Off-Site Data Replication with Silver Peak and NetApp

Optimizing SnapVault and SnapMirror Performance Across the WAN

The Challenges of Replication Across an IP WAN

Limited bandwidth, high latency, out-of-order packets, and lost packets are all common IP WAN characteristics that can slow data replication processes to a crawl or prevent them from happening entirely. These IP WAN challenges also increase the total cost of ownership (TCO) for data protection by preventing replication and backup services from taking place on cost-effective shared WAN infrastructures such as Multiprotocol Label Switching (MPLS) and Internet Virtual Private Networks (VPNs).

The NetApp-Silver Peak Solution

NetApp and Silver Peak improve data protection efficiency and reduce the risk of exposure from failed backup or disaster recovery processes. NetApp® SnapVault® and SnapMirror®:

- Minimize data movement and data storage requirements by replicating Snapshot™ copies and transferring only unique changed blocks.
- Cut backup/DR transfer times from hours or days to minutes.
- Reduce overhead by providing faster, more reliable, more automated data protection.

Silver Peak complements NetApp SnapVault and SnapMirror products by:

- Reducing transfer times even further
- Maximizing WAN bandwidth utilization
- Reducing packet loss and delivery errors

Together, NetApp and Silver Peak provide secure and reliable data backup and recovery and make enterprise data protection more cost effective.

Why Silver Peak?

Silver Peak's WAN acceleration technology lets enterprises back up more data while lowering data protection costs. This is achieved using the following real-time network optimization techniques:

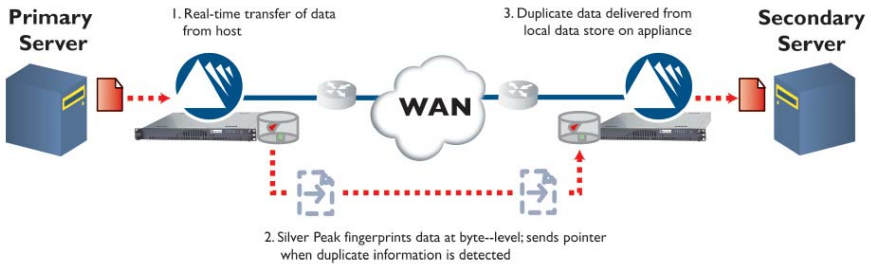
Network Acceleration. TCP acceleration helps to overcome latency between source and target locations. By adjusting the TCP window size and performing selective acknowledgements, Silver Peak network acceleration techniques mitigate the impact of latency on long-distance replication. Network acceleration works on all TCP traffic going across the WAN, not just replication traffic. Therefore, it is often required even when TCP acceleration is used within storage devices.

Network Integrity. Silver Peak provides a variety of real-time optimization techniques to "clean up" the WAN for better effective throughput. Forward Error Correction (FEC) rebuilds lost packets on the far end of a WAN connection and Packet Order Correction (POC) ensures that all packets are delivered in the order they were sent. Both of these network integrity features address packet delivery errors without requiring costly retransmissions, resulting in maximum replication performance across MPLS, IP-VPNs, and other shared WAN environments.

Advanced QoS services can prioritize SnapVault and SnapMirror traffic and guarantee that necessary bandwidth requirements are met. Silver Peak can honor existing traffic management policies or create new tags that leverage up to 10 different QoS classes within Silver Peak devices.

Network Memory. Silver Peak uses disk-based deduplication to eliminate the transfer of duplicate information sent across the WAN during the replication process. By working at the byte level, Silver Peak typically delivers an additional 60% to 90% more virtual bandwidth for data replication. This is in addition to the compression capabilities offered natively in storage devices. (NOTE: The best results are achieved when compression is disabled upstream of the Silver Peak appliances. This enables Silver Peak's compression and data reduction capabilities to reach their maximum potential.)

The Silver Peak solution has the advantage of performing compression and deduplication on all IP traffic traversing the WAN (storage + other business applications). With visibility into all the traffic going into and out of a single office, Silver Peak delivers optimal performance when SnapVault and SnapMirror traffic share the WAN with other enterprise applications.



Network memory recognizes duplicate information and delivers it locally, improving replication and recovery times and saving WAN bandwidth.

Expected Results

Silver Peak typically provides 10 to 20 times (90–95%) aggregate performance improvements in SnapVault and SnapMirror environments.

Silver Peak appliances have been effectively deployed with Snapshot replication products in numerous enterprise networks, including the following customer examples:

Global Energy Company

Application:	SnapMirror
WAN:	100Mbps, <5 ms latency
Result:	80% to 97% data reduction
	Effective WAN throughput increased from 2Mbps to 60Mbps

Design and Engineering Services Company

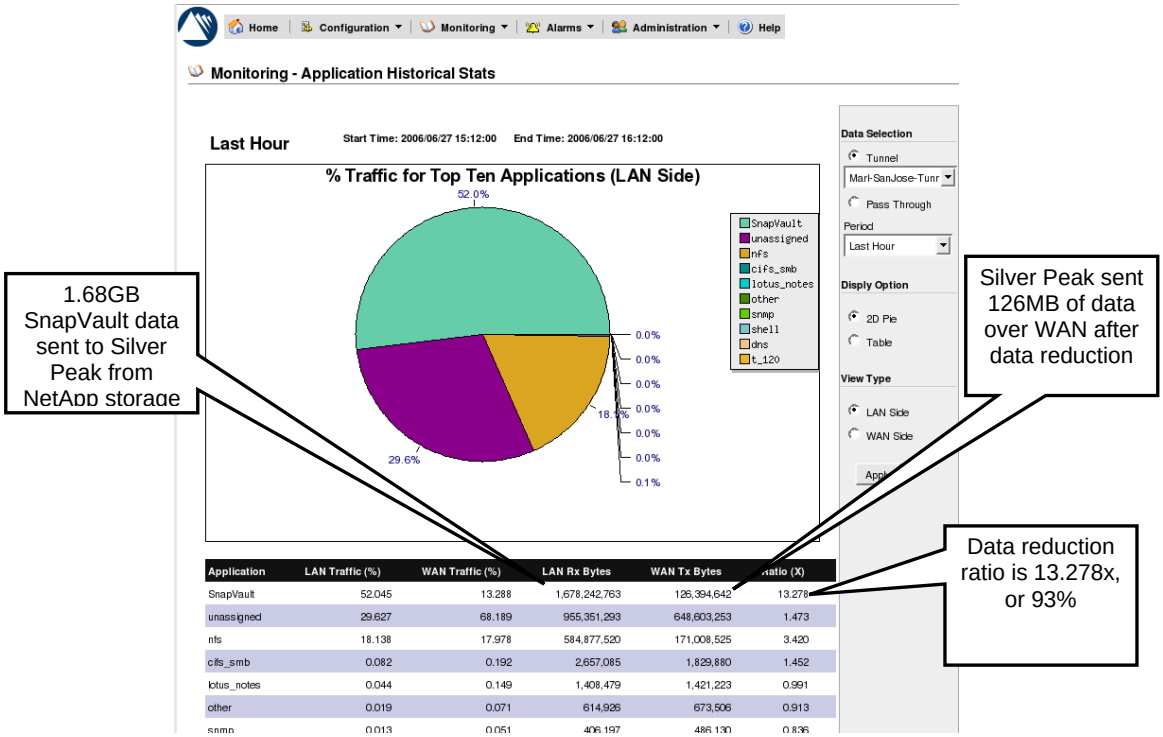
Application:	SnapVault and SnapMirror
WAN:	45Mbps, 60 ms latency
Result:	20-minute transfers reduced to 85 seconds

Global PC Manufacturer

Application:	SnapMirror
WAN:	1.5Mbps, 150 ms latency
Result:	20x to 40x data reduction
	50% to 75% time reduction

Global Manufacturer of Servers, Desktops, and Laptop Computers

Application:	SnapVault
WAN:	90Mbps, 100 ms latency
Result:	14:1 data reduction (93% increase in WAN utilization)



Silver Peak typically provides 10 to 20 times aggregate performance improvements in Snapshot environments, with peak improvements reaching 200 times.

Why NetApp?

NetApp SnapVault provides a centralized disk-based backup solution for heterogeneous storage environments. NetApp SnapMirror software is a disaster recovery and data distribution solution. By replicating Snapshot copies at high speeds over a LAN or a WAN, both products provide highly reliable, highly scalable data protection and fast recovery for mission-critical applications.

SnapMirror:

- Improves network and storage efficiency by replicating only changed data blocks to your disaster recovery site
- Optimizes resources of your copies for DR testing, Q/A, or development and testing
- Achieves automated DR in virtualized storage environment through integration with VMware®
- Offloads tape backup and doubles the value of your disaster recovery investment
- Deploys quickly and easily with no additional IT resources

NetApp SnapVault provides a centralized disk-based backup solution for heterogeneous storage environments. Storing backup data in multiple Snapshot copies on the SnapVault secondary storage system lets enterprises keep weeks of backups online for faster restores. SnapVault also gives users the power to choose which data gets backed up, the frequency of backup, and how long backup copies are retained.

SnapVault (for NetApp systems) and Open Systems SnapVault (OSSV, for heterogeneous file system data):

- Improves backup and recovery speeds by up to 92%
- Minimizes capacity needed for data protection
- Enables cost-effective WAN backups

All Snapshot, SnapVault, OSSV, and SnapMirror operations can be controlled by NetApp Protection Manager, a policy-based automation engine that provides centralized and automatic data discovery, provisioning, policy execution, and exception monitoring.

Silver Peak and NetApp Partnership

Silver Peak provides a variety of WAN optimization techniques to optimize and accelerate all asynchronous data replications across the WAN.

In NetApp environments, Silver Peak offers the following unique advantages:

- The highest-capacity WAN optimization appliances (maximum end-to-end throughput and the most simultaneous sessions)
- The only WAN optimization vendor to correct lost and out-of-order packets in real time, enabling replication solutions to work on MPLS and Internet VPNs
- The only WAN optimization solution certified in all FCIP and Gigabit Ethernet environments
- A full product portfolio, scaling from 2Mbps to 1Gbps WAN throughput
- Real-time IPSec encryption for all data sent across the WAN
- Improved RPO/RTO
- Reduced WAN bandwidth costs (which reduces the total cost of data protection)
- Better replication performance
- Extended distance between disaster recovery facilities

Silver Peak is a member of the NetApp Partner Program. Both SnapVault and SnapMirror have been tested and verified with Silver Peak NX appliances in live customer deployments.

For more information, visit www.silver-peak.com/Netapp or www.netapp.com/alliances.