iTernity

Hanau Hospital GmbH

ARCHIVING WITHOUT WORRIES: AUDIT-PROOF AND EFFORTLESS

Image: Architecture of the M Building, 2nd construction phase (today HB Building): Architects Witan Russ Lang GbR, Frankfurt

AUDIT SECURITY MADE EASY:
NO EFFORT, NO WORRIES

„The biggest advantage of the iCAS FS storage platform is that – thanks to the managed storage services – we no longer have to worry about archiving since its implementation. Data is simply archived in an audit-proof manner. The iCAS FS system runs very stable."

Sören Peters, IT specialist for system integration at Hanau Hospital

HANAU HOSPITAL

Image: Architecture of the M Building, 2nd construction phase (today HB Building): Architects Witan Russ Lang GbR, Frankfurt

Industry:

Healthcare

Situation:

The previously used storage hardware had become outdated and was no longer able to meet the hospital's requirements. Therefore, the hospital's IT department began searching for an archive solution that offered revision security, high availability, and cost efficiency with minimal effort.

Challenges:

- Ensuring audit compliance of sensitive health data according to strict regulations
- Ensuring data availability
- Managing rapidly increasing data growth while maintaining high cost efficiency
- Reducing IT efforts for managing and administrating the archive solution

Solution:

iCAS FS storage platform by iTernity, Synapse 5 by Fujifilm, CWD (Clinic WinData) by E&L/NEXUS, Amondis by UHB, MEDLINQ by MEDLINQ Softwaresysteme, SAP, and more.

THE SUCCESS AT A GLANCE

✓ No effort required for data archiving: administration, monitoring, updates, and operations are managed by iTernity

✓ Ensuring data integrity and availability through WORM storage, retention management, asynchronous replication, etc.

✓ Managing data growth with the scale-out archive platform iTernity iCAS FS

✓ Stable and fail-safe iCAS FS archive system to ensure patient care

HANAU HOSPITAL – A MAXIMUM CARE FACILITY

Patient care is the top priority in the healthcare sector – and this is also the case at Hanau Hospital. With 787 beds, the clinic is a maximum care facility and an academic teaching hospital of Goethe University Frankfurt am Main with a certified training center. Across 14 clinics, three institutes, and the central emergency room, around 1,800 employees serve approximately 90,000 patients annually, both outpatient and inpatient.

With a large number of certified centers, the hospital is at a high diagnostic level and focuses on the optimal treatment and care of patients. The hospital provides comprehensive medical care close to home for the Main-Kinzig region in 30 specialist departments. The wishes and expectations of the patients are a key factor in this.

The storage and archive infrastructure also plays an important role in safeguarding medical care. In general, the Hanau Hospital aims to protect sensitive and personal health data from damage, alteration, manipulation, loss and deletion, thus guaranteeing their security and availability. thus guaranteeing their security and availability.
The enormous increase in data volumes poses a challenge for Hanau Hospital. In the radiology department alone, the data volumes grew from 550 gigabytes per month in 2016 to an estimated 1.7 terabytes per month in 2024. Including other clinical areas such as cardiology and gastroenterology, the IT department estimates the data volumes at 35-40 terabytes per month. This massive growth requires highly scalable storage solutions that can keep up with increasing data volumes.

Key data: Hanau Hospital

- Maximum care hospital for the Main-Kinzig region
- Over 35,000 inpatient and 55,000 outpatient per year
- Approximately 787 beds, 14 clinics, 3 institutes, a central emergency department; around 30 departments in total
- About 1,800 employees

MASTERING AUDIT COMPLIANCE & MAINTAINING DATA SECURITY

In 2011, the hospital was looking for a software-defined archiving solution to store medical data in an audit-proof manner. Requirements such as the GDPR, the IT Security Act 2.0, the KRITIS and the X-ray Ordinance regulate the handling, processing and protection of data and set the appropriate standards for the hospital.

The solution selected was the archive middleware iCAS from iTernity. The most important factors for the decision in favor of iCAS included maximum flexibility with regard to the underlying hardware, which could be replaced at will, as well as the advantageous price-performance ratio. An important secondary aspect was that the hospital's IT department did not have to build up any additional expertise for long-term archiving, as iCAS runs completely in the background as a silent worker without any IT involvement. The recommendation for iCAS was made by the IT partner Concat AG.

When the underlying storage hardware became outdated and needed replacement, Hanau Hospital finally switched to the scale-out platform iCAS FS from iTernity in 2021. The main advantage of the archive platform, as seen by the clinic's IT, was also the good price-performance ratio and the Managed Storage

Services, which ensure that the IT department has virtually no efforts with data archiving anymore. Sören Peters, a specialist in system integration at Hanau Hospital, recalls the initial situation:

„We found the Managed Storage Services were great and they were also one of the decisive reasons for iCAS FS. We have many other IT issues to take care of. With iCAS FS, important data is stored – and for us, it is invaluable to have these in the hands of iTernity.“

HOW THE HANAU HOSPITAL ARCHIVES TODAY

Today, Hanau Hospital uses iCAS FS to archive the majority of digital patient data (e.g. patient records), medical image data (e.g. from radiology and cardiology) and SAP data. Digital invoices are also archived in an audit-proof manner with iCAS FS in order to be on the legally safe side in the event of audits by the tax office.

The data comes from many different sources, so seamless IT integration of iCAS FS into the existing structures had to be ensured. iCAS FS offers optimal conditions for this, as the solution has been tested and certified for more than 150 software applications.

Data from the following IT systems is archived securely and in an immutable form with iCAS FS:

- **Synapse 5 from Fujifilm**: PACS system, which stores data from radiology (e.g. CT, MRI, and conventional X-ray diagnostics)

- **Clinic WinData from NEXUS / E&L GmbH:** Software for medical image and findings documentation

- **AMONDIS from UHB**: Digital invoice receipt book

- **AVP from DMI**: Archive management program

- **MEDLINQ from MEDLINQ Softwaresysteme**: Clinical organization and documentation system

- **SAP R3, SAP is-h, and SAP i.s.h.med from SAP**: Solutions that collect and manage data from various other software programs

The retention periods for the data strictly comply with the legal requirements (AO, BGB, RöV etc.) and are up to 30 years in the hospital. With iCAS FS, this data is safely stored and protected, and cannot be changed or manipulated.

Hanau Hospital sees a further advantage of iCAS FS in the asynchronous replication of data, which was also one of the main reasons for choosing iCAS FS. The data is stored redundantly on two iCAS FS cluster nodes, which are located in two different data centers. If one of the nodes is not available, the data is written to the other available node. As soon as both nodes are available again, data is automatically synchronized and full redundancy is restored. This capability is an important factor in ensuring data availability and providing protection against natural disasters and human and technical errors.

Sören Peters emphasizes the importance of this feature for the Hanau Hospital:

„Since we use iCAS FS not only as a pure archive system, but in the case of PACS data also as an active storage medium and currently do not have any intermediate storage, we are dependent on being able to access the data at any time not just for reading, but also for writing. This works very well with iCAS FS.“

RESULT: DATA ARCHIVING COMPLETELY MANAGED, WITHOUT EFFORT

The hospital's IT is completely satisfied with the iCAS FS managed storage platform and achieved the following benefits.

- **Audit-proof:** With iCAS FS, the IT department has implemented a solution that ensures audit-proof archiving of healthcare data. Thanks to WORM (Write Once Read Many) storage and retention management, data can no longer be changed, manipulated or deleted once it has been written. This capability has also been independently audited and certified by KPMG. In addition, the data is stored securely in the own data centers.

- **Stability**: iCAS FS runs stably and smoothly in the background. This capability is a must in hospital IT.

- **No effort:** iCAS FS is operated with Managed Storage Services. iTernity takes care of the complete management of the storage solution, including administration, monitoring, troubleshooting, patch management and maintenance. As a result, the hospital's IT department has virtually no more work to do with the entire iCAS FS storage system.

- **High availability:** Uninterrupted and high-performance access to the stored data is mandatory. iCAS FS ensures high availability thanks to transparent read/write failover and an active-active cluster. All nodes perform the same services simultaneously and take over for each other in the event of a failure.

With regard to the Managed Storage Services, Sören Peters summarizes:

„We see the main advantage of iCAS FS in the Managed Storage Services. We simply have nothing more to do with the solution and can concentrate on other tasks.“

Hanau Hospital is also very satisfied with iTernity's support services, as Sören Peters notes:

„The iTernity employees who manage our iCAS FS system are extremely well-trained and know exactly what they are doing – the

support we receive is really very good.“

A LOOK INTO THE FUTURE

In the future, other data will also be considered for audit-proof long-term archiving. For example, the archiving of emails is expected to be on the hospital's IT agenda in the upcoming months.

Additionally, various KHZG projects are in the planning stages, such as the patient portal, which could in turn have an impact on the expansion of the iCAS FS managed storage platform.
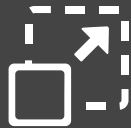
Another major challenge today and in the future is protecting data from ransomware attacks. The storage solution plays a crucial role here. iCAS FS provides optimal conditions for this: thanks to S3 Object Lock and WORM storage, data is protected against encryption, manipulation and deletion – both by ransomware and by malicious employees. In addition, iCAS FS is based on a closed architecture with a hardened Linux operating system. There is no administration access on the customer side, which minimizes the IT attack surface.

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: zero-touch operation and managed services with monitoring of the complete system
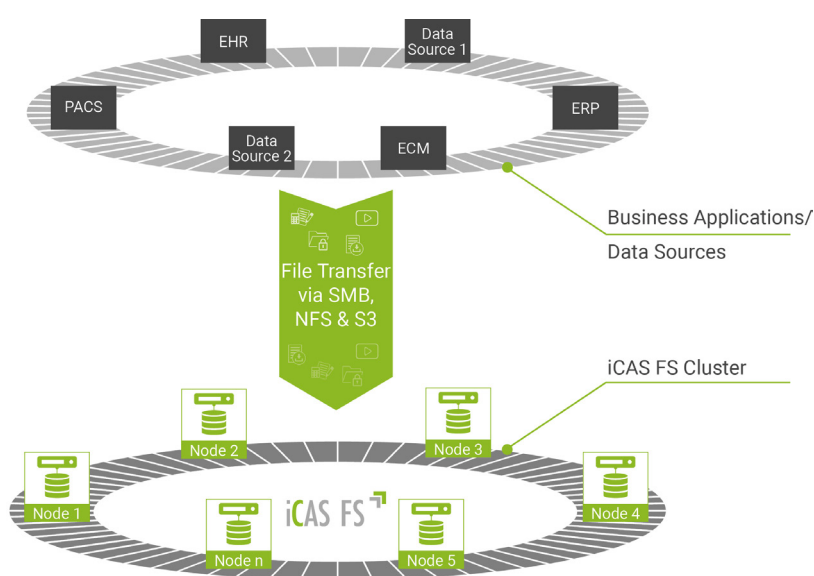
iCAS FS enables future-proof data storage and compliance at a low total cost of ownership. The platform is ideal for storing and protecting data from multiple applications and sources and enables audit-proof archiving, ransomware-proof backup storage, and relieves your primary storage.

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:
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