Dell™ EqualLogic™ PS Series virtualized iSCSI Storage Area Networks (SANs) leverage numerous benefits inherent in the standard iSCSI protocol, including its high ease-of-use, low networking infrastructure costs and low total cost of ownership (TCO). When layered on top of TCP/IP, iSCSI storage can use IP-based Wide Area Networks (WANs) as the foundation for consolidating backup processes and enabling disaster recovery. The PS Series Auto-Replication feature — standard with all PS Series arrays, no additional activation fees or licenses — can leverage enterprise WANs to cost-effectively replicate data between geographically distributed sites.

Dell EqualLogic SANs, in combination with Silver Peak’s data acceleration, offer a proven solution for offsite data protection and centralized backup. With the combined Dell and Silver Peak solution, enterprises can protect more data across longer distances, while leveraging cost-effective shared WAN technologies (such as MPLS, Internet VPNs) to help lower ongoing IT costs.

Simplified operations for disaster recovery and multi-site backup

The WAN-accelerated replication solution provided by Dell EqualLogic SANs and Silver Peak virtual and physical appliances effectively support two strategic imperatives: disaster recovery and multi-site backup. Disaster recovery strategies address the need to safeguard data against natural disasters, human error and malice. Enterprises can manage against these risks by replicating primary data at secondary sites. EqualLogic Auto-Replication periodically replicates data from primary sites to designated disaster recovery sites, while Silver Peak appliances help accelerate data center replication across the WAN. Should outages occur, IT managers can leverage these secondary sites as interim data centers, using this remote data until primary sites recover to help maintain high business continuity with minimal loss.

Remote Replication for Dell EqualLogic

Silver Peak appliances are seamlessly deployed on both ends of a WAN link, between the WAN router and storage array. Out-of-path deployment options also exist.
Multi-site backup strategies, on the other hand, can help centralize the management, processing and protection of enterprise data that may — as a result of distributed operations — be decentralized across regional, national, or international boundaries. This distribution of business-critical data across physical sites can compound the challenges of data backup and security. Silver Peak appliances and Dell EqualLogic PS Series arrays can help maximize WAN performance and efficiency in this process, and allow enterprises to consolidate data backup processes into primary data centers.

Boosting replication throughput using real-time network optimization

Dell EqualLogic PS Series Auto-Replication enables creating and updating replicas of volumes (such as LUNs) on a recurring, scheduled basis. Replication refresh rates depend upon a volume’s ongoing page-level changes and the effective bandwidth that has been dedicated between replication partners. Although ongoing replications are very efficient, WAN bandwidth, latency and quality challenges can still prevent replication from performing at its true potential. When these challenges exist, WAN optimization is recommended to boost replication performance and minimize the risk of data loss. Optimizing WAN throughput specifically for replication traffic, therefore, can be critical for achieving recovery point objectives and backup windows for both multi-site backup and disaster recovery operations.

Silver Peak’s VX, VRX and NX appliances complement the Dell EqualLogic SAN solution by overcoming the common WAN challenges that adversely impact replication performance between source and target locations. More specifically, the Silver Peak solution mitigates bandwidth, distance and WAN quality issues by using the following real-time network optimization techniques:

- Maximize available bandwidth through byte level deduplication and compression. Silver Peak complements Dell EqualLogic Auto-Replication by looking for recurring data patterns within data blocks and matching patterns across all IP applications (not just EqualLogic traffic). This is critical when replication traffic shares the WAN with other applications, like file, email and web. In Silver Peak and Dell joint testing, 7X throughput improvement was achieved when EqualLogic Replication was optimized with Silver Peak.*
- Extend replication distance by minimizing transport protocol chattiness over the WAN. With Silver Peak and Dell EqualLogic, source/target devices can be placed anywhere, ensuring business needs are not hampered by network limitations.
- Prioritize replication traffic and guarantee available bandwidth, so that voice, video, data and storage traffic can all coexist on one converged network.

Silver Peak’s Global Management System (GMS) also provides real-time and historical analysis of WAN performance, including detailed reports on bandwidth, latency, and packet loss. This can be used for capacity planning, ongoing network and application monitoring, and rapid troubleshooting. With Silver Peak’s GMS, IT administrators can monitor the performance of all IP traffic traversing the WAN and export key information to third-party systems using Netflow.

Maximize replication performance across the WAN

The combined Dell EqualLogic and Silver Peak solution maximizes the utilization of WAN bandwidth when doing offsite replication. In addition, Silver Peak ensures Dell EqualLogic 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 EqualLogic solution enables replication to take place across long distances with little or no decrease in throughput.

By deploying Dell EqualLogic with Silver Peak’s VX, VRX and NX appliances, 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 EqualLogic solution minimizes RPO, which ultimately reduces exposure to data loss.

Simplify Your Storage at Dell.com/EqualLogic.

*Based on the July 2012 “Silver Peak WAN Optimization and Dell EqualLogic Series Technical Report”, Figure 6 with 45Mbps WAN, 80ms latency and 0.1% loss.