HP MEDICAL ARCHIVE SOLUTION

Improve healthcare IT with medical image archiving best practices.

Data sheet

HP Medical Archive solution (MAS) is an industry-specific, long-term, multitier archival storage platform that delivers fast and reliable access to medical content, interfacing with picture archive communication systems (PACS) imaging systems, which helps improve patient care, compliance, and collaboration.

Can you meet your information retention challenges?

The medical imaging storage market is doubling every 24 months. This is due to growing volumes of diagnostic images and documents produced by high-resolution imaging technology. Worldwide, this data is subject to security, privacy, and availability regulations such as the Health Insurance Portability and Accountability Act (HIPAA) in the U.S. Such laws mandate the development of disaster-proof environments that enable long-term access to medical data of any age for both regulatory and clinical purposes. A cost-effective solution must intelligently manage retention, location, and duration as storage technology changes must help ensure that providers have continuous access over decades.

HP MAS is a specialized platform to help global healthcare providers, hospitals, and imaging clinics of all sizes address exploding medical image retention requirements. With HP MAS, healthcare providers can:

• Enable fast-growing medical image data to be indexed, preserved, and continuously accessed with enhanced security
• Reduce costs and long-term management of medical images by enabling consolidation of data from multiple imaging sources to lower cost media

Product overview

HP MAS is an expandable appliance that delivers factory-integrated HP Storage disk drives and HP ProLiant servers with storage grid software in one system. The grid architecture satisfies scalability and performance requirements, and the tiered storage capability permits continuous alignment of the business value of images with appropriate retention policies.

HP MAS is a scalable solution that can be built for small imaging clinics as well as large integrated delivery networks to enable consolidation and centralization. The solution also allows clinics and IDNs access to medical fixed content to meet regulatory and clinical requirements:

• High availability and native self-healing mechanisms provide continuous access to the stored data—giving clinicians the ability to deliver high-quality patient care
• Its ability to consolidate patient data from multiple imaging applications, such as PACS, and the ability to integrate with third-party image management layer (IML) software can enable clinicians across departments and facilities to share images and collaborate on diagnoses to improve patient care
• Its ability to manage multiple tiers of storage in a single system enables alignment of business value of images with the appropriate media tier
• Backed by HP design, implementation, and support services, HP can enable your finance department to simplify contracts and engage with a single trusted supplier
HP MAS combines customer-proven and compact HP ProLiant servers and HP Storage disk drives, indexing and policy management software to provide long-term archival storage of medical fixed content.

Figure 1:

HP MAS is an important building block of the HP Digital Hospital value proposition. Digital Hospital is a holistic framework for healthcare providers to help improve technology support for care delivery. HP MAS addresses and manages diagnostic information explosion to help healthcare providers build the hospital of the future.

**Features and benefits**

HP Medical Archive solution’s key features enable high availability, facilitate governance with data security and privacy regulations, enable collaborative diagnoses across sites, and provide a foundation for storage infrastructure optimization.

**High availability and collaboration capabilities facilitate care delivery for all providers**

Healthcare organizations are challenged with meeting governance regulations requiring fast access to data of any age, and patient care often depends on collaborative treatment. With HP MAS, data is highly available, as native auto failover capabilities enable continuous access to the archive without impacting imaging application operations. This allows clinicians to continue reading images to treat patients if the imaging environment is operational. Also, by migrating data from multiple imaging applications to a centralized archive, providers within or across hospitals have a foundation to share files for collaboration on patient treatment.

**Features**

- Distributed control nodes within HP MAS solution provide high scalability, faster rate of ingestion, and simultaneous archiving of data from multiple applications within the environment.
- Prioritized cache management supports a fast file cache (up to nearly 2 TB depending on the gateway node used) for images and studies based on file type and data source.
- Optional third-party IML software integration neutralizes data formats in disparate imaging application environments.
- The standard parallel fetch feature retrieves a requested image from a non-containerized study and then retrieves all related images and caches them on the gateway.
"The HP MAS solution is ideally suited to a medical environment and matches our requirements exactly, especially those relating to data security. When doctors retrieve data about patients, they cannot determine whether it comes from the SAN or the MAS because data transfer is so rapid. The other solutions were simply inappropriate for a hospital setting”. Johan Konings, IT infrastructure manager, Clinique Saint-Jean

Benefits
- HP MAS stores images faster since it can archive data from more applications simultaneously.
- High-availability failover, which happens automatically, provides your clinicians with continuous access to the images and helps you to cost-effectively meet stringent business continuity service-level agreements (SLAs).
- Prioritized fast cache provides control of which images and studies are cached for faster access based on business priorities for patient care.
- You can achieve faster access to individual images from a noncontainerized study with parallel fetch, which retrieves all related images and caches them for faster access.
- HP MAS provides a cross-facility image sharing environment by integrating MAS with image management software (third party) to enable online sharing for collaborative treatment.

Capabilities to help facilitate regulatory governance
Industry regulations require hospitals to store data for decades. HP MAS creates a single repository for long-term archival storage, helping healthcare organizations comply with requirements for the storage, transmission, and protection of patient data. HP MAS helps provide resiliency from disasters with a distributed, grid-based archive with built-in redundancy in archive subsystems and capitalizes on inherent self-healing functions that protect access to the data continuously. Audit and reporting features enable you to confidently trace access to the data and monitor the system through a simple Web user interface.

Features
- Patient data privacy enhancements per site, via new security separation allows content stored at one site to only be tracked by control nodes at the same site
- Gateway node capacity reporting by application enables advanced planning and accounting in a shared environment
- Remote access monitoring, fault reporting, configuration management, historical reporting, and audit trail capabilities can be managed from the Web user interface
- Access to the grid can be further restricted by IP addresses and passwords where applicable
- Selective write once read many (WORM) can be file or path name based (for example, different compression levels of the same study can have different retention periods) and is included in the product giving customers the choice to deploy it
- Digital fingerprinting is used in the continuous background data integrity checks
Faster time-to-diagnosis and treatment with multiple control nodes to retrieve data from different storage locations.

Benefits

- Encryption yields additional security for stored objects or those in transit across local or remote networks
- Policy-driven, real-time replication distributes data across the archive to control the geographic location and number of replicas for the desired levels of redundancy
- RAID5, RAID6, Advanced Data Guard (ADG), and object mirroring provide dual data protection for each storage subsystem and enable retrieval of immutable data

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At one time the medical industry relied on “passing the yellow envelope” for patient information. But, today’s overburdened medical imaging environment demands the reliable digital archiving, retrievals, and real-time access solutions that only HP can deliver.

Improve storage infrastructure to reduce storage TCO

Because patient information must be retained for decades, healthcare organizations need to be able to align the storage tier with the clinical and business value of the data as the value changes with time. HP MAS helps customers align storage costs and retention policies with the business value of the images to expand storage tiers appropriately. Integration and central management of up to four tiers within HP MAS enables storage infrastructure optimization. The information management rules editor can facilitate automated migration as data value changes, serving to reduce both resources spent managing migration and additional costs associated with managing long-term storage.

Features
• Multitier support enables integration of SAN, SAS enterprise, SAS midline, and tape into a single, centrally managed grid.
• The configurable IM rules editor enables automated migration of data between tiers. The compact storage server architecture enables a single rack to accommodate up to 180 TB of storage.
• Lossless compression (standard) can be applied to uncompressed objects to utilize integrated storage resources more efficiently.

Benefits
• Reduce costs of power and cooling, as well as floor space needs. MAS reduces cash burn with its new secondary gateway virtualization, grid node virtualization, and storage expansion shelves.
• Reduce cost and management of data with the configurable information management rules editor to facilitate auto-migration of data between tiers.
• Align storage costs and retention policies with the business value of images by integrating and centrally managing four storage tiers (SAN, SAS enterprise, SAS midline, and tape).
• Reduce storage silos of patient data by consolidating data from multiple imaging applications (example, PACS, medical applications, viewers, and modalities).
• Improve storage utilization on all integrated media grades with compression.
Improve operational efficiency

Healthcare IT often bears the burden of custom building retention solutions. Maintaining individual components consumes IT resources and budget, and there is often no single point of contact when something goes wrong. With HP MAS you can increase staff efficiency and reduce time spent on managing the image archive. HP MAS provides centralized management no matter the size or distribution of the archive configuration. Modular scalability helps protect your investment and facilitates the development of an archive with state-of-the-art technology.

Features

• HP MAS is an expandable appliance consisting of HP storage, servers, and built-in indexing and policy management storage grid software.
• HP MAS takes advantage of the newest technology, it runs on the newly released DL180G7/DL180G6 Intel® Nehalem-based storage servers to combine latest processor technology and storage.
• The entire grid (all components) is easily monitored through the built-in Web user interface.
• HP Systems Insight Manager, integrated into the HP MAS OS, enables full hardware (SNMP traps) and software system status monitoring when optionally integrated with HP Network Node Manager.
• Over 200 alerts and alarms can be configured to enable HP MAS to proactively monitor the grid so less time is spent managing the stored content.
• Small form factor (SFF) drives enable a 70 percent reduction in space and use 50 percent less power than the larger drives previously used.
• MAS gateway nodes [Common Internet File System (CIFS)/network file system (NFS) mount point] and control nodes manage 200 million objects per set.

Benefits

• Use of SFF drives in the compact 2U storage servers reduces the number of racks needed in a deployment and data center power and cooling requirements.
• HP Systems Insight Manager and HP Network Node Manager enable the proactive monitoring of all grid components from the simple Web user interface.
• New audit feeds improve IP staff efficiency.

Industry-specific, long-term archival storage solution

Legacy CAS systems were not specifically built to manage transmission of large medical images. The innovative grid-based architecture of HP MAS was designed for the healthcare imaging industry to manage access to and fast transmission of medical fixed content, ranging from large medical images and movies to smaller images and documents. As capacity grows in the MAS grid, performance is maintained while processing power, load-balancing, byte-level streaming, transmission, and caching capabilities increase.

Features

• Fast file cache is optimized for medical fixed-content objects up to 60 GB.
• Parallel fetch speeds access to images from noncontainerized studies.
• Location of all image copies is maintained internally for return of requested data that is closest to the requestor.
• Data transmission occurs through byte-level streaming on both local and remote networks.

Benefits

• Fast, prioritized cache management provides rapid access to archived images.
• Parallel fetch improves the ability to return requested images to the clinician for diagnostic treatment or collaboration.
• Internal intelligence of image location ensures that the closest copy of the image and study is returned to enable the fastest route.
Accelerate time to value

Other solutions in the market require you to bear the integration burden by purchasing CAS systems and then buying third-party software for failover, failback, resynchronization, and tape support, or purchasing individual hardware components and software from different vendors. HP MAS integrates all the necessary hardware and software into a single, expandable appliance. Since the solution is all backed by HP service and support, there is clear accountability for the total solution and a single point of contact.

Features
• All HP MAS grid configurations are racked in the HP factory prior to delivery.
• HP MAS software installation is now done only on the Admin Node (single point of installation).

Benefits
• Achieve faster setup, as HP MAS is delivered preracked at the HP factory, reducing onsite deployment time.
• Access new features faster, as HP has reduced (simplified) software installation to a single component on the MAS grid.
• Simplify contracts and avoid vendor finger pointing, as HP MAS is fully supported by one vendor—HP.
• Start only with what you need and seamlessly scale the archive on demand as facilities are added and image volumes grow.

Standards-built interoperability for investment protection and greater flexibility

HP collaborates with many medical fixed-content application vendors to ensure that MAS functions efficiently through open standards with the different types of medical imaging applications in the healthcare market worldwide. IML software application support and certifications with major PACS and medical imaging applications worldwide make it easier for physicians within a hospital, or across a group of hospitals, to access patient information and share diagnostic data when collaborating on a patient’s treatment.

Features
• CIFS or NFS communication with most imaging applications (authentication protocol is application dependent)
• Optional Digital Imaging and Communications in Medicine (DICOM) integration with certified imaging applications

Benefits
• Exchange of clinical data with external client systems, including PACS, viewing workstations, and modalities, takes place over standard network file system protocols (CIFS, NFS) or (optionally) through established imaging protocols, including DICOM.
• Validation of HP MAS with imaging applications ensures that the archive functions nominally in the imaging application technology environment.
A complete solution

**HP Software Professional Services**

HP Software Professional Services offers a complete portfolio of information management services including upfront consulting to define the right strategy and roadmap for information lifecycle management and storage optimization to meet your medical archiving requirements. We then provide design, planning, and implementation services to achieve high value from your HP MAS. For more information, visit [www.hp.com/go/IMDMprofessionalservices](http://www.hp.com/go/IMDMprofessionalservices).

**Support Services**

HP Software Support offers a range of maintenance packages to provide ongoing support for HP Medical Archiving solution. Technical queries can be logged online or via the telephone. Trained engineers answer your questions and provide guidance on issues relating to this solution. The software support solutions additionally provide access to software updates as they are released, and a 4-hour response is provided for hardware-related calls as per the hardware maintenance package.

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**HP Information Management**

HP Medical Archive solution is a key component of the HP Information Management portfolio addressing today’s most critical information issues, and simplifying the management and governance of enterprise information.

A holistic approach and framework that enables enterprises to capture, protect, monitor, retain, and find information, HP solutions deliver the right information to the right person at the right time.

Deliver high-quality patient care, adhere to strict compliance regulations, and keep the health of your IT systems in check with HP Medical Archive solution, visit [http://www.hp.com/go/mas](http://www.hp.com/go/mas).

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**Figure 3:** HP Information Management—a holistic approach to simplify the management and governance of enterprise information.