

*Product Brief*

# Avere Speeds and Simplifies NAS, Reigns in Sprawl

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**Abstract:** *Avere's* recently announced global namespace functionality has the potential to help organizations transform their NAS environments into efficient, flexible, extensible, high performing shared storage resources. Even remote offices are included in the equation as Avere's FXT systems can tie them in to a centrally shared NAS system while still maintaining local NAS performance. Indeed, Avere seems to be having significant success in helping consolidate NAS sprawl, speed NAS performance, reduce latency, and simplify the overall NAS environment.

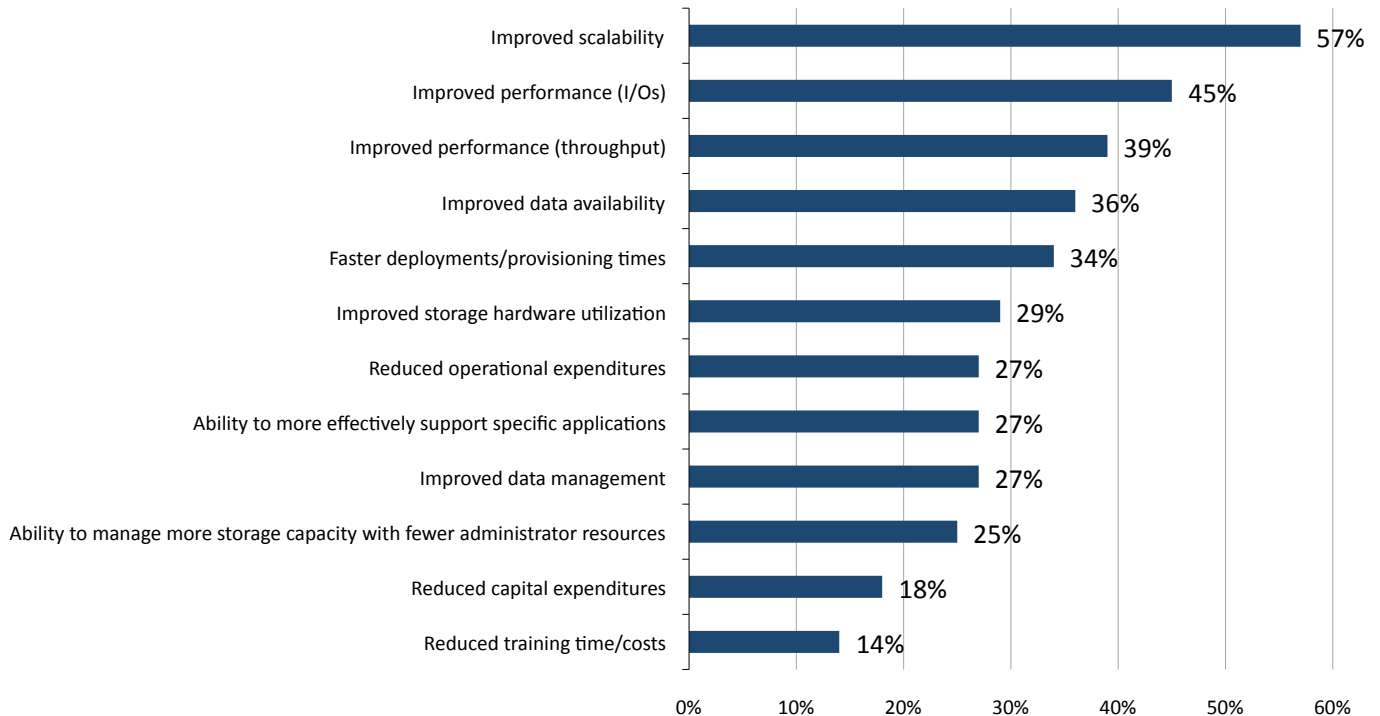
## Overview

Avere recently released new global namespace functionality for its FXT Series of scale-out NAS appliances, allowing it to knit together its clustered NAS systems into a single, virtual storage pool that will give users one mount point to map and manage. In essence, the new FXT global namespace functionality can virtualize, consolidate, and add scale-out flexibility and performance to *existing* NAS systems, significantly reducing NAS management costs and effort.

Adding scale-out capabilities to existing systems can greatly impact enterprise storage efficiency: ESG research conducted in late 2010 found that 84% of respondents are actively adopting, planning to adopt, or investigating scale-out storage, primarily for the scale, performance, and operational benefits related to better utilization, faster provisioning, and ease of use (see Figure 1).<sup>1</sup>

Figure 1. Benefits Realized from Deploying Scale-out Storage

**Which of the following benefits has your organization realized as the result of deploying scale-out storage? (Percent of respondents, N=56, multiple responses accepted)**



Source: Enterprise Strategy Group, 2011.

<sup>1</sup> Source: ESG Research Report, [Scale-out Storage Market Trends](#), December 2010.

The FXT allows performance and consolidation benefits to go well beyond the walls of corporate IT and extend to remote offices. Nodes can be deployed within the global namespace, but located at remote offices to cache data locally and reduce latency by reducing the number of round trips file data requests have to make back to the central NAS system. Avere claims some of its users are seeing a 50:1 ratio of round trip reductions—in other words, 50 out of every 51 file requests is serviced by the local storage pool, eliminating the latency associated with centralized NAS storage for remote offices and speeding cycle times for business value.

The new Avere release essentially allows IT to create a shared NAS storage pool with multiple levels of NAS services—performance scaling, latency reduction, storage cost optimization, and management and visibility—that can be offered to the business. This model is essential to IT transformation initiatives centered on cost and service optimization.

## Quick Overview of the Avere FXT Scale-out NAS Appliance

The FXT scale-out NAS appliance is a clustered NAS front-end system that sits between clients that need to access file data and their bulk storage NAS systems. This front-end does a number of things:

- **It virtualizes the back end NAS storage systems**, eliminating the need to manage multiple systems and creating a NAS storage pool that centrally houses file data. This provides tremendous flexibility as capacity can easily be allocated as needed from a central pool and managed via a single mount point. It also allows for easy retirement or upgrades of underlying systems since it insulates users from physical changes to the storage infrastructure.
- **It provides a high performing storage tier within the FXT system** to service file requests that require higher performance—critical files that are often accessed or recent working sets that tend to have a high frequency of access for the first 30 days after creation. The system automatically tiers data, putting the most active data on the Avere high performance tier and the least active data on the back-end NAS system. This means that users can increase performance and extend the useful life of their current NAS systems without a major upgrade or invest in less expensive highly dense systems as they invest in new systems.
- **It reduces latency at remote sites.** Nodes can be deployed as edge devices at remote sites to reduce latency. ESG research indicates that 35% of companies with 1,000 or more employees were planning to build one or more new data centers in 2010.<sup>2</sup> Many of these companies are centralizing IT services, creating resources that are offered back to the business which pays as they are consumed. As we all know, centralizing resources can cause other issues: in many cases, it puts more distance between where data lives and where data is consumed. Accessing data remotely can lead to latency (the time it takes from when data is requested from the remote site to when it is delivered) and slow operations. It can also add to cost, since sufficient bandwidth needs to be provisioned to support increased data traffic. Adding Avere nodes at the edge reduces round trip data requests, eliminating latency and reducing the amount of bandwidth required.
- **It simplifies NAS management and increases visibility into the NAS environment.** The global namespace in itself simplifies the environment by replacing a lot of discrete NAS systems with a single mount point to manage. It also creates one global view of the NAS environment to help provide insight into application operations, facilitating application management, troubleshooting, and chargeback activities.
- **It helps reduce costs.** Centralizing management with the global namespace, reducing bandwidth requirements for remote sites, virtualizing the underlying infrastructure to insulate users from underlying infrastructure changes which could result in downtime, and allowing IT to support the bulk of its NAS requirements with highly efficient and dense systems all nets reduced file storage costs in terms of both CAPEX and OPEX. We're all tired of hearing about the challenges of the current economic climate, but with an unstable Middle East, natural disasters in Japan, and an impending presidential election, we are not likely to see the economy turn around any time soon. Cost reduction is and will continue to be top of mind for IT execs.

The Avere FXT is an in-band system capable of optimizing a variety of NAS use cases. At its simplest, it is a read/write cache that speeds performance, reduces latency, and cost optimizes storage OPEX and CAPEX.

<sup>2</sup> Source: ESG Research Report, [Data Center Consolidation and Construction Trends](#), June 2010.

## The “Bump in the Wire” Dilemma

In-band systems often get a bum rap. Competitors and some users will call them a bump in the wire that gets in the way of getting to your data and has to be managed separately. As an in-band solution, Avere is, indeed, a bump in the wire. But it takes an innovative approach to tackling and mitigating the challenges associated with that approach.

**It is automated.** Users don't need to create LUNs and map applications that deserve faster storage and then migrate the LUNs into and out of a fast storage tier. The system does it for them: after the initial setup, which is dropping an appliance in and mapping mount points, it takes care of moving hot data in and out of the high performance tiers, taking the user out of the equation.

**It has relatively little risk involved.** Avere has multiple cache modes, allowing users to bypass or even remove it if they are unhappy with its performance. The system supports three write modes, giving users a choice in how the Avere cluster handles data written from clients.

- **Read Mode:** Read mode provides performance acceleration for read operations only, for both metadata and data. Writes are “passed through” the FXT appliance and are serviced by the back end NAS system, the write is not committed to the client until the write is acknowledged by the back end array.
- **Read/Write Mode:** Read/write mode provides performance acceleration for both reads and writes, for both data and metadata. Writeback delay can be set anywhere from (0 or) 1 second to 1 year with many settings in between. The writeback delay is the maximum time before data written by clients is written back to the back-end NAS storage system. Under Advanced Features, write through schedules can be created, which allows the admin to pick times of the day when the write data is synced to the MASS so that snapshots can be taken on the MASS for backup, mirroring, etc.

To synchronize and remove an Avere FXT system, users need only to switch to read mode; once the FXT is synced with the back-end NAS systems, it can be removed. It is a fairly seamless process. The logical mapping is maintained throughout the implementation, so there are no onerous switching processes and costs associated with removing the technology—and, hence, no fear of permanent lock-in.

Users always face tradeoffs in meeting performance and availability demands. For many systems, that means adding spindles for performance. One user that spoke to ESG described the tradeoffs he made with a conventional NAS system to meet the performance challenge: he carved off small partitions on each of more than 5,000 spindles to get massive parallelism. At the end of the day, to support the performance requirements of his organization, he was using 1.5 PB of storage capacity just to get the performance he needed to support 3 – 8 TB of active data. Not all cases are this extreme, but there are many stories of users deploying spindles and trading power, cooling, and costs to gain performance on mostly empty spindles. Against that, a bump in the wire sounds pretty harmless.

## The Bigger Truth

Calling Avere a tiered storage solution would fail to do justice to its overall value. It does indeed provide a high performance storage tier, but it also virtualizes storage and allows IT to create a real services-oriented NAS environment that allows them to quickly meet NAS requirements as they arise. Having such a flexible back-end can be of great benefit, especially in fast moving virtual server environments. Achieving all that by adding some front-end nodes rather than ripping and replacing the existing NAS environment makes it a practical and affordable approach for users facing an upgrade for performance reasons or are interested in reducing the initial investment in storage systems and buying highly dense systems with a high performance front-end that can extend beyond the four walls of IT.

There has been a lot of talk of IT transformation over the past several years. At the core of transformation are simplification, automation, and cost reduction. For storage to be a part of the IT transformation initiative, it needs to undergo its own transformation: it needs to be based on a scale-out platform, it needs to self-optimize so it tunes and reconfigures automatically to accommodate the workloads presented, and it needs re-tune as requirements change. It needs to self-heal and handle fault scenarios autonomously, remapping and rebuilding to prevent application impact. It needs to scale dynamically up or down, in or out, virtually extending to accommodate whatever workload requirements are presented with an eye on cost optimization. And it needs to self-manage and adapt to changing scenarios according to assigned policies and enforcing those policies via automation. Avere promises to bring these levels of self-management and optimization to both existing and new NAS environments, providing an ideal platform to enable transformation of the NAS layer.