## Xtrem PERFORMANCE

With all of the all-flash array (AFA) solutions on the market today, how can you be sure you are considering the right solution for your business?

The market has started to stabilize over the past year and a few solutions have risen to the top of the pack. EMC's XtremIO solution is one that has gained significant adoption and industry recognition in that timeframe. So what makes XtremIO different?

First off, XtremIO was designed from the ground up to offer a predictable performance profile under the most demanding conditions. A single X-Brick, the building block used by XtremIO, can deliver as much performance as 11 fully populated cabinets supporting 15K RPM drives with a fully random mixed workload and it can do so with < 1ms latency. Gone are the days of needing to over provision drives to meet the demands of a workload, now you can focus on how much capacity you actually need.

Source: Gartner (August 2014)
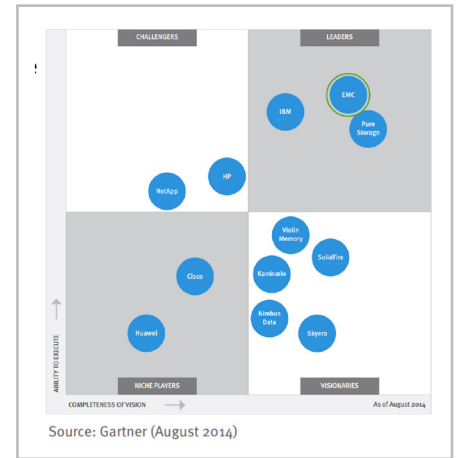
MAXIMIZE EFFICIENCY

So how can you maximize the return on your Flash investment? XtremIO can help reduce capacity requirements by leveraging an always on no compromise global deduplication engine. There are several benefits to this above and beyond just reducing the amount of data stored. For example, XtremIO does not need to write data which is already stored on one of the XBricks which increases the life of underlying flash. Furthermore, because this is a function of the controllers, it can actually increase performance by not requiring duplicate writes to flash which further reduces latency. XtremIO was designed to offer enterprise class data services, data protection and resiliency ensuring your data is available when needed and as fast as you need it.

XtremIO was also designed to scale as your needs grow and does not require storage routers or appliances to do so meaning performance can truly grow linearly without exception. Need 2X performance? Add an X-Brick. Need 6X performance? Add 6 X-Bricks. All-flash storage will automatically be added to the global pool.

Another benefit of this solution is that it can dramatically reduce the operational burden of managing your storage. No more tiering, no hot spots, no data migrations, just provision your volumes and map them to your hosts and you are done.

THE ECONOMICS OF FLASH

We've been hearing for years now from solution providers that their All-flash solutions were approaching the cost of traditional storage. The challenge was that few of these providers were able to prove their solutions were ready for the enterprise as they lacked enterprise class data services and reliability.

The good news is that the cost of flash has been dropping over the past few years and with data efficiencies like global deduplication, certain workloads can actually be less costly running on all flash. The prime candidates include VMware, VDI and database workloads which demand peak performance.

What to look for

- Purpose-built flash array
- Enterprise class HA architecture
- Native scale-out architecture
- eMLC endurance
- Always-on inline global dedup
- Always-on inline compression
- Support for encryption
- Flash specific RAID algorithm

WHY XtremIO

There are all-flash solutions on the market today which offer many of the same capabilities as XtremIO so what makes EMC's offering any different?

1. EMC XtremIO is the only solution on the market to provide a true scale-out offering which enables linear performance and capacity improvements without needing additional storage routers which can bottleneck performance.

2. EMC XtremIO is the only solution on the market to provide enterprise class data services without compromise. Other solutions will offer inline deduplication but this is handled in software and is often disabled due to reoccurring maintenance such as garbage collection.

3. Lastly, EMC XtremIO is the only solution on the market which comes with a broad integration portfolio to offer enhanced capabilities to the underlying flash storage.
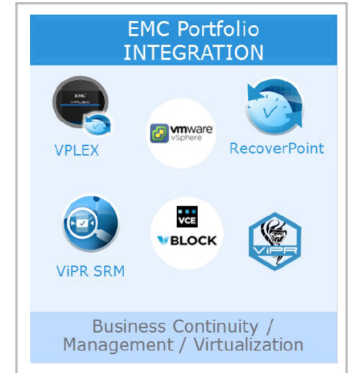
XtremIO DIFFERENTIATORS

Incredibly Powerful Scale-Out

Big, small or anywhere in between, there's an XtremIO array sized right for you. With a scale-out design that grows according to your needs, additional performance and capacity are added in a building-block approach. XtremIO's advanced architecture ensures that maximum performance is maintained as the system scales, without administrator intervention, configuration or tuning. All resources scale in balance—storage processors, memory, flash capacity and host ports—so you always get the most out of the system and there are no performance bottlenecks

Low-Latency I/O Performance

XtemIO delivers its performance under demanding conditions that leave other products gasping for IOPS and delivering inconsistent latency to your workloads. You don't have to worry about performance dropping as capacity fills, as the flash is over written or under sustained high load.
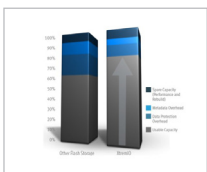
Ultimate Efficiency

Simply put, XtremIO delivers more of what you need—performance and usable capacity, and less of what you don't—overhead, energy consumption, heat generation and rack space. No matter how you measure it—IOPS, rack space, watts or BTU's, XtremIO storage is extremely efficient.
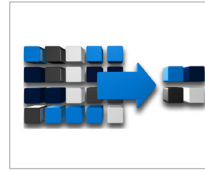
Surprisingly Affordable

XtemIO utilizes MLC flash combined with sophisticated wear leveling, data reduction and write abatement technology that delivers extended flash endurance and makes the system both enterprise reliable and reasonably priced.
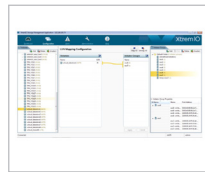
Amazingly Simple

XtemIO's revolutionary internal architecture completely eliminates complex setup and tuning steps, while inherently delivering maximum performance. Create and size volumes in a few clicks, map them to hosts with a few more and then array is configured. Every volume gets optimal performance and data protection automatically and maintains it as the array scales out. And with true active/active operation, all volumes can be accessed through all ports on all storage processors in the cluster, for ideal multi- path I/O and ultimate performance aggregation.

Flash-Specific Data Protection

XtemIO's flash-specific data algorithms ensure the array is a resilient as it is fast. Every cluster scaling unit (X-Brick) has its data protected in an N+2 scheme that tolerates multiple simultaneous SSD failures. Optimal data encoding and decoding processes recover from failed SSD's rapidly with distributed rebuilds. Hot spares are not needed since XtremIO's distributed rebuilding utilizes free space in the array. And while providing this extreme level of data protection, XtremIO's algorithms also outperform every traditional RAID level while demanding fewer write cycles from the flash offering the performance of RAID 10, the overhead of RAID 5 and the resiliency of RAID 6

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