REDEFINE VDI WITH DELL EMC XTREMIO

Deliver snappy performance and a small storage footprint using inline, all-the-time data services

BENEFITS

- **Unparalleled user experience:** Virtual desktops provide response times superior to those of physical desktops.

- **Drastically reduced capacity footprint:** Industry-leading inline, all-the-time deduplication and compression deliver unmatched capacity reduction for all desktop types—persistent or non-persistent.

- **Rapid virtual desktop deployment:** Unique in-memory VM cloning technology delivers virtual desktop deployments at unmatched speed.

- **Radically simple admin experience:** Provides easy as 1-2-3 set-up and deployment with intuitive, enterprise-class, yet simple, html5 GUI. Special integration with VMware Horizon and Citrix XenDesktop via VMware vCenter plug-ins enable easy virtual desktop deployment.

The Challenge: Anywhere, anytime, any device access of applications and data

Employees are more mobile than ever and expect access to business-critical data and applications whenever and wherever they are, from any device. They also want the flexibility to bring their own devices to work, requiring IT departments to increasingly support Bring Your Own Device (BYOD) initiatives. These initiatives add additional layers of complexity when safeguarding sensitive information. Virtualizing desktops by deploying a virtual desktop infrastructure (VDI) is the most popular way to achieve securing this information.

However, implementing large-scale virtual desktop environments presents many challenges. Administrators must rapidly roll out persistent or non-persistent desktops for all users—task workers, knowledge workers, and power users—while offering an outstanding user experience that outperforms physical desktops. In addition to providing high performance, a virtual desktop solution must be simple to deploy, manage, and scale with substantial cost savings over physical desktops as you aim to reduce the overall TCO.

Storage is the critical component of an effective virtual desktop solution. Despite the advancement provided by all-flash arrays, storage is often still a performance bottleneck—leading to performance issues during IO storms (e.g. boot/login/anti-virus storms), long desktop deployment times, and management complexitiy.
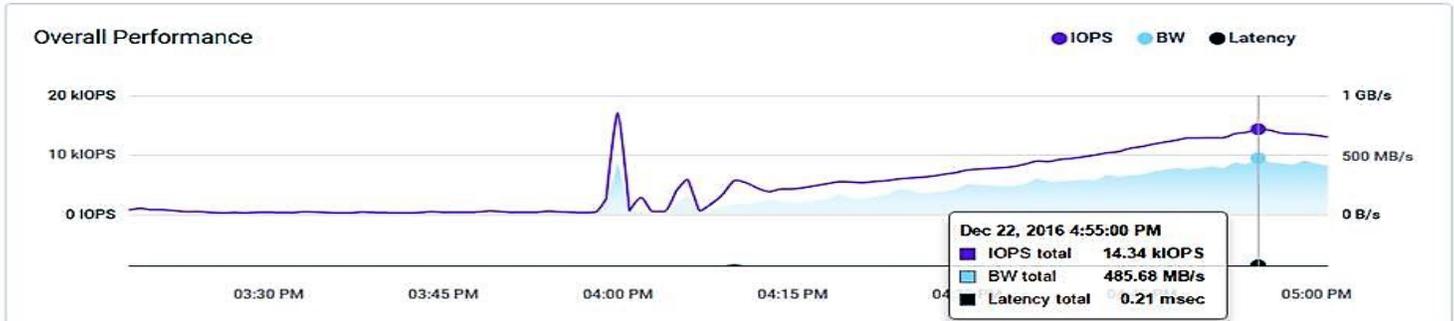
The Solution: Virtualizing desktops with Dell EMC XtremIO

Dell EMC XtremIO transforms storage from a traditional bottleneck into a powerful enabler for VDI. XtremIO storage redefines VDI deployments, ushering in a new era of unparalleled user experience and unprecedented simplicity, all at a very low cost per desktop. Large VDI deployments are feasible only with the XtremIO purpose-built flash architecture that linearly scales performance and capacity in tandem, deploys virtual desktops at a rapid speed, and drastically reduces the required capacity footprints.

Unparalleled user experience

XtremIO delivers an unparalleled user experience for ALL user and desktop types at any scale, all the time. With its massive I/O performance, XtremIO ensures that every desktop provides an ideal user experience. Virtual desktops running on XtremIO have applications that respond instantly and consistently, faster than on physical desktops. With XtremIO, every VDI user enjoys the best user experience.

XtremIO delivers very high performance with consistently low sub-millisecond latencies, irrespective of the VDI workload. The user experience is unaffected by boot storms, anti-virus scans, suspend/resume operations, application peak demands, user activity, or used capacity on the array. XtremIO delivers any desired level of performance, from tens of thousands of IOPS to peak rates of hundreds of thousands of IOPS in large VDI deployments.

Overall Performance   ● IOPS   ● BW   ● Latency

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IOPS total	14.34 kIOPS
BW total	485.68 MB/s
Latency total	0.21 msec

A single Dell EMC XtremIO X2 X-Brick hosting 4,000 virtual desktops with 210 microsecond latency

BENEFITS (CONT.)

- **Reduced planning complexity:** Start small and scale up capacity by adding SSDs to the X-Brick as you deploy more desktops. Scale out and add X-Bricks to the cluster as your VDI environment grows larger. Your VDI users are still up and running with the same consistent snappy desktop performance.

- **Unmatched TCO and cost/desktop:** The unparalleled user experience and unprecedented simplicity for VDI is offered at a very low cost. A single XtremIO X2 X-Brick can host up to 4,000 desktops, with over 1,000 desktops per RU, while offering 33 percent lower cost/desktop than the successful previous generation XtremIO platform for VDI.

Dramatically reduced capacity needs

The always-on, real-time inline data reduction technology of XtremIO dramatically shrinks the amount of storage capacity required to support VDI environments. Thousands of virtual desktops can be deployed with only a few terabytes of flash. In addition, full clone persistent desktops can be deployed easily and cost effectively, allowing existing desktop management tools and applications to be re-used in virtual desktop environments. Non-persistent desktops like linked clones can also be used alone or in combination with persistent desktops.

Also, administrators no longer need to de-feature desktops or be limited to non-persistent desktops. Every desktop can be fully functional, customizable, and affordable. The storage capacity savings are significant even if you deploy virtual desktops with application layering technologies to achieve user desktop persistence.

Rapid virtual desktop provisioning

With XtremIO, VM cloning with hypervisor's copy offload primitives (like VAAI Copy Offload or X-COPY for VMware and ODX for Hyper-V/Windows Server) is a control plane operation. This is in contrast to other arrays where the operation is a data plane operation involving SSDs.

XtremIO does not store any duplicate data globally across the cluster and the deduplication happens inline and in-memory. Therefore, the copy operation in XtremIO is at RAM speed without consuming any extra space, and the host sees effective throughput higher than the physical bandwidth available. This fast cloning has nothing to do with SSDs; it is due to the way XtremIO manages copies with the metadata pointers in the system, all stored in RAM. Thus, with XtremIO, VM cloning and virtual desktop provisioning tasks are carried out at memory speed, rather than SSD speed.

Radically simple admin experience

With all of the technical innovations of XtremIO, it is important not to lose sight of one of the most powerful benefits of XtremIO: radical simplicity via a powerful, intuitive, enterprise-class, yet simple, html5-based GUI. With XtremIO, it truly is as easy as 1-2-3 to configure, deploy, and tune all of the workloads—VDI included—that you want to throw at it.

There are three steps:

1. Create the volumes—any number of any sizes you want

2. Create the initiator groups for all of the hosts and their applications

3. Map the volumes to those initiator groups

That's it—no tuning, nothing else. As an admin, you can get your life back.

XtremIO provides the ability to easily deploy VMware Horizon and Citrix XenDesktop virtual desktops from VMware vCenter within seconds with the Dell EMC Virtual Storage Integrator (VSI). Pools of hundreds of desktops can be set up and ready for user logins within an hour. This is achieved by taking a master image and creating fast clones with in-memory metadata updates consuming no additional flash capacity. The next step is to register these clone images in the VDI desktop catalog and power them up.

Reduced planning complexity

With XtremIO, you can start small and scale up and scale out performance and capacity non-disruptively and without service disruption. Start with a single X-Brick with as little as 7 TB or as much as 138 TB. Add up to a total of 8 X-Bricks to your XtremIO cluster when you need to grow your VDI environment.

XtremIO automatically rebalances both metadata and data across the entire cluster while all applications keep running with the same performance levels. This online expansion is completely transparent to your VDI users, and your VDI storage planning complexity is virtually eliminated.
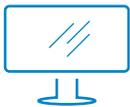
Unmatched TCO and price per desktop

XtremIO delivers unparalleled user experience and unprecedented simplicity for VDI at a very low cost. Whether you are deploying task worker desktops for call center employees or high-performance desktops for software developers, you always get an unmatched TCO and low cost per desktop.

A single XtremIO X2 X-Brick can host up to 4,000 virtual desktops while offering 33 percent lower price per desktop than the previous-generation XtremIO array—a highly successful VDI platform with hundreds of customers running millions of virtual desktops. XtremIO makes all-flash storage for VDI completely affordable.

Summary

XtremIO transforms the way you deliver VDI. Whether you are rolling out 100 or 100,000 desktops, whether your users are call-center employees or sophisticated CAD designers, whether you are an 8 to 6 organization or you follow the sun with 24x7 operations, XtremIO delivers an incredibly cost-effective, agile VDI storage platform with a consistent user experience.

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