

Managing big data in the cloud

ESSENTIALS

- Purpose-built cloud storage platform designed for unlimited global scale
- Intelligently automates management of content through highly flexible policies
- Matches content distribution and level of protection with value of information
- Serves multiple tenants securely and dynamically in a single system
- Optimizes web-scale applications with web services access and management

A PROVEN WAY TO INCORPORATE CLOUD BENEFITS INTO YOUR BUSINESS

Today's digital world creates dynamic unstructured content at record speed and size forcing IT departments to look for new cost-effective ways to manage, protect, and archive their data. EMC® Atmos™ combines the power of global-scale storage with the benefits of cloud-based architecture to deliver solutions that meet the needs of today's enterprises and service providers.

EMC Atmos is a globally accessible cloud storage platform to manage content in modern content-rich applications, high-scale content infrastructures, and cloud service provider environments. Atmos can run in a virtualized environment with your own storage solutions or within EMC purpose-built, low-cost, high-density hardware. Whichever deployment model makes the most sense for your business, you'll be sure to get an efficient footprint that is:

- **Global:** Scales effortlessly as a global unlimited namespace within one location or across multiple locations to accommodate the ever expanding need for storage.
- **Intelligent:** Adaptive, policy-based management defines the location, protection, and efficiency of massive amounts of content throughout its lifecycle based on business objectives, offering high availability when needed and low cost when it is not.
- **Web:** Location-independent web services access to data and management across a single tenant or multiple tenants to optimize web application infrastructures and support cloud service businesses.

ATMOS FEATURES

EMC Atmos offers the most extensive range of advanced features for cloud storage, including:

- **Global unlimited namespace:** EMC Atmos has a namespace that provides universal access regardless of location, reducing complexity and improving productivity.
- **Multi-tenancy:** EMC Atmos enables the dynamic creation of tenants to securely insulate groups of users and applications from one another, while tracking tenant utilization for billing purposes, and sharing the storage capacity of the system for maximum utilization. For further security, Atmos can also isolate administrative traffic from other data. Multi-tenancy is ideal for service providers or large enterprises that want to provide cloud services for many customers or departments with logical, secure separation within a single infrastructure.
- **Intelligent policy-based management:** EMC Atmos policies improve operational efficiency by intelligently distributing, protecting, and applying data services to the content, based on business rule and data value. After the policies are defined, the business can trigger them proactively or reactively through the application, based on the characteristics of the content itself.

- **Cloud-optimized protection:** EMC Atmos offers enhanced content-protection methods designed specifically for distributed cloud environments. With GeoProtect, you can granularly control the protection, performance, and storage cost associated with your content. GeoProtect capabilities include:
 - **GeoMirror:** Ensures content is available and accessible by creating multiple copies of the object to one or more designated locations
 - **GeoParity:** Ensures content is available and accessible by dividing objects into multiple segments and distributing them to one or more designated locations
- **All-in-one data services:** EMC Atmos includes the following data services that can be managed and accessed via policy: compression, de-duplication, and placement of data on spin-down drives. Atmos also supports API-based object-level versioning and checksum. A combination of all-in-one data services and the GeoProtect capabilities enable customers to appropriately match the level of content protection and cost with true value of the content.
- **Web services and legacy access:** EMC Atmos provides web services access (REST/SOAP) for web-scale applications and file access (CIFS/NFS/Installable File System) for traditional applications, providing customers with the flexibility to support multiple use cases and workloads on one system, maximizing utilization.
- **Flexible administration:** EMC Atmos can be managed via GUI or Command Line, with the additional option of plugging into existing or new customer management frameworks by programmable API. This gives customers the flexibility to manage the system using Atmos interfaces, or through customer applications and dashboards, a critical feature for many application and cloud service providers.
- **Automated system management:** EMC Atmos provides auto-configuring, auto-managing, and auto-healing capabilities to reduce administration and downtime.

ATMOS 2.0 DRIVES FIVE TIMES BETTER PERFORMANCE AND 65 PERCENT BETTER EFFICIENCY

EMC Atmos offers great performance for content-rich web applications and online businesses. Content-rich applications come in many forms, from e-commerce, to photo services, to medical imaging, and commonly need to ingest millions of objects a day while interacting with a global base of customers. With Atmos 2.0, customers can easily add 500 million objects a day to a single Atmos system. Other solutions attempting to support these types of environments typically involve substantial custom development and have proven to be costly, fragile, and time-consuming to recover when something goes wrong.

Atmos 2.0 also unveils a new GeoProtect capability called GeoParity. Atmos GeoParity is designed to protect distributed big data and cloud storage environments by distributing object segments from a single object across an Atmos cloud, innovatively protecting against component, rack, and site failures. Compared to traditional data protection methods, GeoParity can improve efficiency as much as 65 percent, depending on the size of the environment.

For even greater efficiency, Atmos 2.0 enhances Atmos policy management capabilities throughout the lifecycle of the data. With enhanced information lifecycle policies, users can define flexible retention and archiving schemes based on the age of the data.

CLOUD ACCESS AND INTEGRATION MADE SIMPLE

Atmos 2.0 introduces two new capabilities that dramatically ease your transition to the cloud. Atmos GeoDrive is a secure, fast way for Atmos administrators to quickly support end-user cloud access. By either installing Atmos GeoDrive on end-user computers or on a server

in their network, individual end users and applications have transparent access to the cloud in less than a minute. It's that easy.

For application architects and developers, Atmos releases the Atmos Software Development Kit (SDK). With the Atmos SDK, developers using almost any language, framework, or platform can easily get into the cloud. In addition to .NET, Java, C, Flex, and PHP, Atmos now supports Python, Ruby, and JavaScript with language bindings, as well as offering new modules for Drupal and content-addressable storage (CAS) developers. Specific Atmos 2.0 enhancements such as improved metadata performance make Atmos an even better platform for application developers building at web scale. The Atmos Developer Community, <http://developer.emc.com/atmos>, hosts the Atmos SDK, as well as active forums, sample code and applications, and access to the Atmos Online Developer environment.

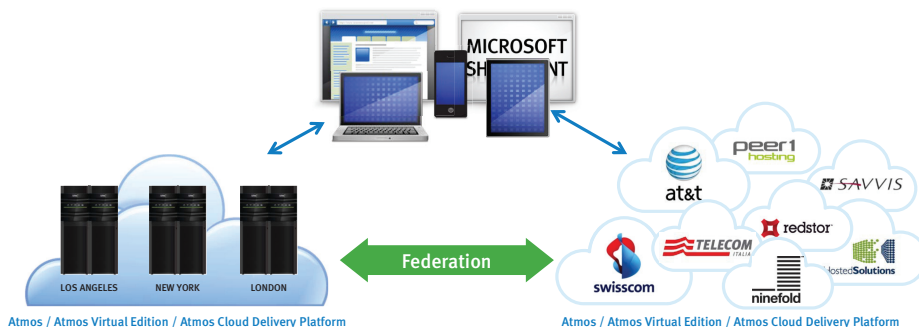
SERVING EVERY INDUSTRY

EMC Atmos fits your business model and infrastructure, not the other way around. It suits many different purposes and industries that need to manage a private cloud storage environment, provide storage-as-a-service to external clients, or a hybrid of both.

- **Service providers:** Service providers, managed hosters, and software-as-a-service (SaaS) providers can use the multi-tenancy features and web service APIs to either deploy Atmos as a web-accessible storage utility, or use it as an infrastructure for cloud-based applications (for example, one that offers secure online storage for consumers or other businesses). Atmos currently powers some of the largest global cloud service providers.
- **Web 2.0/Internet:** Many content-rich web applications, such as image and video workflows, produce petabytes of user-generated content that needs to be accessed from all over the world. Typically, the content has an initial period of intense activity followed by long phases of dormancy. Using Atmos policy management, you can automate content availability to match frequency of use, geographic location, and retention periods, modeled against your business model (for example, free versus paid users or “in production” versus “archive”). Atmos routinely handles billions of pieces of content every day across several prominent Internet businesses.
- **Healthcare:** Healthcare organizations are faced with new challenges and opportunities in the areas of medical image management and collaboration. Atmos provides new, more efficient ways to manage image distribution and archiving, such as VNA (Vendor Neutral Archive) and offers collaboration enhancements across multisite facilities like hospital networks, academic centers, and large regional medical centers.
- **Media:** The business of media creation and distribution is inherently global and requires intense cooperation with disparate parties and systems. The web service APIs can be used to easily integrate with content creation tools, while policy-based content management and all-in-one data services can be used to streamline the collaboration and distribution processes. Atmos has dramatically and efficiently improved the workflows of several of the largest publishing and advertising firms in the world.
- **Government:** It is essential to the nature of all federal agencies—whether civilian, defense, or intelligence organizations—to employ and coordinate users and worksites across the country, and often around the world. All work must adhere to strict business processes and policies, requires multiple levels of storage management, and is governed by differing levels of access and security. EMC Atmos is ideally suited for this complex, policy-sensitive, content-rich, and widely distributed environment.

CLOUD STORAGE YOUR WAY

AVAILABLE ON-PREMISES, ONLINE, OR BOTH



Atmos Products

For Private, Public, and Hybrid Clouds

- On-premises storage with external extensibility
- Scalability, control, and flexible SLAs based on customer requirements and capabilities

Atmos-Powered Cloud Services

Infrastructure-as-a-Service Available Online

- Internet-accessible, on-demand storage
- Providers in multiple geographies with different service levels to match customer needs

EMC ATMOS PARTNER ECOSYSTEM OFFERS MORE CHOICE AND VALUE

INTEGRATED INDEPENDENT SOFTWARE VENDORS (ISVS) PROVIDE VALUABLE STORAGE EXTENSIONS

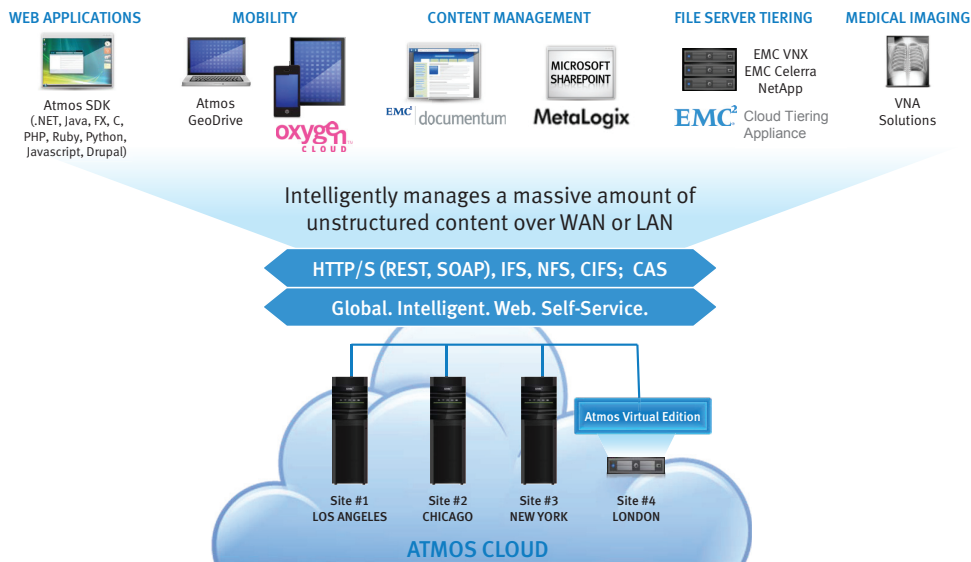
EMC Atmos is integrated with many EMC products as well as a growing number of ISV partners' products to deliver solutions across multiple industries. Each EMC ISV partner delivers application and industry expertise that is tuned to the EMC Atmos system to provide solutions optimized for our customers' needs.

ATMOS-POWERED CLOUD STORAGE SERVICES ARE NOW AVAILABLE GLOBALLY

EMC Atmos-powered cloud storage services are available from a growing number of global service providers in North America, Europe, and Asia Pacific. These EMC service provider partners offer robust services spanning individual developers, small-to-medium businesses, and large enterprises, with best-in-class combinations of data management technologies, network, and data center operations.

A complete list of EMC Atmos partners, their solutions, and information on how to become an Atmos partner is available on EMC's website at www.EMC.com/atmos.

EMC ATMOS: OPTIMIZE APPS ACROSS YOUR BUSINESS



MAXIMIZE THE BENEFITS OF THE CLOUD WITH EMC GLOBAL SERVICES

EMC provides the strategic guidance and technology expertise organizations need to address their business and IT challenges and accelerate the journey to the cloud. Our 14,000+ service professionals and support experts worldwide, plus a global network of alliances and partners, leverage proven methodologies, industry best practices, experience, and knowledge derived from EMC's 30-year information-centric heritage to address the full spectrum of customers' requirements across the information lifecycle.

With EMC support options, you can rely on more than 6,000 technical experts from 620 service locations in over 152 countries.

- **Warranty:** Atmos equipment includes a three-year Enhanced Warranty, which provides access to EMC's industry-leading support infrastructure, with next-business-day, onsite coverage and 24x7 remote support. Customers are responsible for performing the replacement of parts, which are provided by EMC and shipped for next-business-day delivery.
 - Atmos software includes 90-day media defect warranty. Enhanced and Premium support options are available for software maintenance.
- **Options for Hardware and Software:**
 - Premium: Provides maximum information availability through EMC's industry-leading 24x7 mission-critical support coverage, four-hour response, and EMC replacement of all parts.

In concert with Atmos, EMC Global Services can help you deploy, adapt, or migrate your existing business processes, manage your infrastructure, and protect your Atmos-delivered applications. We provide enterprise architecture, design, and deployment services across all your organizational and business needs.

EMC Consulting: Delivers information-centric expertise to help you solve your most pressing information challenges, build a strategy for the future, and realize your ambitions in an information economy. Combining robust information management capabilities with deep industry expertise, our global consulting professionals can help you plan and execute a virtual data center and cloud infrastructure; design and develop new application architectures; manage your enterprise information; and ensure business continuity and disaster recovery, security, and compliance.

EMC Technology Solutions Services: Speeds time to value of your technology investment using best practices, proven delivery and program management methodologies, and tested and documented reference architectures—from assessment and design to installing and integrating new products, migrating data, securing information, and optimizing system performance. Transferring these best practices to ensure operational self-sufficiency is also integral to every engagement.

EMC Managed Services: Meet your specific needs at every phase of your journey to the cloud with EMC Managed Services. Augment or complement your existing resources with EMC residents who offer short-term, day-to-day technology, operational, and architectural support. You can also obtain longer-term support to help you implement and optimize specific storage processes and operations.

EMC Customer Support Services: Six-time winner of the SSPA STAR Award for outstanding mission-critical support—helps organizations keep their information available 24x7 to deliver competitive advantage and drive revenue.

EMC Educational Services: With EMC's industry-leading technology training and certification programs, your company can build needed expertise in information storage technology and management.

CONTACT US

Discover how EMC Atmos can help you leverage the power of the cloud. To learn more, contact your local EMC sales representative or visit the website at www.EMC.com/atmos.

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