

Open-E, Starline, and CKNS MAKE RADIOLOGY SHINE

Excellent Team Work of Data Storage Experts



Executive Summary

- > BoRad is a radiology, nuclear medicine, and radiotherapy group medical practice with seven locations in Germany
- > They needed to upgrade their data storage system to meet the increasing demands of their business
- > They chose an active/active SMB High Availability Non-Shared Data Storage Cluster over Ethernet powered by Open-E JovianDSS and built with Starline's NASdeluxe Z-Series systems
- > The solution provided them with 50 TB of data storage capacity, 10 Gbit/s 4-way mirror, and next-business-day on-site support service
- > The result was a smooth transition, seamless integration with VMware, and stunningly low response times in the network



Challenges and Objectives

BoRad group practice is a medical practice providing radiology, nuclear medicine, and radiotherapy treatments in the Ruhr region, Germany. They have a total of seven locations and serve thousands of patients every year.

Their services require a huge, stable, and high-performance data storage system that can handle the following challenges:

- Long-term data storage for CT/MR images (PACS data) for 10 years
- Obligation to archive treatment plans for 30 years
- VoIP system with 200 microphone units
- Docked databases with online appointment scheduling
- Compatibility with the hospital information system (HIS)
- Critically high data privacy protection due to the GDPR regulations

After five years of using an Open-E DSS V7-based data storage system located in the data center in Oberhausen, it was not sufficient anymore due to the ever-increasing requirements. They needed to upgrade their data storage system to a **more advanced and scalable solution** that could also **support their virtual workstations (VDI) powered by VMware** and synchronize in real time with the data center in Oberhausen. Additionally, they wanted to **avoid using a cloud infrastructure due to the unclear legal situation within the GDPR rules** and ensure they had **a reliable and fast support service** in case of any error or disaster.



Solution

To find the best solution for their data storage needs, BoRad group practice turned to their trusted partner: **CKNS-Dienstleistungen GmbH** which is their IT service provider and consultant. Yannick Dicke, Project Manager and Administrator at CKNS-Dienstleistungen decided to go back to Starline Computer and Open-E, with which he was cooperating during the implementation of the previous system for BoRad, so they had a deep understanding of the business and technical requirements. **Starline Computer** is a German provider of data storage, servers, and network solutions, and **Open-E** is a developer of data storage software.



The team of experts came up with the following solution:

- An active/active SMB High Availability Non-Shared Data Storage Cluster over Ethernet powered by Open-E JovianDSS
- Cluster built with two **Starline's NASdeluxe Z-Series** (Z for ZFS) systems, tested and certified by Open-E
- 10 Gbit/s 4-way mirror for additional redundancy, and ultimate data protection 50 TB net of data storage capacity
- Service and support: hardware service is provided by Starline Computer GmbH. In case of an emergency, a Starline expert will be on-site the next working day to take care of any problems. Meanwhile, Open-E provides support for the Open-E JovianDSS storage operating system.

The solution was designed to meet all the challenges and objectives of BoRad group practice, as well as to provide them with the following benefits:

- **High availability:** the cluster ensures that the data is always accessible and protected from failures
- **Scalability:** the cluster can be easily expanded with more storage capacity or performance as needed
- **Performance:** the cluster delivers fast and reliable data transfer and processing
- **Data protection:** the cluster uses ZFS features such as snapshots, replication, deduplication, and compression to ensure data integrity and security
- **Cost-effectiveness:** the cluster reduces the total cost of ownership by optimizing the use of resources and minimizing maintenance costs

Customer Feedback

As always, it was a pleasure to work with Starline and Open-E during this project execution, initial setup, and technical support. Glad to do it again...

Yannick Dicke, Project Manager And Administrator CKNS-Dienstleistungen GmbH



Results

The transition to the new data storage system was smooth and hassle-free, thanks to the professional installation and configuration by the team of experts. The new system was integrated with VMware and the existing network infrastructure without any issues. **The virtual workstations (VDI) powered by VMware were able to run seamlessly** on the new system, improving the efficiency and productivity of the staff. **The response times in the network were stunningly low at less than one millisecond**, ensuring a fast and smooth user experience.



The new data storage system also met all the expectations and requirements of BoRad group practice in terms of data storage capacity, data protection, data availability, and data performance. **The system is able to handle the large and complex data sets generated by medical procedures, as well as the other applications and services used by the group practice.** The system also ensures that the data was compliant with the legal standards of the medical field.

The customer was very satisfied with the solution and the service provided by Starline, Open-E, and CKNS. They praised the team for their expertise, professionalism, and responsiveness. They also appreciated the support service that guaranteed a fast and effective resolution of any problems that might occur. They expressed their confidence in the solution and their willingness to continue working with the team in the future.

Hardware details

Servers Configuration

Servers:	2x NDL-5716R/Z
CPU:	1x Intel® Xeon® Silver 4112 CPU 2.60GHz
RAM:	128 GB DDR4
Drive controller:	12 Gbit/s SAS Host Bus Adapter
Form factor:	3 HE Rackmount
Data drives:	24x 10 TB / 7200 Umin NL-SAS HDDs
Boot medium:	2x 32 GB SATA DOM
Power:	2x 1000W Netzteil Redundant Power Supply

Data Storage Configuration

High Availability:	Active/Active Load Balanced Non-shared Cluster
Redundancy:	4-way Mirror
Net Capacity:	ca. 49,14 TB
Pool 0:	12 HDDs - 3 Groups with 4 HDDs
Pool 1:	12 HDDs - 3 Groups with 4 HDDs

Data Storage OS Licenses:

Licenses:

2x Open-E JovianDSS Product License 0TB
1x Open-E JovianDSS Advanced Metro HA Cluster Feature Pack
2x 64TB Open-E JovianDSS Storage Extension

Support license:

2x 5 Years Open-E JovianDSS Standard Support



About CKNS-Dienstleistungen GmbH

CKNS-Dienstleistungen GmbH is an IT service provider that specializes in radiology, nuclear medicine, and radiotherapy. They offer comprehensive IT solutions for medical practices, from consulting and planning to implementation and support. They have two locations in Essen and Haan-Gruiten, Germany, and have been in business since 2011. They have a team of experts who are well-versed in the latest technologies and standards in the medical field. They work with trusted partners such as Starline and Open-E to provide high-quality data storage, server, and network solutions. They have over 800 satisfied customers who attest to their professionalism, responsiveness, and security.

For more, visit the website: www.ckns.de

About Starline Computer

Starline Computer has more than 40 years of professional experience with data storage systems - having been in the storage and server business since 1982. We are one of the first companies to completely dedicate ourselves to storage and server solutions. This guarantees our partners a maximum of competence. Starline provides complete virtualization and storage solutions such as SAN, RAID, NAS, IP storage, servers, tape libraries and autoloaders, RAID controllers, FC switches, backup software, HBAs and more. Find more information on www.starline.de/en/

About Open-E

Open-E, founded in 1998, is a well-established developer of IP-based storage management software. Its flagship product, Open-E JovianDSS, is a robust, award-winning storage application that offers excellent compatibility with industry standards. It's also the easiest to use and manage. Additionally, it is one of the most stable solutions on the market and an undisputed price performance leader. Thanks to its reputation, experience, and business reliability, Open-E has become the technology partner of choice for industry-leading IT companies. Open-E accounts for over 38,000 installations worldwide. Open-E has also received numerous industry awards and recognition for its product, Open-E DSS V7. For further information about Open-E, its products and partners, visit www.open-e.com

More information:

CKNS-Dienstleistungen GmbH
+49 201 890 40 333 | support@ckns.de

Starline Computer
+49 7021 487-200 | info@starline.de

Open-E, Inc
+49 898007770 | info@open-e.com