Optimizing virtualization and VDI deployments with Dell PS Series storage and Silver Peak WAN acceleration

The combined strengths of Dell PS Series storage and Silver Peak WAN acceleration solutions can help optimize virtualization and VDI deployments.

- Dell PS series virtualized scale-out storage simplifies virtual deployments, optimizes application and VDI performance and helps build an efficient, reliable and flexible virtual infrastructure.

- Silver Peak WAN optimization with Dell PS series storage helps optimize the network bandwidth between multi-site virtual deployments, helping easily meet RPOs and RTOs for reliable and efficient disaster recovery.

- Dell PS series storage and Silver Peak WAN optimization can effectively mitigate performance issues related to VDI deployments, both at storage and network layers.

Virtualization and cloud computing are profoundly changing the way IT infrastructure is built, managed and consumed by enterprises. Server virtualization and consolidation helps organizations improve resource utilization, reduce cost and complexity, and build agile IT infrastructure—but still requires a robust DR strategy to ensure resiliency.

Virtualization also benefits desktop applications. By separating operating systems (OS) and applications from physical client devices, virtual desktop infrastructure (VDI) can help streamline management, lower operational expenses and facilitate security and compliance adherence.

An efficient wide area network (WAN) is integral to virtualization and cloud computing initiatives. Adding bandwidth addresses one type of problem, but bandwidth alone cannot correct the problems resulting from distance or network congestion common to Internet VPNs and MPLS networks. Failure to address all of these three issues result in missed RPOs and erratic virtualization performance.

As organizations migrate more of their infrastructure into virtualized environments, they need infrastructure solutions that enable outstanding efficiency, flexibility and reliability.

The combination of Silver Peak™ VX WAN optimization and VRX replication acceleration software, with Dell storage, help enterprises reap the rewards of virtualization by overcoming challenges that impact the performance of these applications—across a geographically distributed enterprise.

High Performance and Resiliency for Virtualized Server Environments

For server virtualization, Dell™ PS Series™ virtualized iSCSI SAN storage complements VMware® virtualization deployments. Its virtualized scale-out architecture with iSCSI connectivity simplifies management and scaling of storage. Built-in intelligence facilitates automated perpetual data optimization for enhanced storage performance. Dell PS series storage is also tightly integrated with the latest versions of VMware tools and vStorage APIs to help improve manageability, reduce overhead, and realize breakthrough performance.

While server virtualization can dramatically decrease CAPEX and OPEX costs within the data center, the challenge of continuous availability in the event of a disaster and/or downtime remains. To ensure availability, the PS Series Auto-Replication enables the creation and updating of replicas of volumes (i.e. LUNs) on a recurring, scheduled basis. Dell PS Series Storage Replication Adapters (SRA) for VMware vCenter Site Recovery Manager (SRM), available as a download at no additional cost, integrates the PS Series Auto-Replication feature into vCenter SRM. Combined with vCenter SRM, Dell offers an approach to virtual server disaster recovery that is simple, automated, and economical.

But replication performance between offices is often significantly constrained by the underlying WAN, regardless of the amount of bandwidth between offices. The longer distance means data takes longer to arrive at the remote office. Network congestion problems also add to delay and distortion as data packets must be resent or reordered for processing.

Silver Peak replication acceleration complements the Dell-VMware disaster recovery solution by maximizing the utilization of WAN bandwidth when doing offsite replication. In addition, Silver Peak ensures the PS Series replication performs at its full potential on shared networks, which delivers substantial WAN bandwidth cost savings to enterprises. Lastly, the combined Silver Peak and Dell PS Series storage solution enables replication to take place across long distances with little or no decrease in throughput.

By deploying Dell PS Series storage with Silver Peak VRX replication acceleration, enterprises have more flexibility in how they setup their disaster recovery processes, and can substantially lower their disaster recovery costs. Perhaps most importantly, the combined Silver Peak and Dell PS Series storage solutions minimizes Recovery Point Objectives (RPO), which ultimately reduces exposure to data loss.
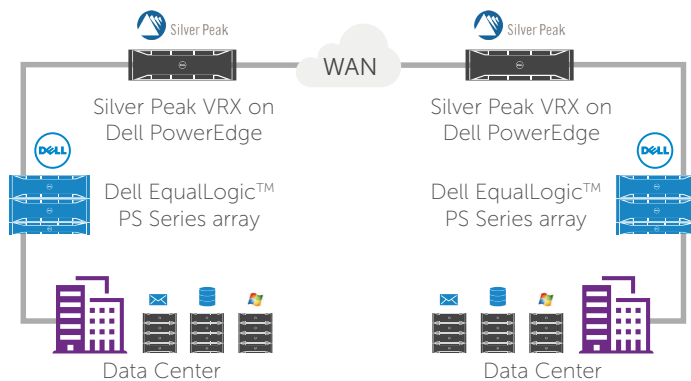
deployments are stretched across geographic distances, the WAN can become a bottleneck and affect performance to the point where VDI becomes unusable.

Unlike legacy storage architectures, Dell PS Series iSCSI SAN and FS Series NAS solutions leverage the best-in-class storage capabilities to provide scalable, high-performance, virtualized VDI storage solutions designed for efficiency, agility and resiliency. Automated workload balancing and tiering capabilities, and muti-tired storage arrays that combine with low latency Solid State Drives (SSDs) with lower cost SAS disks, provide a consistent balance of cost and performance. The PS Series storage mitigates read-intensive I/O storms by automatically migrating the most frequently accessed blocks of data to the high-performance SSD drives.

Silver Peak WAN optimization techniques help to scale VDI across the geographically distributed enterprise by addressing latency, packet loss, and bandwidth challenges that cause VDI to be unresponsive and/or unreliable across the WAN.
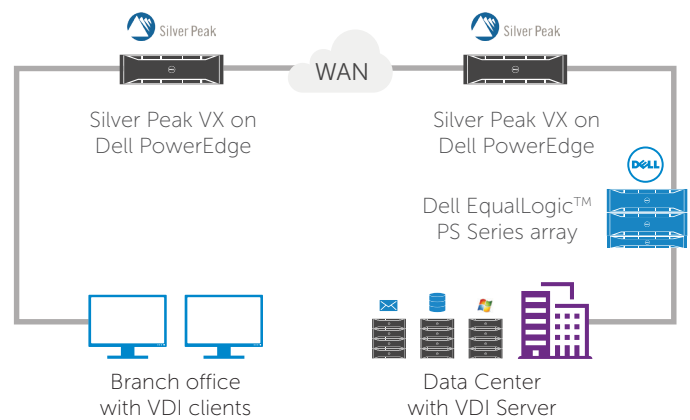

Figure 1. Dell PS Series and Silver Peak VRX optimize replication for multi-site virtual deployments

Figure 2. Dell PS Series and Silver Peak VX optimize performance for VDI

Leverage VDI throughout the geographically distributed enterprise

With VDI, data typically stored on end user devices is consolidated on centralized virtualized IT-managed shared infrastructures. While this can improve operational efficiencies and enhance data security, new storage price/performance, manageability and scalability challenges surface.

Regardless of the VDI deployment model, in the morning, hundreds or even thousands of end users simultaneously send boot or logon requests to the VDI shared storage system to access their virtual desktops. The boot or log-on "rush hour" results in a condition commonly referred to as an I/O storm or a "boot storm". To make matters worse, when the virtual desktop environment expands to accommodate more users, storage I/O performance and capacity requirements grow. Finally, as VDI

Silver Peak network acceleration overcomes latency by lowering network "chattiness", improving keystroke responsiveness. Silver Peak Network Integrity fixes WAN quality issues to improve responsiveness and performance of VDI while Silver Peak's Quality of Service (QoS) capabilities prioritize VDI over less important traffic, like Internet browsing. Finally, Silver Peak Network Memory inspects all WAN traffic in real time, storing a single local instance of data. Prior to sending information across the WAN, Silver Peak compares traffic streams to patterns already stored. Repetitive data is never sent across the WAN, saving bandwidth and enabling LAN-like performance–even over very constrained WAN connections.

With Silver Peak and Dell storage, VDI and virtual server performance become more scalable, resilient and more tolerant to fluctuations in WAN infrastructure and distance. Replication performance doesn't suffer and nor does the user's application performance. Silver Peak and Dell–ensuring IT initiatives perform as well across the WAN as they do on the LAN.

Learn more at Dellstorage.com/virtualization