Technical Solution Brief

Enabling VDI success: **Dell Compellent storage with VMware View**

Dell Compellent Storage Center provides an optimal enterprise storage solution to scale VMware View VDI implementations from pilot to production.

- Performance optimization and intelligent data placement mitigate I/O storm concerns

- Dynamic Capacity removes the upfront costs of over-provisioning

- Modular system architecture eliminates forklift upgrades

- Tight VMware integration simplifies virtual desktop management and enhances infrastructure scalability for a quality desktop experience to end users

Overcoming rigid legacy storage to boost VDI

With the introduction of VMware View, many VDI projects have been launched to help businesses contain IT costs by streamlining client device management and securing data while enhancing the end user experience.

With VDI technology, data typically stored on end user devices is consolidated on centralized, IT-managed, computing infrastructures. While this can improve operational efficiencies and enhance data security, new storage price/ performance, manageability and scalability challenges surface. Legacy storage architectures fail to address these challenges due to rigid designs that prevent cost-effective scaling of capacity and performance, undermining VDI's value proposition.

Dell™ Compellent™ Storage Center, part of the Dell Fluid Data™ architecture, is designed with best-in-class capabilities such as Data Progression automated tiered storage, Dynamic Capacity thin provisioning and Fast Track intelligent data placement. These advanced features make Dell Compellent an ideal enterprise storage platform for deploying virtual desktop infrastructures at scale. With Compellent, all storage resources are aggregated into a virtualized pool, enabling automatic layout and placement of data across storage tiers and RAID levels to efficiently scale capacity and performance while reducing complexity.

The right data at the right place at the right time

A key success criterion for VDI deployments is how cost effectively the storage system can adapt to the variable nature of VDI storage requirements.

During the typical morning boot/logon "rush-hour," large populations of client devices simultaneously generate I/O requests, stressing the storage infrastructure with I/O storms of up to 90% read requests. After the desktops are booted and applications are running, the I/O workloads can shift to a mix of up to 90% write requests.

An automated, multi-tiered infrastructure is warranted to efficiently meet these dynamically changing storage requirements. Compellent combines Data Progression auto-tiering technology with high-performance solid state disks (SSDs) and lower cost, high capacity nearline SAS disks to provide an effective balance of cost and performance. For example, placing read-only Linked Clone replica disks on SSDs alleviates the impact of boot storms and enhances the end user startup experience.

In addition, all I/O write actions are performed on the highest performing storage tier available. Frequently accessed data is performance optimized by intelligently placing it on the outermost disk tracks through Compellent's Fast Track technology. As data ages and is less frequently accessed, it is automatically migrated to lower cost tiers.

Achieving success with VMware integration

Dell Compellent simplifies VDI storage administration with its vSphere Client Plug-In. The plug-in is accessed from within the vSphere user interface to provision new storage, create new datastores, expand existing datastores, and monitor storage usage. The plug-in allows for creation and recovery of VM-consistent, SAN-based snapshots of virtual desktop gold master images, providing a practical, space-efficient way to protect the VDI environment.

For optimal performance, Dell Compellent directly integrates vSphere APIs for Array Integration (VAAI) to offload storage-intensive tasks from the vSphere servers, freeing up network bandwidth and vSphere server CPU resources. By delegating such tasks as data copying, block zeroing, and hardware-assisted locking to the storage layer, VAAI integration enables quick deployment of VMs from templates, fast and space-efficient creation of desktop VMs, and improves performance and scalability of VMFS file systems.

Successfully scaling from pilot to production

Many successful pilot projects invariably fail because legacy storage architectures prove incapable of efficiently satisfying production level capacity requirements.

With legacy storage systems, administrators must size, purchase, allocate and configure capacity upfront, often resulting in isolated, over (or under)-provisioned storage resources.
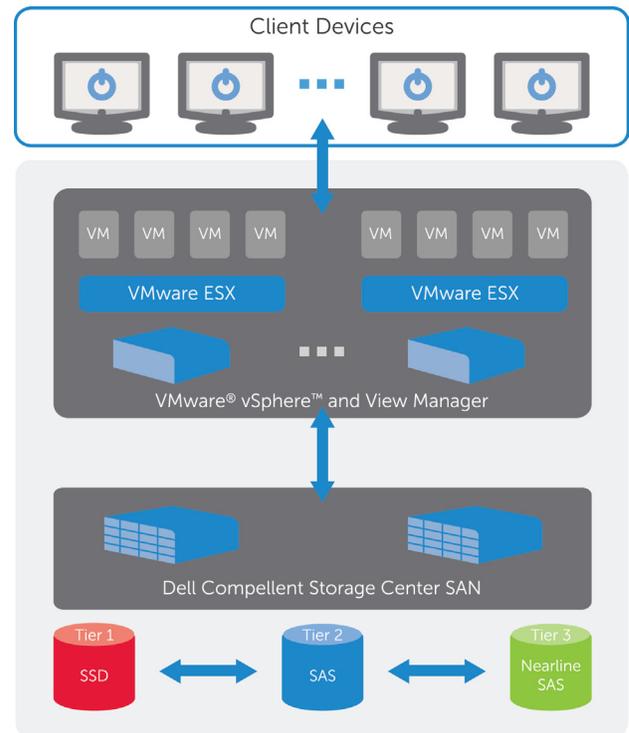
With Compellent's Dynamic Capacity, troublesome upfront sizing exercises are a thing of the past. Virtual volumes can be created for hundreds of virtual desktops without pre-allocating physical capacity. Actual storage capacity is consumed only when data is written to disk. As the virtual desktop environment expands to accommodate more users, the system dynamically provisions storage from a centralized pool of unused capacity. Storage purchases can be deferred until actually required, significantly enhancing project ROI.

Unlike products that require forklift upgrades to refresh platform technologies, Compellent's modular design provides long-term investment protection. System upgrades occur incrementally and non-disruptively as new technologies become available, with software licenses retained across system upgrades.

Summary

Dell Compellent combines best-of-class thin provisioning, automated tiering and intelligent data placement to create an enterprise storage solution that enhances VMware View VDI implementations. Compellent provides high performance and elasticity to handle the large storage workloads and variable I/O requirements of VDI. Tight integration with the VMware vSphere platform provides storage virtualization awareness and offloads server CPU-intensive tasks.

Compellent's advanced storage features enable IT to deliver VMware View VDI solutions that contain costs, streamline client device and data management while enhancing the end user experience.

Dell Compellent Storage Center provides advanced storage optimization, simplified VM management and cost-effective scalability to enable VDI success

To learn more, please visit www.dellstorage.com