Solution Brief

Cost-Effectively Scale Virtual Desktop Deployments

Provide better-than-physical desktop end-user experience and cost effectively scale your Virtual Desktop Infrastructure with Violin flash Memory Arrays

Highlights

Enterprise-class Scale

- Deploy 1000s of persistent desktops on only 3 Rack Units of storage
- Deliver outstanding end-user experience for hundreds to multi-thousand seat deployments
- Enterprise-class availability

Exceptional User Experience

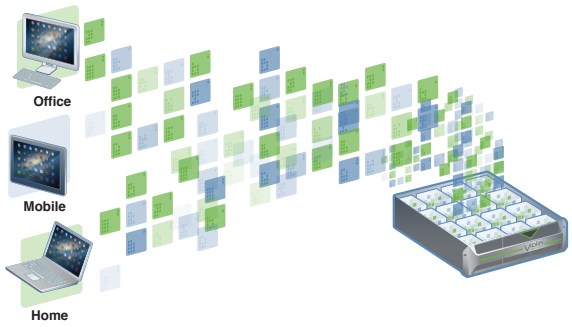
- Better than physical desktop performance
- Better than physical desktop application launch and response times
- Reduced boot times of 80%

Reap the Benefits of VDI

- Up to 50% reduction in VDI storage capacity required with inline de-duplication.
- Up to 80% OPEX reduction through reduced datacenter footprint, power and cooling
- Unmatched IOPS density in 3U rack space

Storage and Performance Requirements in Large Scale VDI

Virtual Desktop Infrastructure (VDI) allows access to desktops, applications and data anywhere, at any time, providing IT streamlined desktop management and security. VDI has different deployment models: persistent desktops, non-persistent desktops or a hybrid of both. Persistent VDI users keep all configurations and personalization from session to session to get the same feel of a physical PC. For non-persistent users, a virtual machine is assigned from a pool of resources to their roaming user profile during a session. When the user logs off, the virtual machine is released to the pool, without saving any of the data during that session.



Regardless of the deployment model, traditional storage solutions have lagged in addressing the scalability and performance requirements of enterprise-scale VDI deployments:

- Scalability becomes an issue beyond a few hundred virtual desktops in order to support large groups of users
- Storage costs associated with virtual machine and storage sprawl negatively affect the return on investment
- End-user experience suffers from storage performance degradation

These challenges have stalled or even stopped many VDI initiatives, where adoption is primarily driven by end-user experience and cost per desktop.

The Violin Memory Difference

Violin Memory overcomes the typical challenges associated wtih large scale Virtual Desktop Infrastructure by:

- Delivering better than desktop end-user experience at any scale, thanks to industry leading IOPS performance density and response times measured in microseconds
- Optimizing storage cost per desktop for both persistent and non persistent VDI

Exceptional End-User Experience

Poor end-user experience is a major deterrent in adoption of VDI. Users want to access their applications and data from anywhere, but have low tolerance for slow boot-up/login times, slow application launch times and response times. Ultimately, end-users expect an experience that matches or exceeds that of your desktop/laptop/ultrabook.

Violin Memory flash memory storage systems handle any I/O patterns at sub-millisecond latency to deliver better than ultrabook end-user experience better-than-ultrabook experience:

- Consistent user-experience, matching or exceeding the user-experience as physical desktops at all times
- Reduce boot-time/login time by 80% compared with traditional storage systems
- Accelerate application load-time and performance, thereby increasing end-user productivity

Scale to large number of virtual desktops without degradation

The success of most VDI projects depends on maintaining a high-quality user experience when scaling from 100s of desktops to 1000s. A relatively small swing in virtual desktop activity can lead to severe performance issues. Concurrent logins called "boot storms," concurrent virus scans or system patches that can take hours or fail. A large amount of storage IOPS are needed to sustain user experience level at large scale. For example, boot up of 1000 desktop concurrently in a minute needs least 300,000 IOPS[1].

Violin Memory Arrays provide large amount sustained IOPS to provide scalable, and consistent user-experience at all times, regardless of the number of virtual desktops. This translates into zero downtime during virus scans and productivity loss during logins/desktop reboots. With Violin, you can:

- Remove any and all I/O bottlenecks;
- Ability to scale the infrastructure with zero impact

Lower Total Cost of Ownership for any VDI Deployment

Violin Memory delivers the storage performance and optimization for both persistent and non-persistent virtual desktop environments at a lower total cost of ownership.

	Leading Storage Vendor	6232	Savings
Number of RUs[1]	125	3	↓ 98%
Number of desktops per core[2]	6	12	↑ 50%
Memory per desktop (GB)[2]	2-3	1.5	↓ 50%

[1] For 5000 desktops @ 100 IOPS per desktop. Per vendor datasheet and other information available, a fully loaded full rack of vendor storage with maximum number of SSDs provides150,000 IOPS.

[2] Based vendor's best practices & Violin's internal testing

Virtualizing desktops on Violin flash Memory Arrays reduce cost for each desktop significantly, enabling twice as many desktops per host and 10 times more desktops per TB of storage than competing alternatives. The result is a more efficient infrastructure through higher consolidation and lower operational costs. Storage capacity requirements for persistent desktops are further reduced by eliminating duplicate information through deduplication and compression[2] techniques to further reduce cost of storage.

With Violin, lower your total cost of ownership by:

- Minimizing the total amount of operating equipments and improving overall asset utilization
- Reducing space and facility requirements
- Reducing administrative overhead and management

[1] Assuming average 4K IO size

[2] Violin Memory partners with Atlantis Computing to deliver deduplication to reduce the cost of persistent desktops.

Violin MEMORY

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