

# BRING DIGITAL PATHOLOGY TO LIFE WITH NETAPP



Modernize microscopy workflows to enable faster, more accurate patient diagnoses and to help you take your pathology data to the next level with AI.

## Why digital pathology?

Pathology is a complex, time-consuming process. Prepping slides, cell segmentation, cell counting, analysis, and sharing slides for a second opinion—it all takes time. And for patients with many of the life-threatening illnesses that rely on pathology for diagnosis, time is of the essence. Aside from the process itself, a global shortage of pathologists creates backlogs, further extending the time to diagnosis.

In addition to time, traditional microscope-based pathology faces other issues. For example, slides are fragile. The risk of breakage or misplacement, and the cost and time to transfer, make it difficult to share with others for specialty reads, second opinions, teaching, and research. Slides are also very heavy, take a lot of space to store, and are not always easy to access after the primary diagnosis.

Implementing digital pathology addresses those issues, but opens the door for new challenges to arise. How do you provide the speed and availability that pathologists and researchers require while securely managing the immense amount of data being generated?

## Better outcomes and enhanced patient experiences

Digital pathology improves the efficiency, accuracy, and collaborative potential of pathology services to deliver truly patient-centered care.

**97% ↓**

Digital pathology decreases the median turnaround time by 97%, from nearly 70.5 hours to just under 2.5 hours.

**26%**

The mean time to diagnosis on a digital pathology workstation is 26% faster than using a light microscope.

**65% ↓**

Combining digital pathology with deep learning algorithms can reduce diagnostic time by 65%.

**\$1.3M**

Digital pathology offers efficiencies that can result in cost savings of \$1.3M over 5 years.

## Modernize pathology with NetApp

An intelligent data infrastructure from NetApp enables you to bring digital pathology workloads to life with solutions that simplify handling, storing, moving, sharing, managing, and protecting your data. Designed to meet performance and scalability requirements, as well as stringent regulations for protecting and governing healthcare data, NetApp solutions enable pathology organizations to modernize their IT operations. The result is improved efficiency for pathologists and the ability to provide faster, more accurate patient diagnoses.

### Accelerate turnaround time

Fast, always-available systems enable pathologists to complete a diagnosis, including second opinions when needed, in just hours rather than days. NetApp all-flash storage solutions support millions of IOPS with consistent sub-millisecond latency and 99.9999% availability.

Applying AI algorithms can relieve pathologists of the time-consuming tasks of cell segmentation, cell counting, and image analysis, enabling them to focus on decision making and collaboration. Because AI is faster and often more accurate than humans, turnaround times are significantly less and patient diagnoses are more precise.

NetApp helps get your data AI ready with the ability to identify, classify, and map data so that it can easily be audited and queried for feeding into AI models. When you're ready to take your digital pathology solution to the next level with AI, NetApp integrates seamlessly with solutions like NVIDIA MONAI and the public cloud of your choice—Azure, AWS, or Google Cloud.

### Improve accessibility

One of the greatest benefits of digital pathology is the ability to easily share data. This ability helps with second opinions and expert consultations, and it also makes as-a-service implementations possible, allowing organizations to share their pathology cases with specialists around the world. This sharing helps overcome the ever-growing shortage of pathologists and enables providers to deliver the best care for their patients.

To make digital pathology data and images accessible to providers and researchers, NetApp solutions eliminate silos. Data moves agnostically between edge, core data center, and hyperscaler cloud environments with ease. Only NetApp partners with and is natively integrated into all three major cloud providers: AWS, Azure, and Google Cloud.) Providers can get the information they need when they need it to enable better, more personalized patient care. Researchers and teaching institutions have access to more samples and more data to enhance learning and advance medicine.

## KEY BENEFITS

### Accelerate turnaround time

- High-speed, low-latency performance enables you to access, navigate, and share images quickly to accelerate patient diagnosis.
- Integrate with AI technologies to bring your digital pathology solution to the next level.

### Improve accessibility

- Eliminate silos to seamlessly deliver access to images and diagnostic results across hybrid multicloud environments.

### Simplify data management

- Reduce complexity and operational overhead with a unified storage architecture and automated workflows.
- Scale seamlessly across on-premises and cloud environments to share cases with other pathologists or specialists and to meet ever-growing demands for data.

### Get unmatched data protection and security

- Protect sensitive patient data with industry-leading cybersecurity features, including immutable NetApp® Snapshot™ copies and automatic ransomware detection.
- Meet compliance mandates such as HIPAA and GDPR with the only enterprise storage validated to store top-secret data.

### Make modernization affordable

- Consolidate multiple workloads onto a single platform to reduce TCO.
- Provision test environments without needing additional storage overhead.
- Automatically tier cold data to lower-cost storage.

### Enable smart data management

The data growth of digital pathology is exponential. For perspective, a single chest X-ray image is 10 to 15MB. A single digital pathology image is 1.5 to 3.0GB. For a medium-size hospital, that means approximately 500TB of net new data to manage every year.

Being smart about how you manage all that data is crucial. An intelligent data infrastructure from NetApp, with AI-optimized data management and scalable performance, enables you to seamlessly access and instantly classify, move, and serve data natively across your hybrid multicloud environment. You get complete visibility of your data estate. As patient data continues to grow, NetApp solutions enable modular scaling so that you can support growing data demands without disrupting your critical applications.

Unified file, block, and object storage—and support for multiprotocol environments (including NFS, SMB, iSCSI, NVMe/FC)—under a single NetApp ONTAP® operating system eliminates silos and reduces operational complexity. You can seamlessly integrate data, regardless of where it resides, to make it accessible to clinicians and researchers.

Automation features relieve the pressure on overburdened IT staff by making tasks such as backup, restore, and environment refreshes as easy as the click of a button. Predictive analytics and proactive insights from NetApp Active IQ® enable your IT team to focus on strategic initiatives instead of reactive troubleshooting.

#### **Get unmatched data protection and security**

Healthcare data is highly regulated, constantly under scrutiny, and a prime target for cyberattacks. Exponential growth can make it even more difficult to keep up with constant security threats and ever-changing compliance requirements. With NetApp, you can provide trusted data protection, HIPAA and GDPR compliance, and built-in security for your distributed, diverse, and dynamic healthcare data.

NetApp enables you to integrate, protect, and secure your entire data pipeline by using a Zero Trust model. With data encryption at rest and in flight, data is protected wherever it lives or wherever it moves to. We offer the only hardened enterprise storage validated to store U.S. top-secret data. In addition to being NIST FIPS 140 and CSfC certified, our

solutions feature quantum-resistant encryption. Both the NetApp hardware and the NetApp ONTAP data management software are certified, and NetApp also provides extended features in the software to help secure your environment, including:

- Multi-admin verification
- Creation of write once, read many (WORM) volumes
- Data classification
- Immutable backups
- Built-in anti-ransomware protection

NetApp offers the most secure storage on the planet—no other storage solution provides equivalent security protection. We deliver unmatched data security with built-in versioning and traceability, built-in cybersecurity, and real-time, AI-powered ransomware protection with 99% detection accuracy and guaranteed recovery. NetApp BlueXP™ classification automatically identifies and classifies data to help you maintain compliance. Advanced AI and dashboards provide the automation and intelligence that you need to simplify data governance.

# NETAPP DIGITAL PATHOLOGY SOLUTIONS IN ACTION

## **DELIVERING MORE ACCURATE RESULTS**

Healius is a leading Australian healthcare provider that offers specialty diagnostic services through an extensive network of pathology labs and diagnostic centers. The organization needed a more robust and efficient way of managing their patient data, which reached back 50 years. In addition, Healius wanted to apply new AI algorithms for better analysis. Their NetApp solution helped them to provide patients with a better quality of life by enabling diagnosis of a much broader range of conditions with greater accuracy and speed.

[Read the full story](#)

*“We are actively using AI for faster, accurate diagnosis. We aim to speed up the diagnosis by a factor of 10.”*

*Alex Larson  
Chief Technology Officer at Healius*



## NETAPP CORE CAPABILITIES FOR DIGITAL PATHOLOGY

- **Extreme scalability.** Scale seamlessly from terabytes to petabytes and beyond with a modular design that allows you to add capacity in any increment—one or multiple drives at a time—without disrupting operations. Native integration with all major hyperscalers enables you to instantly burst to the cloud if necessary.
- **Complete data protection and compliance.** Make hundreds of point-in-time backups of data volumes with NetApp Snapshot technology. Each Snapshot copy is an immutable set of references that can be mounted for read-only use or replicated to other systems or locations for long-term archiving or use by remote teams. SnapLock® compliance software means that your data is tamper proof.
- **Simplified data management.** Unified management of file, block, and object storage reduces silos and operational complexity. Automated workflows and predictive, proactive analytics from Active IQ enable IT staff to focus on strategic business tasks instead of day-to-day management.
- **High performance and availability.** Support for over 1 million IOPS with low latency and guaranteed write cycles of less than 45 seconds enable optimal performance. 99.9999% availability means uninterrupted access to clinical applications.
- **Cost optimization.** Keep costs under control with data deduplication and compression technologies that help reduce your storage footprint to drive significant cost savings. Consolidate multiple workloads onto a single platform to reduce TCO.

### Make modernization affordable

NetApp solutions enable you to build an affordable digital pathology infrastructure without compromising performance, accessibility, or security. Our single, unified platform means that you don't need to train or hire extra people to manage your storage infrastructure. Because file, block, and object data are supported in a single system, you reduce the cost of purchasing three individual systems to support all your data regardless of type or protocol.

For test and development environments, NetApp FlexClone® technology enables you to rapidly provision up to 30 full-copy test environments without needing any additional storage overhead. Automatic tiering of cold data to lower-cost storage enables additional savings.

### The prescription for success

More than 20,000 customers rely on NetApp to support their mission-critical workloads. Running digital pathology on NetApp enables organizations to achieve operational excellence while reducing costs, ultimately accelerating turnaround time and enhancing patient care. With its unmatched performance, robust security features, and seamless scalability, NetApp empowers healthcare organizations to navigate the complexities of digital pathology systems strategically, delivering better outcomes for patients and providers alike.

Learn more about [NetApp solutions for healthcare](#).



Contact Us

### About NetApp

NetApp is the intelligent data infrastructure company, combining unified data storage, integrated data services, and CloudOps solutions to turn a world of disruption into opportunity for every customer. NetApp creates silo-free infrastructure, harnessing observability and AI to enable the industry's best data management. As the only enterprise-grade storage service natively embedded in the world's biggest clouds, our data storage delivers seamless flexibility. In addition, our data services create a data advantage through superior cyber resilience, governance, and application agility. Our CloudOps solutions provide continuous optimization of performance and efficiency through observability and AI. No matter the data type, workload, or environment, with NetApp you can transform your data infrastructure to realize your business possibilities. [www.netapp.com](http://www.netapp.com)



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