

# DELL EMC XTREMIO X2: NEXT-GENERATION ALL-FLASH ARRAY

## ESSENTIALS

### Performance and Efficiency

- Predictable and consistent high performance with low sub-millisecond latency
- 4 to 20 times data reduction using inline deduplication and compression, XtremIO Virtual Copies, and thin provisioning
- Consumer simplicity with enterprise capabilities
- Ease of use—nothing to configure or tune

### Applications

- Exceed the toughest SLAs for virtualized workloads
- Enable near real-time copies of production datasets
- Provide self-service operations for infrastructure and application teams
- Gain two times more XtremIO Virtual Copies

### Business

- Enables unique copy data management capabilities to unlock business agility through improved workflows
- Reduces costs by one third and provides smaller, incremental scaling options
- Provides two times longer storage product lifecycles than traditional arrays

## Realizing new levels of efficiency, performance, and TCO

Dell EMC XtremIO is a market-leading purpose-built all-flash array that offers consistently high performance with low latency; unmatched storage efficiency with inline, all-the-time data services; rich application integrated copy services; and unprecedented management simplicity.

The next-generation platform, XtremIO X2, builds upon unique features of XtremIO to provide even more agility and simplicity for your data center and business. Content-aware, in-memory metadata and inline, all-the-time data services have made XtremIO the ultimate platform for virtual server and desktop environments and workloads that benefit from efficient copy data management.

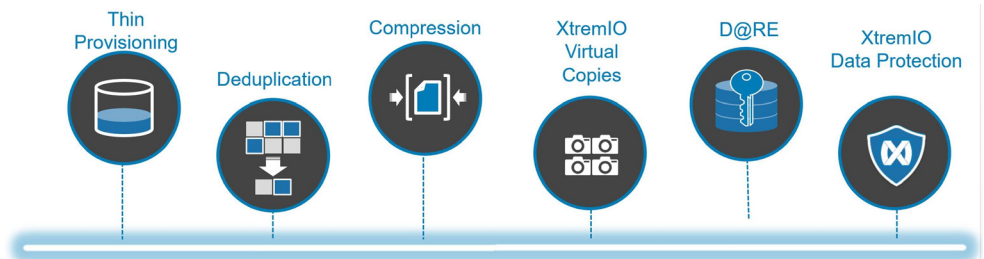
XtremIO X2 includes many enhancements and new features. Highlights include:

- Enhanced Integrated Copy Data Management (iCDM)
- Multi-dimensional scaling
- Elegant software driven performance improvements
- Dramatically lower TCO with efficiency guarantees

## Dell EMC XtremIO X2: Differentiated Architecture

X2 hardware and XIOS 6.0 innovative software greatly improve performance including up to 80 percent faster response times and support for up to 40 percent more concurrent users for VDI than the previous generation. The architecture offers two times faster VMware storage operations with a single X2 X-Brick offering up to 40 GB/s bandwidth.

X2 includes inline, all-the-time data services: thin provisioning, deduplication, compression, D@RE, XtremIO virtual copies (XVC), and double SSD failure protection with zero performance impact. Only XtremIO's unique in-memory metadata architecture can accomplish this feat.



XtremIO Inline Data Services

## ESSENTIALS

### Multi-Dimensional Scale

- Up to 8 X-Bricks per cluster
- Consistent, predictable sub-millisecond latency
- Non-disruptive, granular scaling

### In-Memory, All-the-Time Data Services

- Automatic thin provisioning
- Global in-line deduplication and compression
- Flash-optimized XtremIO data protection
- Data-at-rest encryption
- Agile, space-efficient data copies via XVC

### Integrated Copy Data Management

- Leverages XVC and consistent, predictable performance with data services
- Creates operational efficiency and agility for Dev/Test, analytics, and data protection workloads
- Integrates with business applications to create automated storage management workflows
- Enables self-service models for DBAs and application owners

Volumes are always thin-provisioned. XtremIO's in-memory deduplication is global—across the entire XtremIO cluster irrespective of the number of X-Bricks in a cluster. This means that XtremIO only writes unique data—data that the entire cluster didn't see in its I/O history—to the SSDs. This inline deduplication not only saves significant capacity but can also improve performance. Inline compression also adds to XtremIO's data reduction efficiencies.

XtremIO Virtual Copies helps provision and deploy space-efficient, instant virtual data copies without impacting system performance. Compared to legacy arrays, X2 enables average savings of 4 to 20 times of the amount of physical capacity needed thanks to all of these data reduction methods.

XtremIO has developed a flash-based data protection algorithm that offers better than RAID 1 performance with better than RAID 5 capacity savings and protection comparable to RAID 6. It provides dual parity with as little as 10 percent capacity overhead. In addition, all of the inline, always-on data services are included with the platform at no additional charge.

X2 provides consistent performance for all block sizes and all read/write mixes throughout the lifecycle of the array. And iCDM capabilities enable you to create, refresh, and restore thousands of production copies, and run workloads on them, without performance impact or any storage overhead—accelerating business agility.

### Integrated Copy Data Management

XtremIO pioneered the concept of iCDM—the ability to consolidate both primary data and its associated copies on a scalable all-flash array for unprecedented agility and efficiency. iCDM offers application integration, orchestration, and self-service for all copies. With XVC, you can provision copies that are immediately usable by the application, enabling fast deployments and ensuring those deployed copies are fully functional.

X2 now delivers up to two times as many XVC per cluster. This enables you to take XVC more frequently and retain them for longer periods of time than the previous generation. This is important for organizations that are using iCDM for data protection because it will allow them to set even shorter RPOs and retain more restoration point-in-times.



XtremIO Integrated Data Copy Management

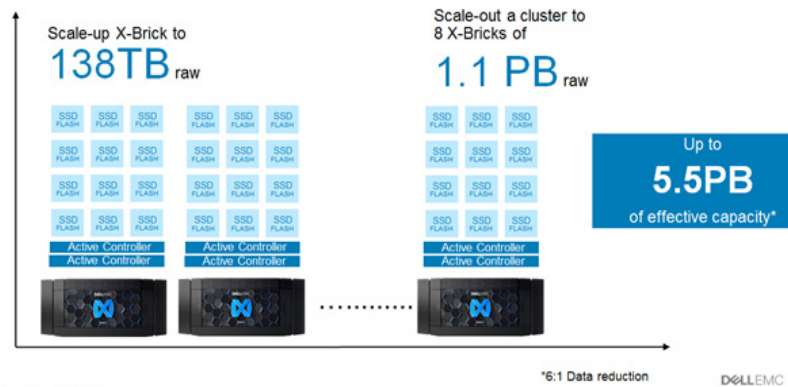
XtremIO exposes its agile and efficient copy services to application teams via Dell EMC AppSync software. AppSync provides application integration and orchestration services for XVC. It simplifies and automates the process of creating and consuming XVC for iCDM use cases. AppSync also provides local and remote recovery using XVC and replication technologies. Its deep application integration enables application owners or DBAs to satisfy copy demand for operational recovery and data repurposing. An AppSync iCDM Starter Bundle is included with every XtremIO purchase.

Organizations have received tremendous value from XtremIO iCDM and are aggressively using space efficient and high performance XtremIO Virtual Copies to empower their internal stakeholders such as application development and analytics teams. Today more than 55 percent of XVC in the existing XtremIO customer base are writable copies and used for active repurposing, not just static, data protection copies.

### Multi-Dimensional Scalability with Lower TCO

The hardware building block for XtremIO is X-Brick. Each X-Brick in fact consists of two active-active controller nodes, with no single point of failure, packaged together. The X-Bricks are built entirely on enterprise-grade hardware components. The new multi-dimensional scalability of X2 enables you to scale up by adding as few as six SSDs at a time to a single X2 X-Brick. You can also scale out with additional X-Bricks in any increments—odd or even—and with partially populated X-Bricks.

XtremIO X2 has the ability to scale out while also allowing customers to scale up the capacity for their workloads.



X-bricks can be scaled to meet your workload capacity

X2 is enhanced with newer Intel CPUs and expanded memory to optimize performance and enable consistent sub-millisecond latency. XtremIO X2 X-Bricks are available in two types: X2-S and X2-R. X2-S is available for use cases such as virtual desktops which have lower capacity requirements with high IO density. X2-R is available for the majority of use cases from virtual servers to database workloads.

Configuration	X-Brick Minimum Raw	X-Brick Maximum Raw
X2-S	7.2 TB	28.8 TB
X2-R	34.5 TB	138.2 TB

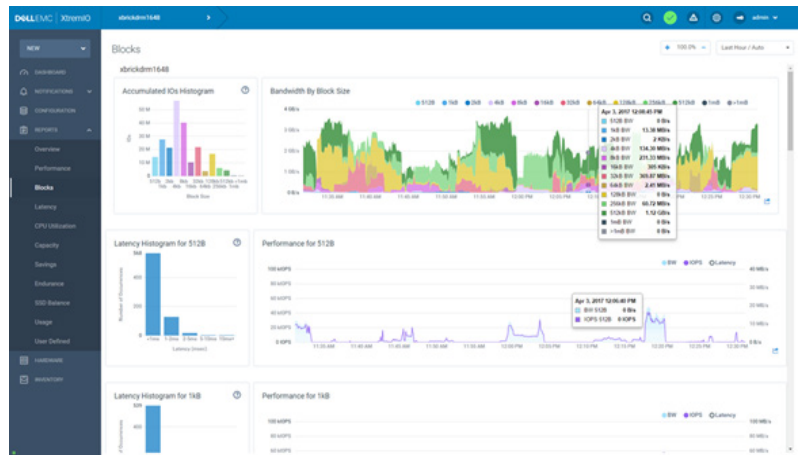
## Software-Driven Performance and Efficiency Improvements

Hardware improvements alone can only take a platform so far. With the release of X2, Dell EMC introduces XIOS 6.0 software, which enhances data reduction algorithms to improve data reduction by 25 percent on average.

XIOS 6.0 software incorporates specific optimizations to greatly improve performance across the board but especially boosts small block IO performance. X2 combined with XIOS 6.0 dramatically improves application performance for up to 80 percent better response time and 40 percent more concurrent users for VDI. There are also a number of enhancements to user experience that simplify administration.

XtremIO has always provided simple, easy-to-use management. XIOS 6.0 delivers an HTML5 user interface for consumer-grade simplicity with enterprise-class features. The improved user interface includes:

- Contextual, automated workflow suggestions for management activities
- Advance reporting and analytics that make it easy to troubleshoot
- Global search to quickly find that proverbial needle in the haystack



XIOS 6.0 provides a powerful HTML5 user interface

The simple, yet powerful user interface drives efficiency by enabling storage administrators to spend less time on storage provisioning and performance tuning and more time on strategic IT initiatives.

## Dramatically Lower TCO Backed by a 4:1 Efficiency Guarantee

At Dell EMC, we understand the pressure on today's IT buyers to stretch every budget dollar while delivering the application acceleration your business stakeholders expect. New workloads demand the high IOPs and low latency that all-flash storage solutions can provide. But if the capacity you need is too expensive, your users will miss out on the technology's transformational benefits.

Most flash vendors claim some form of efficiency methods to reduce costs, but how can you be sure they will work when your reputation and IT dollar is on the line? Dell EMC takes the stress out of all-flash storage purchases, helping you transform your business with guaranteed results from a proven leader you can trust. Dell EMC promises our all-flash arrays will provide a logical usable capacity at least four times the usable physical capacity of your purchased drives—or we'll give you more drives at no charge.

## XtremIO: Providing Efficiency and Simplicity at Scale

XtremIO combines efficiency and simplicity for deployment and administration of not only the array but also for all workloads that reside on it. Architectural planning sessions for applications are drastically simplified with XtremIO's consistent and predictable response times in a scalable deployment that can grow to meet the future needs of your business.

The XtremIO platform is truly unique in its ability to transform your virtual infrastructure and application lifecycle strategies. With unmatched data efficiencies and rich application integration XtremIO X2 provides no compromise copy services and consistent performance.

Increase your agility and efficiency without increasing your physical capacity requirements through the use of XtremIO Virtual Copies and Integrated Copy Data Management. Revolutionize your approach to Dev/Test and all of your data repurposing needs with XtremIO X2.



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