



### ExaGrid Tiered Backup Storage

- Fastest Backups.
- Fastest Recoveries.
- Unparalleled, Cost-effective Scale-out.

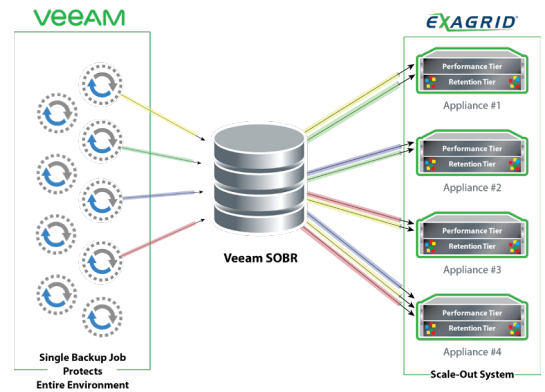
## ExaGrid and Veeam Tiered Backup Storage

### Veeam Customers Can Add ExaGrid to Improve the Storage Economics of Their Backup Environments

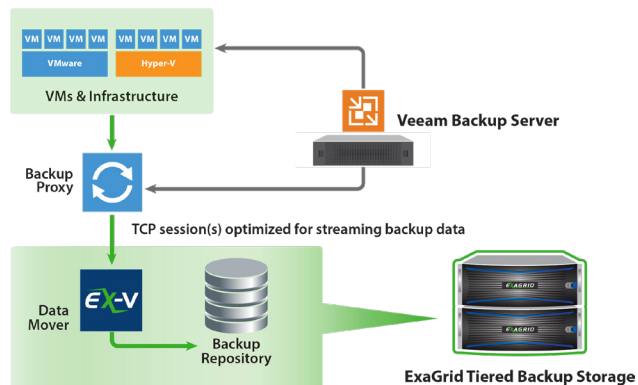
Tiered Backup Storage requires close integration between the backup software and the backup storage. Together, Veeam and ExaGrid backup storage provide a cost-effective backup solution that scales to meet the needs of demanding enterprise environments.

ExaGrid is changing the economics of Veeam backup. ExaGrid's cost-effective scale-out growth model has a lower cost up front and a lower cost over time compared to standard disk solutions and traditional deduplication storage solutions.

ExaGrid supports Veeam's Scale-Out Backup Repository (SOBR). This allows backup administrators using Veeam to direct all jobs to a single repository made up of ExaGrid shares across multiple ExaGrid appliances in a single scale-out system, automating backup job management. ExaGrid's support of SOBR also automates the addition of appliances into an existing ExaGrid system as data grows by simply adding the new appliances to a Veeam repository group.



ExaGrid appliances are fully integrated with the Veeam Data Mover. Most of Veeam's unique features such as Sure Backup, Virtual Lab, Instant VM Recovery, Copy and Replicate, and other advanced features require an unduplicated backup copy on disk. Only ExaGrid provides this backup copy due to its unique disk-cache "Landing Zone." ExaGrid includes an integrated Veeam Data Mover with each appliance called the "ExaGrid-Veeam Accelerated Data Mover."



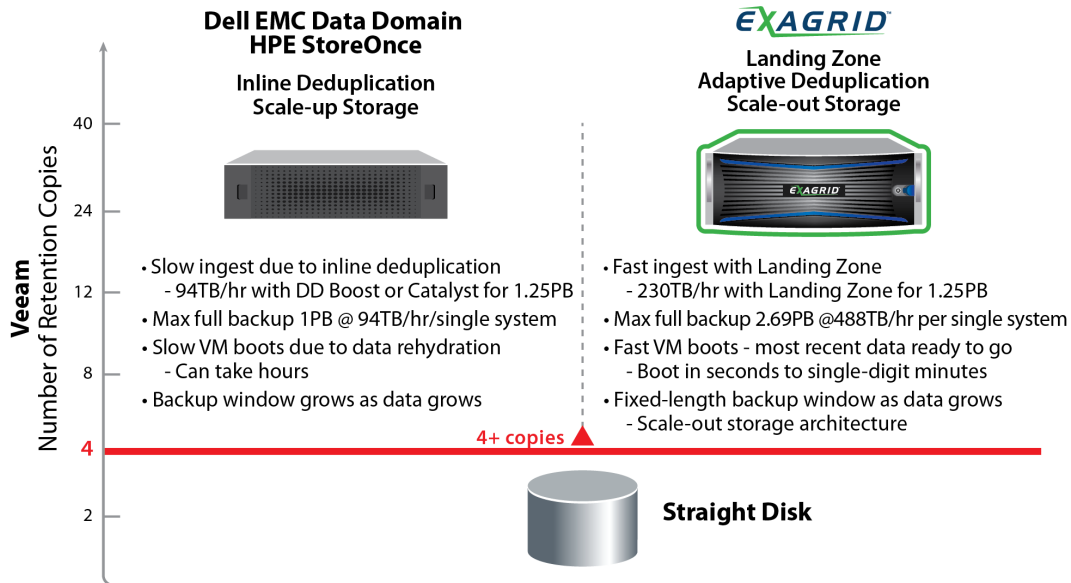
This improves all backup and restore processes and also allows a synthetic full to be created directly on the ExaGrid system for increased performance. ExaGrid can create and restore a synthetic full faster than any other solution.

The combination of Veeam SOBR and ExaGrid's appliances in a scale-out system creates a tightly integrated end-to-end backup solution that allows backup administrators to leverage the advantages of a scale-out approach in both the backup application as well as the backup storage.

The combination of Veeam backups to the ExaGrid Landing Zone, the integrated ExaGrid-Veeam Accelerated Data Mover, and ExaGrid's support of Veeam SOBR is the most tightly integrated solution on the market for a scale-out backup application to scale-out backup storage.

## When to Use Standard Disk vs. Dedicated Backup Appliance with Veeam

Veeam backs up to disk and uses changed block tracking, which will achieve a 2:1 deduplication ratio. For low retention requirements (less than four copies), standard disk is the least expensive. However, when an organization requires four copies or more of retention, standard disk solutions become cost prohibitive. ExaGrid appliances provide deduplication of up to 20:1, dramatically reducing storage requirements. With its scale-out architecture, ExaGrid is the only solution able to globally deduplicate data across all appliances within an organization – up to 2.69PB of full backups.



## Is storage the only consideration? No – performance matters.

ExaGrid Tiered Backup Storage avoids the typical downfalls associated with deduplication solutions: backup, restore, and replication performance issues. Because backups and restores are performed on the Landing Zone, inline processing and rehydration are avoided, and the highest possible performance is ensured. ExaGrid is 3x faster for backup and up to 20x faster for restores than any other deduplication appliance solution.

## How does ExaGrid achieve the fastest backups, shortest backup window, and offsite replication to meet RPOs?

ExaGrid enables organizations to meet their backup windows and ensures that critical data is replicated offsite within the Recovery Point Objective (RPO) using “Adaptive Deduplication Machine Learning Technology” and the Landing Zone performance tier. Data deduplication is highly compute intensive, so when performed during the backup window, it slows down ingest performance, lengthening the backup window and delaying replication. The result: missed RPOs.

ExaGrid's disk-cache Landing Zone enables backups to be written directly to disk so that the data deduplication process doesn't impact backup ingestion. Because ExaGrid provides not just storage, but also compute, memory, and replication management technology, during ingestion, Adaptive Deduplication is able to monitor ingest rates and resource consumption. Adaptive Deduplication identifies when to perform deduplication processing and data replication during the backup cycle; it will deduplicate and replicate data to the disaster recovery (DR) site during the backup window (in parallel with the backups) but not inline between the backup application and the disk. Should a new backup or in-progress backup require additional compute or memory, Adaptive Deduplication will adjust deduplication and replication processing to dynamically meet the highest priority needs of the environment.

This unique combination of a disk-cache Landing Zone with Adaptive Deduplication provides the fastest backup performance, resulting in the shortest backup window as well as a strong disaster recovery point (RPO).

## What about Restore Performance?

ExaGrid is the only solution with deduplication that performs as well for restores as straight disk solutions. How do we achieve this? The Landing Zone: the performance tier of the ExaGrid appliance. ExaGrid stores the most recent backup copies in native Veeam format, undeduplicated in the Landing Zone. This allows VM boots to occur in seconds to single-digit minutes versus hours for solutions that only store deduplicated data.

## How does ExaGrid achieve the industry's fastest restores, VM boots, and offsite tape copies?

Ninety-five percent or more of restores, VM boots, and offsite tape copies come from the most recent backup, so keeping the most recent backup in only deduplicated form will require a compute-intensive, time-consuming data "rehydration" process that will slow down restores. VM boots can take hours from deduplicated data. Since ExaGrid writes directly to the disk-cache Landing Zone, the most recent backups are kept in their full, undeduplicated, native form. All restores, VM boots, and offsite tape copies are disk-read fast as the overhead of the data rehydration process is avoided.

ExaGrid provides the data for a VM boot in seconds to single-digit minutes versus the hours it takes for inline data deduplication backup storage appliances that only store deduplicated data. ExaGrid maintains all long-term retention in a deduplicated format in a repository, the retention tier, for storage efficiency.

ExaGrid provides the best of both worlds by offering low-cost disk for the fastest backup and restore performance along with a tiered deduplicated data repository for the lowest cost retention storage. The scale-out storage architecture provides a fixed-length backup window and low cost up front and over time. ExaGrid is the only solution that offers deduplication as well as with these combined benefits in a single product.

## What about data growth? Will ExaGrid customers need a forklift upgrade?

No forklift upgrades or abandoned storage here. ExaGrid appliances are simply added to a scale-out system for easy backup storage growth as data grows. Since each appliance includes all compute, networking and storage, resources are extended with each added appliance – as data grows, the backup window stays fixed length.

Traditional deduplication storage appliances utilize a "scale-up" storage approach with a fixed resource front-end controller and disk shelves. As data grows, they only add storage capacity. Because the compute, processor, and memory are all fixed, as data grows, so does the time it takes to deduplicate the growing data until the backup window is so long that the front-end controller has to be upgraded (called a "forklift" upgrade) to a larger/faster controller which is disruptive and costly.

With ExaGrid, expensive forklift upgrades are avoided, and the aggravation of chasing a growing backup window is eliminated.

## ExaGrid Enables Your Favorite Veeam Features

With ExaGrid and Veeam, you can:

- Boot a VM from the backup storage system when the primary VM environment is offline
- Perform audits or Sure Backups to prove to an internal or external audit team that VMs can be booted or restored in the case of a failure
- Take advantage of Virtual Lab for testing
- Create a synthetic full on a regular basis in order to ensure reliable full backup restores; integration of the ExaGrid-Veeam Accelerated Data Mover with ExaGrid's landing zone provides synthetic fulls that are 6X faster
- Boot VMs on the backup system to test patch, configuration, and other updates before rolling out to the production environment
- Maximize ExaGrid's full support of SOBR