



Solution Brief

Simplifying virtual desktop deployments with EqualLogic PS-M4110 blade storage arrays

Dell EqualLogic PS-M4110 blade storage arrays help optimize VMware VDI deployments

Simplify deployment: Blade-based architecture unifies storage, compute and switching infrastructure, for a complete VDI solution in a modular and compact enclosure.

Achieve optimal virtual desktop performance: EqualLogic multi-tiered hybrid arrays effectively mitigate storage I/O bottlenecks. VAAI integration improves performance and scalability by offloading storage tasks to EqualLogic arrays.

Realize transformative cost savings: Thin clones lower storage footprint by avoiding storage of duplicate data across desktop VMs. EqualLogic multi-tiered hybrid arrays eliminate the need for storage overprovisioning to meet performance goals.

Simplify provisioning and storage management: Virtual Desktop Deployment Utility simplifies provisioning and management of desktop VMs. Datastore Manager simplifies storage provisioning and management.

A typical virtual desktop infrastructure (VDI) integrates many components; servers to host the desktop virtual machines (VMs), connection broker and management software, storage for virtual desktop data, and network switching interconnectivity. Pilot projects start off small, but scaling the infrastructure can introduce deployment complexity and project risk. These risks need to be carefully mitigated in order to ensure smooth and timely implementation without cost overruns.

Proper storage selection and sizing plays a key role in ensuring successful virtual desktop deployments. Storage needs to mitigate performance issues associated with storage I/O storms, for example, when many users concurrently boot up, log-in or log-out. It is also critical to carefully manage storage footprint, due to the requirement for higher cost enterprise-class storage, which can have a significant impact on the total cost of the VDI project. In addition, it is critical to simplify virtual desktop provisioning and infrastructure management to achieve greater efficiencies and manageability.

Modular, high-density blade architecture for simple deployment

Dell PowerEdge Blade Server solutions, based on the Dell m1000e blade enclosure, seamlessly integrate best-of-breed blade-based components into a converged infrastructure. Based on Dell PowerEdge servers, EqualLogic PS-M4110 storage, and Force10 and PowerConnect switches, the converged compute, storage and networking infrastructure simplifies deployments and lowers operational expenses. Each populated blade enclosure creates a self-contained, complete computing platform that can be easily deployed and seamlessly scaled as the virtual desktop environment expands to accommodate new organizations and users. By leveraging Dell's blade-based converged solution to power virtual desktop deployments, organizations can accelerate VDI deployments.

Dell EqualLogic PS-M4110 virtualized blade-based storage

The Dell EqualLogic PS-M4110 modular storage blade offers an ideal storage platform for virtual desktop environments. PS-M4110 blade arrays are tightly integrated with VMware® vSphere™ and VMware View™. This integration is designed to deliver optimal performance, lower costs and simplify VDI deployments. The PS-M4110 arrays offer a mixed-media SSD and SAS hybrid option that can effectively mitigate performance issues while lowering storage footprint. EqualLogic also offers an all-inclusive software model, eliminating incremental storage software expenses.

Virtualized, scale-out architecture with iSCSI connectivity

Unlike traditional frame-based storage architectures, the EqualLogic PS Series is a modular, scale-out virtualized storage architecture that allows organizations to scale their storage capacity and performance in a seamless non-disruptive manner. Each array contains its own controller processing capacity, cache memory, and network connectivity. EqualLogic PS-M4110 blade storage arrays feature iSCSI connectivity over 10 Gigabit Ethernet. Use of industry-standard iSCSI connectivity over Ethernet lowers upfront hardware and ongoing administrative expenses, and simplifies networking.

Multi-tiered hybrid arrays with automated-tiering

Dell EqualLogic PS-M4110XS hybrid arrays feature SSD and SAS drives in a single enclosure combined with automated tiering capabilities. These arrays move frequently accessed data to SSD drive resources automatically. SSD drives are capable of handling a much higher number of I/O transactions than SAS or SATA drives, supporting the complex I/O performance needs of the VDI workloads. By incorporating SSD and SAS drives in a single enclosure, these arrays mitigate performance issues due to storage I/O while reducing the need to overprovision storage to achieve performance goals.

Scalability and performance through VMware vStorage API integration

Through advanced integration with vStorage APIs for Array Integration (VAAI), EqualLogic enables outstanding storage performance for VDI deployments. VAAI offloads storage-related tasks such as file locking, data copying, and block zeroing from the server to EqualLogic storage. Delegating these tasks to the storage layer can enable quick and efficient deployment of desktop virtual machines from pre-defined templates, improve storage performance, as well as reduce network traffic and host compute overhead.

VMware integrated tools for virtual desktop provisioning and storage management

- **EqualLogic Virtual Desktop Deployment Utility-** This tool enables rapid deployment of desktop VMs from templates in a space efficient way. The utility is integrated with VMware View, employing EqualLogic Template Volumes and Thin Clones to achieve space-efficient desktop images. It enhances productivity by automating VM pool creation, VM registration, and patch and update management.
- **EqualLogic Datastore Manager-** This vCenter-integrated, wizard-based tool is used to create new Datastores, expand existing Datastores, and monitor Datastores from vCenter. With Datastore Manager, new volumes can be provisioned with a few mouse clicks, automatically assigned to the ESX cluster, and formatted with the VMFS filesystem. This tool automates numerous tasks when provisioning storage, improving productivity.

Like all EqualLogic software features, these tools take advantage of the all-inclusive pricing model, and are available at no additional cost with the purchase of EqualLogic storage arrays.

EqualLogic PS-M4110: Virtualized blade storage to simplify and right-size VDI deployments

EqualLogic PS-M4110 storage arrays offer an efficient, high-density compact form factor for virtual desktop deployments. The modular blade-based architecture simplifies deployment and scaling of virtual desktop infrastructure. EqualLogic PS-M4110 offers compelling benefits for VDI deployments by providing simple, cost-efficient, high-performance storage solutions that enable rapid VDI provisioning. Dell EqualLogic and VMware help accelerate the success of VDI projects.



Dell EqualLogic PS-M4110 modular storage blades consolidate storage into a compact blade-based infrastructure, while improving performance, lowering storage footprint, and simplifying VDI deployments.

For more information, go to dellstorage.com/virtualization

