



Leading Specialty Retail Provider Optimizes Disaster Recovery with EMC RecoverPoint and Silver Peak

BUSINESS CHALLENGES:

- » 12 hour window for backing up business critical data
- » Data and storage converged onto single MPLS network for cost savings

NETWORK BACKGROUND:

- » Data center in San Diego, CA and a Disaster Recovery facility (hosted by Sungard) in Scottsdale, AZ connected via heavily congested OC-3 WAN.
- » Numerous retail stores and warehouses connected to data center via MPLS network

SILVER PEAK RESULTS:

- » Cumulatively getting 400 Mbps throughput on 155 Mbps WAN
- » RecoverPoint consistently replicating 63 GB/hour
- » Company is meeting a 12 hour RPO with EMC and Silver Peak in place
- » Overall bandwidth utilization improved by 77% on average
- » Performance of UDP applications (e.g. NFS) improved by 79%
- » 60% improvement in CIFS file sharing

When organizations need to establish disaster recovery sites, all too often engineers have to figure out how to replicate their data to the remote site in a timely and effective manner. Even with today's high-speed networks the problem is easier said than done.

This was the situation faced by The Retail Company, a leading provider of retailer of in the pet specialty goods and services. The company needed to backup its San Diego, CA data center to a disaster recovery site in Scottsdale, Arizona while meeting a 12 hour Recovery Point Objective (RPO). RecoverPoint was the chosen solution for asynchronous replication, but even with an OC-3 (155 Mbits/s) WAN, the company was unable to meet its stringent objectives.

"RecoverPoint was performing well, but other traffic on the WAN was limiting the bandwidth available for replication," said The Retail Provider's lead architect of data center and infrastructure. "This was having a significant impact on our disaster recovery plans."

Increasing WAN bandwidth would have been far too expensive, and it wasn't certain that more capacity would solve the company's replication challenges. The Retail Company's engineers knew that WAN optimizers could improve bandwidth utilization while conditioning the network for optimal data throughput, so they turned to Silver Peak as a perfect complement to their RecoverPoint solution. Silver Peak's application-independent, network layer approach to WAN optimization enhanced replication throughput, while simultaneously optimizing other key business applications over the WAN. After deploying Silver Peak, the Retail Provider saw dramatic performance improvements across the board, enabling the company to easily and cost effectively meet its stringent Recovery Point Objectives.

"Silver Peak appliances give us about a 3x average optimization," says the senior network engineer. "To get equivalent throughput we would have to buy a 450 Mbps line."



With Silver Peak and RecoverPoint, the Retail Company could not only roll back lost transaction data to any period of time, but the IT department could guarantee the availability of that data by locating it in a secure location, nearly anywhere in the world.

In the DR Dog House

The Retail Company's heart and soul is its merchant database, which processes inventory in the evening, counts the number of sales of anything from Reptile Sprayers to cat food across, and then gathers and generates distribution orders for the Retail Company's 1053 retail locations. So when the company found that it had lost some data four years ago, the executives realized that creating an effective backup strategy was essential.

The Retail Company identified the essential applications that needed to be backed up. Payment processing, customer logging programs, as well as the merchant database were targeted for DR. But while the former two ran active/active already, the merchant database required an external replication system. The Retail Company needed a replication solution that would work with its Clarion and DMX systems, so the company chose EMC's RecoverPoint, a leader in that arena.

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A DR facility hosted by Sungard was chosen in Scottsdale, AZ, one far enough way to insure continued operation in the event of a disaster yet close enough so that San Diego employees could still travel to the site. The two sites were connected via an OC-3 (155 Mbps link), with RecoverPoint appliances placed in both locations. The Retail Company had a 12-hour window to replicate the database, which was dictated by the fact that the stores opened every day at 7:00am and required everything up by that time. The WAN however, was not cooperating.

"Spikes in the data flow coupled with WAN packet loss caused RecoverPoint to drop out of asynchronous mode," says the lead architect.

Although a 155 Mbps WAN would seem to be enough to move RecoverPoint's 63.8 GB per hour (141.7 Mbps), replication throughput is determined by a combination of packet loss, latency and WAN bandwidth. With just 10ms of latency between the two sites and minimal packet loss, effective throughput was limited to 55 Mbps, and there was still protocol overhead and traffic from other applications to be carried across the wire. At the same time, CPU utilization of RecoverPoint appliances was also very high, limiting the performance of the replication solution. Together it became clear that a network-wide solution was required to improve the performance of all The Retail Provider's IP traffic.



“We did a trial of WAN optimization equipment, and Cisco did not make it through the first test as it couldn’t keep up with all our applications,” says The Retail Provider’s network engineer. “We then tried Riverbed twice, once with compression enabled in RecoverPoint and once without compression, and both times we found database corruption errors.”

Silver Peak - a WAN’s Best Friend

The Retail Provider turned to Silver Peak, the leader in data center class WAN optimization. Silver Peak’s all IP approach works on all enterprise traffic, never interfering with an application’s operations. Silver Peak’s three core technologies – Network Acceleration, Network Integrity, and Network Memory – enable organizations to deploy a more cost effective and better performing replication solutions based on business not technical needs:

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Network Acceleration enables organization to place DR sites as close or as far from the site primary site as necessary without regard to constraints imposed by network latency. Network Acceleration addresses latency problems by overcoming TCP’s limitations in passing large data volumes. Network Acceleration uses techniques such as window scaling and selective acknowledgements; Network Acceleration also corrects CIFS chattiness, which is an issue for certain applications sharing the line with RecoverPoint.

Network Integrity enables organizations to reduce costs of their DR plans by selecting a less expensive network connection, such as an Internet connection or an MPLS service, which might have higher incidents of packet loss. This is possible because Network Integrity corrects real-time packet loss commonly found on those networks using Silver Peak’s Forward Error Correction (FEC). Packet Order Correction (POC), the second part of Silver Peak’s Network Integrity features, will reorder packets helping to reduce or even eliminate network packet retransmission, which reduces an application’s maximum throughput. Advanced Quality of Service (QoS) techniques also prioritize traffic and guarantee network resources.

Network Memory enables organization to get more out of their DR connections. Network Memory is Silver Peak’s patent-pending solution for deduplication over the WAN, which reduces the volume of data replicated over the WAN. With Network Memory, the Silver Peak appliances inspect all traffic sent between San Diego and Scottsdale and store information as a local instance. Repetitive information is then delivered locally rather than being sent across the WAN, improving application performance and WAN utilization.



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“We got the best of both worlds, with RecoverPoint deduping our storage traffic and Silver Peak also deduping everything else on the WAN,” said the network engineer. “The two solutions complimented each other perfectly, resulting in the maximum possible bandwidth utilization across our WAN.”

With Silver Peak deployed, The Retail Company was able to optimize all of their applications and triple the throughput of the connection. Not only was RecoverPoint throughput enhanced by 77 percent, but UDP applications, namely NFS, saw a 79 percent improvement and Microsoft file sharing (CIFS) improved by almost 60 percent.

Said the network engineer, “We turned on the Silver Peak appliances, and ‘bam’ everything just worked.”

The ROI on the implementation was immediate and significant.

“We saved the company over \$100,000 per year by avoiding a WAN upgrade” said the network engineer; “And we are replicating 14.2 TB of data with a 12 hour RPO, which is invaluable to our company’s disaster recovery objectives.”

With Silver Peak and RecoverPoint, The Retail Company has gained the assurance it needs to know that the organization can weather any disaster. The company was so impressed with the results on their Data Center WAN link, that they have subsequently deployed Silver Peak in their stores and warehouses, too.

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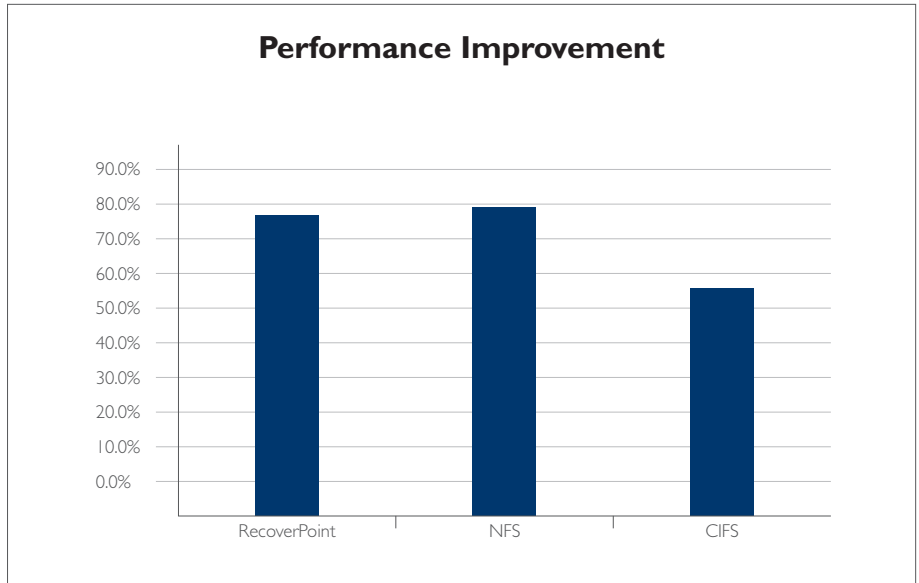


Figure 1: Silver Peak optimizes a wide range of IP applications across the WAN.

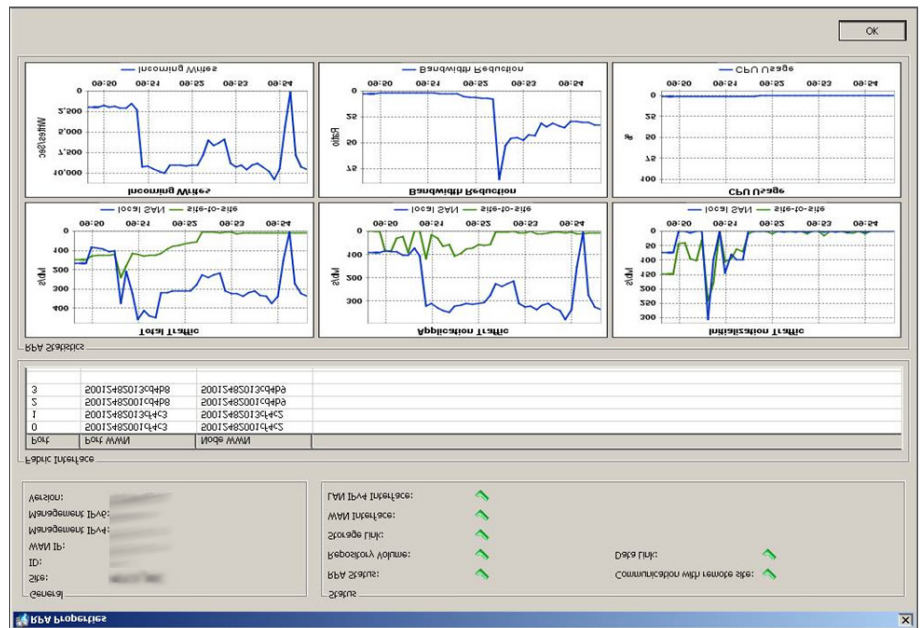


Figure 2: With Silver Peak and RecoverPoint, The Retail Company is consistently protecting over 1.7 Tbytes of traffic over its WAN.