



UZ Leuven and NetApp mark a healthy, 20-year relationship built on trust



An all-NetApp infrastructure has served Belgium's healthcare leader in the past, and is poised for the future

UZ Leuven is a university hospital located in Belgium with approximately 2,000 patient beds and 10,000 employees engaged in clinical care and research.

UZ Leuven and NetApp have a long, shared history of innovations in care supported by data management. As the hospital system has grown and evolved over 20 years, so too have NetApp® solutions for dealing with the increasing volumes of storage and the need to support rapid change.

The hospital system is largely dependent on on-premises data centers, which use NetApp hardware and software almost exclusively. A single system for all storage tiers offers management efficiency, responsiveness, and lower TCO.



18PB of data managed by one full-time equivalent employee

“NetApp still has an open vision and open culture and an engineering approach. That’s what we really, really like—that this is a partnership and that we know what direction to go in the future.”

Reinoud Reynders
Director of Infrastructure and Operations, UZ Leuven

For the health of Belgium

UZ Leuven is based in the city of Leuven and comprises four campuses in the Flemish part of Belgium. In addition to providing clinical care, UZ Leuven is engaged in advanced research activities, including genomics research, to develop new cures and treatments. In recent years, UZ Leuven expanded the reach of its in-house developed electronic health record (EHR) system by sharing it with more than 30 hospitals under the spin-off entity NexuzHealth. Approximately 7 million Belgian citizens’ medical records are managed by UZ Leuven and NexuzHealth.

A leader in the field

Reinoud Reynders has been a constant in the 20-year relationship between UZ Leuven and NetApp. Today he’s the director of Infrastructure and Operations for UZ Leuven and the operational director of nexuzhealth. He started out as an IT administrator and data manager in the days when a few file servers were used for patient records and shared storage was entering the market.

He and a centralized IT staff of 200 people are responsible for all technology, communications, and medical devices in the system.

Of central importance is the EHR system, because it covers not only UZ Leuven but also 30 hospitals. Availability, reliability, security, and performance guarantees are key.

Solid solutions and a willingness to try

UZ Leuven has been a first adopter of NetApp offerings and a participant in proofs of concept. It was the first to consolidate file servers on NetApp hardware, the first to put PACS images on SATA drives, and one of the first medical users of what became the NetApp ONTAP® storage management software.

Over the last 20 years the UZ Leuven standardization and simplification strategy has been driven by a near-complete reliance on NetApp hardware and software. Today, two on-campus data centers and a third offsite center utilize a combination of an 8-node NetApp MetroCluster, a NAS cluster and a SAN cluster. The workloads are all-encompassing. Databases, virtual machines, enterprise, medical and office applications - everything is running on NetApp storage. Included is the built-in data protection functionality in the ONTAP software, All together providing the different tiers and enterprise grade data management needed for a modern datacenter to support business innovation.

Other vendor offerings come and go through the years, Reynders said, but the commitment to NetApp technologies has cost and strategic advantages.

“NetApp is ‘one system fits all,’ and that reduces your total cost of ownership enormously,” he said. “So we don’t want to have specific items for specific use cases. I don’t want to have three or four different systems in my data center that I have to manage in a different way.”

Lives in the balance

“Hospital never sleeps,” Reynders said. “The EHR system is now responsible for 50% of the Flemish beds. So, if we have downtime, then 50% of the Flemish hospitals stop working, and they are completely electronic record dependent. Availability and uptime are enormously important.”

The hospital is unique in that it has developed its own patient record system: a single 15TB database for 7 million records that are primarily text files. Other databases for imaging and media files, orders, and workflow make up the remaining volumes of data managed.

**7 million
patient records**

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Unlike other hospital systems that manage multiple storage platforms, UZ Leuven avoids application and departmental silos. Standardization to a single shared data management system is dramatically reducing complexity and providing huge cost benefits. And UZ Leuven is still managing its 18PB+ environment—including primary, secondary, and data protection—with less than one full-time employee.

True test of data flexibility

UZ Leuven’s unique approach to patient records and management of data came into play when operations were forced to change in response to the COVID-19 outbreak in spring 2020. Its approach to consolidation and standardization became an asset.

“We have to have a flexible environment, a flexible infrastructure, because things can change quickly,” Reynders said. “COVID is a perfect example.”

Working to cooperate with other hospitals in the region and to meet constantly evolving government demands, Reynders’ team had the advantage of the single patient record.

Other hospital systems had to depend on outside sources to modify hospital administration applications. But UZ Leuven’s approach meant that it could allocate resources more quickly and adapt faster.

“We added beds for COVID-19 patients in the spring; we completely rebuilt the hospital profile, making changes as conditions evolved,” Reynders said. “The government would put out requirements, sometimes daily, and you have to respond.”

The infrastructure also enabled a rapid transformation for hospital staff. Within 48 hours, more than 1,000 employees were moved to remote and work-from-home situations. New network assets, virtual machines, and application support could

be deployed without data storage and application delivery becoming the bottleneck.

As response to the pandemic continues, Reynders suggests that the flexibility of the single EHR remains an asset.

“It’s one solution for everybody. We have a release every week, so we can change very fast,” he said. “We’ll see a patient’s entire COVID history in one record and give treatment quickly.”

For the health of Belgium

An integrated approach to data protection and high availability has always been an important part of the NetApp data management strategy. Since COVID, malicious activities such as ransomware have been increasing. Government agencies and hospital institutions have found themselves held hostage by bad actors who capture data and hold it for ransom. For UZ Leuven, NetApp technology is a key factor in protecting data and in preventing and recovering from malicious actions.

Cloud as a tool

UZ Leuven has a significant investment in on-premises data centers, and these investments will be leveraged for many years to come. Reynders notes that cloud is simply a tool, and he’s finding practical applications of that tool as his team completes proofs of concept.

For instance, old applications shouldn’t necessarily be lifted to the cloud, he said. Instead, new applications that are cloud-native are obvious areas to begin.

Reynders is investigating using cloud for longer-term storage to avoid the cost of maintaining the lowest tier in a typical on-premises data center: tape drives and backups.

“For data that we really will never use again, but have to keep,” he said, “it may be an option for long-term archival with automated tiering that we move that data to the cloud.”

Cloud also offers opportunities for high-intensity, short-duration computing. For example, in the past, genomic sequencing was used almost exclusively in research. But now, because it’s increasingly used for clinical applications, the burst of demand for compute and storage can be handled by the cloud.

Here, too, Reynders emphasizes that standardizing on NetApp technologies will make future moves easier. The single platform means that moving data between tiers or private and public clouds, and repurposing resources in response to demand, is seamless. This ease can help the hospital optimize staff skills and tools and make workflow more efficient. ONTAP has proven its value in the data center and is extending that value to the cloud now.

A rich past, a clear future

Reynders remarked that NetApp has grown enormously in the past 20 years, but still values the input from UZ Leuven.

“NetApp still has an open vision and open culture and an engineering approach. You can as a customer still have contact directly with a lot of people within the organization compared with other companies,” he said.

“That’s what we really, really like—that this is a partnership and that we know what direction to go in the future.”

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As a cloud-led, data-centric software company, only NetApp can help build your unique data fabric, simplify and connect your cloud, and securely deliver the right data, services and applications to the right people—anytime, anywhere. To learn more, visit www.netapp.com



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