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Cloud-Era File Sharing and Collaboration

Maginatics Cloud Storage Platform

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Perspective Report

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Introduction

Distributed file systems have been used for decades to facilitate the process of storing, accessing, and sharing data. Like local file systems, distributed file systems give employees a familiar way to interact with data by providing a common namespace and a hierarchical, organizational structure. They go further by making files stored on one or more remote servers appear to users as if they were stored locally. Network File System (NFS) and Common Internet File System (CIFS) are two of the most frequently used protocols for implementing distributed file systems.

While NFS, CIFS and other distributed file systems are still used today, recent technology changes, as well as shifts in user behavior, have created new challenges. Now, mission-critical data is more often stored off-premises, sometimes in public cloud environments. Employees are also accessing data from more places with more devices. The net result is that traditional file systems no longer meet the complete requirements for cloud-era file sharing and collaboration.

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Data Demands Are Changing

With the adoption of infrastructure as a service (IaaS), including storage resources, many enterprises are now reconsidering the way they deliver data. To use cloud storage as a central repository, enterprises must first find a way to get all their data to the cloud. For large amounts of data, this tends to involve loading and shipping tapes to a cloud provider who then loads the data onto servers in a hosting center. This process is usually expensive – sometimes in the hundreds-of-thousands of dollars – and also very time consuming.

Once data has been transferred to the cloud, enterprises must also deal with the inherent limitations of accessing data over a wide area network (WAN). This includes network latency and extremely long read-write times if data isn't cached on the client's end. Solutions that transform cloud storage into a network attached storage (NAS) repository, but don't accelerate data delivery, really only solve half the challenge. Some enterprises use edge filers as a remedy, but quickly discover that filers are needed everywhere they plan to access data.

Most cloud storage is built on object storage, which introduces new complexity in how enterprises use their file data. Object storage offers a variety of benefits over traditional storage architectures, including cost efficiency, better performance, and massive scalability, so IT organizations are naturally eager to try these services. While some solutions – like Ceph – offer

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ways to store and access files using object storage, they don't provide the acceleration or optimization that enterprises need to make cloud storage a viable option for distributing data.

Finally, enterprises have more mobile users trying to remotely access data from their laptops and mobile devices. Not only do these employees need faster delivery solutions, they also need simpler, more secure solutions. For example, employees might procure their own file-sharing service if their current solution doesn't perform well or if IT can't provide an effective alternative. This introduces new risk if personal and work files mix and are stored in locations not approved by the IT organization.

Maginatics Cloud Storage Platform

Today's enterprises are keenly focused on data mobility and collaboration. They need a more practical and efficient way to share data that goes beyond basic file storage and delivery. Maginatics, a company specializing in enterprise data management, believes they have the solution: the Maginatics Cloud Storage Platform (MCSP).

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MCSP starts by streamlining the process of moving and using data in the cloud by helping customers avoid the time-consuming and costly process of shipping data to an offsite data center. Instead, customers can take advantage of WAN-optimization features like deduplication to directly upload their data. Instead of waiting weeks, customers can get their data to the cloud in a number of days or less. They also avoid the risks of having to physically ship valuable, confidential data.

Maginatics also helps customers meet mission-critical security requirements by securing all data at rest, whether in the cloud or on an endpoint device, as well as in-flight. By storing metadata on premises, rather than in the cloud, Maginatics puts control back in the hands of IT. This includes encryption keys and user IDs. MCSP also integrates with identity management solutions used by enterprise IT organizations. Finally, each file is "chunked," and each chunk individually encrypted with AES-256 bit encryption as it leaves the endpoint device from which it originated. This means data stored in the cloud is truly secure; attackers cannot access data without the proper authentication credentials, and in the case of a potential breach, all encrypted data on disk is rendered unusable since the keys and data are never co-located.

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At the foundation of MCSP is the Maginatics Virtual Filer (MVF). MVF is an elastic, cloud-optimized distributed file system that combines a global namespace, strong data consistency, WAN optimization, end-to-end security, application compatibility, edge and mobile connectivity, and other technologies into a single integrated fabric. Unlike many file systems, MVF is mobile-friendly. Rather than running on-premises or within edge filers, MCSP includes native agents that reside almost exclusively in user-space, on all endpoint devices accessing the system. This means intelligence is pushed out to user end points for end-to-end security, improved WAN optimization and the ability to achieve high system throughput simply by adding more endpoint devices.

End point agents include a multi-tiered cache on the user's device, so storage architects don't have to worry about strategically implementing edge filers to achieve solid performance. Maginatics has also added additional cache layers to further accelerate performance. For example, the optional MCSP site cache enhances performance for branch office users accessing the same content, or for any user at a branch office with particularly poor connectivity to the central object store. Similarly, MCSP integration with content delivery networks such as AWS CloudFront enables agents to read data from the closest CDN edge node rather than from the primary object store when the CDN is topologically closer.

"Maginatics has also added additional cache layers to further accelerate performance."

Maginatics complements this functionality with a global namespace that provides a complete file hierarchy on top of cloud object storage. This gives enterprises highly scalable, cloud-based NAS with secure and accelerated data delivery, enabling greater collaboration among remote users and more options for how they approach next generation workloads.

Maginatics continues to expand its ecosystem by integrating with popular products and services. Integration with EMC ViPR gives customers a wide range of alternative object storage options, many of which can be built from their existing on-premises storage hardware. Maginatics also exposes its RESTful APIs, providing additional integration opportunities for partners and enabling IT administrators to simplify operations through orchestration and automation.

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Neovise Perspective

Data is becoming more distributed among branch offices, mobile workers, and cloud storage, and enterprises need file-sharing solutions that can address the related challenges. Yet many emerging solutions only go halfway toward solving new data challenges by requiring expensive hardware-based solutions or failing to accelerate delivery. Maginatics takes a different approach with a solution that is based on a globally distributed file system, engineered with today's cloud, mobile, branch office and remote users in mind. MCSP offers an agile, secure way to support these users that overcomes the inherent limitations of accessing data over a WAN.

By encrypting and chunking files, MCSP secures data transfer and storage in the cloud, on endpoint devices and everywhere in between. Because metadata is stored safely on premises in the MVF, which integrates natively with Active Directory, only authorized users can see and access mission-critical data. And by placing native agents on endpoint devices, MCSP ensures that its security and performance benefits extend from cloud to endpoint. For example, intelligently caching encrypted chunks directly on the end user's device results in faster, more optimized reads and writes.

With a global namespace, enterprise users get access to a simple file hierarchy that enables greater collaboration with the benefits of NAS, including application compatibility and strong data consistency for failsafe file locking. This enables existing applications to utilize object storage without having to be modified or re-written. Users can also take advantage of object storage benefits like massive scalability and more efficient spending models.

Enterprises need a more effective way to support the evolving demands of file sharing and collaboration in today's increasingly mobile and cloud-based world. MCSP overcomes the gaps associated with traditional solutions and fulfills customers' requirements for enterprise-grade data protection, performance and agility. With end-to-end security, intelligent multi-tier data caching and support for cloud-based storage repositories, Maginatics provides an innovative and disruptive approach to distributed file systems, one that today's enterprises should consider embracing.

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