

# ExaGrid

Stress-free backup storage



**EXAGRID**® | Stress-free  
backup storage

[www.exagrid.com](http://www.exagrid.com)

# About ExaGrid

## Established in 2002

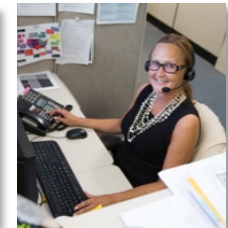
- Largest independent vendor in the space

## 100% focused on disk-based backup

- Highly differentiated architecture
- Winner of the most industry awards

## Large customer base

- Over 10,000 systems installed — worldwide
- Over 350 published customer success stories
  - More than all other vendors combined



**Gartner**



**INFO~TECH**  
research group



# Backup Requirements

- Support for leading backup apps, dumps & utilities
- Easy to use and manage
- Fastest backups for the shortest backup window
- Fastest local restores
- Instant recoveries – just boot a VM
- Fastest offsite tape copies
- Fixed length backup window as data grows
- Best RPO and RTO from a site disaster
- Lowest cost up front and over time

# Why Disk and Why Deduplication?

## Why Disk?

- Faster backups and restores
- More reliable backups and restores
- Improved security
- Less management time

## Why Deduplication?

- Disk becomes expensive due to history/retention
- Backup can retain 10 to 100 times the primary storage
- The amount of disk required needs to be reduced
- Deduplication reduces the amount of disk by storing only unique bytes or blocks

# With Deduplication, Implementation Matters

## Deduplication

- Is a required feature that reduces the amount of disk
- Depending on implementation, deduplication can break backup

## If deduplication is not implemented correctly, then

- Backups will be slower
- Restores will be slower
- Instant VM recoveries will take hours
- Offsite tape copies could take days
- The backup window will grow in length as data grows
- Disk usage can grow faster for some more than others
- The bandwidth to replicate offsite could be greater
- There will be expensive future forklift upgrades

# Disk Backup with Deduplication

## Architectural Approaches

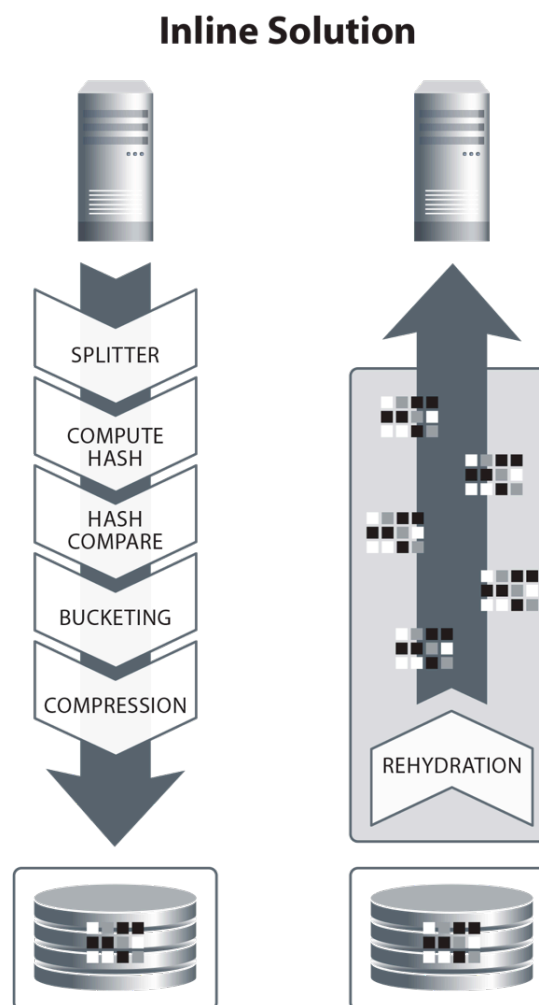
- Deduplication in the backup software to straight disk
- Inline deduplication with scale-up
  - Target-side appliances
- Landing zone with scale-out

# Challenges of Traditional Inline Deduplication

- Slows backup down due to compute-intensive inline process
- Data is 100% deduplicated on disk which slows down all requests due to data rehydration time
- Backup window grows as data grows since only disk capacity is added

Backup software has a lower deduplication rate, resulting in:

- More storage
- More bandwidth



# ExaGrid – A Better Way!

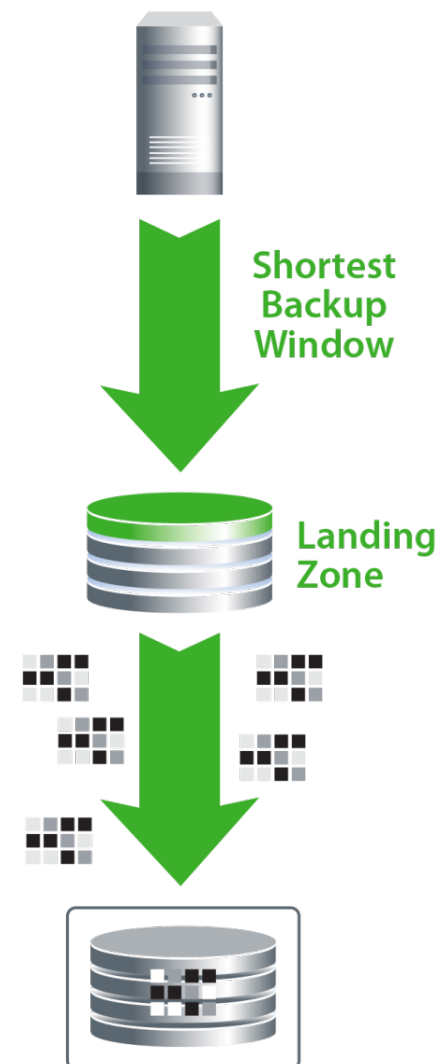
## Unique Architecture

- Front-end landing zone
- Most recent backups in full form ready to restore
- Adaptive deduplication
  - Occurs in parallel
- Global deduplication
  - Deduplicates across all NAS shares and all appliances in a GRID
- Scale-out
  - Full appliances in a GRID

## ExaGrid Solves the Problems

- Fastest backups
- Fastest: restores, instant recoveries & tape copies
- Fixed length backup window as data grows
- Eliminates obsolescence and forklift upgrades

## ExaGrid's Solution



# Works with Leading Backup Apps and Utilities

## Backup Applications



## Applications Direct

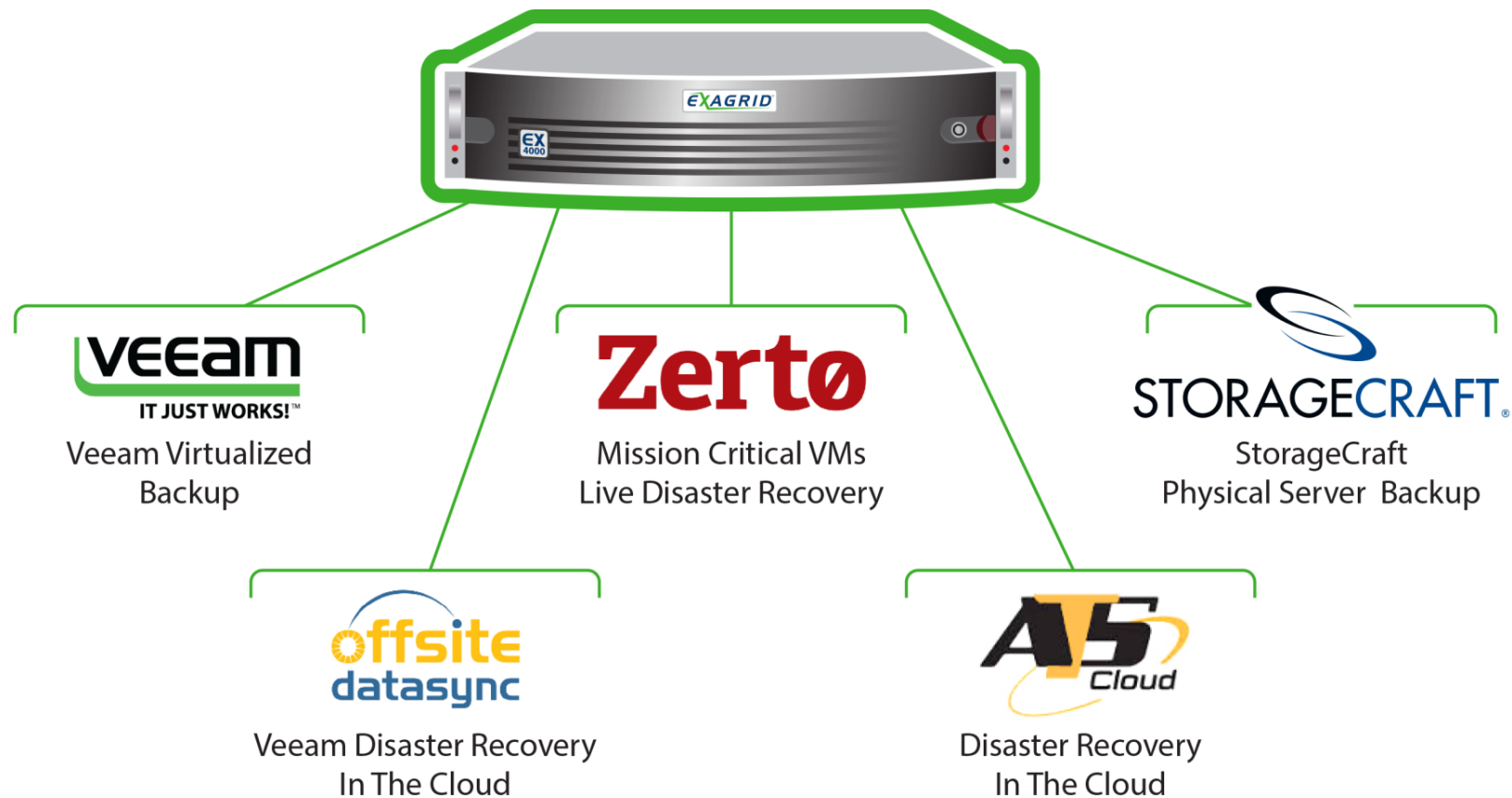


## Linux/Unix Direct Tar

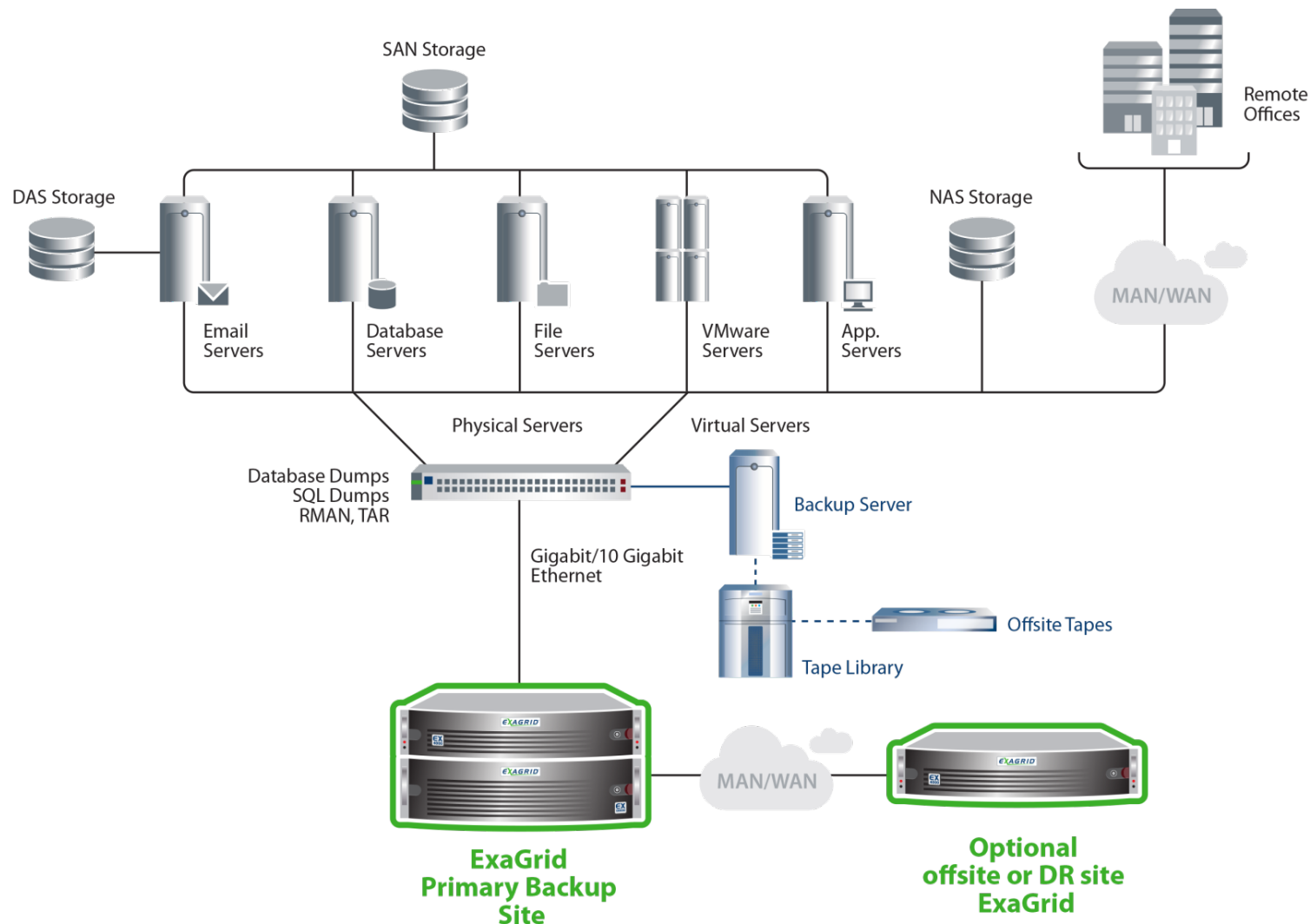


**EXAGRID**™

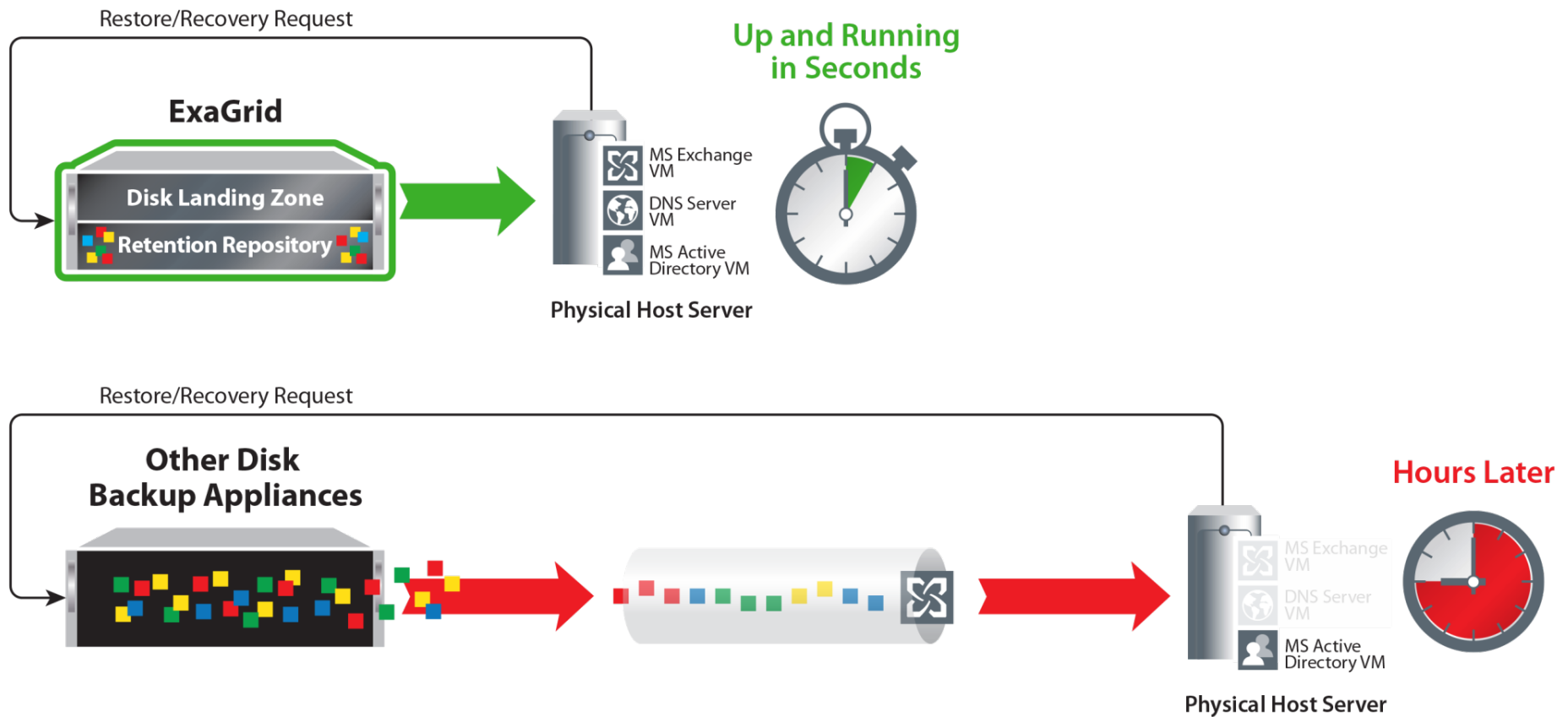
## ExaGrid – Ecosystem Partners



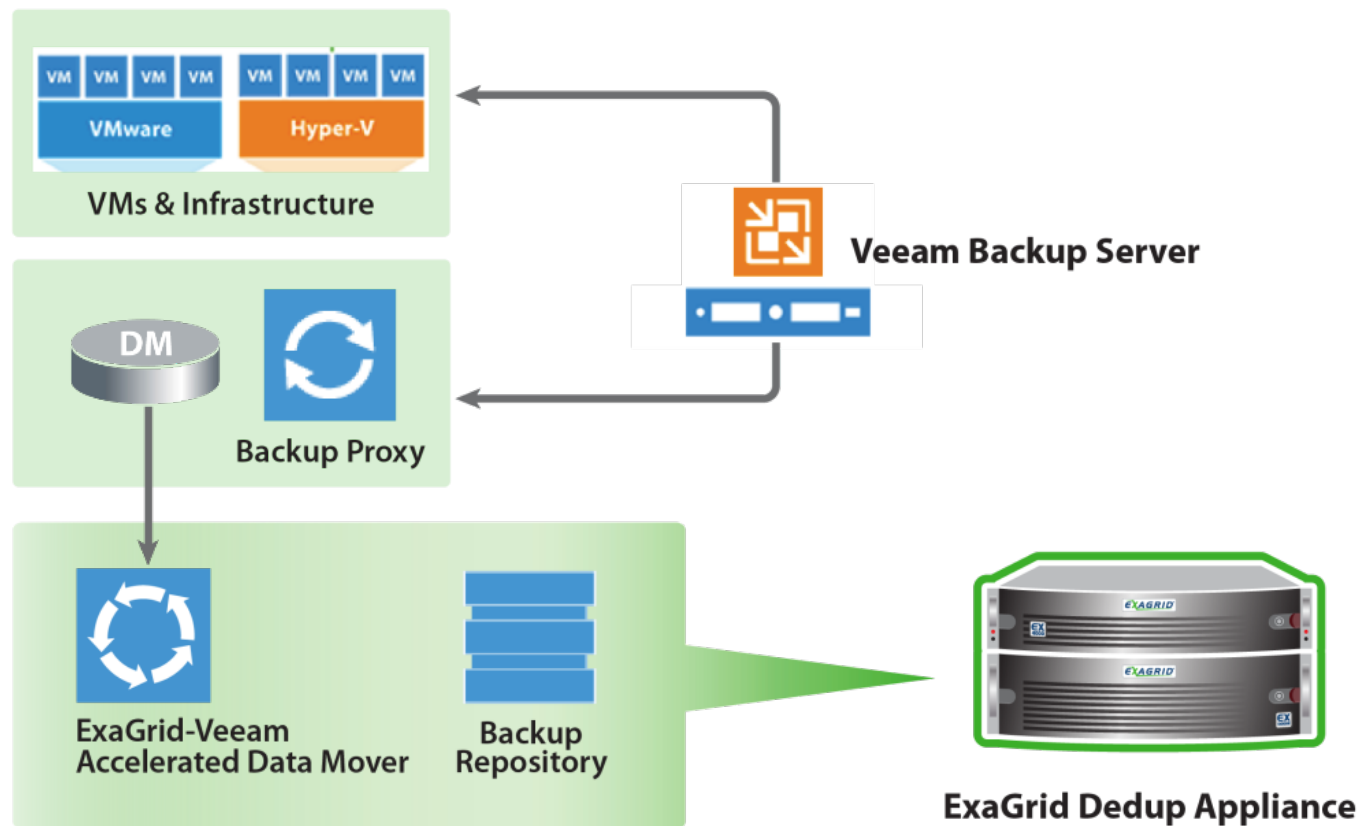
# ExaGrid – Simple and Flexible



# Fastest Restores and Recoveries



# ExaGrid-Veeam Accelerated Data Mover



# ExaGrid-Veeam Accelerated Data Mover

## Veeam-to-Veeam Communications – Faster Than CIFS

### With the Landing Zone Further Improves Performance for:

- Restores
- Instant VM recoveries – boot a VM in seconds to minutes
- Tape copy
- Sure Backup integrity check
- Virtual Lab
- Veeam backup copy and replication

## Synthetic Full Backups on the ExaGrid

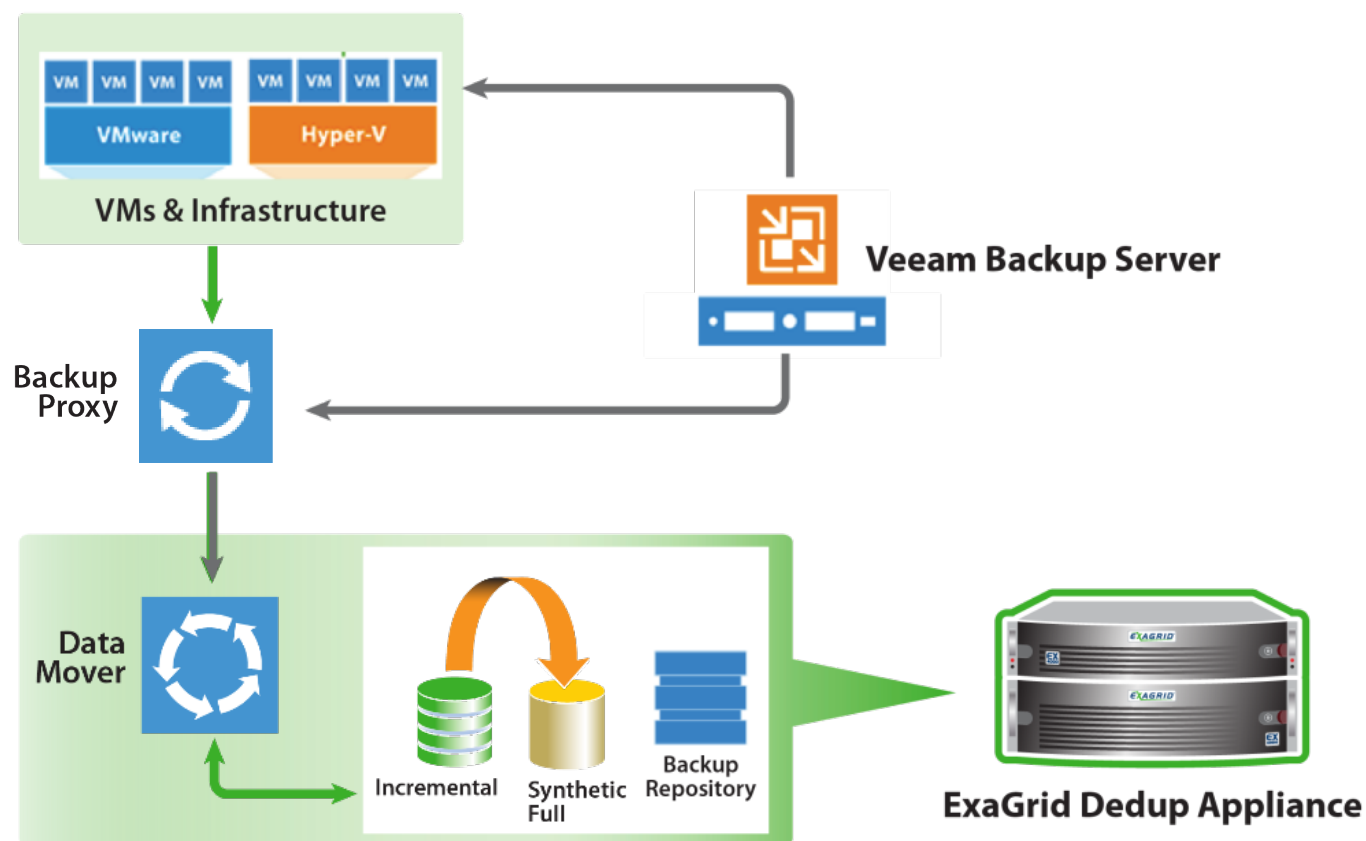
- Eliminates Veeam backup server overhead and network traffic

## Improved Copy and Replication Updates Veeam with Offsite Data

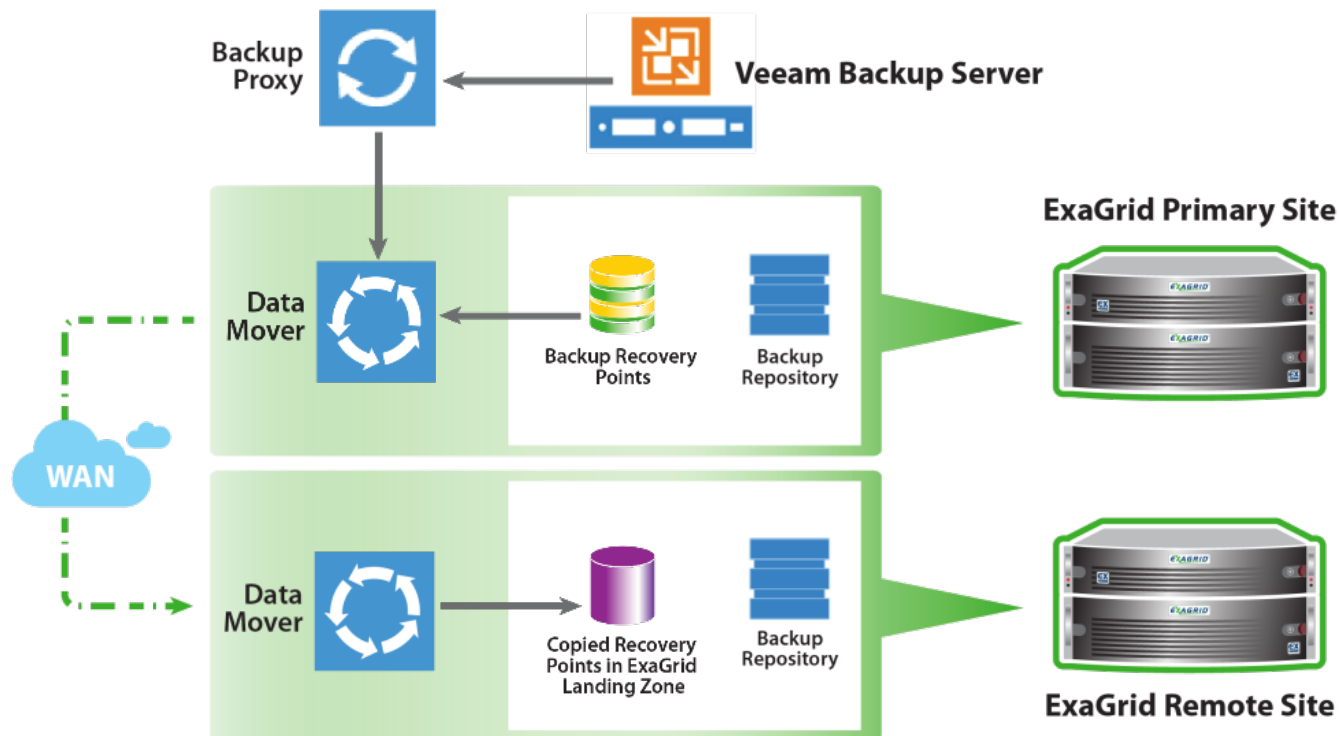
## ExaGrid Repository

- ExaGrid deduplication is in addition to Veeam deduplication
- Allows for longer-term retention

## Synthetic full dataflow illustrated

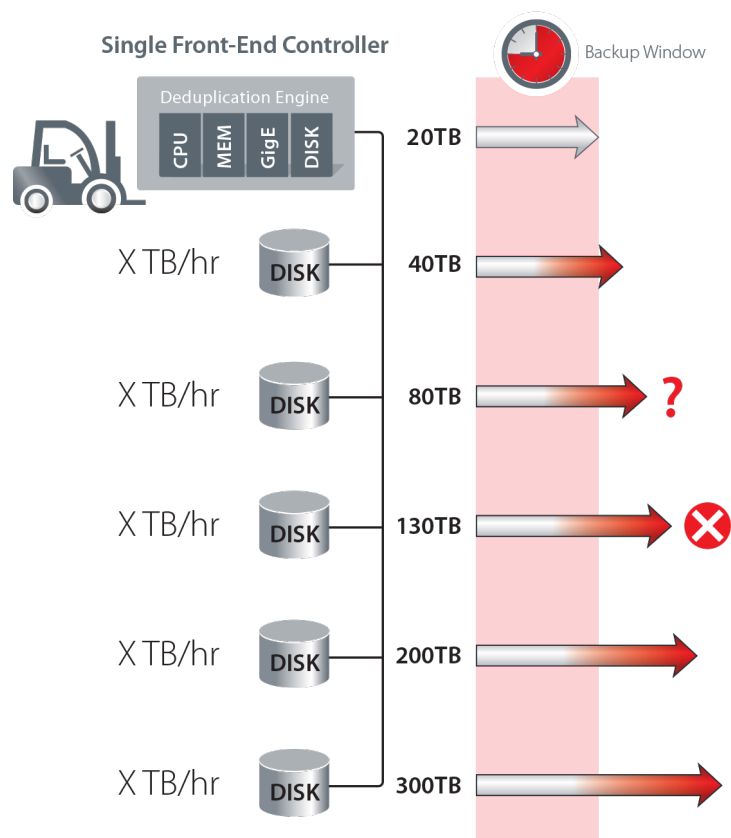


## Veeam cross-site copy job dataflow (no WAN acceleration)

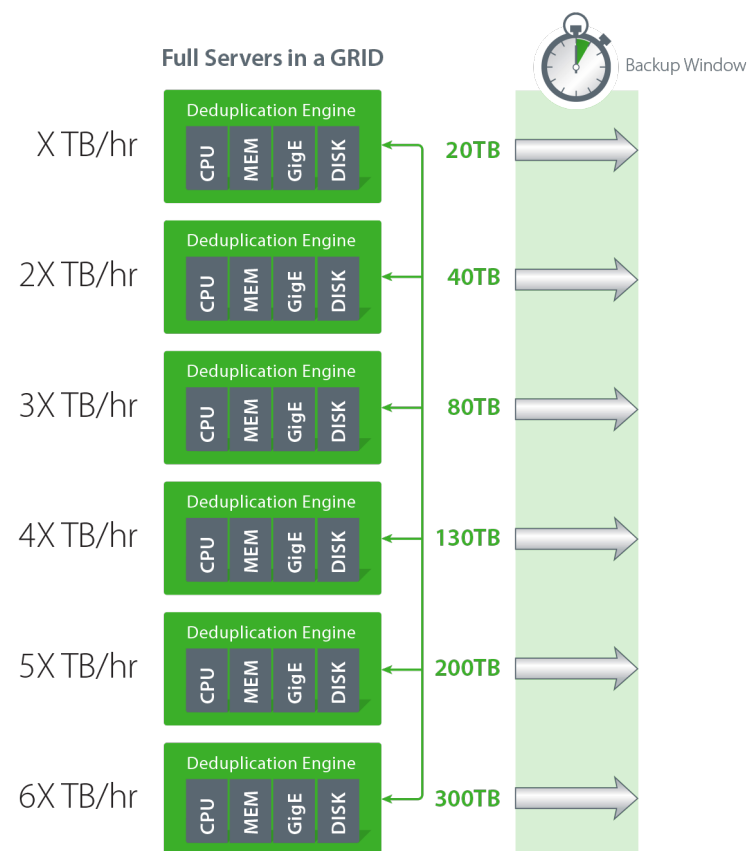


# Fixed Length Backup Window

## Scale-Up Architecture



## ExaGrid Scale-Out GRID Architecture

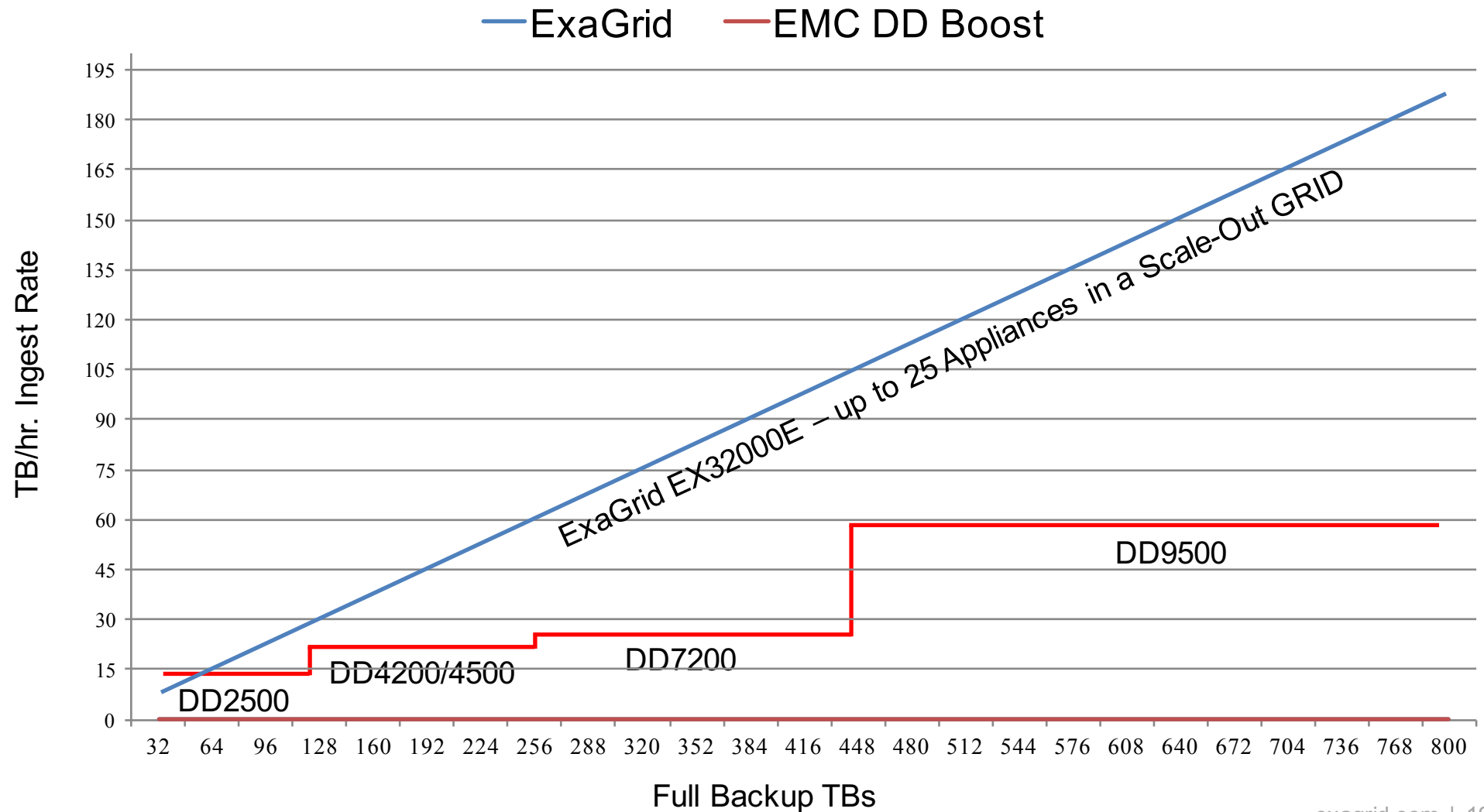


# ExaGrid Appliances

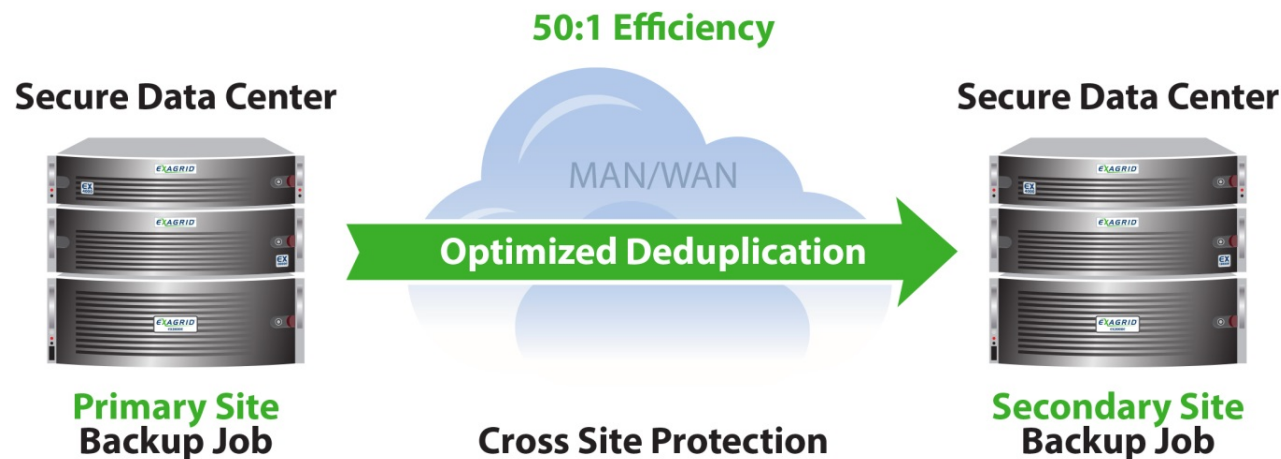
## 25 Appliances to a Scale-Out GRID (800TB Full Backup)

ExaGrid Model	Raw Capacity (TB)	Usable Capacity (TB)	Capacity for Weekly Fulls (TB)	Capacity for 16 Weekly Fulls (TB)	Max Backup Throughput (TB/hr)
ExaGrid Appliance Nodes					
EX1000	5	2	1	16	0.36
EX2000	7	4	2	32	0.36
EX3000	9	6	3	48	0.72
EX4000	11	8	4	64	1.08
EX5000	16	10	5	80	1.08
EX7000	20	14	7	112	2.40
EX10000E	26	20	10	160	2.40
EX13000E	32	26	13	208	2.40
EX21000E	48	42	21	336	4.32
EX32000E	72	63	32	512	7.56
ExaGrid Appliance Nodes with Encryption					
EX7000-SEC	20	14	7	112	2.40
EX10000E-SEC	26	20	10	160	2.40
EX13000E-SEC	32	26	13	208	2.40
EX21000E-SEC	48	42	21	336	4.32
EX32000E-SEC	72	63	32	512	7.56

# Scale-Out versus Scale-Up Backup Storage

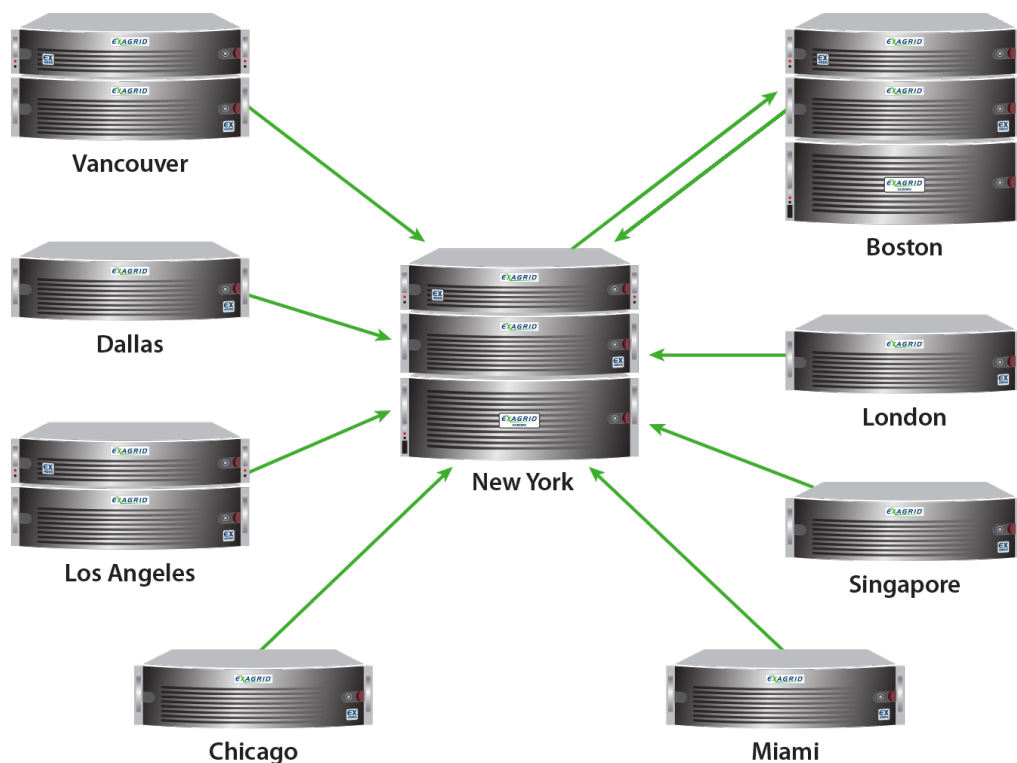


# Onsite and Offsite Tape Replacement



- Adaptive deduplication deduplicates and replicates in parallel with backups for an up-to-date recovery point
- WAN efficiency of 50:1 (2% data change rate)
- Configure the disaster recovery site to all repository to save cost
- Bandwidth throttle – set times of day and Mbps limit
- WAN encryption for data replication

# Multi-site Data Center Disk Backup Topology



## Multi-site Architecture

- 50:1 WAN efficiency across all sites
- Management from single UI
- Cross-site protection between sites
- Consolidated DR copies of backup reduces costs

# ExaGrid / Stress-free Backup Storage



## Shortest Backup Window

- Back up straight to a landing zone
- Perform Adaptive Deduplication in parallel
- Bring landing zone and bandwidth with every appliance

## Fixed Length Backup Window as Data Grows

- Full appliances in a GRID – scale-out architecture

## Fastest Restores, Recoveries and Tape Copies

- Most recent backups in full undeduplicated form

## Lowest Cost for Backup Storage

- No product obsolescence
  - Mix and match any size or age appliance in the GRID
- No forklift upgrades as the backup window is fixed length
- Maintenance & Support includes all options – no hidden costs

## ExaGrid / Stress-free backup storage



*Thank You!*

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