NASUNI®

Case Sudy: Austin Radiological Association (ARA)

Medical Imaging Leader Gains More Scalable Storage and Reduces Costs 50% with Nasuni

Business and IT Challenges

Austin Radiological Association (ARA) is an outpatient imaging services provider operating 17 centers throughout Central Texas. It provides professional radiologist services at 20 area hospitals, its imaging centers offer everything from mammography to MRI, with specialty centers for Women's Imaging and Children's Imaging (pediatric radiology).

With ARA's business growing rapidly, three mounting challenges made it clear that a modern, cloud-based file infrastructure was an absolute necessity.

Increasing Image Size and Quantity

ARA stores almost 1 million digital studies annually for the regional hospitals and medical organizations it supports. The practice adds more than 900,000 radiological exams to its archive each year. These images have been growing not just in volume but in size.

Explains ARA CIO R. Todd Thomas, "As image quality gets better for modalities like CT, ultrasound, tomography, and MRI, the image size also gets larger. For example, a 3D mammography image is about 20 times larger than its 2D predecessor. The quantity of images per study is also increasing. CT slices are getting thinner and thinner, and the number of images per exam is growing exponentially. There is also 3D reconstruction of these images, which will further increase storage needs."

Summary

Global File System: Nasuni

Object Storage: Microsoft Azure

Total Capacity: 200 TB

Locations: 17

Key Files: 2D & 3D mammography images

Use Cases: NAS consolidation

Benefits: Limitless capacity on-demand; predictable storage costs; superior data protection.

This massive growth, combined with strict medical and legal retention policies, meant ARA could no longer afford to rely on traditional file storage.

Adds Thomas, "With our projected growth rates, it didn't make sense for us to continue to capitalize all our equipment. We had to start looking for our next unstructured data management architecture."

Unpredictable Storage Growth

The capacity limitations of traditional file infrastructure were only part of the problem. Despite its best efforts at capacity planning and trending, ARA's storage growth curves for mammography were simply not predictable. If requirements ballooned unexpectedly, IT was stuck. They would have to call a storage vendor, get a quote, present the quote to a committee, and then sit through a 90-day waiting period, all while the existing hardware approached capacity.

High Costs of Traditional Storage

Migrating files from one storage array to another took so much IT time ARA was often forced to start planning its next storage upgrade while its current one was still in process. One 150 TB migration took 10 months to complete.

ARA transitioned its file storage to a newer clustered file storage solution, but it, too, was constrained by cluster limitations. It also continued to consume expensive floor space in the data center and strained the cooling system, leading to additional costs. Plus, traditional clustered storage solutions are most economical when capacity is purchased up front, meaning ARA was being pushed to purchase hundreds of terabytes of capacity it didn't initially need.

Solution

After evaluating the new cloud-based file storage solutions, ARA determined Nasuni was the only one that would offer the scalable capacity, high performance image access, data protection, security, and management simplicity its mammography practice required. Nasuni's ability to work with any private or public cloud object storage platform enabled ARA to leverage its preferred provider, Microsoft Azure.

ARA worked with Nasuni Professional Services to deploy Nasuni's global file system backed by Azure object storage. Nasuni edge appliances deployed at each office give radiologists fast, local access to cached mammography images through standard file sharing protocols.

Says Thomas, "It wasn't just our never-ending capacity headache that made our decision to move to Nasuni and Azure easy. Moving to this hybrid cloud solution is enabling us to focus our limited time and resources on growing, running, and transforming our business, rather than running an ever-expanding datacenter. And Nasuni Professoinal Services made the transition to the new solution seamless."

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>
> R. Todd Thomas
> CIO, ARA

Results

Nasuni has unified file storage, file access, backup, DR, and management for ARA under one cloud-scale solution, delivering multiple benefits.

Unlimited Storage Capacity

The Nasuni UniFS® global file system enables ARA to store, protect, manage, and extend access to medical images and other files without worrying about capacity or volume limits. There's no 90-day waiting period to install new storage hardware. When ARA needs to expand capacity, the IT group increases its Azure and Nasuni suscriptions, and capacity grows with a few mouse clicks. Comments Thomas, "When we launched 3D tomography to our community, we realized we'd need another 150 terabytes. Before, this expansion would have taken months. This time, we placed the order and it was done the next day. Since Nasuni edge appliances only cache the active images from Azure storage, there was no change needed to any on-prem resources. This agility enables me to focus more on other projects, and makes our IT department and our IT infrastructure much better."

Avoiding a $1.3 Million Capital Investment

Given its mammography storage growth rates, ARA would have had to purchase new, full-sized storage arrays, requiring a $1.3 million up-front investment. The unlimited capacity of Azure object storage, combined with Nasuni's cloud-native file system, has eliminated the need for this expenditure. The unique ability of Nasuni UniFS to allow both files and metadata to scale in the cloud and not on local devices gives ARA capacity on-demand, in a pay-as-you-grow subscription model.

Reducing Costs 40-50% Over 3 Years

ARA initially feared cloud storage would prove as expensive as traditional storage due to high egress charges and high capacity prices. Nasuni, however, minimizes both costs. Intelligent caching algorithms ensure frequently requested files are almost always available on the local Nasuni edge appliances, all but eliminating egress charges. By compressing and deduplicating data before it is sent to the cloud, cloud storage capacity needs are reduced by 60%.

Austin Radiological Association Storage Spending 2016-2019
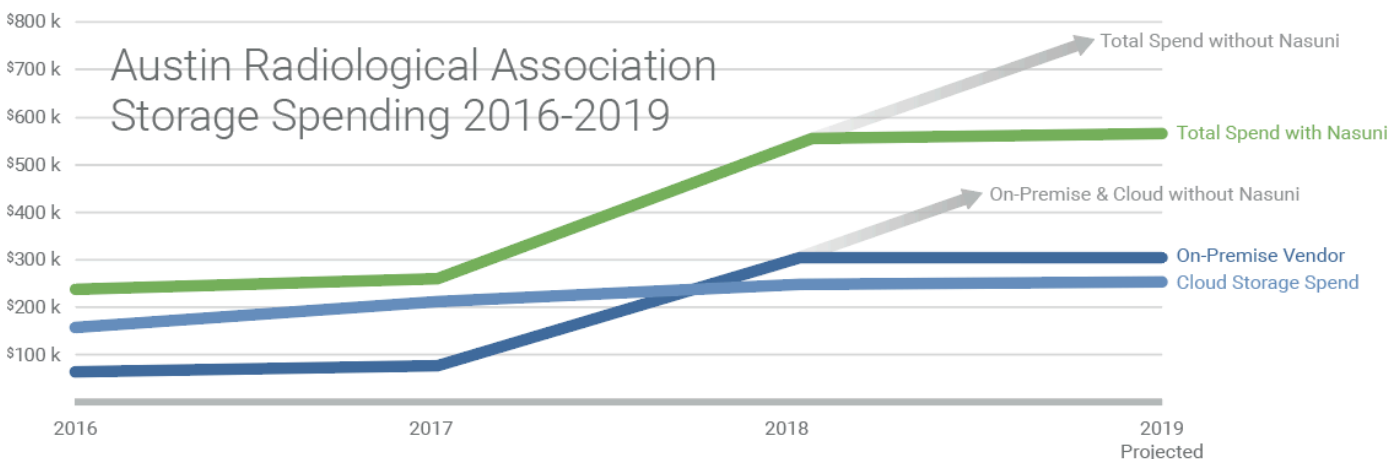
While ARA's traditional file storage costs have increased 500% over the last 3 years, cloud storage and Nasuni costs have risen only 44% even though capacity has tripled.

> "Moving our 3D tomography images to the Nasuni/Azure platform has protected our capital budget from large and lengthy storage procurement requests every two to three years. In the first year alone, we estimate we saved $1.2 -1.3 million in storage costs with the Nasuni/Azure solution."

R. Todd Thomas
Chief Information Officer, Austin Radiological Associates

High-Performance File Access

Radiologists need to be able to access large images without delay to deliver the high-quality patient care for which ARA is known. Nasuni caches frequently accessed files on edge appliances deployed in each ARA office, so images are available at LAN speed. Even when images must be retrieved from Azure storage, performance meets end user standards.

Says Thomas, "When it comes to retrieval, we are able to ensure clinicians have rapid access to images without cloud latency using Nasuni edge appliances, which intelligently cache files locally. We are also able to pre-load large, historical file sets if they are needed for a patient visit the next day into the Nasuni edge appliances."

Confirms Terrence Jones, Cloud Engineer at ARA, "We are able to retrieve our images from the cloud at speeds comparable to what we see accessing images in our data center. But this is a pretty rare occurrence, since Nasuni Professional Services helped us right-size our edge appliances to store our active-use images."

Improved Data Protection & Disaster Recovery

Nasuni's continuously versioning file system protects ARA's files in Azure object storage as they change, eliminating the need for separate file backup or DR solutions, while providing dramatically improved RPOs and RTOs. Access can be restored to files, folders, and the entire file system within minutes of a data loss event or disaster. Since data protection is built-in, this also frees more of the IT department to devote time to strategic projects that directly benefit the business.

Strong Security and Compliance

Since ARA has to adhere to Health Insurance Portability and Accountability Act (HIPAA) regulations and strict compliance standards, the Nasuni and Azure solution received a great deal of scrutiny. However, it soon became clear that the Nasuni-Azure solution offered many more security and compliance benefits than traditional storage:

Microsoft Azure object storage is automatically replicated in multiple data centers, providing geo-redundant storage that protects against disasters in any one location.

Nasuni encrypts all data with customer-controlled AES encryption keys before it leaves ARA's security perimeter, ensuring it is secured in-flight. Files remain encrypted in the cloud, ensuring it is secured at-rest.

Nasuni edge appliances integrate with ARA's existing Active Directory infrastructure, enabling existing authentication and access policies to be used for image access.

Comments Thomas, "Nasuni's model is for us to hold our own encryption keys, which means neither Microsoft nor Nasuni can access patient data. And Azure gives us the level of security, geo-redundancy, and disaster recovery, as well as compliance documentation, to make us confident our data is secure."

Next Steps

Nasuni and Azure are giving ARA limitless capacity on-demand, high-performance access to medical images and other files from any location, and improved data protection. File storage is no longer an impediment to growth, as it was with ARA's traditional file infrastructure. By moving more of its unstructured data to Azure and Nasuni, ARA is continuing to modernize its approach to storing, sharing, protecting, and managing unstructured data at scale – all through a unified solution that meets strict compliance and security requirements, while saving millions of dollars.

About Nasuni

Nasuni enables enterprises to store and synchronize files across all locations at any scale. Powered by the Nasuni UniFS® global file system, Nasuni file services stores unstructured data in object storage from providers such as Amazon, Dell EMC, IBM, and Microsoft, while caching actively used data wherever it is needed – on-premises or in the cloud – for high performance access. By using Nasuni to collaborate on files across multiple sites and consolidate Network Attached Storage (NAS) and remote office file servers, customers maximize workforce productivity while reducing IT cost and complexity.

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