



LESS EFFORT AND MORE TIME FOR CORE TASKS

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> Andreas Naumertat, Teamleiter Server/Storage/Backup, University Hospital Dresden (UKDD)



UNIVERISTY HOSPITAL DRESDEN UKDD

Industry:

Healthcare

Situation:

The UKDD's data volumes are growing rapidly. This data must be stored with high availability and in accordance with strict policies and security standards. When it came to modernising its storage solution, UKDD wanted a flexible and efficient solution with a clear focus on ransomware protection and high service levels.

Challenges:

- Storage and protection of sensitive patien data according to strict regulations.
- Future-proof through scalability and cost efficiency
- Integrate seamlessly with existing infrastructure
- Data storage management and administra-
- tion should be outsourced

Solution:

Hernity iCAS FS storage platform Dedalus HYDMedia and DeepUnity Picture (source: University Hospital Dresden): Dresden University Hospital is the only maximum care hospital in eastern Saxony.

THE SUCCESS AT A GLANCE



No effort for the UKDD with the storage platform: managed, monitored, updated & operated by iTernity



WORM storage, ransomware protection and resiliency ensure data security, integrity and availability



Manage data growth with the iTernity iCAS FS scale-out storage platform



Get the benefits of the public cloud in your own data centre



BRINGING SENSITIVE HEALTH DATA SECURELY INTO THE FUTURE

How can we continue to protect our sensitive medical data against loss and manipulation in the future, manage data growth, save costs, and, above all, time?

The IT managers at the University Hospital Carl Gustav Carus Dresden (UKDD) asked themselves this question in 2020 when the previous storage system was to be reorganised.

Dresden University Hospital is one of the largest hospitals in Saxony and the only maximum care hospital in eastern Saxony. It has 1,410 beds and 201 day-clinic treatment places. Dresden's university medical centre is a leader in the treatment of complex, particularly serious or rare diseases. The UKDD is highly regarded for its expertise in treating and researching type 1 and type 2 diabetes mellitus and associated conditions. It is also a top clinic for cancer and neurological disease treatment. Each year, the hospital treats over 53,000 inpatients and almost 165,000 outpatients.

Data management is a crucial process for the IT department of UKDD, as it involves a vast amount of critical health information from various sources with retention periods of up to 30 years. This data must be protected, stored according to strict specifications, and remain unaltered. Additionally, fast access to the archive data is essential for acute treatment, and high availability is critical for patient care.

Data volumes are rapidly growing and represent a lucrative target for ransomware attacks. The UKDD's basic infrastructure department is well positioned with around 20 employees, six of whom are responsible for servers, storage, and backup. However, the increasing shortage of skilled labour is noticeable.

Key data: UKDD

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- University Hospital
- Inpatient and outpatient medical care, treatment of complex, particularly serious or rare diseases
- Over 53,000 inpatients and 165,000 outpatients per year
- Approx. 6,770 employees

The IT team at UKDD had to address the following important questions:

- Which solution seamlessly integrates with the existing IT infrastructure and effectively supports the hospital's IT operations?
- How can imaging data, including X-ray images and medical findings, be stored securely and made highly available in the long term?
- How can data storage be better protected from ransomware attacks?
- How can we optimize efficiency, scalability, and flexibility to keep up with the rapidly growing volumes of data?

SECURITY, STAFF SHORTAGES AND DATA GROWTH

In 2015, the IT managers of UKDD decided to replace the outdated proprietary network storage platform used for data storage with iTernity's iCAS archive middleware.

Since then, the UKDD has successfully relied on iCAS for the secure and compliant archiving of sensitive data from Dedalus Healthcare Group's HYDMedia and DeepUnity systems. HYDMedia is a comprehensive Enterprise Content Management system for clinical and administrative areas in hospitals. All relevant



information and documents are digitally integrated and made available at the workstation. DeepUnity is a PACS system. It provides a universal visualisation solution for medical data (DICOM and non-DICOM) and enables secure access to all medical data from anywhere, at any time.

In 2020, UKDD's storage infrastructure was due for another upgrade. In addition to data from HDYMedia and DeepUnity, the new solution would also archive and store data from the UKDD's email management system.

Like many healthcare IT managers, Gordon Schultz, director of basic infrastructure for the Information Technology and Data Management Directorate at the UKDD's Centre for Medical Informatics, believes that the main threats to the stability of today's hospital IT are growing data mountains, ransomware attacks and a shortage of skilled staff.

Data growth is closely linked to costs, staffing and IT security, as more data requires more storage and new systems. These need to be managed, updated and secured. This in turn requires IT specialists, time and money. More systems and resources often mean more complexity and additional gateways for cyber-attacks.

Gordon Schultz on the omnipresent threat of ransomware:

"One of the biggest challenges we face as an IT organisation today is the latent threat of ransomware attacks. How can we best protect patient and other sensitive data, and what happens if a cyber attack is successful despite all precautions? These aspects had to be taken into account when planning the archiving and data storage systems."

Gordon Schultz and his colleague Andreas Naumertat, Server/Storage/Backup Team Leader, share a similar attitude to outsourcing healthcare data to the public cloud. The UKDD's data is currently replicated in three locations. In principle, the use of cloud services for one of these replications would be conceivable in the future, once the Saxon Data Protection Act has been opened up to the healthcare sector. However, both Mr Schultz and Mr Naumertat see data from research and teaching with low criticality as the most likely to be cloud-capable for the time being. Both are critical of outsourcing highly sensitive patient data.

"The outsourcing of patient data, the crown jewels of UKDD, is not an option for us as long as there are good on-prem alternatives.."

Andreas Naumertat states.

Due to the consistently positive experience with the iCAS archive middleware, the support provided by iTernity and the recommendation of the UKDD's long-standing partner, the Dedalus Healthcare Group, the decision in favour of iTernity's iCAS FS managed storage platform was made quickly.



Gordon Schultz on the switch from iCAS to iCAS FS:

"Having experienced iTernity's very good support with iCAS, it was easy for us to decide to switch to iCAS FS as proposed by Deda-lus."

With iCAS FS, UKDD's IT managers also chose a storage solution that combines the benefits of the public cloud with the security of on-premises solutions - in other words, an on-premises cloud experience.

FOCUS: CYBER AND FUTURE SECURITY, COST REDUCTION

By switching from iCAS to iCAS FS, the IT managers at UKDD wanted to achieve the following objectives:

- Managed storage: Administration and monitoring should be handled by the vendor, and data storage should require little effort from the UKDD's IT staff.
- Future and planning security: The solution should be easily scalable at any time and at short notice, with low total cost of ownership, to keep pace with the sometimes fast-growing volumes of data.
- Ransomware protection: The risk of unauthorised manipulation and deletion of data by cyber criminals and employees should be minimised.
- Regulatory compliance: All legal requirements, such as GDPR (General Data Protection Regulation) and NISG (Network and Information System Security Act), had to be met.
- High availability: Uninterrupted, high performance access to stored data was a requirement.

MORE TIME FOR CORE TASKS BY RELIEVING THE IT DEPARTMENT

Managed Storage

For Andreas Naumertat, relieving his team was a key requirement for the new storage solution.

"Thanks to the iCAS FS architecture, archiving and storage have become even easier since the changeover. After completing the data migration, responsibility for these tasks has been almost entirely transferred to iTernity."

states Andreas Naumertat. iTernity is therefore responsible for the storage platform. Whether implementation, monitoring, troubleshooting, configuration changes or administration - the UKDD IT department hardly has to touch iCAS FS. The system is operated as a managed service by iTernity and runs smoothly in the background.



Dresden's IT managers also appreciate the fact that they can always turn to their personal contact at iTernity:

"A very important point for us is that the iCAS FS support team is always available and we have a personal contact. They have also responded quickly to technical challenges in the past and we have never lost any data. We feel well looked after by iTernity in every respect."

Future security

As a scale-out cluster, iCAS FS addresses unpredictable data growth. The software-based solution can be easily expanded by adding cluster nodes, as the overall performance of the horizontally scalable system is provided by a large number of storage server nodes (clusters). These appear to the outside world as a single system, enabling any expansion of capacity and performance.

Ransomware protection

Ransomware attacks, insider attacks, data loss - many threats force the UKDD to take special protection measures due to the sensitivity of health data. These are built into the architecture of the archive storage system. iCAS FS is based on a hardened Linux system and does not allow administrator access on the UKDD side. This minimises the attack surface for external and internal threats.

Thanks to WORM (Write Once Read Many) storage and retention management, data cannot be altered, manipulated or deleted once it has been written.

The iTernity Managed Service ensures that the system is always up to date. Updates and security patches are installed directly by iTernity.

Regulatory compliance

With iCAS FS, the UKDD meets all requirements for the storage of sensitive healthcare data. This capability has been independently audited and certified by KPMG. In addition, the data is stored securely in our own data centres.

High availability

Uninterrupted, high-performance access to stored data is a must. iCAS FS ensures high availability through transparent read/write failover and an active-active cluster. All nodes perform the same services simultaneously and take over from each other in the event of a failure.

In addition, the UKDD backs up data to multiple locations, providing geo-redundancy and protection against natural disasters and data loss. iCAS FS replicates data synchronously by default, but can also extend a single cluster to remote data centres. In this case, iCAS FS intelligently switches between synchronous and asynchronous replication.



A GLIMPSE INTO THE FUTURE

In addition to projects such as the implementation of the KHZG and the upcoming integration of AI in medicine, Schultz and Naumertat are particularly concerned about the growing threat of ransomware.

Data growth, which will be fuelled in the foreseeable future by the digitisation of pathology, for example, makes planning and future-proofing a major issue. But with iCAS FS, the IT managers at the UKDD are well equipped to meet this challenge. An expansion of the storage platform was recently on the agenda, and thanks to its scalability, this will be possible at any time.

Gordon Schultz concludes satisfied:

"It is very difficult for us to estimate future data growth, especially with research data, genomic data, AI and projects such as the digitisation of pathology. In addition, storage expansion is always a significant investment. However, we are confident that we have chosen a future-proof solution with the cost-effective and scalable iCAS FS platform."



UNLIMITED SCALABILITY FOR LITIMTED IT BUDGETS

iCAS FS is a scale-out platform for archive, backup and business critical data of all kinds. The software-defined storage platform scales without limits starting at 40 TB, and impresses with low TCO, great ease of use and high flexibility.



53% cost savings compared to public cloud storage and you retain the control of your data



Start small, scale without limits from one node and 40 TB in one software-defined platform



The advantages of public cloud storage in your own data center: high flexibility, easy scalability, little effort



Auto-managed system: zerotouch operation and managed services with monitoring of the complete system



iCAS FS enables future-proof data storage and compliance at a low total cost of ownership. The platform is ideal for storing and protecting data from multiple applications and sources and enables audit-proof archiving, ransomwareproof backup storage, and relieves your primary storage.

The software-defined architecture is built on standard hardware and a Linux operating system. Thanks to WORM storage, S3 Object Lock, retention management, encryption and audit trail, compliance and security are top priority, which has also been confirmed by KPMG.



WOULD YOU LIKE TO LEARN MORE?

Arrange a demo or discuss your requirements with us: info@iternity.com | +49 761 590 34 810 | www.iternity.com/demo