluate possible solutions. The objective was to obtain more density and higher performance, within a cost-efficient architecture. "There were all-flash SANs already on the market but we were pretty satisfied with the mirroring function from DataCore Software. InfiniFlash System was the product that fit us perfectly. It was just a natural evolution," Schend told us. CompuGroup Medical is deploying the InfiniFlash System in two data centers in Frankfurt.

Because of the intelligence inherent in the DataCore Software product, CompuGroup Medical uses the InfiniFlash System mostly as a JBOF (Just a Bunch of Flash). Due to the striping of data across all of the 8TB InfiniFlash cards, CompuGroup Medical enjoys better performance along with caching and drive availability and resiliency. "We came to InfiniFlash because, for us, it isn't easy to predict what our workload is doing," explained Schend. "We try to have very good overall performance, with about 50/50 reads and writes. We are not tuning the infrastructure for one specific application; we are tuning it for diverse workloads."

Schend was also pleased with the impact on the data center. "We did the math to determine how much space and cooling we needed for our traditional 900GB spindles which were mirrored, and compared that with the space on the InfiniFlash System. The price point here was really attractive. In addition, the risk was low. Because we have the virtualized data layer on top, the risk was not that high."

The Result

To determine the impact of the InfiniFlash System deployment, CompuGroup Medical compared the existing hard disk drive architecture in Koblenz with the new InfiniFlash System deployment in Frankfurt. "In Koblenz, we have 15 to 20 milliseconds access time for our data from the SAN side—which is okay," said Schend. "But with the InfiniFlash System, we see just one millisecond for every bit of data we access."

In addition, with the previous architecture, the system tiered storage between the hard disks and the Fusion ioMemory cards. However, with the new architecture, there is only one tier based on the InfiniFlash System, which provides the needed performance at any given point in time.

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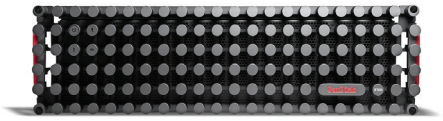
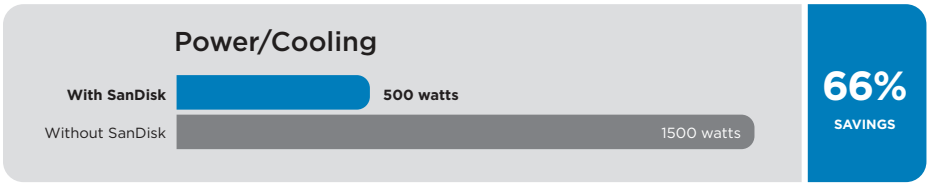


InfiniFlash System

When considering the power efficiency and space savings of the InfiniFlash System, CompuGroup Medical is seeing significant savings. “My calculations show what would happen if you ramp up to 128TB or even 512TB from 64TB,” Schend continued. “With InfiniFlash, the footprint is still three rack units, compared to what would be needed with additional hard disks.” For every 64TB, CompuGroup Medical would need another three 3U JBOD hard disk drive rack units, each with space for at least 24 hard disk drives.

CompuGroup Medical is also realizing considerable power and cooling savings with the new InfiniFlash System architecture. “We require four spindles totaling 900GB to have them mirrored—two spindles on each side of DataCore—which requires 20 watts,” Schend told us. However, InfiniFlash System requires approximately 500 watts to run—nearly one-third of the power.



“For us, this technology is a big advantage,” confirmed Schend. “The first time we used Fusion ioMemory PCIe cards, and now with deploying InfiniFlash, it really is the right strategy.”

Outlook

Schend has an optimistic view for the future of flash in the data center. “We will deploy this solution in Frankfurt and then increase capacity if we reach the limit,” said Schend. “We are considering InfiniFlash for all of our data centers, using the Frankfurt data center as a model and test case. Once it is a proven solution for our workloads, we plan to deploy in other data centers, as well.”

The fact that there is nothing “mechanical” when storing data in flash storage devices is also a benefit for CGM. “With very large disks there is a potential for failure and error. Personally, I predict that in two years, the all-flash data center will be an option for most companies, because the failure rate is so low and the power and cooling is now economical.”

Schend sees advantages with the ability to have one petabyte of storage in a 6U footprint. “Compared with even large eight terabyte hard disks, there is a lot of handling and maintenance required. Therefore, InfiniFlash is something every company should consider.”

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