

Differentiating between the Dell EMC Data Domain and ExaGrid EX Systems

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The Dell EMC Data Domain and ExaGrid families of deduplication backup target appliances appear on the short lists for many enterprises. While both of these providers offer systems for small, midsize, and large organizations, the underlying architecture and features on the systems from these two providers make them better suited for specific use cases. Their respective data center efficiency, deduplication, networking, recoverability, replication, and scalability features (*to include recently announced enhancements*) provide insight into the best use cases for the systems from these two vendors.

PRODUCT

Dell EMC Data Domain Systems

URL ► <https://www.dell.com/en-us/data-protection/data-domain.htm>

Dell EMC
176 South St, Hopkinton, MA 01748
(866) 438-3622 | sales@emc.com

PRODUCT

ExaGrid EX Systems

URL ► <http://www.exagrid.com/exagrid-products/product-line/>

ExaGrid
2000 West Park Drive
Westborough, MA 01581
(800) 868-6985 | SalesRequest@exagrid.com

SUMMARY COMPARISON

Dell EMC Data Domain's Advantages

- Flexible deduplication options
- Networking protocols
- Replication

ExaGrid's Advantages

- Data center efficiency
- Recoverability
- Scalability

Dell EMC Data Domain and ExaGrid EX Systems: Commonality

Purpose-built, deduplication systems from both Dell EMC Data Domain and ExaGrid have widespread appeal as they expedite backups, increase backup and recovery success rates, and simplify existing backup environments. Offering appliances in various physical configurations, these systems meet the specific backup needs of small, midsize, and large enterprises while providing virtual appliances that can run in private clouds, public clouds, or virtualized remote and branch offices.

Their systems significantly reduce backup data stores and offer concurrent backup and replication. They also limit the number of backup streams, display real-time deduplication ratios, and do capacity analysis and trending.

Six Key Differentiators between Data Domain and ExaGrid EX Systems

Despite the similarities that the systems from these respective vendors share, six key differences exist between them in their underlying features.

DATA CENTER EFFICIENCY

ADVANTAGE ► ExaGrid

Power consumption and the size of the data center footprint consumed by appliances matter more than ever in today's

cost and space conscious data centers. Systems from both providers utilize highly efficient deduplication algorithms so they consume similar amounts of rack space (2U-4U) for a given amount of capacity. However, the different approaches to deduplication used by these two product lines heavily influence their systems' power consumption. Data Domain's systems consume anywhere from 2x-3x more power and generate 2x-4x more heat than comparable ExaGrid systems (*adaptive deduplication*).

DEDUPLICATION

ADVANTAGE ► Data Domain

Data Domain deduplicates data inline and offers a software option, DD Boost, that gives organizations the flexibility to deduplicate data on master and/or media servers as well as on clients. This software reduces processing overhead from the Data Domain systems and reduces the amount of backup data sent over the network. ExaGrid deduplicates data only after the data lands on its systems.

NETWORKING PROTOCOLS

ADVANTAGE ► Data Domain

Systems from both providers got their start in the midmarket using common NAS protocols (CIFS/SMB and/or NFS.) Since then, their systems have increased their port counts to offer more networking ports to handle larger enterprise workloads. Of the two providers, only Data Domain has added Fibre Channel (FC) connectivity to its systems.

RECOVERABILITY

ADVANTAGE ► ExaGrid

ExaGrid’s systems use a landing zone that keeps backup data in its native format prior to deduplicating it using ExaGrid’s Adaptive Deduplication technology. Retaining recent, complete backups in their native format contributes to faster restores, recoveries, and virtual machine (VM) boots. Data Domain systems deduplicate all data either on the data’s way to its systems or immediately as the data arrives. Data Domain systems do not by default keep any backup data in its native format.

REPLICATION

ADVANTAGE ► Data Domain

Enterprises have three primary replication requirements: replicate data from multiple remote offices back to the home office; replicate data from the home office to the cloud or an offsite location; and, replicate data from a central office to multiple remote offices. Only Data Domain fulfills all three replication scenarios though ExaGrid plans to add support replication from a central office out to multiple remote offices in the very near future.

SCALABILITY

ADVANTAGE ► ExaGrid

Data Domain is a “scale-up” architecture. Data Domain systems have one or two controllers in front of their backend capacity. One adds more capacity by attaching more storage shelves behind the controller head(s). Each model has a fixed upper limit as to the amounts of capacity it can support. Upper-end Data Domain systems also support a “data-less head” option. This frees the enterprise to replace existing controller heads with more powerful heads. Its largest DD9800 system can optimally scale to 1PB of usable, on-premises capacity and achieve 68TB/hour of throughput.

ExaGrid is a “scale-out” architecture. Each ExaGrid system comes individually preconfigured with CPU, memory, network connectivity, and storage. Adding an ExaGrid EX system to its scale-out GRID architecture adds capacity while linearly scaling backup throughput. An ExaGrid GRID can scale up to 32 systems in one logical configuration. Organizations may add or remove any ExaGrid EX system from an ExaGrid GRID at any time without downtime. ExaGrid’s largest EX63000E system can optimally scale to ~4PB of usable, on-premises capacity and achieve 432TB/hour of throughput. ■

Comparison of Dell EMC Data Domain and ExaGrid EX Systems

FEATURE		Dell EMC Data Domain Systems	ExaGrid EX Systems
Architecture	Data-less Heads	✓	●
	High Availability	✓	✓
	Landing Zone	●	✓
	Scale-up	✓	●
	Scale-out	●	✓
	Cloud Data Retention	✓	✓
	Optional Virtual Appliance	✓	✓
Deduplication	Adaptive	●	✓
	Inline	✓	●
	Algorithms	Variable Length Block	Zone Stamps Byte-level Compares

✓ SUPPORTED ● UNDETERMINED / UNSUPPORTED

Comparison of Dell EMC Data Domain and ExaGrid EX Systems

FEATURE		Dell EMC Data Domain Systems	ExaGrid EX Systems	
Replication	<i>Periodic asynchronous replication</i>	✓	✓	
	<i>Fan-in/Fan-out</i>	1:1	✓	✓
		1:N	✓	●
		1:N:N	✓	●
		N:1	✓	✓
Cloud Options	<i>Hybrid Cloud</i>	✓	✓	
	<i>WAN Acceleration to Cloud</i>	✓	✓	
	<i>VM Running in Public Cloud</i>	●	✓	
Management/ Monitoring	<i>Concurrent Backup & Restore</i>	✓	✓	
	<i>Limit Backup Streams</i>	✓	✓	
	<i>Real-time Deduplication Ratio</i>	✓	✓	
	<i>Threshold Alerts</i>	✓	✓	
	<i>Internal Capacity Alerts</i>	✓	✓	
	<i>Forecasted Capacity Reporting</i>	✓	✓	
	<i>Networking Port Configuration</i>	✓	✓	
	<i>Bandwidth Throttling</i>	✓	✓	
	<i>Data Integrity Verification</i>	✓	✓	
Software (Included)	<i>VTL Interface</i>	Optional	●	
	<i>NAS CIFS</i>	✓	✓	
	<i>NAS NFS</i>	✓	✓	
	<i>Veritas OST</i>	✓	✓	
	<i>Veeam Data Mover</i>	●	✓	
	<i>DD Boost</i>	✓	●	
	<i>Offsite Replication for Disaster Recovery</i>	Optional	✓	
	<i>Encryption at Rest</i>	Optional	Optional	
	<i>Natively Create Tape Copies</i>	✓	✓	
Hardware Warranty	<i>Standard</i>	1 Year	90 Days	

✓ SUPPORTED ● UNDETERMINED / UNSUPPORTED

Comparison of Dell EMC Data Domain and ExaGrid EX Systems

FEATURE	Dell EMC Data Domain Systems		ExaGrid EX Systems		
	DD2200	DD9800	EX3000	EX63000E	
Data Center Efficiency	<i>BTUs Per Unit (Max)</i>	1,662 BTU/hr	6,188 BTU/hr	751 BTU/hr	1,705 BTU/hr
	<i>Watts Per Unit (Max)</i>	487W	1887W	220W	500W
	<i>Rack Units Required</i>	2U	4U	2U	4U
Ingest/Throughput Rates	<i>Concurrent Backup Streams (Min/Max)</i>	60/60	1080/1080	20/640*	20/640*
	<i>Native Single Node (Max)</i>	3.8TB/hr	31TB/hr	.72TB/hr	13.5TB/hr
	<i>Native Fully Configured (Max)</i>	3.8TB/hr	31TB/hr	23TB/hr*	432TB/hr*
	<i>With Accelerator (DD Boost, OST) (Max)</i>	4.7TB/hr	68TB/hr	23TB/hr*	432TB/hr*
On-Premises Capacity	<i>Usable Storage - Single Node/Shelf (Max)</i>	~17.2TB	32TB	6TB	126TB
	<i>Usable Storage - Fully Scaled (Max)</i>	~17.2TB	1000TB	192TB*	4032TB*
Hardware	<i># Controllers (Min/Max)</i>	1/1	1/2	1/32	1/32
	<i># of CPUs</i>	Intel XEON	Intel XEON	1/32	2/64
	<i># of Processor Cores</i>	Not Published	Not Published	4/128	8/256 Hyperthreaded
	<i>DRAM Cache (GB) (Min/Max)</i>	16/16	640/640	8/256**	128/4096*
	<i>SAS HDDs</i>	☑	☑	●	☑
	<i>SATA HDDs</i>	●	☑	☑	☑
	<i>SSDs</i>	●	☑	●	●
	<i>Self-Encrypting Drives</i>	●	●	●	☑
Protocols	<i>FC</i>	☑	☑	●	●
	<i>iSCSI</i>	●	●	●	●
	<i>CIFS/SMB</i>	●	●	☑	☑
	<i>NFS</i>	☑	☑	☑	☑
Network Connectivity	<i>Ethernet Ports 1/10/40GbE (Max)</i>	8/8/0	8/16/0	4/2/0 128/64/0*	4/2/2 128/64/64*
	<i>FC Ports 8/16 (Max)</i>	4/0	2/8	●	●

*Scaled out to its largest 32 system configuration using all the same models.

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