

## Riverbed and EMC Partner Solution Brief

### EMC Storage and Riverbed WAN Optimization

Wide area network (WAN) optimization solutions from Riverbed Technology free businesses from common IT constraints while giving them an order-of-magnitude increase in the performance and value of their existing infrastructure and mission-critical applications. Riverbed® works closely with EMC® to accelerate backup and data replication performance over the WAN and to enable efficient file sharing by overcoming bandwidth and geographical limitations to achieve higher levels of data protection.

Thousands of widely distributed businesses use Riverbed to make their IT infrastructure faster, less expensive, and more responsive, while EMC works with organizations around the world, in every industry, in the public and private sectors, and of every size, from startups to the Fortune Global 500 to store, protect, and leverage information. By deploying proven Riverbed Steelhead® appliances with established EMC storage and disaster recovery solutions, the enterprise can migrate to cloud-based storage while centrally consolidating internal storage resources. The enterprise can maintain high, end-to-end throughout and meet even the most stringent recovery time objectives (RTOs) and recovery point objectives (RPOs) necessary to protect critical information assets.

There are challenges that companies face when provisioning a WAN infrastructure suitable for replication, especially when that infrastructure is also shared with other applications. Should WAN workloads reach increasingly high sustained and peak throughputs, chronic network congestion can lead to increased replication cycle times and compromise RTO/RPO targets. Riverbed WAN optimization technology enables EMC customers to achieve the goal of reducing or deferring bandwidth purchases and protecting more data with the same WAN infrastructure while meeting or exceeding RPO/RTO targets for their EMC storage deployments.

Riverbed has built a repeatable, referencable WAN optimization solution that combines the Steelhead appliance with EMC storage solutions, including Celerra®, CLARiON®, Centera®, Symmetrix® and VPLEX™, as well as EMC data protection and replication tools, including SRDF®, RecoverPoint, MirrorView™, Celerra Replicator™, SAN Copy, and EMC NetWorker®. The Riverbed solution dramatically accelerates disaster recovery operations and reduces bandwidth costs by removing huge amounts of repetitive data from the WAN.

The WAN infrastructure is a critical element of any storage solution, and Riverbed Steelhead appliances are optimized for EMC storage and applications. They deliver deterministic network quality to ensure the highest application performance levels and security for EMC disaster recovery solutions. In addition to accelerating disaster recovery operations, Riverbed WAN optimization solutions enable EMC customers of all sizes to overcome a wide range of IT infrastructure performance bottlenecks, including poor application performance, slow database backups, and insufficient bandwidth at remote sites.

### A Close Business Partnership

Steelhead appliances are powered by the Riverbed Optimization System (RiOS®), which was qualified by EMC E-Labs. EMC E-Lab™ qualification means that joint customers can deploy Riverbed WAN optimization solutions into their largest data centers with confidence. Riverbed Steelhead appliances have also obtained EMC E-Lab qualification for SRDF/A, RecoverPoint, MirrorView, EMC Celerra Replicator, and SAN Copy.

Riverbed has built a WAN optimization solution that combines the Steelhead appliance with EMC storage platforms. EMC is a member of the Riverbed Technology Alliance Program, and Riverbed is a member of the EMC Select Program, which enables EMC and its channel to resell Steelhead appliances,

A Joint Solution by Riverbed and

**EMC<sup>2</sup>**  
where information lives®

### BENEFITS

Riverbed and EMC work closely together to help enterprise customers:

- Accelerate storage and disaster recovery replication while utilizing less WAN bandwidth
- Optimize disaster recovery solutions based on EMC storage platforms to ensure reliability while minimizing bandwidth costs
- Leverage a repeatable, referencable WAN optimization solution that is already proven in deployments worldwide
- Meet RTO and RPO targets while efficiently managing bandwidth costs
- Accelerate storage and disaster recovery operations and reduce bandwidth costs by removing huge amounts of repetitive data from the WAN



including Steelhead XX50s, Steelhead 501-M (90 mbps WAN), Steelhead 501-H (155 mbps WAN), Steelhead 601 (310 Mbps WAN), and Steelhead 701 (1 Gbps WAN).

### Optimizing EMC Storage over the WAN

The Steelhead appliances perform a number of optimizations for the data transfers, including deduplication (removing redundant bytes over the WAN), TCP protocol optimization (addressing chattiness and overcoming latency), and a variety of adaptively tuneable options for compression and data reduction.

In addition to reducing WAN utilization, the Steelhead products include extensive Hierarchical Quality of Service (QoS) capabilities to ensure that EMC traffic receives the appropriate guaranteed level of WAN bandwidth and latency. This provides the traffic with priority access to the network infrastructure required to ensure consistent performance and maintain RPO/RTO targets. Steelhead appliances have been qualified by EMC as approved for WAN optimization, and testing has shown improvements in the throughput performance of EMC Celerra Replicator data transfers by as much as 545%, more than 5X faster than the same operation when performed on an un-optimized WAN connection.

RiOS is the software platform that powers Steelhead appliances, and it minimizes WAN bandwidth utilization through data streamlining, a patented, byte-level network data deduplication method. This approach can be used in lieu of built-in network compression available on Symmetrix DMX Gigabit Ethernet interfaces and typically yields higher data reduction ratios of 5:1 or greater for the common enterprise workloads seen in SRDF environments. Riverbed has worked closely with EMC to develop specific SRDF application-level optimization and auto configuration capabilities that are unique to Steelhead platforms.

### Accelerate Disaster Recovery to the Cloud

When Riverbed first introduced its award-winning WAN optimization solutions and pioneered the WAN optimization category, it changed the game for distributed enterprises by delivering LAN-like application performance over the WAN and enabling a wave of IT consolidation from the branch into the data center or private cloud. Now, enterprises want to take their consolidation efforts a step further and are beginning to migrate storage to the public cloud to take advantage of the dramatic operational and cost benefits; however, performance over the WAN is a concern. To address these issues, Riverbed optimizes network access for EMC Atmos™ cloud storage deployments, delivering the same high-performance acceleration for public cloud storage that Riverbed has been providing to private networks to accelerate disaster recovery and enable business continuity.

Riverbed WAN optimization and EMC storage solutions can be effectively deployed by companies ranging from small-to-medium businesses to the largest enterprises, and they can also be implemented to centralize storage for government agencies. Organizations worldwide rely on EMC storage and Riverbed's award-winning WAN optimization solutions to reduce costs, improve productivity, and leverage IT infrastructure in ways they had never imagined were possible.

### About EMC

EMC Corporation (NYSE: EMC) is the world's leading developer and provider of information infrastructure technology and solutions that enable organizations of all sizes to transform the way they compete and create value from their information. Information about EMC's products and services can be found at [www.EMC.com](http://www.EMC.com).

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*"Today HNTB has over 120 TBs of data on a single Celerra system. Most of this is data replicated from the remote offices using Riverbed WAN optimization. Before implementing WAN optimization, HNTB routinely had delays of days and in some cases weeks in getting data replicated. After implementation these delays virtually disappeared. Our users have been extremely happy to have this secondary copy of data quickly available to them. With the Riverbed in place they have found this a very usable solution to continue working, while pre- Riverbed implementation it was almost unusable."*

- Wes Owen, HNTB

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### About Riverbed

Riverbed delivers performance for the globally connected enterprise. With Riverbed, enterprises can successfully and intelligently implement strategic initiatives such as virtualization, consolidation, cloud computing, and disaster recovery without fear of compromising performance. By giving enterprises the platform they need to understand, optimize and consolidate their IT, Riverbed helps enterprises to build a fast, fluid and dynamic IT architecture that aligns with the business needs of the organization. Additional information about Riverbed (NASDAQ: RVBD) is available at [www.riverbed.com](http://www.riverbed.com).



**Riverbed Technology, Inc.**  
199 Fremont Street  
San Francisco, CA 94105  
Tel: (415) 247-8800  
[www.riverbed.com](http://www.riverbed.com)

**Riverbed Technology Ltd.**  
Farley Hall, London Rd., Level 2  
Binfield  
Bracknell, Berks RG42 4EU  
Tel: +44 1344 354910

**Riverbed Technology Pte. Ltd.**  
391A Orchard Road #22-06/10  
Ngee Ann City Tower A  
Singapore 238873  
Tel: +65 6508-7400

**Riverbed Technology K.K.**  
Shiba-Koen Plaza, Bldg. 9F  
3-6-9, Shiba, Minato-ku  
Tokyo, Japan 105-0014  
Tel: +81 3 5419 1990