Scalable, vendor-neutral image archiving solution from IBM and Acuo

Reducing IT complexity, enabling healthcare providers to maximize data access

Technology is ushering in a new world of possibilities for smarter healthcare. Provider organizations have unprecedented opportunities to become increasingly patient-centered and information-driven—a combination that holds the promise of more personalized patient care than ever before—delivered in a more cost-efficient manner than previously possible.

Today’s healthcare advances, however, rest on a complex foundation, with challenges in supporting terabytes of new data created annually and in high incurred costs, security risks and multiplatform roadblocks to collaboration.

Large and complex volumes of data require sophisticated storage capabilities to seamlessly collect, store and apply the wealth of clinical and related patient information that’s available to providers today.

Without the effective use of technology, providers may find themselves in possession of a treasure trove of clinical content that could be used to deliver better care more efficiently—but without ready access to that content. As a result, the value of that content, and the improvements in care it could provide, may be lost.

Highlights

- Leverage IBM storage and a vendor-neutral architecture to create a shared institutional infrastructure and patient-centric view of medical documents
- Enable ubiquitous access to medical imaging and related data to enhance diagnostic capabilities, physician collaboration and patient care
- Bridge highly specialized and departmentalized organizations to enable image sharing across clinical imaging applications
- Scale seamlessly to support rapidly growing medical imaging data while controlling costs
- Optimize IT resources by consolidating storage for increased utilization, streamlined administration and greater efficiency
The combined strength of IBM and Acuo

Healthcare providers who combine IBM storage systems with Acuo vendor-neutral archive middleware and services are in an ideal position to maximize the value of the clinical imaging and related patient data. This tested and proven solution ensures seamless application integration with the storage systems to help providers realize maximum results while minimizing time-to-value. Using this medical image archiving solution from IBM and Acuo, providers can transform their traditional patient archiving and communication systems (PACS) and other departmental data archives into a powerful clinical view at the patient level that enables cross-departmental access and collaboration.

At the heart of this solution, IBM Scale Out Network Attached Storage (SONAS) delivers the scalability needed to achieve the storage performance and capacity that are essential to using data effectively in large healthcare organizations today. For smaller organizations, IBM® Storwize® V7000 Unified offers similar capabilities, including highly scalable capacity, with the advantage of a single point of control for both file and block data storage.

The Acuo vendor-neutral architecture integrates with these IBM storage hardware platforms to provide an organization-wide archive of images. This makes otherwise siloed data—from PACS in radiology, cardiology, oncology, pathology and other clinical departments—easily available across applications and clinical users. Access from an electronic medical records (EMR) system or from clinical portals requires only a single interface to all the clinical content in the image repository.

IBM and Acuo together enable a scalable, integrated environment where healthcare providers can securely store and share patient-centric information to speed diagnosis, help eliminate medical errors and improve the quality of care.

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The IBM-Acuo solution provides a consolidated, cross-platform, vendor-neutral archive solution that enables cross-departmental data access and use.
Overcoming the challenges of traditional image archiving

Traditionally, healthcare providers have relied on departmental PACS for image archiving. But as the amount of imaging data continues to grow, so does the difficulty of separately managing these multiple departmental systems. Historically, PACS have been characterized by disparate proprietary archiving approaches from multiple vendors, making it difficult for those outside each department to access and share its information. Further, PACS were never intended to handle the staggering volumes of data that healthcare organizations typically store today. As a result, providers find themselves juggling the responsibilities of dealing with multiple silos of images, planning for costly data migration from PACS and trying to identify the most efficient ways to take advantage of new, more effective archiving platforms. The specific challenges associated with these responsibilities include:

- Multiple storage platforms that have to be managed separately
- Limited choice of storage platforms
- Lack of image interoperability among systems from multiple vendors
- Multiple integrations required for EMR access to images in each separate silo
- Time and expense associated with moving away from legacy PACS to more-modern systems
- Managing the growing volume of non-DICOM imaging data

Using a centralized solution to address problems with PACS

The solution that IBM and Acuo deliver together is specifically designed to help healthcare providers overcome the challenges of traditional PACS. It’s a true vendor-neutral architecture solution that provides a single set of software tools to centralize all medical imaging systems into one standards-based repository, independent of existing PACS deployments.

With its integrated approach to archiving and sharing images, the IBM-Acuo solution frees healthcare providers to acquire storage on an as-needed basis and to implement advanced archiving capabilities without a costly and lengthy migration process. It also enables image interoperability across departments and applications (regardless of how many application vendors are involved) and allows streamlined EMR access to clinical images. The IBM-Acuo solution empowers providers to:

- Avoid having to perform costly migrations by consolidating all data on a vendor-neutral, standards-based archiving platform
- Administer image archives centrally to make it easier to control and manage data in the interest of delivering care effectively, operating efficiently and meeting changing legal and regulatory requirements for data security retention
- Achieve economies of scale that result from having platform support for organizational change (including mergers, acquisitions, divestitures and consolidations) and from having extensive enterprise content management capabilities, including support for document imaging and other clinical systems
- Access patient information and manage images from across all silos equally easily, meeting the varying needs of users, from advanced views for diagnosticians to more straightforward views for other clinicians
- Accommodate organization-wide needs for patient information contained in individual department workflows
- Avoid being tied to proprietary solutions, making it easier to expand into new storage technologies, virtualization and cloud storage

Leveraging IBM systems scalability and functionality

For larger healthcare organizations, one of the biggest problems associated with traditional image archiving is the inability to scale to high capacity without sacrificing performance. SONAS provides a repository that can store as much as
21 petabytes of data—and makes it readily available to applications and users—by consolidating multiple file servers into a single file system. SONAS can accommodate up to two billion files in a single file system and up to 256 file systems for each SONAS deployment.

For small to midsize organizations, where management efficiency is more important than massive scaling, the Storwize V7000 Unified consolidates multiple types of workloads into a single storage system. For further efficiency, it includes built-in solid state drive (SSD) optimization and thin provisioning capabilities. Storwize V7000 Unified also supports nondisruptive data migration from existing storage systems, a quality it shares with the Acuo architecture.

Building on Acuo’s scalable, interoperable software platform
The Acuo solution builds on the Acuo Universal Clinical Platform, a standards-based suite of software applications that scales up to accommodate large centralized repositories and scales out to enable fully distributed storage grids. It is also designed to enable archiving of medical images in a highly interoperable fashion. The set of applications that Acuo delivers via its Universal Clinical Platform also extends and virtualizes storage resources.

Through its clinical information lifecycle management capabilities, the Acuo solution helps mitigate the potential expense of migrating from legacy archiving to more-advanced systems. The information lifecycle management aspect drives clinical metadata into the storage layer so that related policies can be enacted appropriately, preventing data from being tied exclusively to the application that originally stored it. As a result, clinical imaging data can be managed based on its clinical value over time, using a tiered, clinically aware archive to improve information availability.

The Acuo Universal Clinical Platform consists of three archiving modules, plus an optional universal viewer.

**AcuoMed: Unlimited scalability and flexibility**
Having the scalability and flexibility to meet evolving requirements is essential to any long-term image archive. AcuoMed, a federated framework of databases underlying the Acuo vendor-neutral architecture, performs the following functions to support scalability and flexibility:

- Seamlessly integrates existing PACS and other archives
- Integrates multiple storage media configurations such as DAS, NAS and SAN
- Meets complex image routing and retrieval requirements
- Compresses and encrypts data to trigger efficient packet movement to in-network storage
- Effectively manages image transfer bottlenecks associated with moving large datasets
- Provides data synchronization to automatically update data in disparate systems
- Delivers comprehensive audit reporting for any individual image

**AcuoStore: Easy, open access to imaging data**
Being able to store information is of little value if users cannot quickly and easily find and retrieve the information they need. AcuoStore works like a digital vault, checking digital assets into and out of storage archives and allowing users to store, track and receive digital assets from AcuoMed. It specifically:

- Manages physical storage by using logical mapping to enable digital information to flow to and from storage devices
- Allows multiple applications and different subscribers to securely use the same managed share
- Enables information lifecycle management by isolating data generated at a specific place or by a specific application
- Makes it possible to assign storage costs by department or user group
- Provides automated system backup and disaster recovery
AcuoSemantix: Straightforward information-system interface
AcuoSemantix provides the archive interface to the radiology information system (RIS). It specifically:

- Performs dynamic mapping of HL-7 and XML fields to databases
- Integrates with AcuoMed to enable reconciliation with hospital information system (HIS) and RIS data
- Automates prefetch of images, exam synchronization/distribution and demographics validation

Acuo UniViewer: Organization-wide clinical viewing capabilities
To provide clinical viewing capabilities across the organization, the optional Acuo UniViewer performs server side rendering and streams it out to various destinations. It specifically:

- Delivers basic 2D clinical viewing for archived objects
- Provides access control for global archive access or site access
- Offers full diagnostic upgrade capabilities (through IBM's technology partner Medical Insight)
- Integrates fully with EMRs, physician portals and patient portals
- Works over low bandwidth and with mobile devices
- Is designed for simple, maintenance-free deployment

Why IBM?
As a market leader in the storage industry, IBM can help you handle the performance and availability challenges of your storage environment, whether you are a small, midsize or large healthcare organization. Innovative technology, open standards and excellent performance are just a few reasons why IBM storage, including SONAS and Storwize V7000 Unified, can meet your healthcare information infrastructure needs.

Acuo Technologies has been delivering innovative solutions to enable healthcare providers to own and control their data for over a decade. Strong adherence to industry standards, combined with patented middleware solutions, deliver the ultimate promise of vendor independence and freedom to choose the best options that meet healthcare enterprise needs.

For more information
To learn more about IBM Scale Out Network Attached Storage and IBM Storwize V7000 Unified, please contact your IBM sales representative or IBM Business Partner, or visit:
ibm.com/systems/storage/network/sonas or
ibm.com/storage/storwizev7000

To learn more about the Acuo vendor-neutral architecture suite of products, visit: acuotech.com

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