

Healthcare

Giving medical imaging data a new lease on life

Zhongda Hospital Southeast University

How this hospital manages ever-growing volumes of medical data more effectively with a healthy dose of Lenovo ThinkSystem storage.



Lenovo

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Who is Zhongda Hospital Southeast University?

Established in 1935, Zhongda Hospital Southeast University is a large comprehensive hospital, integrating medical treatment, teaching, and scientific research. Located in Nanjing, the capital of China's eastern Jiangsu Province, the hospital has a total of 2,500 beds and treats around 1.7 million patients every year, with two main areas of specialization: critical care medicine and medical imaging.

At Zhongda Hospital Southeast University, 90% of medical data comes from medical images. Medical image data is crucial for assisting clinical diagnosis, physical examination, and early screening and early detection of tumors, cardiovascular and cerebrovascular diseases. Zhongda Hospital Southeast University relies on big data and artificial intelligence technology to support intelligent diagnosis and help improve patient outcomes.



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The Challenge

As a medical imaging specialist, Zhongda Hospital Southeast University deals with massive volumes of image data—from labs, X-rays, MRIs, CT scans, and many more sources. At peak times, the hospital generates more than 100,000 medical images a day.

Managing this ever-expanding mountain of information is a big burden for the hospital's IT department. Image data requires huge amounts of storage space and must be retained for long periods of time due to regulations. At the same time, when physicians request an image from the hospital's picture archiving and communication system (PACS), it must be available in seconds.

As image data continued to grow in volume and velocity, the hospital's existing storage area network (SAN) architecture was rapidly reaching its limits. Zhongda Hospital Southeast University was close to maxing out its storage capacity and scaling out the SAN was no longer possible.

To add to the pressure, the Jiangsu Provincial Department of Health had recently launched a new initiative, establishing a mutual, cloud-based platform for medical imaging. In addition to storing medical images on site, all hospitals in the province would soon be required to upload both historical and real-time image data to the cloud platform.

Zhongda Hospital Southeast University recognized that it urgently needed to upgrade its storage environment to meet these converging challenges. It set out to find a large-capacity distributed storage system that could cope with explosive data growth and support concurrent image retrieval both within and outside the hospital.



“Our imaging department is ranked in the top 10 in China, so we set high goals for the distributed storage used with our PACS system. The new storage environment needed to support big data volumes, fast data transfer, multiple imaging formats, and easy expansion.”

Jiao Yun

Information Center Director, Zhongda Hospital Southeast University

Refreshing the storage landscape

Zhongda Hospital Southeast University replaced its existing SAN-based environment with a single Lenovo ThinkSystem DM7000F Unified Storage system and three Lenovo ThinkSystem DXL3600 Distributed Storage systems.

For data management and long-term archiving, the hospital uses NetApp StorageGRID Webscale: a software-defined, object-based storage platform with integrated lifecycle management policies. It uses a grid architecture, distributing copies of object data throughout the system to optimize durability, protection, and performance.

Hardware

Lenovo ThinkSystem
DM7000F Unified Storage
Lenovo ThinkSystem
DXL3600 Distributed Storage
Lenovo ThinkSystem SR650

Software

NetApp StorageGRID Webscale

The Lenovo ThinkSystem DM7100F all-flash storage and NetApp StorageGRID solution not only ensures high performance and high reliability, but also provides automatic data tiering at the storage level. This means that when demand for storage increases in the future, the hospital can simply add more distributed nodes, and the new capacity will automatically be allocated to the tiers that need it. The three Lenovo ThinkSystem DXL3600 Distributed Storage systems provide a raw capacity up to 1.2 PB while available capacity in erasure mode is around 700 TB.

To implement this architecture, Zhongda Hospital Southeast University has integrated 16 Lenovo ThinkSystem SR650 servers with the NetApp solution. These servers host the grid nodes that form the building blocks of the storage platform, supporting services including storage administration, data management, and archiving.



“Lenovo ThinkSystem DM7100F all-flash storage delivers strong performance, while being simple to scale and easy to manage. It has been a great fit for our needs.”

Jiao Yun

Information Center Director, Zhongda Hospital Southeast University



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“Lenovo was one of the few providers that was able to meet our demanding requirements. In working with the team, we have found them to be very efficient and professional.”

Jiao Yun

Information Center Director,
Zhongda Hospital Southeast University

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Results

Lenovo technology has brought a welcome boost to storage performance, allowing Zhongda Hospital Southeast University to cope easily with high-volume, high-velocity data demands. The hospital now stores hot data on all-flash Lenovo ThinkSystem DM7100F storage for super-fast access. Meanwhile, NetApp StorageGRID Webscale takes care of cold data, like snapshots and backup volumes, ensuring it's stored efficiently and readily available when needed. This approach keeps overall storage costs under control, without compromising on data accessibility or availability.

Zhongda Hospital Southeast University is also enjoying the benefits of unified storage management, as well as flexible scheduling and allocation. It's now much more straightforward to expand storage resources in line with the needs of the business, while more automated and consistent management has significantly eased the administrative burden on the IT department.

Perhaps most importantly, Lenovo ThinkSystem storage gives Zhongda Hospital Southeast University the capacity and scalability it needs to stay on top of skyrocketing image data volumes. And with vastly improved horizontal and vertical scalability, the hospital is well-prepared for future growth.

Jiao Yun concludes: “The new distributed storage architecture from Lenovo can easily keep up with the tens of thousands of image files that are created every day, as well as the need to replicate this data to the off-site mutual image recognition platform.”



Strong performance for demanding medical imaging applications



Simplified management helps IT keep pace with business demands



Effortless expansion creates storage headroom for years to come

Why **Lenovo**?

Zhongda Hospital Southeast University reviewed solutions from five major vendors, including Lenovo. After careful consideration, the hospital concluded that Lenovo ThinkSystem storage offered the best match for its requirements.

One of the key deciding factors for the hospital was Lenovo China's close collaboration and co-development with NetApp—a world-class provider of data management solutions.

Jiao Yun elaborates: “We wanted to leverage NetApp software with our Neusoft PACS application, as NetApp has a strong track record in medical data management, as well as a strategic cooperation agreement with Neusoft. The choice of software then drove our choice of hardware: we liked that NetApp software was pre-integrated with several Lenovo storage solutions.”



How Do You Cope with Relentless Data Growth?

Ensuring rapid access to critical medical images and improving scalability by moving to Lenovo ThinkSystem storage.

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