

# A V E R E

## NAS Optimization for the Cloud

### Key Benefits

#### Data Access Over WAN

Accelerate performance and hide WAN latency while coherently accessing remote data.

#### Simple Administration

WAN acceleration is automatic without the need to create complex data replication schedules.

#### Dramatic Cost Savings

Intelligent tiering stores only active data at the edge near the clients, replacing costly storage systems and providing dramatic CAPEX and OPEX savings.

#### Unlimited Performance Scaling

Clustering provides linear and non-disruptive performance scaling to keep pace with growing application demands.

#### Visibility

The Avere UI provides unmatched insight into all NAS operations, including servers, clients, and storage.

#### Enable the Compute Cloud

Intelligent tiering stores active data near the compute cloud, hiding the WAN latency to your enterprise's storage.

#### Enable the Storage Cloud

Intelligent tiering stores active data near the enterprise's clients, hiding the WAN latency to the storage cloud.

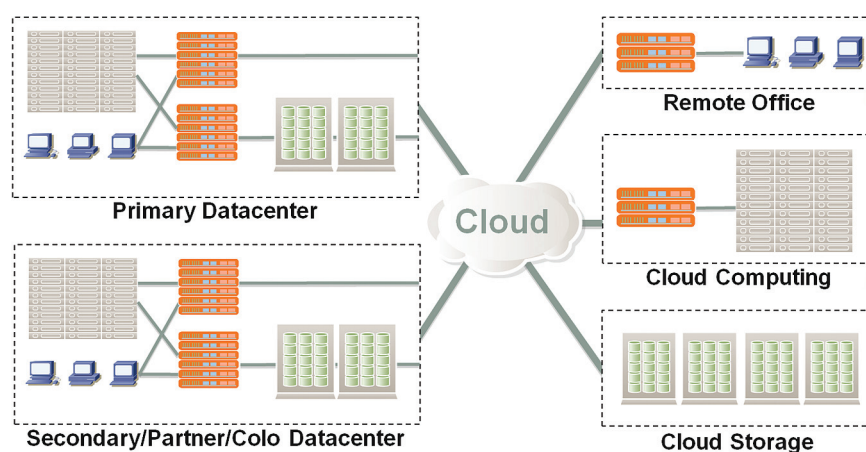
The Avere FXT Series of Edge filers delivers a scalable, cost-effective, and simple-to-manage solution for cloud applications. Avere cloud solutions are enabling enterprises to provide low-latency data access to remote offices, efficiently share compute and storage resources across multiple data centers, and effectively implement and use private and public cloud infrastructures.

### Challenge

The cloud, in both public and private models, is attractive because it promises to deliver lower costs through a consolidated and centrally managed architecture. To date, however, the cloud has been impractical for most primary applications because the high-latency WAN connection between the cloud providers and the cloud clients has resulted in poor performance.

### Solution

Avere NAS optimization enables using the cloud for primary applications. The Avere FXT Series of Edge filers uses intelligent tiering to automatically store active data near the client, eliminating the latency of the WAN. FXT Edge filers use clustering to linearly scale performance to the level required by the application. FXT clusters reduce cost since they enable consolidating storage on high-density SATA arrays in the data center and do not require a separate complete storage system near the clients. FXT clusters are simple to manage since they automatically place data at the edge near the clients without the need to create complex data replication schedules.



### Global Access to Data

Modern enterprises are spread across the globe. Whether the clients are in the data center, at a remote office, or off in the cloud somewhere, primary applications require low-latency access to data. Avere solutions use intelligent tiering to ensure low latency across the enterprise and are typically deployed in four data access scenarios: 1) remote office to datacenter, 2) datacenter to datacenter, 3) enterprise to compute cloud, and 4) enterprise to storage cloud.

## Avere FXT Series

### Tiered File System

- Automatically places data on high-performance storage near clients
- Hide WAN latency to remote storage systems
- Block-level tiering efficiently uses WAN bandwidth
- Accelerates performance of read, write & metadata operations

### Scale-out Clustering

- Scale to 50 FXT nodes in a single NAS cluster
- Performance scales linearly to millions of ops/sec, tens of GB/sec
- Coherent, automatic balancing of load across cluster
- Adding new FXT nodes is non-disruptive and takes just minutes

### Visibility & Simplified Administration

- The UI provides rich, historical statistics & graphical monitoring
- Visibility into the entire NAS environment: servers, clients & storage
- Data movement is automatic, with no complicated replication schedules to manage
- SNMP support, XML-RPC interface, email & pager alerts

### Cloud-specific Features & Best Practices

- Enable cloud computing infrastructures by placing FXT clusters near cloud compute clients
- Enable cloud storage infrastructures by placing FXT clusters near enterprise clients (i.e. cloud users)
- Avere FXT clusters save cost by replacing costly NAS systems
- Avere clustering provides better scaling than traditional NAS



## Remote Office to Datacenter

Enterprises understand the improved economics and data protection advantages of consolidating storage and other IT functions in the datacenter. However, remote workers are a fact of life in the modern enterprise and these workers often need low-latency access to data for the primary applications they run. Avere is helping customers, like Sony Pictures Imageworks, with a cost-effective cloud solution that keeps their remote users highly productive. Sony operates a facility in Albuquerque where they deployed an FXT cluster to provide low-latency data access for a team of artists who work remotely from the primary datacenter in Los Angeles, 700 miles away. Productivity at the Albuquerque office improved by a factor of five when the FXT cluster was deployed.

## Datacenter to Datacenter

Enterprises have multiple datacenters for a variety of reasons: to take advantage of lower cost of real estate in a new geography, to implement datacenter redundancy and high availability, due to acquisitions, etc. To efficiently run multiple datacenters, enterprises must share resources between the datacenters. Avere helps sharing between datacenters by storing active data on FXT clusters near the resources that are being used. For example, one Avere customer has two datacenters in California, one in the south and one in the north. When “crunch time” comes for the datacenter in the south, rather than purchasing more compute nodes, they borrow CPU cycles on compute nodes located in the north. An Avere FXT cluster in the north automatically tiers the data being processed, hiding the WAN latency to the south and enabling resources to be shared with limited management overhead.

## Enterprise to Compute Cloud

Compute clouds are attractive since they provide “on demand” and “pay as you go” methods for deploying compute resources. Today, compute clouds are impractical for many applications due to the high latency of the WAN between the enterprise and the compute cloud. Avere enables using compute clouds for primary applications by co-locating an Avere FXT cluster with the compute cloud. One Avere customer implemented a private compute cloud at the Las Vegas SuperNAP since it was less expensive than expanding their California-based datacenter. This customer deployed a Linux compute farm with several thousand CPU cores at the SuperNAP along with an Avere FXT cluster to automatically tier and store the data that is processed.

## Enterprise to Storage Cloud

Storage clouds are attractive since they offer a cost-effective and simplified way to store mass data. Today, storage clouds are impractical for most primary applications because the high-latency WAN connection between the cloud storage and the cloud client typically results in poor performance. Avere enables storage clouds for primary applications by placing FXT cluster near the clients, whether in a datacenter, a remote office, or a cloud compute facility, to automatically tier and store the data that the client is actively using.

## Customer Quote

“Looking at the workloads at remote sites, we found the major issue to be latency. Our goal was to solve this issue of edge data access, something that we struggled with for some time. (Avere) was easy to set up and there was no worrying about replication of data – just drop in the FXT cluster, point it at the users, and that’s it. Administration is very easy. It’s done remotely from L.A., and management of the cluster is trivial.”

**Nick Bali, Sr. Software Engineer, Systems R&D, Sony Pictures Imageworks**