



Reduce backup and recovery times with Silver Peak and Veritas

Using Silver Peak with Veritas Volume Replicator (VVR)

What is VVR?

The Veritas Volume Replicator (VVR) is an optional software package from Symantec. It runs on top of their Veritas Volume Manager software, enabling data replication between data centers over an IP network.

VVR enables enterprises to replicate IP data over any distance in both a synchronous and asynchronous manner. It can be used across heterogeneous platforms, and supports both UDP and TCP as transport protocols. UDP is often the protocol of choice as it is easy to setup and offers increased performance across the WAN. As a result, Silver Peak is uniquely positioned to optimize this application.

How does VVR work?

VVR works in one of two methods, synchronous and asynchronous modes. Synchronous mode ensures that a replication has been posted to both sides of a WAN link before the replication is acknowledged to be complete at the application level. In the

event of a disaster at the primary datacenter, the data recovered at the secondary datacenter will be an exact copy of the replicated data. This method incurs some performance impact due to the fact that the data must traverse the WAN before being acknowledged.

Asynchronous mode eliminates the potential performance problems of synchronous methods. The remote datacenter may lag behind the primary datacenter, usually by less than one minute, offering essentially real-time replication without the application performance impact. During asynchronous replication, application updates are written at the primary, and queued for forwarding to each secondary location as network bandwidth allows. Unlike synchronous replication, the writing application does not suffer from the application performance impact of replication and can function as if replication is not occurring.

How does Silver Peak benefit VVR deployments?

Silver Peak improves VVR in the following ways:

- Improve data transfer times.** Silver Peak's Network Memory recognizes repetitive information and delivers it locally, a concept known as data reduction. Silver Peak offers the only data reduction solution on the market that accelerates both TCP and UDP traffic, accommodating all VVR deployment methods.

- Maximize WAN efficiency.** Network Memory can reduce as much as 99% of WAN traffic by eliminating the transfer of duplicate information. Network memory fingerprints at the byte level, enabling Silver Peak to detect and eliminate repetitive patterns even when the backup/replication solution is performing similar functions at the block level.

In addition, Silver Peak leverages advanced compression techniques to further reduce the amount of WAN bandwidth required for backup and replication. These techniques work in both directions of a WAN link, improving the backup/replication process while ensuring that the WAN can efficiently handle a restore if needed. By providing compression within the acceleration appliance, this functionality can be off loaded from the host replication

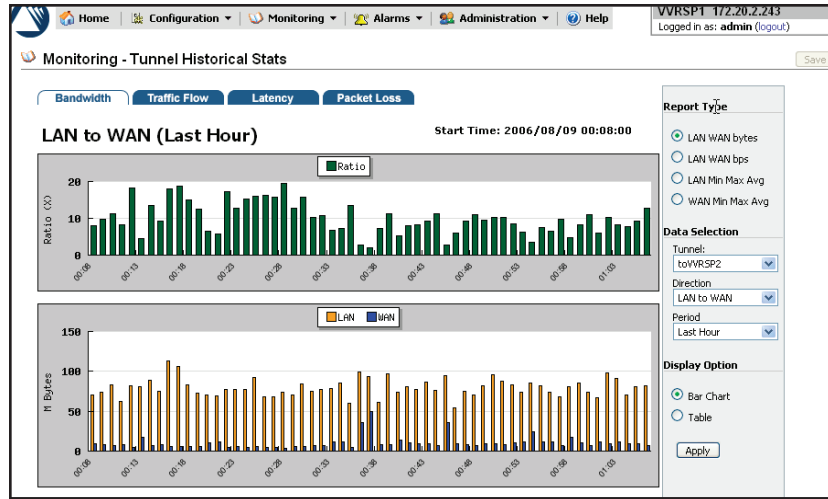


Figure 1: Silver Peak typically provides a 10-20x aggregate performance improvement in VVR environments

server, ensuring better scalability and performance. In addition, significant performance improvement can be provided even when non-repetitive information is sent across the WAN.

- Reduce packet loss and delivery errors.** Silver Peak reduces the impact of both packet loss and jitter that occurs when router links are oversubscribed and drop or re-order packets. This is handled via adaptive Forward Error Correction (FEC), a technology that is used to reconstitute lost packets at the far end of a WAN link, avoiding delays that come with multiple-round-trip retransmissions. The Silver Peak solution dynamically adjusts the FEC overhead in response to changing link conditions for maximum effectiveness in environments with high packet loss.

What type of results are seen when Silver Peak is deployed with VVR?

Silver Peak appliances have been effectively deployed with VVR at numerous deployments. Silver Peak "routinely" provides 10-20x (90-95%) aggregate performance improvements in VVR environments, with peak improvements reaching 200x (99%).

One Silver Peak customer is a leading supplier of business management software and services to 5 million customers worldwide. This enterprise's network consists of a DS-3 with over 60ms of latency across an IPSec VPN. Prior to using WAN acceleration, this network was getting 25 Mbps average throughput (with standard data transfer sizes of 300GB).



Replication was required to take 15 minutes or less to ensure write fidelity. Silver Peak easily met this requirement, while improving bandwidth utilization by over 90%

With Silver Peak NX appliances, this customer's VVR application consistently achieved 250-300 Mbps of throughput (running over UDP). The competition, which required VVR to be run over TCP, was only able to achieve 10-30Mbps, actually degrading VVR performance in some instances.

This customer measured performance of their disaster recovery application in two ways – peak bandwidth utilization and Recovery Time Objective (RTO). Their RTO, which was 15 minutes, was the key determinant for choosing a WAN acceleration solution. The customer ran VVR in asynchronous mode, measuring how much time was needed to synchronize the outstanding write requests in the Storage Replicator Log (SRL) with the remote datacenter. They required their WAN acceleration appliances to ensure that, at any given time, the replication took 15 minutes or less to ensure write fidelity.

With Silver Peak, the company easily met this requirement. Furthermore, Silver Peak improved bandwidth utilization by over 90%, making it a clear choice for this customer's environment.

In the end, Silver Peak reduced the amount of total data traversing the WAN and significantly shortened the amount of time it took to backup all of the customer's volumes of data. By minimizing the company's risk of exposure, Silver Peak became a critical component of this enterprise's business continuity plans.

