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Financial Services Analytics Workload Acceleration

Avere Key Benefits

Increase alpha opportunity and minimize risk to:

- Accelerate existing NAS to run more analytics workloads in less time

- Invest more in computational resources and less in NAS

- Optimize workload location for business value—speed up analytics workloads on premises or take advantage of on-demand, pay-as-you-go cloud computing

- Run workloads in the cloud without complex, time-consuming data movement

- Store data in the cloud or keep it on premises for security and regulatory compliance

- Choose—or change—cloud providers for maximum functionality and value

- Use current applications as written, no need to repurpose for the cloud

Investment firms rely on complex data analytics to develop successful fund strategies. But rigorous alpha, value-at-risk, and other performance analyses can overwhelm IT infrastructure, and the demand for such workloads is growing exponentially. Bog down the analytics workload, and fund managers risk missing critical economic trends and opportunities.

Avere Systems technology accelerates analytics workflows by accelerating data access and making that access available to more concurrent requests, empowering equity hedge fund and investment managers to run more simulations in less time. Avere solutions enable CIOs and IT directors to derive greater performance from existing storage infrastructure, as well as to take advantage of cloud-based resources to expand the capacity and throughput of analytics frameworks. With the ability to more aggressively leverage data interpretation, financial services and risk-management organizations can gain competitive advantage and be better equipped to identify alpha opportunities in volatile economic environments.

Challenge: Accelerate Data Access to Keep Pace with Workload Demand

Analytics workloads demand both fast compute and fast I/O. Technology advances on the compute side continue to spawn ever-faster CPUs and GPUs at ever-lower price points. But traditional storage technology has not kept pace, either in terms of

performance improvements or cost reduction. At the same time, the amount of data available for analysis has grown exponentially.

Simply upgrading to higher-end, more expensive NAS systems will not allow most firms to take full advantage of this profusion of market data and preponderance of fast compute. Combining expensive SAS disks and solid-state media, NAS architecture makes the cost of serving data at a rate matched to workload demand increasingly prohibitive. And the unabated demand for analytics capacity that leverages both on- and off-premises compute resources further exacerbates the problems of storage performance, scale, and cost.

Solution: Avere Systems for Analytics Workload Acceleration

Avere Systems provides performance acceleration for file-based workloads. Avere solutions ensure storage performance keeps pace with workload demand, whether the analytics compute infrastructure resides on premises or in the cloud, and wherever datasets originate. Best-in-breed caching algorithms deliver data to compute nodes with little to near-zero latency. Avere high-performance file systems allow back offices to run more simulations without negative impact to analysts and other users.

Avere FXT Edge filers support heavy production demand by placing a performance layer between compute and storage resources. Running on physical or virtual Edge filers, the Avere high-performance caching file system automatically promotes active data to the filer's fastest storage capacity (RAM or SSD) to boost throughput of analytics frameworks. Clustering allows seamless scaling to support more concurrent job streams.

The Avere global namespace (GNS) simplifies and accelerates data access by joining existing NAS systems into a single file system namespace. Avere FlashMove software enables non-disruptive and transparent data movement to the cloud and between storage systems. The Avere graphical user interface (GUI) provides intelligent monitoring of the entire NAS environment, identifying the hottest clients and Core filers, maintaining performance and latency statistics on all file accesses, and providing additional metrics invaluable to resource planning.
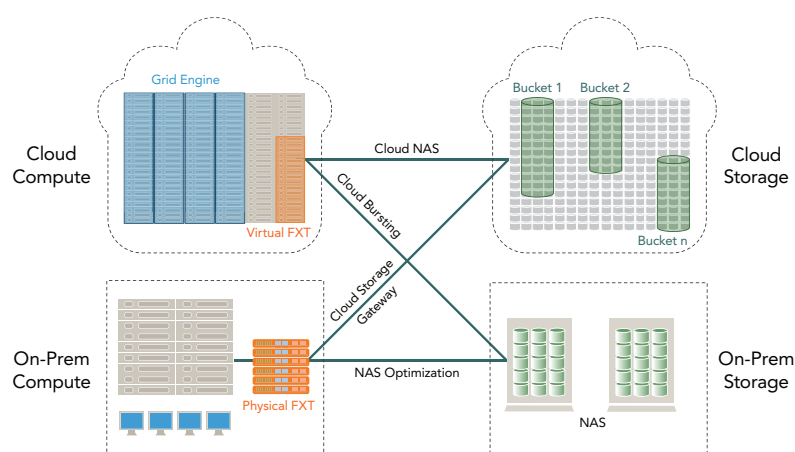

Figure 1: Expand your grid engine into the cloud using Avere high performance caching technology

Purpose-Built for the Cloud

- Flexibility to deploy public object storage and NAS
- Scale application performance on premises and in the cloud
- AES-256 encryption, FIPS 140-2 Level 1 compliance keeps data secure
- Compression for storage efficiency
- Cloud snapshots for data protection

Best-In-Class NAS Features

- NFS and SMB protocol support
- Clustering scales performance to hundreds of GB/s throughput and over ten million IOPS
- Active/active failover ensures HA
- Dynamic tiering hides WAN latency

Simplified Management

- Global namespace integrates public cloud storage and NAS
- Transparent data mobility and replication across heterogeneous storage
- GUI provides rich, historical statistics & graphical monitoring
- SNMP & KMIP support, XML-RPC interface, email alerts

Cloud Support

- Microsoft Azure Cloud Compute and Storage
- Amazon Elastic Compute Cloud and Amazon Simple Storage Service
- Google Compute Engine and Cloud Storage (Multi-Regional, Regional, and Nearline)

Run More Workloads on Existing Infrastructure

Avere solutions deliver scalable performance for every size compute infrastructure—from small infrastructures of fewer than 200 compute nodes to installations with as many as 100,000 cores. In real-world environments, Avere solutions can deliver hundreds of billions of operations per day with demonstrated eight-node FXT cluster performance in excess of 1,000,000 operations per second.

Avere solutions allow financial services firms to instantly derive more value from existing analytics frameworks while ensuring a path to the cloud that facilitates unique business objectives and technical requirements.

Use the Cloud to Extend Analytics Framework

Avere solutions give financial services and risk-management firms maximum flexibility to run applications and store data on premises or in the cloud, wherever makes the most sense for performance, cost, security, and management objectives. Avere FXT Series Edge filers enable integration of existing NAS systems with cloud-based resources, allowing firms to adopt public and hybrid cloud infrastructures at a pace that works best for business.

The cloud offers a means to expand processing power without re-architecting existing frameworks or replacing or expanding owned infrastructure, an important benefit for firms constrained by data center space and cost. Avere solutions eliminate the traditional challenges of data migration and latency, making it practical to extend analytics frameworks into the public cloud. For many firms, the major roadblock to cloud-based compute has been the problem of data gravity—that is, the difficulties of copying massive on-prem datasets to and from the cloud to minimize latency and ensure data availability. Serving as a data access layer in the compute environment, Avere technology mitigates the time, complexity, and interface compatibility issues of moving data from a data center to the cloud or even among cloud providers. Avere also protects against single-vendor dependence, ensuring maximum flexibility to choose—or change—providers based on terms of service, pricing structure, security profile, and other parameters.

Gain Unprecedented Flexibility

Avere relationships with leading public cloud services providers—including Microsoft Azure, Amazon Web Services, and Google Cloud Platform—allow firms to leverage multiple cloud vendors to optimally meet SLA and price objectives across varied workloads and storage requirements.

Implementing a hybrid cloud that leverages the combined resources of on-premises and cloud infrastructure can provide a best-of-both analytics framework for many firms, ensuring unique flexibility to:

- Gain temporary capacity by bursting jobs to the cloud, or dramatically shrink on-premises infrastructure costs by running entire simulation and modeling workloads in the cloud
- Run recurring or lower-priority workloads in the cloud while focusing primary capital assets on mission-critical analytics runs or reserving specialized infrastructure for competitive advantage
- Keep data in the on-premises data center for control and vendor independence, protection of intellectual property, regulatory compliance, and/or security
- Enable an orderly transition to managed virtual financial services wholly delivered from a public cloud

Preserve Investment Dollars for Revenue-generating Analytics

Financial services firms use Avere solutions to run more analytics workloads at a fraction of the capital and operating costs of traditional NAS, helping to dramatically reduce the cost per simulation over time. Avere also protects existing storage infrastructure investments, seamlessly operating with filers from traditional-storage vendors for accelerated performance without expensive forklift upgrades and the high costs of NAS licensing and support. Avere solutions allow firms to invest more in revenue-generating analytics tools and less on cost-center storage infrastructure.

Make Better Decisions, Faster

By accelerating data access for analytics workloads, Avere Systems solutions enable firms to run more simulations on more datasets—faster, easier, and at lower costs than possible in traditional NAS environments. Avere performance helps fund managers take advantage of near-real-time analysis of market data to inform the hedge fund formula on optimal long-short strategies that maximize alpha.

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