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Virtual Desktop Infrastructure and Client SSDs



What is Virtual Desktop Infrastructure?

Virtual desktop infrastructure (VDI) is the hosting of multiple desktop environments on a single piece of hardware – that is, a server. Each environment is its own instance and is derived from an image running in a virtual machine (VM). These instances are accessed by or from many types of devices or clients, including other computers on the network, simultaneously. Each virtual desktop runs its own operating system (OS) separately from the others, managed by a hypervisor or virtual machine manager (VMM). Between the VDI and client is a connection broker to ensure each client is a virtual desktop allocated from available server resources.

VDI Usage, Benefits & Disadvantages

VDI is nevertheless distinct from other types of desktop virtualization, like local or shared, and primarily exists as full infrastructure for remote access. The end client does not require specific hardware to utilize VDI and the environment is sanitized. In recent years, remote employment has grown massively, making VDI an attractive option for a variety of businesses, especially as mobile devices have grown in power and features. Remote access, when secured, enhances productivity and reduces downtime. As such it's used in all sorts of fields beyond the organization, including third-party access, call centers, regulatory compliance, and much more.

There are two main types of VDI: persistent and nonpersistent. Persistence, in this case, refers to the state of the virtual desktop being carried across sessions for the user. A persistent VDI would therefore have the user accessing the same instance with changes being saved for future connections. A nonpersistent VDI, on the other hand, has no implied consistency or saving of desktop state. Persistent VDI allows users to easily jump back into their work while nonpersistent is easier on the IT side due to simplified management.

Regardless of type, VDI is part of what is known as hyper-converged infrastructure (HCI): full software

virtualization of all hardware. This allows for scalable, on-demand access from any location, regardless of client hardware limitations, including as a service or desktop as a service (DaaS). Processing is done server-side, simplifying costs and optimization. Increased centralization also allows for easier management and security. The goal with HCI and VDI, moving forward, is to get a local-like experience without the use of extra-local resources, although performance still lags behind traditional hardware setups.

VDI Storage Requirements for SSDs

Such a performance gap can be closed to some extent by the proper choice in storage. NVMe™ drives, in particular, have fast access times, with the NVMe™ specifications allowing for easier management of storage pools and host- or application-to-drive communication. OS images are pulled from the drive in a sequential manner, so SATA SSDs are also a good option if there is a variety of large images on a particular server. Total cost of ownership (TCO) is, as always, a primary concern, but the specific choice of SSD depends on the VDI configuration. For example, nonpersistent VDI is going to be read-heavy in comparison to persistent VDI.

Likewise, certain features like power loss protection may be more attractive for a persistent VDI solution. Performance requirements vary but generally, this is a factor of capacity, as larger SSDs can potentially serve more concurrent users. Security of data is also a more prominent concern with persistent VDI. Regardless, the ability to spin up and scale virtual desktops to many remote clients at once inherently recommends SSDs as the primary storage solution over mechanical hard drives (HDD). As always from the server-side standpoint, physical footprint is also a factor in the efficiency analysis.

As the goal with VDI is to have a local-like experience, the user wants quick access with minimal latency; SSDs are made for this task. As much of the experience is virtualized in software, it's also important to maximize efficiency by reducing the load on the server's CPU and DRAM resources. In the future this will certainly be with NVMe™ drives due to the reduction in DRAM needs with zoned namespaces and key-value storage systems, not to mention increased connectivity in general. However, VMs for certain workloads can

be rather light on resources but large in size, depending on how applications are handled, such that SATA remains viable especially for nonpersistent VDI. Solid State Storage Technology Corp. has solutions for all of these scenarios.

Summary

VDI allows for efficient, remote use of server resources that's easier to manage while still offering a productive environment for the client. This environment is not compromised by the client's hardware, either, and can be secured more simply. As part of a larger virtual HCI framework, VDI relies on rapid-response storage from SSDs to present the best user experience with minimal overhead. Depending on the application, a range of SSDs may be useful for the organization hosting virtual desktops and VMs on its servers – and our portfolio of products is flexible enough to meet any criteria. The online world with remote employment will only continue to grow; now is the time to ensure your organization will be ready to meet the demand. Contact Solid State Storage Technology Corp. to discuss how we can help!

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Our SSD Solutions



CA6 Series | PCIe™
Gen 4

- Slim form factor— M.2 2280
- Random read/write up to



CL4 Series | PCIe™
Gen 4

- Slim form factor— M.2 2230/2242/2280
- Random read/write up

1000K/1000K

IOPS

- Low latency
- LDPC

technology

to 450K/400K

IOPS

- Low latency
- 256GB - 1TB

Please contact our [Solid State Storage Technology Corp. expert](#) for more information.

*Specifications and features are subject to change without prior notice. Images are samples only, not actual products.

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A subsidiary of KIOXIA Corporation, **Solid State Storage Technology Corporation** is a global leader in the design, development, and manufacturing of digital storage solutions. We offer a comprehensive lineup of high-performance customizable SSDs for the Enterprise, Industrial, and Business Client markets. With various form factors and interfaces, our SSD solutions help businesses simplify their storage infrastructures accelerating variable workloads, improving efficiency, and reducing total cost of ownership.

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