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Digital pathology transformation enriches patient care

The University Medical Center Utrecht modernizes infrastructure to accelerate clinical innovation and increase IT efficiency.

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Nikolas Stathonikos
Principal Investigator, AI Development and Implementation, UMC Utrecht

Business needs

At University Medical Center Utrecht, a healthcare provider with 11,000 employees, innovation is a primary focus. As the organization modernized its digital pathology operations, storage challenges were slowing progress. UMC Utrecht turned to Dell EMC PowerScale storage to improve IT efficiency and patient outcomes.

Business results

• Preparation for multidisciplinary case reviews in minutes versus 3-4 hours.

• Higher-quality consultations and research.

• Increased focus on research innovation.

• Internal storage requests fulfilled in about 15 minutes versus 1 hour.

• Built-in ransomware protection.

Solutions at a glance

• Dell EMC PowerScale

• VMware Cloud Foundation on Dell EMC VxRail

• Superna Eyeglass® Ransomware Defender

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With digital pathology, clinicians and researchers can work remotely to consult with other specialists across regions and even the world. A notable innovator in digital pathology is the University Medical Center Utrecht, one of the largest academic healthcare centers in the Netherlands.

As UMC Utrecht stored scans of glass pathology slides on file servers, storage grew exponentially. Not only were there challenges with adequate storage capacity, but storage management was complex, burdening IT and users. After considering alternative storage options, UMC Utrecht consolidated its digital pathology assets from distributed file servers onto Dell EMC PowerScale storage.

Nikolas Stathonikos, principal investigator of AI development and implementation at UMC Utrecht, says, "Dell EMC PowerScale provides the scalability, performance, security and simplified management to accelerate our digital pathology transformation. By modernizing with Dell Technologies, we increased the ease and speed of accessing digitized pathology images, which helps improve patient outcomes and quality of research."

Today, UMC Utrecht relies on Dell EMC PowerScale to store 6.5 petabytes of pathology image scans and other research and patient data. UMC Utrecht also uses VMware Cloud Foundation on Dell EMC VxRail hyperconverged infrastructure to provide a hybrid cloud running SAP, Microsoft SQL, Microsoft Exchange, health information exchange and other applications. With a Dell EMC hybrid cloud self-service portal, users can access a fully operational server in minutes and gain valuable insights on their IT usage and costs.

Better patient outcomes

In the last four years, UMC Utrecht's PowerScale storage capacity has doubled. In fact, the pathology department generates about one new terabyte daily. In addition, UMC Utrecht stores and manages more than 2 petabytes of slide images from the last 13 years. With expanded use of AI applications for clinical practice and multilayer scanning techniques, UMC Utrecht forecasts even more explosive data growth ahead and increased requirements for storage flexibility and scalability.

"Although our digital pathology image capacity grows by leaps and bounds, we no longer worry about running out of space on PowerScale," states Stathonikos. "Our storage capacity becomes less expensive on a per-terabyte basis as it grows, encouraging us to retain data. With digital, remote access to full patient histories, multiple sets of eyes can analyze data and share viewpoints, which results in higher-quality consultations."

He adds, "Now that we have a scalable, flexible infrastructure, we no longer need daily or weekly conversations with IT about our storage requests. PowerScale allows us to focus on patient care and gives us peace of mind."
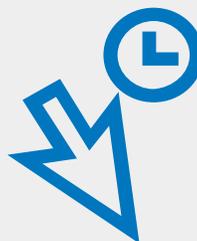
50% reduction in storage administration time.

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> "We perform the same volume of work with fewer people even as the environment grows, giving us more time to focus on innovation."
>
> **Berry Boetekees**
> Product Owner, Storage, Virtualization and Backup, UMC Utrecht

Faster clinical diagnosis

Previously, it would take a doctor 3-4 hours to prepare for in-person multidisciplinary meetings with other specialists to review patient cases. With shared remote digital access to images and data, preparation time has dropped to minutes.

Stathonikos explains, "With the explosion of AI-driven automation, specialists can spend less time analyzing images and quantifying data for simpler, repetitive tasks. Not only does this provide specialists with more time for complex issues, but they can deliver more accurate diagnoses faster. PowerScale is well-suited for the intensive performance and scalability demands of AI applications now and in the future."

Increased focus on innovation

UMC Utrecht's IT team also credits PowerScale with increased efficiency and time savings.

Berry Boetekees, product owner of storage, virtualization and backup at UMC Utrecht, notes, "With a single pane of glass to manage and view all our storage, we have reduced our storage administration time by at least 50%. We perform the same volume of work with fewer people even as the environment grows, giving us more time to focus on innovation."

Standardization and automation are high priorities at UMC Utrecht. For example, the IT team has configured PowerScale to automatically add storage to shares before they become full, providing clinical and business users with uninterrupted access to critical services and data. In addition, internal storage requests are fulfilled in approximately 15 minutes versus one hour, which gives IT more time to automate other processes. For example, the team is working on providing users with a self-service portal to create new shares without requiring intervention from IT specialists.

The Dell EMC VxRail hybrid cloud also has increased efficiency, according to Boetekees. "VxRail has automated many processes so we can provide users with virtual machines within eight minutes compared to five days previously."

Built-in ransomware security

Another advantage of Dell EMC PowerScale is integrated cybersecurity protection with Superna Eyeglass® Ransomware Defender.

Boetekees observes, "The threat of cyberattacks is real and growing in healthcare. Because Dell EMC PowerScale offers a built-in solution for ransomware protection with Superna, we significantly reduce our risk of data being compromised or stolen. The Dell EMC–Superna solution also gives us confidence that we're complying with data privacy and data retention regulations and can easily verify our compliance for audits."

Leadership in patient care

UMC Utrecht credits its successful digital transformation to its partnership with Dell Technologies.

Stathonikos states, "Our partnership with Dell Technologies puts us in the best position to innovate and lead in patient care and medical research. We need a fast, scalable pathology system with excellent uptime and cybersecurity. The expertise and advanced solutions from Dell Technologies make that possible."

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