

Benefits of using EMC qualified Steelhead appliances with SRDF/A:

- » Reduce bandwidth requirements
- » Improved and consistent performance for SRDF/A over WAN
- » Reduce Total Cost of Ownership (TCO)
- » Meet or improve service level agreements

Riverbed® Steelhead® Appliances and EMC SRDF/A

EMC's Symmetrix Remote Data Facility/Asynchronous (SRDF/A) provides a long distance disaster recovery solution often used to protect the most vital informational assets in enterprises. In order to maintain the high end-to-end throughput requirements and stringent RPO/RTO targets necessary to protect such assets, the WAN infrastructure is a critical element of the solution.

However, there are a number of challenges when provisioning a WAN infrastructure suitable for SRDF/A. Should replication workloads reach increasingly high sustained and peak throughputs, chronic network congestion may prevent timely flushing of replication caches, which in turn will lead to increased cycle times and compromised RPO/RTO. Should network congestion become too severe, SRDF/A may determine the network is unusable and suspend altogether, which must be avoided at all costs. Furthermore, if WAN utilization is a concern today, it's infeasible to think of setting up new RDF groups to protect additional data. Taking all this into account, an upgrade of the WAN infrastructure seems necessary in many cases, either through a costly WAN bandwidth upgrade or deployment of a WAN optimization solution such as that offered by Riverbed.

EMC offers standard compression capabilities embedded within the Symmetrix DMX Gigabit Ethernet interfaces, and this capability provides typical compression results in the range of 2:1 to 3:1. However, due to the high cost of WAN infrastructure and continued strong growth in the amount of data that must be protected, many customers have a requirement to achieve even greater data reduction results as well as improve network utilization. Riverbed's WAN optimization technology enables customers to achieve the goal of reducing/deferring bandwidth purchases, protecting more data with the same WAN infrastructure while meeting or exceeding RPO/RTO objectives for their SRDF/A deployments.

Steelheads in SRDF/A Environments

Steelhead appliances and RiOS software minimize WAN bandwidth utilization through Data Streamlining, a patented, byte-level network data de-duplication method. This approach can be used in lieu of built-in network compression available on Symmetrix DMX Gigabit Ethernet interfaces. Riverbed's Data Streamlining typically yields higher data reduction ratios of 5:1 or greater for the common enterprise workloads seen in SRDF/A environments. In addition to reducing WAN utilization, the Steelhead includes extensive Hierarchical Quality of Service (QoS) capabilities to ensure that SRDF/A traffic receives the appropriate guaranteed level of WAN bandwidth and latency. This provides SRDF traffic with priority access to the network infrastructure required to ensure consistent performance and maintain RPO/RTO targets. Challenging network environments may also employ the Steelhead's MX-TCP option which ensures that the desired WAN throughputs are maintained even in the event of network impairments such as packet loss.



Steelhead and EMC SRDF/A Deployment Diagram

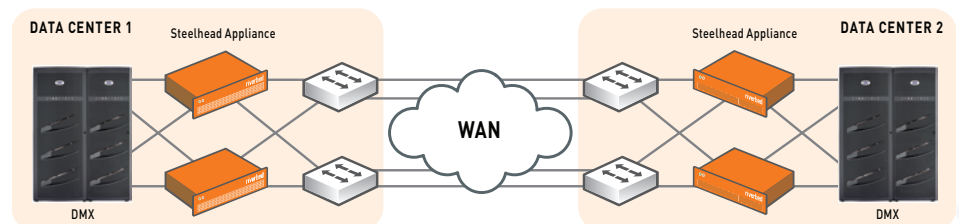


Figure 1: High Availability Options with Physical In-Path. Steelhead configured with Fail to Block and Link state propagation.

Steelhead and EMC SRDF/A Deployment Diagram

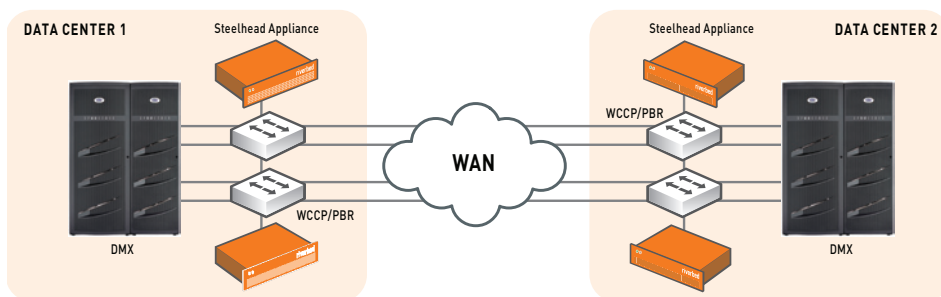
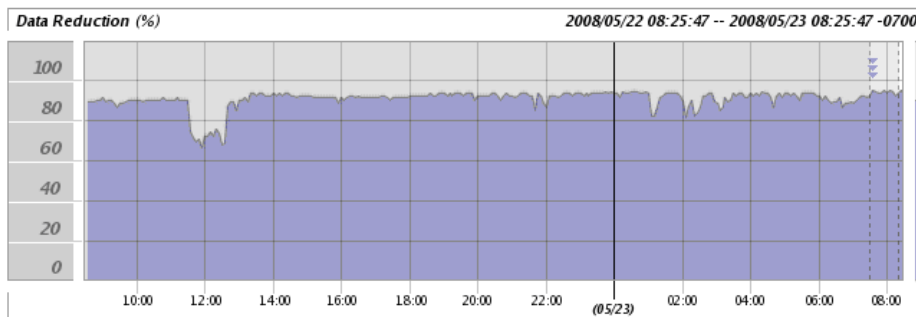


Figure 2: High Availability configuration with WCCP/PBR

Finally, it is important that a WAN optimization deployment not compromise the highly redundant nature of your existing Symmetrix solution. As a result, the Steelhead appliance provides multiple High Availability (HA) deployment options to ensure that maximum data reduction and throughput enhancements are always present, even in the event of outages of any Steelhead appliance or network element. Depending on the needs of the environment, customers may choose a physical in-path deployment or a virtual-in-path deployment, such as WCCP.

The combined effect of the RiOS features results in enhanced performance of the SRDF/A flows while reducing WAN bandwidth requirements. This can significantly delay the need to upgrade bandwidth and can often allow environments to begin protecting even more data using SRDF/A using the existing WAN infrastructure.



Period:
 Application:
 Traffic:
 Refresh:

Total Data Reduction %	88%
Peak Data Reduction At 07:30:20 on 2008/05/23	96%
Capacity Increase	8.58X

Figure 3: Showing real world proof point of customer using SRDF/A with Steelheads

Conclusion

By selecting the qualified Riverbed Steelhead solution for SRDF/A, enterprises will achieve more reliable data protection, streamlined IT operations, and dramatic cost reductions due to deferral/reduction of WAN bandwidth. When developing a disaster recovery strategy, enterprises-especially those with large data centers--can now greatly benefit from combining best-of-breed solutions like EMC SRDF/A and Riverbed WAN optimization.

About Riverbed

Riverbed Technology is the IT infrastructure performance company. The Riverbed family of wide area network (WAN) optimization solutions liberates businesses from common IT constraints by increasing application performance, enabling consolidation, and providing enterprise-wide network and application visibility – all while eliminating the need to increase bandwidth, storage or servers. Thousands of companies with distributed operations use Riverbed to make their IT infrastructure faster, less expensive and more responsive. Additional information about Riverbed (NASDAQ: RVBD) is available at www.riverbed.com



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